Allied Vision

Vimba

Vimba

Vimba 1394 TL Features Manual

1.6.0

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1 Contacting Allied Vision

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2 Document history and conventions

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2.1 Document history

Version	Date	Changes
1.0	2013-01-15	Initial version
1.1	2013-03-07	Added more detailed category information, changed the layout
1.2	2013-06-05	Refined many descriptions, changed the document layout as well as the table layout for the features
1.3	2014-07-10	Changes due to GenTL 1.3 compliance, added chapter for finding camera features
1.4.1	2015-11-09	Renamed several Vimba components and documents ("AVT" no longer in use), links to new Allied Vision website
1.4.2	2016-02-27	New document layout
1.5.0	June 2019	Bug fixes
1.6.0	October 2019	GenTL 1.5 support

2.2 Conventions used in this manual

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

2.2.1 Styles

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

2.2.2 Symbols

Practical Tip

Safety-related instructions to avoid malfunctions
Instructions to avoid malfunctions

Further information available online

3 Vimba1394TL - Overview

The Vimba1394TL (Vimba 1394 Transport Layer) transports the data from the FireWire interface card to an application. It complies with GenICam and thus can serve as a GenTL (GenICam transport layer) producer for applications providing a GenTL consumer interface. The Vimba1394TL can be included during the Vimba installation on Windows and supports both 1394a and 1394b cameras from Allied Vision.

The mandatory 1394 device driver and the required hardware drivers must be installed separately. See Vimba Manual, chapter Vimba Driver Installer.

The Vimba1394TL consists of several parts: the functional interface, the feature maps, and a configuration file.

The **functional interface** is needed for dynamically controlling 1394 cameras. It covers the complete functionality described in GenTL specification 1.5. There is extra functionality, which is described in chapter Vimba functional extensions to GenTL.

The **features** exposed by XML files are GenAPI-conforming features described in the following chapters and documents:

- Features of the GenTL **System module** in chapter Vimba1394TL System Features. The System is a module for handling multiple GenTL Interfaces in one transport layer. The Vimba1394TL only provides one Interface.
- Features of the GenTL **Interface module** in chapter Vimba1394TL Interface Features. The Interface is a module for handling multiple GenTL Devices. In this case, all the devices are attached to the same Interface.
- Features of the GenTL **Device module** in chapter Vimba1394TL Device Features. The Device module is a host-side representation of the Camera also known as **Remote Device**.
- Features of the GenTL **Data Stream module** in chapter Vimba1394TL DataStream Features. The Data Stream module allows handling all streaming-related operations.
- Camera (**Remote Device**) features in chapter Vimba1394TL Camera Features. The features listed in this chapter are the ones that are available if the camera in use supports them. Additional feature documentation for the Remote Device can be found in the GenICam Standard Features Naming Convention, version 1.5.1.

The **configuration file**, which is named Vimba1394TL.xml (according to the name of the Vimba1394TL.cti), must be in the same directory as the Transport Layer file. The configuration options are described in the comments of the file itself.

4 Vimba1394TL System Features

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

The following categories can be found below the Root category:

- SystemInformation
- InterfaceEnumeration

4.1 SystemInformation

Category that contains all System Information features of the System module.

See GenTL specification 1.5 chapter 7 for more details.

4.1.1 TLVendorName

Name	TL Vendor Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the GenTL Producer vendor.
Corresponds to the TL_INFO_VENDOR command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.2 TLModelName

Name	TL Model Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the GenTL Producer to distinguish different kinds of GenTL Producer implementations from one vendor.
Corresponds to the TL_INFO_MODEL command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.3 TLID

Name	TL ID
Interface	IString
Access	Read
Visibility	Expert

Unique identifier of the GenTL Producer like a GUID.
Corresponds to the TL_INFO_ID command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.4 TLDisplayName

Name	TL Display Name
Interface	IString
Access	Read
Visibility	Expert

User readable name of the GenTL Producer.
Corresponds to the TL_INFO_DISPLAYNAME command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.5 TLVersion

Name	TL Version
Interface	IString
Access	Read
Visibility	Beginner

Vendor specific version string.
Corresponds to the TL_INFO_VERSION command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.6 TLPath

Name	TL Path
Interface	IString
Access	Read
Visibility	Expert

Full path to the GenTL Producer driver including name and extension.
Corresponds to the TL_INFO_PATHNAME command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.7 TLType

Name	TL Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	IIDC

Transport layer type of the GenTL Producer implementation.
Corresponds to the TL_INFO_TLTYPE command of TLGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

4.1.8 GenTLVersionMajor

Name	GenTL Version Major
Interface	IInteger
Access	Read
Visibility	Expert

Major version number of the GenTL specification the GenTL Producer implementation complies with.

See GenTL specification 1.5 chapter 7 for more details.

4.1.9 GenTLVersionMinor

Name	GenTL Version Minor
Interface	IInteger
Access	Read
Visibility	Expert

Minor version number of the GenTL specification the GenTL Producer implementation complies with.

See GenTL specification 1.5 chapter 7 for more details.

4.1.10 GenTLSFNCVersionMajor

Name	GenTL SFNC Version Major
Interface	IInteger
Access	Read
Visibility	Expert

Major version number of the GenTL Standard Features Naming Convention that was used to create the GenTL Producer's XML.

See GenTL specification 1.5 chapter 7 for more details.

4.1.11 GenTLSFNCVersionMinor

Name	GenTL SFNC Version Minor
Interface	IInteger
Access	Read
Visibility	Expert

Minor version number of the GenTL Standard Features Naming Convention that was used to create the GenTL Producer's XML.

See GenTL specification 1.5 chapter 7 for more details.

4.1.12 GenTLSFNCVersionSubMinor

Name	GenTL SFNC Version Sub Minor
Interface	IInteger
Access	Read
Visibility	Expert

Sub minor version number of the GenTL Standard Features Naming Convention that was used to create the GenTL Producer's XML.

See GenTL specification 1.5 chapter 7 for more details.

4.2 InterfaceEnumeration

Category that contains all Interface Enumeration features of the System module.

See GenTL specification 1.5 chapter 7 for more details.

4.2.1 InterfaceUpdateList

Name	Interface Update List
Interface	ICommand
Access	Read/Write
Visibility	Expert

Update the interface list on this GenTL Producer.

See GenTL specification 1.5 chapter 7 for more details.

4.2.2 InterfaceCount [Allied Vision]

Name	Interface Count
Interface	IInteger
Access	Read
Visibility	Expert

Number of interfaces on this GenTL Producer.

4.2.3 InterfaceSelector

Name	Interface Selector
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

Selector for the different GenTL Producer interfaces.

See GenTL specification 1.5 chapter 7 for more details.

4.2.4 InterfaceID

Name	Interface ID
Interface	IString
Access	Read
Visibility	Expert

GenTL Producer wide unique identifier of the selected interface.

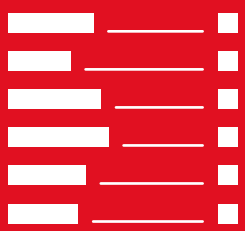
See GenTL specification 1.5 chapter 7 for more details.

4.2.5 InterfaceDisplayName [Allied Vision]

Name	Interface Display Name
Interface	IString
Access	Read
Visibility	Expert

User readable name of the selected interface.

5 Vimba1394TL Interface Features



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This chapter lists features that are potentially available in this module. Some features are only available under certain circumstances.
The following categories can be found below the Root category:

- InterfaceInformation
- DeviceEnumeration

5.1 InterfaceInformation

Category that contains all Interface Information features of the Interface module.
See GenTL specification 1.5 chapter 7 for more details.

5.1.1 InterfaceID

Name	Interface ID
Interface	IString
Access	Read
Visibility	Expert

GenTL Producer wide unique identifier of the selected interface.
Corresponds to the INTERFACE_INFO_ID command of IFGetInfo function.
See GenTL specification 1.5 chapter 7 for more details.

5.1.2 InterfaceType

Name	Interface Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	IIDC

Transport layer type of the interface.
Corresponds to the INTERFACE_INFO_TLTYPE command of IFGetInfo function.
See GenTL specification 1.5 chapter 7 for more details.

5.1.3 InterfaceDisplayName

Name	Interface Display Name
Interface	IString
Access	Read
Visibility	Expert

User readable name of the selected interface.
Corresponds to the INTERFACE_INFO_DISPLAYNAME command of IFGetInfo function.
See GenTL specification 1.5 chapter 7 for more details.

5.2 DeviceEnumeration

Category that contains all Device Enumeration features of the Interface module.
See GenTL specification 1.5 chapter 7 for more details.

5.2.1 DeviceUpdateList

Name	Device Update List
Interface	ICommand
Access	Read/Write
Visibility	Expert

Updates the internal device list.
See GenTL specification 1.5 chapter 7 for more details.

5.2.2 DeviceCount [Allied Vision]

Name	Device Count
Interface	IInteger
Access	Read
Visibility	Expert

Number of found devices.

5.2.3 DeviceSelector

Name	Device Selector
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

Selector for the different devices on this interface.

See GenTL specification 1.5 chapter 7 for more details.

5.2.4 DeviceID

Name	Device ID
Interface	IString
Access	Read
Visibility	Expert

Interface wide unique identifier of the selected device.

See GenTL specification 1.5 chapter 7 for more details.

5.2.5 DeviceDisplayName [Allied Vision]

Name	Device Display Name
Interface	IString
Access	Read
Visibility	Expert

User readable name of the selected device.

5.2.6 DeviceVendorName

Name	Device Vendor Name
Interface	IString
Access	Read
Visibility	Expert

Name of the device vendor.
Corresponds to the "DeviceVendorName" feature of the remote device.

See GenTL specification 1.5 chapter 7 for more details.

5.2.7 DeviceModelName

Name	Device Model Name
Interface	IString
Access	Read
Visibility	Expert

Name of the device model.
Corresponds to the "DeviceModelName" feature of the remote device.

See GenTL specification 1.5 chapter 7 for more details.

5.2.8 DeviceType [Allied Vision]

Name	Device Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	IIDC

Identifies the transport layer technology of the device.
Possible values:

- IIDC: IIDC 1394

5.2.9 DeviceAccessStatus

Name	Device Access Status
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	ReadWrite, ReadOnly, NoAccess

Gives the device's access status at the moment of the last execution of “DeviceUpdateList”.

See GenTL specification 1.5 chapter 7 for more details.

6 Vimba1394TL Device Features

This chapter includes:

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6.1.1 DeviceID 31
6.1.2 DeviceVendorName 31
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6.2.1 StreamCount [Allied Vision] 33
6.2.2 StreamSelector 33
6.2.3 StreamID 33

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

The following categories can be found below the Root category:

- DeviceInformation
- StreamEnumeration

6.1 DeviceInformation

Category that contains all Device Information features of the Device module.

See GenTL specification 1.5 chapter 7 for more details.

6.1.1 DeviceID

Name	Device ID
Interface	IString
Access	Read
Visibility	Expert

Interface-wide unique identifier of this device.
Corresponds to the DEVICE_INFO_ID command of DevGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

6.1.2 DeviceVendorName

Name	Device Vendor Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device vendor.
Corresponds to the DEVICE_INFO_VENDOR command of DevGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

6.1.3 DeviceModelName

Name	Device Model Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device model.
Corresponds to the DEVICE_INFO_MODEL command of DevGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

6.1.4 DeviceType

Name	Device Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	IIDC

Transport layer type of the device.

See GenTL specification 1.5 chapter 7 for more details.

6.1.5 DeviceDisplayName

Name	Device Display Name
Interface	IString
Access	Read
Visibility	Expert

User readable name of the device.
Corresponds to the DEVICE_INFO_DISPLAYNAME command of DevGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

6.2 StreamEnumeration

Category that contains all Stream Enumeration features of the Device module.

See GenTL specification 1.5 chapter 7 for more details.

6.2.1 StreamCount [Allied Vision]

Name	Stream Count
Interface	IInteger
Access	Read
Visibility	Beginner

Number of available streams.

6.2.2 StreamSelector

Name	Stream Selector
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Selector for the different stream channels.

See GenTL specification 1.5 chapter 7 for more details.

6.2.3 StreamID

Name	Stream ID
Interface	IString
Access	Read
Visibility	Beginner

Device unique ID for the stream, for instance a GUID.

See GenTL specification 1.5 chapter 7 for more details.

7 Vimba1394TL DataStream Features

This chapter includes:

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

The following categories can be found below the Root category:

- StreamInformation
- BufferHandlingControl

7.1 StreamInformation

Category that contains all Stream Information features of the Data Stream module.

See GenTL specification 1.5 chapter 7 for more details.

7.1.1 StreamID

Name	Stream ID
Interface	IString
Access	Read
Visibility	Expert

Device unique ID for the data stream, for instance a GUID.
Corresponds to the STREAM_INFO_ID command of DSGetInfo function.

See GenTL specification 1.5 chapter 7 for more details.

7.1.2 StreamType

Name	Stream Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	IIDC

Transport layer type of the Data Stream.

See GenTL specification 1.5 chapter 7 for more details.

7.1.3 StreamIsGrabbing [Allied Vision]

Name	Stream Is Grabbing
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Flag indicating whether the acquisition engine is started or not.

7.2 BufferHandlingControl

Contains all features of the Data Stream module that control the used buffers.
See GenTL specification 1.5 chapter 7 for more details.

7.2.1 StreamAnnouncedBufferCount

Name	Stream Announced Buffer Count
Interface	IInteger
Access	Read
Visibility	Expert

Number of announced (known) buffers on this stream.
Corresponds to the STREAM_INFO_NUM_ANNOUNCED command of DSGetInfo function.
See GenTL specification 1.5 chapter 7 for more details.

7.2.2 StreamBufferHandlingMode

Name	Stream Buffer Handling Mode
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	Default

Available acquisition modes of this stream.

See GenTL specification 1.5 chapter 7 for more details.

7.2.3 StreamAnnounceBufferMinimum

Name	Stream Announce Buffer Minimum
Interface	IInteger
Access	Read
Visibility	Expert

Minimal number of buffers to announce to enable selected buffer handling mode.
Corresponds to the STREAM_INFO_BUF_ANNOUNCE_MIN command of DSGetInfo function.

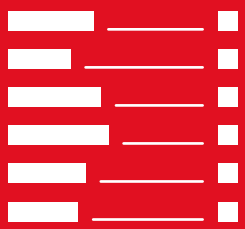
See GenTL specification 1.5 chapter 7 for more details.

7.2.4 DriverBuffersCount [Allied Vision]

Name	Driver Buffers Count
Interface	IInteger
Access	Read/Write
Visibility	Guru
Values	3..1024

Number of driver buffers used by the acquisition engine.

8 Vimba1394TL Camera Features



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This chapter lists features that are potentially available for Allied Vision cameras. Not all cameras have all the listed features, and some features are only available under certain circumstances.

The following categories can be found below the Root category:

- DeviceControl : see chapter DeviceControl
- ImageFormatControl : see chapter ImageFormatControl
- AcquisitionControl : see chapter AcquisitionControl
  - ExposureAutoControl : see chapter ExposureAutoControl [Allied Vision]
- DigitalIOControl : see chapter DigitalIOControl
  - SerialPortControl : see chapter SerialPortControl [Allied Vision]
- AnalogControl : see chapter AnalogControl
- LUTControl : see chapter LUTControl
- TransportLayerControl : see chapter TransportLayerControl
- UserSetControl : see chapter UserSetControl
- FileAccessControl : see chapter FileAccessControl
- ColorTransformationControl : see chapter ColorTransformationControl
- AutofunctionControl : see chapter AutofunctionControl [Allied Vision]
- ImageQualityControl : see chapter ImageQualityControl [Allied Vision]

8.1 1394 registers, FireGrab parameters and the Vimba1394TL features

The Vimba1394TL is GenICam-compliant. Therefore, some feature names differ from the IIDC standard and the FireGrab namings.

In order to ease the change, the table below lists:

- The IIDC names (known from the camera manuals)
- The FireGrab name
- The Vimba1394TL feature name
- An explanation, if applicable

The Vimba1394TL always works in Format_7 respectively FGP_SCALABLE, and FGP_DMAMODE is always set to DMA_CONTINOUS

IIDC Name	FireGrab	GenICam feature	Conversion
IMAGE_SIZE.Width	FGP_XSIZE	*Width*	-
IMAGE_SIZE.Height	FGP_YSIZE	*Height*	-
IMAGE_POSITION.Left	FGP_XPOSITION	*OffsetX*	-
IMAGE_POSITION.Top	FGP_YPOSITION	*OffsetY*	-
SHUTTER	FGP_SHUTTER	*ExposureTime*	$ExposureTime = SHUTTER * TIMEBASE + EXPOSUREOFFSET$
EXTD_SHUTTER	-	*ExposureTime*	$ExposureTime = EXTD_SHUTTER + EXPOSUREOFFSET$
AUTO_EXPOSURE	FGP_AUTOEXPOSURE	*ExposureAutoTarget*	-
BRIGHTNESS	FGP_BRIGHTNESS	*Blacklevel*	-
GAIN	FGP_GAIN	*Gain*	$Gain = GAIN * GAINBASE$
GAMMA	FGP_GAMMA	*Gamma*	GAMMA=0 => 1.0, else camera-dependent
WHITE_BALANCE.B	FGP_WHITEBALCB	*BalanceRatioRaw*	$BalanceRatioSelector = Green_Blue; BalanceRatioRaw = WHITE_BALANCE.B_Value$
WHITE_BALANCE.R	FGP_WHITEBALCR	*BalanceRatioRaw*	$BalanceRatioSelector = Green_Red; BalanceRatioRaw = WHITE_BALANCE.B_Value$
ISO_Speed_x	FGP_PHYSPEED	*IIDCPhyspeed*	(Enumeration)
-	FGP_FRAMEBUFFERCOUNT	*DriverBuffersCount*	-
BYTE_PER_PACKET	FGP_PACKETSIZE	*IIDCPacketSize*	see description of category Acquisition-Control
COLOR_CODING_ID	(FGP_IMAGEFORMAT)	*PixelFormat*	(Enumeration)
ISO_EN=1	StartDevice()	*AcquisitionStart*	(Command)
ISO_EN=0	StopDevice()	*AcquisitionStop*	(Command)
TRIGGER_MODE	FGP_TRIGGER	*multiple*	see description of category Acquisition-Control
SHUTTER	FGP_SHUTTER	*ExposureAuto*	values:
.A_M_Mode	.PVAL_AUTO		Continuous/Off
.One_Push	.PVAL_ONESHOT		Once
GAIN	FGP_GAIN	*GainAuto*	values:
.A_M_Mode	.PVAL_AUTO		Continuous/Off
.One_Push	.PVAL_ONESHOT		Once
WHITE_BALANCE	FGP_WHITEBALCB	*BalanceWhiteAuto*	values:
.A_M_Mode	.PVAL_AUTO		Continuous/Off
.One_Push	.PVAL_ONESHOT		Once

Table 1: Translation of feature values known from IIDC/FireGrab

8.2 DeviceControl

In addition to the SFNC, this category provides the following features: *DeviceMicrocontrollerVersion*, *FirmwareVerMajor*, *FirmwareVerMajor* and *FirmwareVerBuild* let you inspect the firmware version of your camera in more detail and *DeviceSerialNumber* states details about the serial number.

DeviceStatusLightEnable allows to switch off the LED on the back side of your camera if needed in the physical camera setup.

To inspect or modify the register space of your 1394 camera, use *DeviceAccessRegisterAddress* and *DeviceAccessRegisterValue*.

Do not modify registers that are mapped in this XML file. The whole feature map may become inconsistent with your camera.

For more general information, see the GenICam Standard Features Naming Convention.

8.2.1 DeviceVendorName

Name	Device Vendor Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the manufacturer of the device.

See SFNC for more details.

8.2.2 DeviceModelName

Name	Device Model Name
Interface	IString
Access	Read
Visibility	Beginner

Model of the device.

See SFNC for more details.

8.2.3 DeviceFirmwareVersion

Name	Device Firmware Version
Interface	IString
Access	Read
Visibility	Beginner

Version of the firmware in the device.

See SFNC for more details.

8.2.4 FirmwareVerMajor [Allied Vision]

Name	Firmware Version Major
Interface	IInteger
Access	Read
Visibility	Beginner

Major firmware version of this Allied Vision 1394 camera.

8.2.5 FirmwareVerMinor [Allied Vision]

Name	Firmware Version Minor
Interface	IInteger
Access	Read
Visibility	Beginner

Minor firmware version of this Allied Vision 1394 camera.

8.2.6 FirmwareVerBuild [Allied Vision]

Name	Firmware Version Build
Interface	IInteger
Access	Read
Visibility	Beginner

Build firmware version of this Allied Vision 1394 camera.

8.2.7 DeviceMicrocontrollerVersion [Allied Vision]

Name	Device Microcontroller Firmware Version
Interface	IString
Access	Read
Visibility	Beginner

Version of the microcontroller firmware in the device.

8.2.8 DeviceSFNCVersionMajor

Name	Device SFNCVersion Major
Interface	IInteger
Access	Read
Visibility	Beginner

Major Version of the Standard Feature Naming Convention that was used to create the device's XML.
See SFNC for more details.

8.2.9 DeviceSFNCVersionMinor

Name	Device SFNCVersion Minor
Interface	IInteger
Access	Read
Visibility	Beginner

Minor Version of the Standard Feature Naming Convention that was used to create the device's XML.
See SFNC for more details.

8.2.10 DeviceSFNCVersionSubMinor

Name	Device SFNCVersion Sub Minor
Interface	IInteger
Access	Read
Visibility	Beginner

Sub Minor Version of Standard Feature Naming Convention that was used to create the device's XML.
See SFNC for more details.

8.2.11 DeviceID

Name	Device ID
Interface	IString
Access	Read
Visibility	Expert

Device Identifier (serial number).
See SFNC for more details.

8.2.12 DeviceSerialNumber [Allied Vision]

Name	Device Serial Number
Interface	IInteger
Access	Read
Visibility	Beginner

Serial number of the device as written on the camera label.

8.2.13 DeviceScanType

Name	Device Scan Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	Areascan

Scan type of the sensor of the device.

See SFNC for more details.

8.2.14 DeviceStatusLightEnable [Allied Vision]

Name	Device Status Light Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Controls the LED status lights at the back side of the camera.

8.2.15 DeviceAccessRegisterAddress [Allied Vision]

Name	Device Access Register Address
Interface	IInteger
Access	Read/Write
Visibility	Guru
Values	4026532864..8589934588

The register address to access on the device.
Writing might render the feature node map invalid.

8.2.16 DeviceAccessRegisterValue [Allied Vision]

Name	Device Access Register Value
Interface	IInteger
Access	Read/Write
Visibility	Guru

Value of a register on the device.

8.3 ImageFormatControl

By default, the Vimba1394TL sets the 1394 camera to IIDC Format 7 on startup. If this automatic behavior was disabled and the camera is in an IIDC Fixed Format, the command *IIDCActivateFormat7* may be invoked to return to normal operation.

Camera-specific modes are adjusted with the *IIDCMode* feature (see the camera manual, chapter Video formats, modes and bandwidth). For certain cameras, there is an accompanying feature *IIDCModeDescription*.

Since changes of the *IIDCMode* feature often influence binning or decimation of the image, the features *BinningHorizontal*, *BinningVertical*, *DecimationHorizontal*, or *DecimationVertical* also change. Nevertheless, they are only readable.

If the *PixelColorFilter* is incorrect, set *PixelColorFilterAuto* to *Manual* and adjust *PixelColorFilter* manually.

If *ReverseX* or *ReverseY* are invoked, the available *PixelFormat* values (and the current *PixelFormat*) automatically change.

SensorBits gives you the bit depth of the used ADC (see camera manual for details).
For more general information, see the GenICam Standard Features Naming Convention.

8.3.1 SensorWidth

Name	Sensor Width
Interface	IInteger
Access	Read
Visibility	Expert

Effective width of the sensor in pixels.
See SFNC for more details.

8.3.2 SensorHeight

Name	Sensor Height
Interface	IInteger
Access	Read
Visibility	Expert

Effective height of the sensor in pixels.
See SFNC for more details.

8.3.3 SensorTaps

Name	Sensor Taps
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	One, Two

Number of usable taps of the camera sensor.
See SFNC for more details.

8.3.4 SensorDigitizationTaps

Name	Sensor Digitization Taps
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	One, Two

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

See SFNC for more details.

8.3.5 SensorBits [Allied Vision]

Name	Sensor Bits
Interface	IInteger
Access	Read
Visibility	Expert

Maximum bit depth of sensor.

8.3.6 Width

Name	Width
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Width of the Image provided by the device (in pixels).

See SFNC for more details.

8.3.7 Height

Name	Height
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Height of the image provided by the device (in pixels).

See SFNC for more details.

8.3.8 WidthMax

Name	Maximum Width
Interface	IInteger
Access	Read
Visibility	Expert

Maximum Width of the Image provided by the device (in pixels).

See SFNC for more details.

8.3.9 HeightMax

Name	Maximum Height
Interface	IInteger
Access	Read
Visibility	Expert

Maximum Height of the image provided by the device (in pixels).

See SFNC for more details.

8.3.10 OffsetX

Name	Offset X
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Horizontal offset from the origin to the area of interest (in pixels).

See SFNC for more details.

8.3.11 OffsetY

Name	Offset Y
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Vertical offset from the origin to the area of interest (in pixels).

See SFNC for more details.

8.3.12 BinningHorizontal

Name	Binning Horizontal
Interface	IInteger
Access	Read
Visibility	Expert
Values	1..8

Number of horizontal photo-sensitive cells to combine together.
This increases the intensity (or signal-to-noise ratio) of the pixels and reduces the horizontal resolution (width) of the image. Only values 1, 2, 4 and 8 are supported.

See SFNC for more details.

8.3.13 BinningVertical

Name	Binning Vertical
Interface	IInteger
Access	Read
Visibility	Expert
Values	1..8

Number of vertical photo-sensitive cells to combine together.
This increases the intensity (or signal to noise ratio) of the pixels and reduces the vertical resolution (height) of the image. Only values 1, 2, 4 and 8 are supported.

See SFNC for more details.

8.3.14 DecimationHorizontal

Name	Decimation Horizontal
Interface	IInteger
Access	Read
Visibility	Expert
Values	1..8

Horizontal sub-sampling of the image.
This reduces the horizontal resolution (width) of the image by the specified horizontal decimation factor. Only values 1, 2, 4 and 8 are supported.

See SFNC for more details.

8.3.15 DecimationVertical

Name	Decimation Vertical
Interface	IInteger
Access	Read
Visibility	Expert
Values	1..8

Vertical sub-sampling of the image.
This reduces the vertical resolution (height) of the image by the specified vertical decimation factor.
Only values 1, 2, 4 and 8 are supported.

See SFNC for more details.

8.3.16 ReverseX

Name	Reverse X
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Flip horizontally the image sent by the device.
The ROI is applied after the flipping.

See SFNC for more details.

8.3.17 ReverseY

Name	Reverse Y
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Flip vertically the image sent by the device.
The ROI is applied after the flipping.

See SFNC for more details.

8.3.18 PixelFormat

Name	Pixel Format
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Mono8, YUV411Packed, YUV422Packed, YUV444Packed, RGB8Packed, Mono16, RGB16Packed, BayerGR8, BayerRG8, BayerGB8, BayerBG8, BayerGR16, BayerRG16, BayerGB16, BayerBG16, Mono12Packed, BayerGR12Packed, BayerRG12Packed, BayerGB12Packed, BayerBG12Packed

Format of the pixel provided by the device.

See SFNC for more details.

8.3.19 PixelColorFilter

Name	Pixel Color Filter
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	None, BayerRG, BayerGB, BayerGR, BayerBG

Type of color filter that is applied to the image.

See SFNC for more details.

8.3.20 PixelColorFilterAuto [Allied Vision]

Name	Pixel Color Filter Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Manual, Auto

Controls if the PixelColorFilter is determined automatically by the TL or if it can be manipulated.
Possible values:

- Manual: This enumeration value indicates that the PixelColorFilter may be manipulated.
- Auto: This enumeration value indicates that the PixelColorFilter is set automatically by the TL.

8.3.21 ImageSize [Allied Vision]

Name	Image Size
Interface	IInteger
Access	Read
Visibility	Invisible

Size of images, in bytes, for the current format and size.
Equivalent to PayloadSize for Allied Vision 1394 cameras.

8.3.22 TestImageSelector

Name	Test Image Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off, Img1("Image 1") [Allied Vision], Img2("Image 2") [Allied Vision], Img3("Image 3") [Allied Vision], Img4("Image 4") [Allied Vision]

Selects the type of test image that is sent by the camera.
Selecting is only possible by index; no camera-specific mapping to certain test patterns is modeled.
Possible values:

- Off: No test image. Pure camera output.
- Img1: Test image 1. (Device-specific) [Allied Vision]
- Img2: Test image 2. (Device-specific) [Allied Vision]
- Img3: Test image 3. (Device-specific) [Allied Vision]
- Img4: Test image 4. (Device-specific) [Allied Vision]

See SFNC for more details.

8.3.23 IIDCActivateFormat7 [Allied Vision]

Name	IIDC Activate Format 7
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Use free modes (IIDC Format 7) of this camera.
Call this command for full functionality of this camera.

8.3.24 IIDCMode [Allied Vision]

Name	IIDC Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Mode0, Mode1, Mode2, Mode3, Mode4, Mode5, Mode6, Mode7

The IIDC Format 7 Mode of this camera.
Select to implicitly change image format capabilities or sensor exposure modes. (See the camera manual.)
Possible values:

- Mode0: Select IIDC Mode 0 of this camera. (See the camera manual.)
- Mode1: Select IIDC Mode 1 of this camera. (See the camera manual.)
- Mode2: Select IIDC Mode 2 of this camera. (See the camera manual.)
- Mode3: Select IIDC Mode 3 of this camera. (See the camera manual.)
- Mode4: Select IIDC Mode 4 of this camera. (See the camera manual.)
- Mode5: Select IIDC Mode 5 of this camera. (See the camera manual.)
- Mode6: Select IIDC Mode 6 of this camera. (See the camera manual.)
- Mode7: Select IIDC Mode 7 of this camera. (See the camera manual.)

8.3.25 IIDCModeDescription [Allied Vision]

Name	IIDC Mode Description
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	BFullResolution("Full Resolution"), Binning_2H1V, Binning_4H1V, Binning_8H1V, Binning_1H2V, Binning_2H2V, Binning_4H2V, Binning_8H2V, Binning_1H4V, Binning_2H4V, Binning_4H4V, Binning_8H4V, Binning_1H8V, Binning_2H8V, Binning_4H8V, Binning_8H8V, DFullResolution("Full Resolution"), Decimation_2H1V, Decimation_4H1V, Decimation_8H1V, Decimation_1H2V, Decimation_2H2V, Decimation_4H2V, Decimation_8H2V, Decimation_1H4V, Decimation_2H4V, Decimation_4H4V, Decimation_8H4V, Decimation_1H8V, Decimation_2H8V, Decimation_4H8V, Decimation_8H8V

The description of the format 7 mode of this IIDC camera.
Possible values:

- BFullResolution: The full resolution of the sensor is used.
- Binning_2H1V: Binning: 2x horizontal
- Binning_4H1V: Binning: 4x horizontal
- Binning_8H1V: Binning: 8x horizontal
- Binning_1H2V: Binning: 2x vertical
- Binning_2H2V: Binning: 2x horizontal, 2x vertical
- Binning_4H2V: Binning: 4x horizontal, 2x vertical
- Binning_8H2V: Binning: 8x horizontal, 2x vertical
- Binning_1H4V: Binning: 4x vertical
- Binning_2H4V: Binning: 2x horizontal, 4x vertical
- Binning_4H4V: Binning: 4x horizontal, 4x vertical
- Binning_8H4V: Binning: 8x horizontal, 4x vertical
- Binning_1H8V: Binning: 8x vertical
- Binning_2H8V: Binning: 2x horizontal, 8x vertical
- Binning_4H8V: Binning: 4x horizontal, 8x vertical
- Binning_8H8V: Binning: 8x horizontal, 8x vertical
- DFullResolution: The full resolution of the sensor is used.
- Decimation_2H1V: Sub-sampling: 2x horizontal
- Decimation_4H1V: Sub-sampling: 4x horizontal
- Decimation_8H1V: Sub-sampling: 8x horizontal
- Decimation_1H2V: Sub-sampling: 2x vertical
- Decimation_2H2V: Sub-sampling: 2x horizontal, 2x vertical
- Decimation_4H2V: Sub-sampling: 4x horizontal, 2x vertical

- Decimation_8H2V: Sub-sampling: 8x horizontal, 2x vertical
- Decimation_1H4V: Sub-sampling: 4x vertical
- Decimation_2H4V: Sub-sampling: 2x horizontal, 4x vertical
- Decimation_4H4V: Sub-sampling: 4x horizontal, 4x vertical
- Decimation_8H4V: Sub-sampling: 8x horizontal, 4x vertical
- Decimation_1H8V: Sub-sampling: 8x vertical
- Decimation_2H8V: Sub-sampling: 2x horizontal, 8x vertical
- Decimation_4H8V: Sub-sampling: 4x horizontal, 8x vertical
- Decimation_8H8V: Sub-sampling: 8x horizontal, 8x vertical

8.4 AcquisitionControl

One precondition for the Vimba1394TL is that Deferred Transport must not be invoked. In the case that it should be invoked (and hence acquisition doesn't seem to work correctly), it may be disabled with the *DeferredTransportDisable* command.

In the default case, the *AcquisitionFrameRate* may be controlled directly. This feature is closely connected to the *IIDCPacketSize* feature, and both of them may only be controlled if acquisition is not started. If *HighSNRImages* are set to a value greater than one, *AcquisitionFrameRate* will become unavailable because the frame rate then depends on the number of images that are added up plus a camera-specific delay and hence cannot be predicted.

The available values for the *TriggerSelector* depend on the *ExposureMode*. If *ExposureMode* is set to *TriggerWidth* (IIDC Trigger Mode 1), only *ExposureActive* can be selected in the *TriggerSelector*, while in *Timed* mode, *ExposureTime* may be controlled and *ExposureStart* and *AcquisitionStart* triggers are available. Due to the Allied Vision-specific routing of input lines as *TriggerSource*, the trigger source can only be determined in the *LineRouting* feature (if the *TriggerSource* is set to *InputLines*). Otherwise, *TriggerSource* may also have a value of *Software*, in which case the command *TriggerSoftware* becomes available. For hardware triggers (from Input lines), *TriggerActivation* and *TriggerDelay* may also be controlled.

In *Timed ExposureMode*, *ExposureTime* may be controlled directly. This time is the absolute time the sensor is exposed to light and already contains the minimum time the sensor is exposed (*ExposureOffset*) - as far as the camera reports this value.

For more general information, see the GenICam Standard Features Naming Convention.

8.4.1 AcquisitionMode

Name	Acquisition Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	SingleFrame, MultiFrame, Continuous

Sets the acquisition mode of the device.
It defines mainly the number of frames to capture during an acquisition and the way the acquisition stops.

See SFNC for more details.

8.4.2 AcquisitionStart

Name	Acquisition Start
Interface	ICommand
Access	Write
Visibility	Beginner

Starts the Acquisition of the device.
The number of frames captured is specified by AcquisitionMode.

See SFNC for more details.

8.4.3 AcquisitionStop

Name	Acquisition Stop
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Stops the Acquisition of the device at the end of the current Frame.
It is mainly used when AcquisitionMode is Continuous but can be used in any acquisition mode.

See SFNC for more details.

8.4.4 AcquisitionAbort

Name	Acquisition Abort
Interface	ICommand
Access	Read/Write
Visibility	Invisible

Stops the Acquisition of the device at the end of the current Frame.
It is mainly used when AcquisitionMode is Continuous but can be used in any acquisition mode. Only implemented as a synonym to AcquisitionStop to be compatible with GigE cameras.
See SFNC for more details.

8.4.5 AcquisitionFrameCount

Name	Acquisition Frame Count
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	1..65535

Number of frames to acquire in MultiFrame Acquisition mode.
See SFNC for more details.

8.4.6 AcquisitionFrameRate

Name	Acquisition Frame Rate
Interface	IFloat
Access	Read/Write
textbfUnit	FPS
Visibility	Beginner

Controls the maximum acquisition rate (in Hertz) at which the frames are captured.
Not usable if HighSNRImages>0, external triggering or IIDCPacketSizeAuto are active.
See SFNC for more details.

8.4.7 AcquisitionFrameRateLimit [Allied Vision]

Name	Acquisition Frame Rate Limit
Interface	IFloat
Access	Read
textbfUnit	FPS
Visibility	Beginner

This is the maximum frame rate possible for the current exposure duration and image format.

8.4.8 DeferredTransportDisable [Allied Vision]

Name	Deferred Transport Disable
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Disable Deferred Transport (see camera manual).

8.4.9 HighSNRImages [Allied Vision]

Name	HighSNR Images
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..256

Number of images used for the HighSNR mode.
May influence the effective bit depth of the image. 0 disables HighSNR mode. Only values 2, 4, 8, 16, 32, 64, 128 and 256 are accepted, other values are changed to a valid value that's lower than the one that was set. If !=0, AcquisitionFrameRate is locked.

8.4.10 TriggerSelector

Name	Trigger Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	ExposureStart, ExposureActive, AcquisitionStart

Selects the type of trigger to configure.

See SFNC for more details.

8.4.11 TriggerMode

Name	Trigger Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off, On

Controls if the selected trigger is active.

See SFNC for more details.

8.4.12 TriggerSoftware

Name	Trigger Software
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Generates an internal trigger.
TriggerSource must be set to Software.

See SFNC for more details.

8.4.13 TriggerSource

Name	Trigger Source
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	InputLines [Allied Vision], Software

Specifies the internal signal or physical input Line to use as the trigger source.
The selected trigger must have its TriggerMode set to On.
Possible values:

- InputLines: Specifies that physical lines (or pins) and associated I/O control blocks should be used as external source for the trigger signal. See the DigitalIOControl features. [Allied Vision]
- Software: Specifies that the trigger source will be generated by software using the TriggerSoftware command.

See SFNC for more details.

8.4.14 TriggerActivation

Name	Trigger Activation
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	FallingEdge, RisingEdge, LevelLow, LevelHigh

Specifies the activation mode of the trigger.

See SFNC for more details.

8.4.15 TriggerDelay

Name	Trigger Delay
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Expert
Values	0.0..2097151.0

Specifies the delay in microseconds (us) to apply after the trigger reception before activating it.
See SFNC for more details.

8.4.16 ExposureMode

Name	Exposure Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Timed, TriggerWidth

Sets the operation mode of the Exposure.
See SFNC for more details.

8.4.17 ExposureTime

Name	Exposure Time
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Beginner

Sets the Exposure time (in microseconds) when ExposureMode is Timed.

This controls the duration where the photosensitive cells are exposed to light.
See SFNC for more details.

8.4.18 ExposureOffset [Allied Vision]

Name	Exposure Offset
Interface	IFloat
Access	Read
textbfUnit	us
Visibility	Guru

Exposure offset of this camera (in microseconds).
This is the minimum time that the sensor must be exposed to light.

8.4.19 ExposureTimeRaw

Name	Exposure Time Raw
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Sets the Exposure time (IIDC Shutter) when ExposureMode is Timed.
This controls the duration where the photosensitive cells are exposed to light.
See SFNC for more details.

8.4.20 ExposureAuto

Name	Exposure Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off, Once, Continuous

Sets the automatic exposure mode when ExposureMode is Timed.
For control of this feature see categories ExposureAutoControl and AutofunctionControl.

See SFNC for more details.

8.5 ExposureAutoControl [Allied Vision]

If *ExposureAuto* is enabled, only the standard IIDC shutter register is used internally, which means that the range for *ExposureTime* is limited (aka *ExposureAutoMin* and *ExposureAutoMax*). To influence this range, adjust the *ExposureAutoTimebase*. The default value is 20 µs, resulting in a range of 20 to 81920 µs plus *ExposureOffset* by default.

The algorithm by which the *ExposureAuto* feature works can be read out with feature *ExposureAutoAlg* (as in Allied Vision GigE cameras). For the *Mean* algorithm, the target value is *AutofunctionTargetIntensity*, which can be found in category AutofunctionControl [Allied Vision]. (For programs, feature *ExposureAutoTarget* is available as a synonym for *AutofunctionTargetIntensity*, as for GigE cameras).

8.5.1 ExposureAutoTimebase [Allied Vision]

Name	Exposure Auto Timebase
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	tb1us, tb2us, tb5us, tb10us, tb20us, tb50us, tb100us, tb200us, tb500us, tb1000us

Timebase used for the ExposureAuto feature.
Influences the minimum and the maximum of the ExposureTime, which can be seen in the min. of ExposureAutoMin and in the max. of ExposureAutoMax.
Possible values:

- tb1us: Use 1 microsecond as base for ExposureAuto.
- tb2us: Use 2 microseconds as base for ExposureAuto.
- tb5us: Use 5 microseconds as base for ExposureAuto.
- tb10us: Use 10 microseconds as base for ExposureAuto.
- tb20us: Use 20 microseconds as base for ExposureAuto.
- tb50us: Use 50 microseconds as base for ExposureAuto.
- tb100us: Use 100 microseconds as base for ExposureAuto.

- tb200us: Use 200 microseconds as base for ExposureAuto.
- tb500us: Use 500 microseconds as base for ExposureAuto.
- tb1000us: Use 1000 microseconds as base for ExposureAuto.

8.5.2 ExposureAutoMin [Allied Vision]

Name	Exposure Auto Min
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Beginner

Minimum exposure time in case that ExposureAuto is active, in microseconds.
To extend or limit the range, change ExposureAutoTimebase.

8.5.3 ExposureAutoMax [Allied Vision]

Name	Exposure Auto Max
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Beginner

Maximum exposure time in case that ExposureAuto is active, in microseconds.
To extend or limit the range, change ExposureAutoTimebase.

8.5.4 ExposureAutoTarget [Allied Vision]

Name	Exposure Auto Target
Interface	IInteger
Access	Read/Write
Visibility	Invisible

The target image intensity for ExposureAuto in values from 0 to 255.
Higher values result in brighter images. Equivalent to AutofunctionTargetIntensity.

8.5.5 ExposureAutoAlg [Allied Vision]

Name	Exposure Auto Algorithm
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	Mean

Algorithm used for ExposureAuto.
Possible values:

- Mean: Target a particular mean value of all measured pixels in the image (see ExposureAutoTarget).

8.6 DigitalIOControl

Allied Vision 1394 cameras are equipped with a number of input and output lines (called pins). Usually, there are more output lines than input lines. Line configuration can be done by first selecting a line with the *LineSelector* and then performing the necessary configuration that is appropriate for the type of line (*LineMode*, which can be *Input* or *Output*).

For each line, the *LineFormat* as well as the *LineStatus* may be determined, and the default polarity may be inverted with the *LineInverter* feature.

Each **input line** can be routed for use as a hardware trigger or not at all (with the feature *LineRouting*). Additionally, the *LineDebounceTime* may be adjusted if the camera supports this feature.

Each **output line** can be assigned a multitude of internal source signals (see *LineSource* enumeration): e.g. the *FrameActive* signal, the *Busy* signal or the corresponding input line. If applicable for your camera, a pulse width modulated signal may be selected as *LineSource*, which may be controlled with the features *LineModulationPulseWidth* and *LineModulationPeriod*.

Closely connected to the output signals, the internal IntEna signal may be controlled with the features *IntEnaDelayEnable* and *IntEnaDelayTime*.

For more general information, see the GenICam Standard Features Naming Convention.

8.6.1 LineSelector

Name	Line Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Line0("Input 1"), Line1("Input 2"), Line2("Input 3"), Line3("Input 4"), Line4("Output 1"), Line5("Output 2"), Line6("Output 3"), Line7("Output 4")

Selects the physical line (or pin) of the external device connector to configure.
Line 0 to Line 3 correspond to input lines/pins and Line 4 to Line 7 correspond to output lines/pins.

See SFNC for more details.

8.6.2 LineMode

Name	Line Mode
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	Input, Output

Shows if the physical Line is used to input or output a signal.

See SFNC for more details.

8.6.3 LineInverter

Name	Line Inverter
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Controls the inversion of the signal of the selected input or output Line.

See SFNC for more details.

8.6.4 LineStatus

Name	Line Status
Interface	IBoolean
Access	Read/Write
Visibility	Expert

The status of the selected input or output Line.

See SFNC for more details.

8.6.5 LineSource

Name	Line Source
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Off, Direct [Allied Vision], ExposureActive, FrameValid [Allied Vision], Busy [Allied Vision], FollowInput [Allied Vision], PWM("PulseWidthModulation") [Allied Vision], FrameTrigger-Wait

Selects which internal acquisition or I/O source signal to output on the selected Line.
LineMode must be Output. Refer to the camera manual to learn which Line Sources ("Output modes") are supported.
Possible values:

- Off: Line output is disabled.
- Direct: Line output follows LineStatus value. [Allied Vision]
- ExposureActive: Device is exposing a frame. Corresponds to the output mode IntegrationEnable explained in the camera manuals.
- FrameValid: Device is currently performing a readout from the sensor. [Allied Vision]
- Busy: Device is currently busy. [Allied Vision]
- FollowInput: Line output follows the state of the corresponding input line. [Allied Vision]
- PWM: Device is currently in Pulse Width Modulation mode. [Allied Vision]
- FrameTriggerWait: Device is currently waiting for a Frame trigger. Check the camera manual if your camera supports this Line Source (Output mode).

See SFNC for more details.

8.6.6 LineRouting [Allied Vision]

Name	Line Routing
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Off, Trigger

Selects the routing of the selected input line ("Input mode").
LineMode must be Input.
Possible values:

- Off: Line input is disabled.
- Trigger: Line input is used for triggering. If you set more than one input to function as a trigger input, all trigger inputs are ANDed.

8.6.7 LineFormat

Name	Line Format
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	TTL, OptoCoupled("Optocoupled")

Controls the current electrical format of the selected physical input or output Line.
See SFNC for more details.

8.6.8 LineDebounceTime [Allied Vision]

Name	Line Debounce Time
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Expert

Debounce time for the current input line (in microseconds).
May be set in steps of 0.5.

8.6.9 LineModulationPulseWidth [Allied Vision]

Name	Line Modulation Pulse Width
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..16383

PWM pulse width.
LineMode must be Output.

8.6.10 LineModulationPeriod [Allied Vision]

Name	Line Modulation Period
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	..16383

PWM period.
LineMode must be Output.

8.6.11 IntEnaDelayTime [Allied Vision]

Name	IntEna Delay Time
Interface	IFloat
Access	Read/Write
textbfUnit	us
Visibility	Expert
Values	0..1048576

Delay time of the internal IntEna signal before being signaled at an output line, in microseconds.

8.6.12 IntEnaDelayEnable [Allied Vision]

Name	IntEna Delay Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Enables the delay of the internal IntEna signal.

8.7 SerialPortControl [Allied Vision]

This category lists the IIDC serial port control features. Since the standard FileAccessControl mechanism does not fit, these features were added. For a description of the IIDC serial port controls, see the IIDC specification, version 1.31.

8.7.1 SerialPortSelector [Allied Vision]

Name	Serial Port Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	IIDC

Selects which serial port to use.
Possible values:

- IIDC: The IIDC 1.3.1 serial port feature is used.

8.7.2 SerialPortModeSelector [Allied Vision]

Name	Serial Port Mode Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Off, Transmit, Receive, Both

Selects which serial mode to use.

8.7.3 SerialPortBaudRate [Allied Vision]

Name	Serial Port Baud Rate
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Baud300, Baud600, Baud1200, Baud2400, Baud4800, Baud9600, Baud19200, Baud38400, Baud57600, Baud115200, Baud230400

This feature controls the baud rate used by the serial port.

8.7.4 SerialPortCharLength [Allied Vision]

Name	Serial Port Char Length
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Length7Bits("7 bits"), Length8Bits("8 Bits")

Selects which character length to use for serial I/O.
Possible values:

- Length7Bits: A length of 7 bits is used for serial I/O.
- Length8Bits: A length of 8 bits is used for serial I/O.

8.7.5 SerialPortParity [Allied Vision]

Name	Serial Port Parity
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	None, Odd("Odd Parity"), Even("Even Parity")

Selects which parity to use for serial I/O.

8.7.6 SerialPortStopBits [Allied Vision]

Name	Serial Port Stop Bits
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	StopBits1("1 Stop Bit"), StopBits1_5("1.5 Stop Bits"), StopBits2("2 Stop Bits")

Selects how many stop bits to use for serial I/O.

8.7.7 SerialPortTransmitReady [Allied Vision]

Name	Serial Port Transmit Ready
Interface	IBoolean
Access	Read
Visibility	Expert

Flag for indicating the status of the serial transmit operation.

8.7.8 SerialPortReceiveReady [Allied Vision]

Name	Serial Port Receive Ready
Interface	IBoolean
Access	Read
Visibility	Expert

Flag for indicating the status of the serial receive operation.

8.7.9 SerialPortReceiveOverrunError [Allied Vision]

Name	Serial Port Receive Overrun Error
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Flag for indicating an overrun error as the result of the serial receive operation.
Set to Off to clear the error flag.

8.7.10 SerialPortReceiveFramingError [Allied Vision]

Name	Serial Port Receive Framing Error
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Flag for indicating a framing error as the result of the serial receive operation.
Set to Off to clear the error flag.

8.7.11 SerialPortReceiveParityError [Allied Vision]

Name	Serial Port Receive Parity Error
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Flag for indicating a parity error as the result of the serial receive operation.
Set to Off to clear the error flag.

8.7.12 SerialPortBuffer [Allied Vision]

Name	Serial Port Buffer
Interface	IRegister
Access	Read/Write
Visibility	Guru

Serial port transfer buffer.
The same buffer is used for receive and transmit.

8.7.13 SerialPortValidReceiveSize [Allied Vision]

Name	Serial Port Valid Receive Size
Interface	IInteger
Access	Read/Write
Visibility	Expert

Size of valid serial port receive data.

8.7.14 SerialPortRemainingReceiveSize [Allied Vision]

Name	Serial Port Remaining Receive Size
Interface	IInteger
Access	Read/Write
Visibility	Expert

Size of remaining serial port receive data.

8.7.15 SerialPortTransmitSize [Allied Vision]

Name	Serial Port Transmit Size
Interface	IInteger
Access	Read/Write
Visibility	Expert

Size of the serial port transmit buffer.

8.8 AnalogControl

Allied Vision features in this category: *GainAutoTarget* as a synonym for *AutofunctionTargetIntensity*, *GammaRaw* as a feature to control the IIDC Gamma feature directly (usually not available), and *BalanceRatioRaw* to control the IIDC "WhiteBalance" register directly.

The ...*Raw* features in this category correspond directly to the register values of the corresponding IIDC registers and may not be accessible if there is a better control available via a non-...*Raw* feature. IIDC users should know that *BlackLevel* corresponds to the IIDC "Brightness" register and that the Auto mode of IIDC "WhiteBalance" is controllable via the *BalanceWhiteAuto* feature.

Note that *Gamma* and *LUT* features influence each other.

For more general information, see the GenICam Standard Features Naming Convention.

8.8.1 GainSelector

Name	Gain Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	All

Selects which Gain is controlled by the various Gain features.

See SFNC for more details.

8.8.2 Gain

Name	Gain
Interface	IFloat
Access	Read/Write
textbfUnit	dB
Visibility	Beginner

Controls the selected gain as an absolute physical value (in dB).
This is an amplification factor applied to the video signal.

See SFNC for more details.

8.8.3 GainRaw

Name	Gain Raw
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Raw value of the gain feature.

See SFNC for more details.

8.8.4 GainAuto

Name	Gain Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off, Once, Continuous

Sets the automatic gain control (AGC) mode.
For control of this feature see category AutofunctionControl.

See SFNC for more details.

8.8.5 GainAutoTarget [Allied Vision]

Name	Gain Auto Target
Interface	IInteger
Access	Read/Write
Visibility	Invisible

The target image intensity for GainAuto in values from 0 to 255.
Higher values result in brighter images. Equivalent to AutofunctionTargetIntensity.

8.8.6 BlackLevelSelector

Name	Black Level Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	All

Selects which Black Level is controlled by the various Black Level features.

See SFNC for more details.

8.8.7 BlackLevel

Name	Black Level
Interface	IFloat
Access	Read/Write
Visibility	Expert

Controls the analog black level as an absolute physical value.
This represents a DC offset applied to the video signal.

See SFNC for more details.

8.8.8 Gamma

Name	Gamma
Interface	IFloat
Access	Read/Write
Visibility	Beginner
Values	..1.0

Controls the gamma correction of pixel intensity.
This is typically used to compensate for non-linearity of the display system (such as CRT).

See SFNC for more details.

8.8.9 GammaRaw [Allied Vision]

Name	Gamma Raw
Interface	IInteger
Access	Read/Write
Visibility	Expert

Controls the steps of the gamma correction of pixel intensity.
This is typically used to compensate for non-linearity of the display system (such as CRT).

8.8.10 BalanceRatioSelector

Name	Balance Ratio Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Green_Red("Green / Red") [Allied Vision], Green_Blue("Green / Blue") [Allied Vision], IIDCVR [Allied Vision], IIDCUB [Allied Vision]

Selects which Balance ratio to control.
Possible values:

- Green_Red: Balance Ratio will be applied to the green (low values) or red (high values) channel. [Allied Vision]
- Green_Blue: Balance Ratio will be applied to the green (low values) or blue (high values) channel. [Allied Vision]
- IIDCVR: Balance Ratio will be applied to the V or R channel. [Allied Vision]
- IIDCUB: Balance Ratio will be applied to the U or B channel. [Allied Vision]

See SFNC for more details.

8.8.11 BalanceRatioRaw [Allied Vision]

Name	Balance Ratio Raw
Interface	IInteger
Access	Read/Write
Visibility	Expert

Raw value of the BalanceRatio.

8.8.12 BalanceWhiteAuto

Name	Balance White Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Off, Once, Continuous

Controls the mode for automatic white balancing between the color channels.
The white balancing ratios are automatically adjusted. For control of this feature see category AutofunctionControl.

See SFNC for more details.

8.9 LUTControl

LUT control via SFNC features works by two mechanisms: Selecting a (pre-defined) LUT is done via *LUTSelector*, while enabling it can be done via the *LUTEnable* feature. Since in Allied Vision 1394 cameras, only one LUT is usable, this means that to enable a different LUT, you have to disable the active LUT first (by having the *LUTSelector* set to the active LUT and setting *LUTEnable* to *Off*). Additionally, using the *Gamma* feature influences LUT usage in Allied Vision 1394 cameras, so keep in mind that usage of one of them influences the state of the other one.

Supplementary information for uploading LUT data is available with the following features:

- *LUTCount*, the number of available LUTs
- *LUTSizeBytes*, the number of bytes a complete LUT needs
- *LUTBitDepthIn*, the number of used data bits before the LUT transformation

- *LUTBitDepthOut*, the number of used data bits after the LUT transformation

For more general information, see the GenICam Standard Features Naming Convention.

8.9.1 LUTSelector

Name	LUT Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Luminance("Luminance 1"), Luminance2 [Allied Vision], Luminance3 [Allied Vision], Luminance4 [Allied Vision], Luminance5 [Allied Vision], Luminance6 [Allied Vision], Luminance7 [Allied Vision], Luminance8 [Allied Vision], Luminance9 [Allied Vision], Luminance10 [Allied Vision], Luminance11 [Allied Vision], Luminance12 [Allied Vision], Luminance13 [Allied Vision], Luminance14 [Allied Vision], Luminance15 [Allied Vision], Luminance16 [Allied Vision]

Selects which LUT to control.

See SFNC for more details.

8.9.2 LUTEnable

Name	LUT Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Activates the selected LUT.

See SFNC for more details.

8.9.3 LUTCount [Allied Vision]

Name	LUT Count
Interface	IInteger
Access	Read
Visibility	Expert

The number of user look-up tables.

8.9.4 LUTSizeBytes [Allied Vision]

Name	LUT Size
Interface	IInteger
Access	Read
Visibility	Expert

The size for a complete LUT in bytes.

8.9.5 LUTBitDepthIn [Allied Vision]

Name	LUT Bit Depth In
Interface	IInteger
Access	Read
Visibility	Expert
Values	..16

The used bit depth of pixel data before applying the LUT conversion.
This value determines the number of LUT entries.

8.9.6 LUTBitDepthOut [Allied Vision]

Name	LUT Bit Depth Out
Interface	IInteger
Access	Read
Visibility	Expert

The bit depth of pixel data after the LUT conversion was applied.
This value corresponds to the bit depth of each LUT value.

8.10 TransportLayerControl

Beside the standard feature *PayloadSize*, there are many IIDC-related features in this category and some FireGrab-specific.

- *IIDCPhyspeed* controls the speed of the asynchronous and the isochronous transfer on the bus the camera is connected to.
- By comparing the *IIDCBusNumber* for two cameras, you may determine if the cameras are connected to the same IIDC bus, which may be important if you have to share the bandwidth between them.
- IIDCFreeBandwidth gives you the available bandwidth on the bus the camera is connected to.
- Normally, the ISO channel is determined automatically. You can change this by switching *IIDCIsoChannelAuto* to *Off* and then setting the *IsoChannel* feature to the desired value.
- After some write operations on camera registers, the system waits and lets the camera device process data for *IIDCCameraAcceptDelay* milliseconds. By default, this time is set to 3 milliseconds.
- The *IIDCPacketCount* is a result of the selected packet size per cycle.
- The *IIDCPacketSize* may determined directly if the *IIDCPacketSizeAuto* feature is set to *Off*. In this case, both features, *IIDCPacketSize* and *AcquisitionFrameRate* both influence the used packet size. If *IIDCPacketSizeAuto* feature is set to *Maximize*, always the largest possible packet size is chosen to achieve a maximum frame rate.
- At this time, *IIDCPacketSizeMaximum* is a read-only feature which is only available if the corresponding camera feature *MaxIsoPacketSize* was activated at the start of the transport layer. In this case, you may switch to the standard packet size with the command *IIDCUseStandardPacketSizeMaximum*.

8.10.1 PayloadSize

Name	Payload Size
Interface	IInteger
Access	Read
Visibility	Expert

Provides the number of bytes transferred for each image or chunk on the stream channel.
This includes any end-of-line, end-of-frame statistics or other stamp data. This is the total size of data payload for a data block.

See SFNC for more details.

8.10.2 IIDCPhyspeed [Allied Vision]

Name	IIDC Physical Speed
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	S100, S200, S400, S800

Specifies the physical speed on the bus for this camera.
Possible values:

- S100: Specifies that the speed used on the bus will be 100 Mb/s.
- S200: Specifies that the speed used on the bus will be 200 Mb/s.
- S400: Specifies that the speed used on the bus will be 400 Mb/s.
- S800: Specifies that the speed used on the bus will be 800 Mb/s.

8.10.3 IIDCFreeBandwidth [Allied Vision]

Name	IIDC Free Bandwidth
Interface	IInteger
Access	Read
Visibility	Expert
Values	0..

Bandwidth per 1394 bus cycle that is currently available for allocation on the bus <IIDCBusNumber>.

8.10.4 IIDCPacketSizeMaximum [Allied Vision]

Name	IIDC Packet Size Maximum
Interface	IInteger
Access	Read
Visibility	Expert

Maximum of the Packet Size per 1394 bus cycle.
Only available if the MaxIsoSize feature of this camera is enabled.

8.10.5 IIDCUseStandardPacketSizeMaximum [Allied Vision]

Name	IIDC Use Standard Packet Size Maximum
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Deactivate the MaxIsoSize feature of this camera (see camera manual).
Resets the maximum packet size limit to the IIDC limits. Only available if the MaxIsoSize feature of this camera is enabled. If you experiece problems with AcquisitionStart, please run this command.

8.10.6 IIDCPacketSizeAuto [Allied Vision]

Name	IIDC Packet Size Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off, Maximize

Automatically set the IIDCPacketSize.
If this feature is activated, neither IIDCPacketSize nor AcquisitionFrameRate may be set.
Possible values:

- Off: Packet Size may be controlled directly.
- Maximize: If activated, IIDCPacketSize is set to the maximum possible after changes to IIDCPhyspeed, Width, Height and PixelFormat.

8.10.7 IIDCPacketSize [Allied Vision]

Name	IIDC Packet Size
Interface	IInteger
Access	Read/Write
Visibility	Expert

Packet Size per 1394 bus cycle.

8.10.8 IIDCPacketCount [Allied Vision]

Name	IIDC Packet Count
Interface	IInteger
Access	Read
Visibility	Guru

The number of packets used for the current transfer.

8.10.9 IIDCCameraAcceptDelay [Allied Vision]

Name	IIDC Camera Accept Delay
Interface	IInteger
Access	Read/Write
Visibility	Guru
Values	..20000

After some writes on camera registers the system waits and lets the camera device process data, in milliseconds.
This time by default is set to 3 milliseconds.

8.10.10 IIDCIsoChannelAuto [Allied Vision]

Name	IIDC Iso Channel Auto
Interface	IEnumeration
Access	Read/Write
Visibility	Guru
Values	Off, On

Controls the mode for selecting the isochronous channel for the transfer.
Possible values:

- Off: Manual selection of isochronous channel.
- On: Internal resource manager handles channel assignment.

8.10.11 IIDCIsoChannel [Allied Vision]

Name	IIDC Iso Channel
Interface	IInteger
Access	Read/Write
Visibility	Guru
Values	0..

Selects the isochronous channel for the transfer.

8.10.12 IIDCBusNumber [Allied Vision]

Name	IIDC Bus Number
Interface	IInteger
Access	Read
Visibility	Guru

The number of the firewire bus that this device is attached to.

8.11 UserSetControl

As an extension to the standard features in this category, *UserSetOperationStatus* and *UserSetOperationResult* may be queried after the *UserSetLoad* and *UserSetSave* commands. Since the default user set may only be determined under certain circumstances, only a command *UserSetMakeDefault* is available.

For more general information, see the GenICam Standard Features Naming Convention.

8.11.1 UserSetSelector

Name	User Set Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Default, UserSet1, UserSet2, UserSet3

Selects the feature User Set to load, save or configure.

See SFNC for more details.

8.11.2 UserSetLoad

Name	User Set Load
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Loads the User Set specified by UserSetSelector to the device and makes it active.

See SFNC for more details.

8.11.3 UserSetSave

Name	User Set Save
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Save the User Set specified by UserSetSelector to the non-volatile memory of the device.

See SFNC for more details.

8.11.4 UserSetMakeDefault [Allied Vision]

Name	User Set Make Default
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Makes the current User Set the default User Set used when the device is reset.

8.11.5 UserSetOperationStatus [Allied Vision]

Name	User Set Operation Status
Interface	IEnumeration
Access	Read
Visibility	Guru
Values	Success, Failure

Represents the User Set operation execution status.
Possible values:

- Success: The recent user set operation was successful.
- Failure: The recent User Set operation failed.

8.11.6 UserSetOperationResult [Allied Vision]

Name	User Set Operation Result
Interface	IInteger
Access	Read
Visibility	Guru

Represents the user set operation result.

8.12 FileAccessControl

Category that contains the File Access control features.

See SFNC for more details.

8.12.1 FileSelector

Name	File Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Guru
Values	ShadingData [Allied Vision], LUTLuminance("LUT Luminance 1"), LUTLuminance2 [Allied Vision], LUTLuminance3 [Allied Vision], LUTLuminance4 [Allied Vision], LUTLuminance5 [Allied Vision], LUTLuminance6 [Allied Vision], LUTLuminance7 [Allied Vision], LUTLuminance8 [Allied Vision], LUTLuminance9 [Allied Vision], LUTLuminance10 [Allied Vision], LUTLuminance11 [Allied Vision], LUTLuminance12 [Allied Vision], LUTLuminance13 [Allied Vision], LUTLuminance14 [Allied Vision], LUTLuminance15 [Allied Vision], LUTLuminance16 [Allied Vision]

Selects the target file in the device.
Possible values:

- ShadingData: Shading data for the camera. [Allied Vision]
- LUTLuminance: The Luminance 1 LUT of the camera.
- LUTLuminance2: The Luminance 2 LUT of the camera. [Allied Vision]
- LUTLuminance3: The Luminance 3 LUT of the camera. [Allied Vision]
- LUTLuminance4: The Luminance 4 LUT of the camera. [Allied Vision]
- LUTLuminance5: The Luminance 5 LUT of the camera. [Allied Vision]
- LUTLuminance6: The Luminance 6 LUT of the camera. [Allied Vision]
- LUTLuminance7: The Luminance 7 LUT of the camera. [Allied Vision]
- LUTLuminance8: The Luminance 8 LUT of the camera. [Allied Vision]
- LUTLuminance9: The Luminance 9 LUT of the camera. [Allied Vision]
- LUTLuminance10: The Luminance 10 LUT of the camera. [Allied Vision]
- LUTLuminance11: The Luminance 11 LUT of the camera. [Allied Vision]
- LUTLuminance12: The Luminance 12 LUT of the camera. [Allied Vision]
- LUTLuminance13: The Luminance 13 LUT of the camera. [Allied Vision]
- LUTLuminance14: The Luminance 14 LUT of the camera. [Allied Vision]
- LUTLuminance15: The Luminance 15 LUT of the camera. [Allied Vision]
- LUTLuminance16: The Luminance 16 LUT of the camera. [Allied Vision]

See SFNC for more details.

8.12.2 FileStatus [Allied Vision]

Name	File Status
Interface	IEnumeration
Access	Read
Visibility	Guru
Values	Closed, Open

Represents the status of the selected file.
Possible values:

- Closed: File is closed.
- Open: File is open.

8.12.3 FileOperationSelector

Name	File Operation Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Guru
Values	Open, Close, Read, Write

Selects the target operation for the selected file in the device.
This Operation is executed when the FileOperationExecute feature is called.
See SFNC for more details.

8.12.4 FileOperationExecute

Name	File Operation Execute
Interface	ICommand
Access	Read/Write
Visibility	Guru

Executes the operation selected by FileOperationSelector on the selected file.
See SFNC for more details.

8.12.5 FileOpenMode

Name	File Open Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Guru
Values	Read, Write, ReadWrite

Selects the access mode in which a file is opened in the device.

See SFNC for more details.

8.12.6 FileAccessBuffer

Name	File Access Buffer
Interface	IRegister
Access	Read/Write
Visibility	Guru

Defines the intermediate access buffer that allows the exchange of data between the device file storage and the application.

See SFNC for more details.

8.12.7 FileAccessOffset

Name	File Access Offset
Interface	IInteger
Access	Read
Visibility	Guru

Controls the Offset of the mapping between the device file storage and the FileAccessBuffer.

See SFNC for more details.

8.12.8 FileAccessLength

Name	File Access Length
Interface	IInteger
Access	Read/Write
Visibility	Guru
Values	0..

Controls the Length of the mapping between the device file storage and the FileAccessBuffer.

See SFNC for more details.

8.12.9 FileOperationStatus

Name	File Operation Status
Interface	IEnumeration
Access	Read
Visibility	Guru
Values	Success, Failure

Represents the file operation execution status.

See SFNC for more details.

8.12.10 FileOperationResult

Name	File Operation Result
Interface	IInteger
Access	Read
Visibility	Guru

Represents the file operation result.
For Read or Write operations, the number of successfully read/written bytes is returned.

See SFNC for more details.

8.12.11 FileSize

Name	File Size
Interface	IInteger
Access	Read
Visibility	Guru

Represents the size of the selected file in bytes.

See SFNC for more details.

8.13 ColorTransformationControl

The standard color transformation control features are extended by a *ColorTransformationReset* command, which resets the values in the camera to the default values, which were normally determined with a light source of 5500K.

Additionally, controls for *Hue* and *Saturation* can also be found in this category.

For more general information, see the GenICam Standard Features Naming Convention.

8.13.1 ColorTransformationSelector

Name	Color Transformation Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	RGBtoRGB

Selects which Color Transformation module is controlled by the various Color Transformation features.

See SFNC for more details.

8.13.2 ColorTransformationEnable

Name	Color Transformation Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Activates the selected Color Transformation module.

See SFNC for more details.

8.13.3 ColorTransformationReset [Allied Vision]

Name	Color Transformation Reset
Interface	ICommand
Access	Read/Write
Visibility	Expert

Resets the color transformation matrix to the factory values.
(Usually resulting in a 5500K setup.)

8.13.4 ColorTransformationValueSelector

Name	Color Transformation Value Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Gain00, Gain01, Gain02, Gain10, Gain11, Gain12, Gain20, Gain21, Gain22

Selects the Gain factor of the Transformation matrix to access in the selected Color Transformation module.

See SFNC for more details.

8.13.5 ColorTransformationValue

Name	Color Transformation Value
Interface	IFloat
Access	Read/Write
Visibility	Expert
Values	-1.000001..2.000001

Represents the value of the selected Gain factor inside the Transformation matrix.

See SFNC for more details.

8.13.6 Hue [Allied Vision]

Name	Hue
Interface	IFloat
Access	Read/Write
Visibility	Beginner

Float value of the Hue feature (in degrees).
Only has a visible effect in YUV and RGB modes.

8.13.7 HueRaw [Allied Vision]

Name	Hue Raw
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Raw value of the Hue feature.
Only has a visible effect in YUV and RGB modes.

8.13.8 HueEnable [Allied Vision]

Name	Hue Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Enables control of the Hue feature.
Only has a visible effect in YUV and RGB modes.

8.13.9 Saturation [Allied Vision]

Name	Saturation
Interface	IFloat
Access	Read/Write
Visibility	Beginner
Values	0.0..2.0

Float value of the Saturation feature.
Only has a visible effect in YUV and RGB modes.

8.13.10 SaturationRaw [Allied Vision]

Name	Saturation Raw
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Raw value of the Saturation feature.
Only has a visible effect in YUV and RGB modes.

8.13.11 SaturationEnable [Allied Vision]

Name	Saturation Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Enables control of the Saturation feature.
Only has a visible effect in YUV and RGB modes.

8.14 AutofunctionControl [Allied Vision]

This category contains features for controlling algorithms for some "Auto" features (*ExposureAuto*, *GainAuto*, *BalanceWhiteAuto*).

The target intensity for *ExposureAuto* and *GainAuto* is determined by *AutoFunctionTargetIntensity*, and *BalanceWhiteAuto* always aims at equilibrating the three color components. All algorithms may be locally restricted to an area in the current image by setting *AutofunctionAOIWidth*, *AutofunctionAOIHeight* etc. and then setting *AutofunctionAOIEnable* to *True*. As a visual feedback, set *AutofunctionAOIShowArea* to *True*.

8.14.1 AutofunctionTargetIntensity [Allied Vision]

Name	Autofunction Target Intensity
Interface	IInteger
Access	Read/Write
Visibility	Beginner

The target image intensity for ExposureAuto and GainAuto in values from 0 to 255.
Higher values result in brighter images.

8.14.2 AutofunctionAOIEnable [Allied Vision]

Name	Autofunction AOI Enable
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Use Autofunction AOI.
ExposureTime, Gain and BalanceRatio may be influenced by this feature (if the corresponding Auto features are enabled).

8.14.3 AutofunctionAOIShowArea [Allied Vision]

Name	Autofunction AOI Show Area
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Show the AOI used for Auto functions (ExposureAuto, GainAuto and BalanceWhiteAuto).
This feature will only have a visible effect if AutofunctionAOIEnable in On.

8.14.4 AutofunctionAOIWidth [Allied Vision]

Name	Autofunction AOI Width
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Width of the Autofunction AOI.

8.14.5 AutofunctionAOIHeight [Allied Vision]

Name	Autofunction AOI Height
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Height of the Autofunction AOI.

8.14.6 AutofunctionAOIOffsetX [Allied Vision]

Name	Autofunction AOI Offset X
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Autofunction AOI left position.

8.14.7 AutofunctionAOIOffsetY [Allied Vision]

Name	Autofunction AOI Offset Y
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Autofunction AOI top position.

8.15 ImageQualityControl [Allied Vision]

To compensate for intensity irregularities of lenses or illumination, the "Shading..." features in this category may be used.

With feature *SmearReductionEnable*, you may reduce the amount of smearing in some camera types.

For a more detailed description of the features in this category, see the camera manual.

8.15.1 ShadingCorrectionEnable [Allied Vision]

Name	Shading Correction Enable
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Enable usage of shading correction data.

8.15.2 ShadingCorrectionShowData [Allied Vision]

Name	Shading Correction Show Data
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Show shading correction data instead of normal camera output.

8.15.3 ShadingDataBuildImages [Allied Vision]

Name	Shading Data Build Images
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Number of images to use for a ShadingDataBuild command.

8.15.4 ShadingDataBuild [Allied Vision]

Name	Shading Data Build
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Build shading data.
The number of images used is determined by ShadingDataBuildImages.

8.15.5 ShadingDataLoadFromFlash [Allied Vision]

Name	Shading Data Load From Flash
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Loads the shading data from the flash memory.

8.15.6 ShadingDataSaveToFlash [Allied Vision]

Name	Shading Data Save To Flash
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Saves the shading data to the flash memory.

8.15.7 ShadingDataClearFlash [Allied Vision]

Name	Shading Data Clear Flash
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Clears the shading data in the flash memory.

8.15.8 ShadingDataMaxSize [Allied Vision]

Name	Shading Data Max Size
Interface	IInteger
Access	Read
Visibility	Beginner

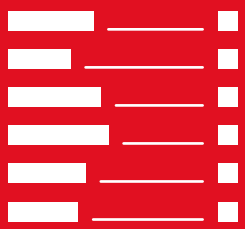
Maximum size of shading data.

8.15.9 SmearReductionEnable [Allied Vision]

Name	Smear Reduction Enable
Interface	IBoolean
Access	Read/Write
Visibility	Beginner

Enable smear reduction.

9 Vimba functional extensions to GenTL



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9.2.1 Additions to URL_INFO_CMD_LIST 110

Vimba transport layers provide additional functionality to the general GenTL interface. The provided extensions to Transport Layer Events allow monitoring system changes. Other extensions allow comfortable access to additional URL information.

9.1 Custom Transport Layer events

Custom additions to the following Enumerations are available:

- EVENT_TYPE_LIST (used in GCRegisterEvent and GCUnregisterEvent)
- EVENT_DATA_INFO_CMD_LIST (used in EventGetDataInfo)

Additionally, an enumeration for determining the type of a change is provided: IFCHANGE_WHAT_LIST

These extensions allow the users of Vimba transport layers to get informed about changes to either the interface list or the camera list.

9.1.1 Additions to EVENT_TYPE_LIST

Listing 1: Event types

```
enum EVENT_TYPE_LIST_VIMBA
{
    EVENT_SYSTEM_CHANGE        = 1000, // System detected some change
    EVENT_INTERFACE_CHANGE     = 1001  // Interface detected some change
}
```

9.1.2 Additions to EVENT_DATA_INFO_CMD_LIST

Listing 2: Change Events

```
enum EVENT_DATA_INFO_CMD_LIST_VIMBA
{
    // for event type EVENT_SYSTEM_CHANGE
    EVENT_DATA_SYSTEM_IFCOUNT  = 1000, // UINT32   Number of detected interfaces

    // for event type EVENT_INTERFACE_CHANGE
    EVENT_DATA_IFCHANGE_DUID   = 1001, // STRING   Device UID
    EVENT_DATA_IFCHANGE_WHAT   = 1002, // UINT32   Bitfield of what has changed
                                       //  (IFCHANGE_WHAT_LIST)
    EVENT_DATA_IFCHANGE_DATA   = 1003  // UINT32   Bitfield of current state of
                                       //  the device (IFCHANGE_WHAT_LIST)
};
```

9.1.3 Additional enumeration IFCHANGE_WHAT_LIST

Listing 3: Change Event options

```
enum IFCHANGE_WHAT_LIST
{
    IFCHANGE_WHAT_VISIBILITY    = 1,    // Device visibility has changed
    IFCHANGE_WHAT_REACHABILITY = 2     // Device reachability has changed
};
```

9.2 Additional URL information

For the following Enumeration, extensions are available:

- URL_INFO_CMD_LIST (used inGCGetPortURLInfo)

The extensions allow the user of the Vimba transport layers to access URL information without having to parse the URL string.

9.2.1 Additions to URL_INFO_CMD_LIST

Listing 4: URL information

```
enum URL_INFO_CMD_LIST_VIMBA
{
    URL_INFO_FILENAME          = 1000,  // STRING   Filename of the port XML file
    URL_INFO_ADDRESS           = 1001,  // UINT64   Start address of the XML file
    URL_INFO_LENGTH            = 1002,  // SIZET    XML file length (in bytes)
    URL_INFO_ZIPPED            = 1003   // BOOL8    Is the XML file zipped
};
```