Vimba GigE TL

Features Manual

V1.4
2015-11-10

Allied Vision Technologies GmbH
Taschenweg 2a
D-07646 Stadtroda / Germany

Allied Vision

Legal Notice

Trademarks

Unless stated otherwise, all trademarks appearing in this document of Allied Vision Technologies are brands protected by law.

Warranty

The information provided by Allied Vision is supplied without any guarantees or warranty whatsoever, be it specific or implicit. Also excluded are all implicit warranties concerning the negotiability, the suitability for specific applications or the non-breaking of laws and patents. Even if we assume that the information supplied to us is accurate, errors and inaccuracy may still occur.

Copyright

All texts, pictures and graphics are protected by copyright and other laws protecting intellectual property. It is not permitted to copy or modify them for trade use or transfer, nor may they be used on websites.

Allied Vision Technologies GmbH 11/2015

Managing Director: Mr. Frank Grube
Tax ID: DE 184383113

Headquarters:

Taschenweg 2a
D-07646 Stadtroda, Germany
Tel.: +49 (0)36428 6770
Fax: +49 (0)36428 677-28
e-mail: info@alliedvision.com

Contents

1 Contact us

Connect with Allied Vision colleagues by function:
www.alliedvision.com/en/meta-header/contact

Find an Allied Vision office or distributor:
www.alliedvision.com/en/about-us/where-we-are.html

E-mail:
info@alliedvision.com (for commercial and general inquiries)
support@alliedvision.com (for technical assistance with Allied Vision products)

Telephone:
EMEA: +49 36428-677-0
The Americas: +1 978-225-2030
Asia-Pacific: +65 6634-9027
China: +86 (21) 64861133

Headquarters:
Allied Vision Technologies GmbH
Taschenweg 2a, 07646 Stadtroda, Germany
Tel: +49 (36428) 677-0 Fax +49 (36428) 677-24
President/CEO: Frank Grube | Registration Office: AG Jena HRB 208962

2 Introduction

2.1 Document history

Version	Date	Changes
1.0	2013-02-25	Initial version
1.1	2013-03-07	Different generation of document, small layout changes
1.2	2013-05-13	Refined some descriptions, changed the layout of document and feature tables, removed the exemplary camera features
1.3	2014-07-09	Changed the referenced GenTL version to 1.3, small corrections
1.4	2015-11-10	Renamed several Vimba components and documents ("AVT" no longer in use), links to new Allied Vision website

2.2 Conventions used in this manual

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

2.2.1 Styles

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

2.2.2 Symbols

Note

This symbol highlights important information.

Caution

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

This symbol highlights URLs for further information. The URL itself is shown in blue.
Example: http://www.alliedvision.com

3 VimbaGigETL - Overview

The VimbaGigETL (Vimba GigE Transport Layer) transports the data from the network card to an application. It is a module according to the GenTL specification and complies to GenICam applications providing a GenTL consumer interface. It consists of several parts: the functional interface and the feature maps for the transport layer and for the camera.

The **functional interface** is needed for dynamically controlling GigE cameras and it covers the functionality described in GenTL specification 1.3. There is additional functionality, which is described in chapter 8, **Vimba extensions to the functional GenTL interface**.

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

- Features of the GenTL **System module** in chapter 4. The System is a module for handling multiple GenTL Interfaces in one transport layer.
- Features of the GenTL **Interface module** in chapter 5. The Interface is a module for handling multiple GenTL Devices.
- Features of the GenTL **Device module** in chapter 6. The Device module is a host-side representation of the Camera aka "Remote Device".
- Features of the GenTL **Data Stream module** in chapter 7. The Data Stream module allows handling all streaming-related operations.
- Camera (**Remote Device**) features in GigE_Features_Reference.pdf.

The XML file of the cameras is located in the device itself and conforms to the GenICam Standard Features Naming Convention, e.g. GenICam SFNC 1.2.1.

4 VimbaGigETL System Features

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
- CameraAddressForcing

4.1 SystemInformation

Category that contains all System Information features of the System module.
See GenTL specification 1.3 chapter 7 for more details.

4.1.1 TLID

Name	TL ID
Interface	IString
Access	Read
Visibility	Beginner

Unique identifier of the GenTL Producer like a GUID.
Corresponds to the TL_INFO_ID command of TLGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

4.1.2 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 1.3 chapter 7 for more details.

4.1.3 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 1.3 chapter 7 for more details.

4.1.4 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 1.3 chapter 7 for more details.

4.1.5 TLDisplayName

Name	TL Display Name
Interface	IString
Access	Read
Visibility	Beginner

User readable name of the GenTL Producer.
Corresponds to the TL_INFO_DISPLAYNAME command of TLGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

4.1.6 TLPath

Name	TL Path
Interface	IString
Access	Read
Visibility	Beginner

Full path to the GenTL Producer driver including name and extension.
Corresponds to the TL_INFO_PATHNAME command of TLGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

4.1.7 TLType

Name	TL Type
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	GEV

Transport layer type of the GenTL Producer implementation.
Corresponds to the TL_INFO_TLTYPE command of TLGetInfo function.
See GenTL specification 1.3 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 1.3 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 1.3 chapter 7 for more details.

4.1.10 GevVersionMajor

Name	GEV Major Version Number
Interface	IInteger
Access	Read
Visibility	Beginner

Major version number of the GigE Vision specification the GenTL Producer implementation complies to.
See GenTL specification 1.3 chapter 7 for more details.

4.1.11 GevVersionMinor

Name	GEV Minor Version Number
Interface	IInteger
Access	Read
Visibility	Beginner

Minor version number of the GigE Vision specification the GenTL Producer implementation complies to.
See GenTL specification 1.3 chapter 7 for more details.

4.2 InterfaceEnumeration

Category that contains all Interface Enumeration features of the System module.
See GenTL specification 1.3 chapter 7 for more details.

4.2.1 InterfaceUpdateList

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

Update the internal interface list on this GenTL Producer.
See GenTL specification 1.3 chapter 7 for more details.

4.2.2 InterfaceCount [Allied Vision]

Name	Interface Count
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Number of interfaces on this GenTL Producer.

4.2.3 InterfaceSelector

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

Selector for the different GenTL Producer interfaces.
See GenTL specification 1.3 chapter 7 for more details.

4.2.4 InterfaceID

Name	Interface ID
Interface	IString
Access	Read
Visibility	Beginner

GenTL Producer wide unique identifier of the selected interface.
See GenTL specification 1.3 chapter 7 for more details.

4.2.5 GevInterfaceMACAddress

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

48-bit MAC address of the interface.
See GenTL specification 1.3 chapter 7 for more details.

4.2.6 GevInterfaceDefaultIPAddress

Name	Interface IP Address
Interface	IInteger
Access	Read/Write
Visibility	Expert

IP address of the interface.
See GenTL specification 1.3 chapter 7 for more details.

4.2.7 GevInterfaceDefaultSubnetMask

Name	Interface Subnet Mask
Interface	IInteger
Access	Read/Write
Visibility	Expert

Subnet mask of the interface.
See GenTL specification 1.3 chapter 7 for more details.

4.3 CameraAddressForcing [Allied Vision]

Category that contains all features of the System module for forcing access to cameras that are otherwise not detectable.

4.3.1 GevCameraForceAddressMAC [Allied Vision]

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

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

4.3.2 GevCameraForceAddressIP [Allied Vision]

Name	Gev Camera Force Address IP
Interface	IInteger
Access	Read/Write
Visibility	Expert

IP address of the GEV camera to be forced.

4.3.3 GevCameraForceAddressSubnetMask [Allied Vision]

Name	Gev Camera Force Address Subnet Mask
Interface	IInteger
Access	Read/Write
Visibility	Expert

Subnet mask of the GEV camera to be forced.

4.3.4 GevCameraForceAddressGateway [Allied Vision]

Name	Gev Camera Force Address Gateway
Interface	IInteger
Access	Read/Write
Visibility	Expert

Gateway of the GEV camera to be forced.

4.3.5 GevCameraForceAddressSend [Allied Vision]

Name	Gev Camera Force Address Send
Interface	ICommand
Access	Read/Write
Visibility	Beginner

Send the force address command on all interfaces.

5 VimbaGigETL Interface Features

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
  - Gev
- Settings

5.1 InterfaceInformation

Category that contains all Interface Information features of the Interface module.
See GenTL specification 1.3 chapter 7 for more details.

5.1.1 InterfaceID

Name	Interface ID
Interface	IString
Access	Read
Visibility	Beginner

GenTL Producer wide unique identifier of the selected interface.
Corresponds to the INTERFACE_INFO_ID command of IFGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

5.1.2 InterfaceDisplayName

Name	Interface Display Name
Interface	IString
Access	Read
Visibility	Beginner

User readable name of the selected interface.
Corresponds to the INTERFACE_INFO_DISPLAYNAME command of IFGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

5.1.3 InterfaceType

Name	Interface Type
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	GEV

Identifies the transport layer technology of the interface.
Corresponds to the INTERFACE_INFO_TLTYPE command of IFGetInfo function.
See GenTL specification 1.3 chapter 7 for more details.

5.2 DeviceEnumeration

Category that contains all Device Enumeration features of the Interface module.
See GenTL specification 1.3 chapter 7 for more details.

5.2.1 DeviceUpdateList

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

Updates the internal device list.
See GenTL specification 1.3 chapter 7 for more details.

5.2.2 DeviceCount [Allied Vision]

Name	Device Count
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Number of found devices.

5.2.3 DeviceSelector

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

Selector for the different devices on this interface.
See GenTL specification 1.3 chapter 7 for more details.

5.2.4 DeviceID

Name	Device ID
Interface	IString
Access	Read
Visibility	Beginner

Interface wide unique identifier of the selected device.
See GenTL specification 1.3 chapter 7 for more details.

5.2.5 DeviceVendorName

Name	Device Vendor Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device vendor.
See GenTL specification 1.3 chapter 7 for more details.

5.2.6 DeviceModelName

Name	Device Model Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device model.
See GenTL specification 1.3 chapter 7 for more details.

5.2.7 DeviceType [Allied Vision]

Name	Device Type
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	GEV

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

- GEV: GigE Vision

5.2.8 DeviceDisplayName [Allied Vision]

Name	Device Display Name
Interface	IString
Access	Read
Visibility	Beginner

User readable name of the selected device.

5.2.9 DeviceAccessStatus

Name	Device Access Status
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	Unknown ReadWrite ReadOnly NoAccess

Gives the device's access status at the moment of the last execution of "DeviceUpdateList".
See GenTL specification 1.3 chapter 7 for more details.

5.3 Gev [Allied Vision]

5.3.1 GevInterfaceMACAddress

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

48-bit MAC address of this interface.
See GenTL specification 1.3 chapter 7 for more details.

5.3.2 GevInterfaceSubnetIPAddress

Name	Interface IP Address
Interface	IInteger
Access	Read/Write
Visibility	Expert

IP address of the selected subnet of this interface.
See GenTL specification 1.3 chapter 7 for more details.

5.3.3 GevInterfaceSubnetMask

Name	Interface Subnet Mask
Interface	IInteger
Access	Read/Write
Visibility	Expert

Subnet mask of the selected subnet of this interface.
See GenTL specification 1.3 chapter 7 for more details.

5.3.4 GevDeviceIPAddress

Name	Device IP Address
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Current IP address of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

5.3.5 GevDeviceSubnetMask

Name	Device Subnet Mask
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Current subnet mask of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

5.3.6 GevDeviceMACAddress

Name	Device MAC Address
Interface	IInteger
Access	Read/Write
Visibility	Beginner

48-bit MAC address of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

5.4 Settings [Allied Vision]

5.4.1 InterfaceBeatRate [Allied Vision]

Name	Interface Beat Rate
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	10..10000

Rate (in ms) at which the interface will perform device discovery.

5.4.2 InterfaceHailPace [Allied Vision]

Name	Interface Hail Pace
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..10

Pace (as in every X beats) at which the interface will hail for devices to reply.

5.4.3 InterfacePingPace [Allied Vision]

Name	Interface Ping Pace
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..10

Pace (as in every X beats) at which the interface will ping detected devices.

5.4.4 DiscoveryMode [Allied Vision]

Name	Devices Discovery Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Off Auto Once

Defines how the interface should discover connected devices.

5.4.5 DiscoveryBroadcastMode [Allied Vision]

Name	Devices Discovery Broadcast Mode
Interface	IEnumeration
Access	Read/Write
Visibility	Beginner
Values	Local Subnet

Defines how the interface should send its discovery broadcast.

6 VimbaGigETL Device Features

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
  - Gev
- StreamEnumeration
- GigE
  - GVCP

6.1 DeviceInformation

Category that contains all Device Information features of the Device module.
See GenTL specification 1.3 chapter 7 for more details.

6.1.1 DeviceID

Name	Device ID
Interface	IString
Access	Read
Visibility	Beginner

Interface-wide unique identifier of this device.
See GenTL specification 1.3 chapter 7 for more details.

6.1.2 DeviceVendorName

Name	Device Vendor Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device vendor.
See GenTL specification 1.3 chapter 7 for more details.

6.1.3 DeviceModelName

Name	Device Model Name
Interface	IString
Access	Read
Visibility	Beginner

Name of the device model.
See GenTL specification 1.3 chapter 7 for more details.

6.1.4 DeviceType

Name	Device Type
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	GEV

Identifies the transport layer technology of the device.
See GenTL specification 1.3 chapter 7 for more details.

6.1.5 DeviceDisplayName

Name	Device Display Name
Interface	IString
Access	Read
Visibility	Beginner

User readable name of the device.
See GenTL specification 1.3 chapter 7 for more details.

6.2 Gev [Allied Vision]

6.2.1 GevDeviceIPAddress

Name	Device IP address
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Current IP address of the GVCP interface of the remote device.
See GenTL specification 1.3 chapter 7 for more details.

6.2.2 GevDeviceSubnetMask

Name	Device Subnet Mask
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Current subnet of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

6.2.3 GevDeviceMACAddress

Name	Device MAC Address
Interface	IInteger
Access	Read/Write
Visibility	Beginner

48-bit MAC address of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

6.2.4 GevDeviceGateway

Name	Device Gateway
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Current gateway of the GVCP interface of the selected remote device.
See GenTL specification 1.3 chapter 7 for more details.

6.2.5 DeviceEndianessMechanism

Name	Device Endianess Mechanism
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	Legacy

Identifies the endianess mode.
See GenTL specification 1.3 chapter 7 for more details.

6.3 StreamEnumeration

Category that contains all Stream Enumeration features of the Device module.
See GenTL specification 1.3 chapter 7 for more details.

6.3.1 StreamCount [Allied Vision]

Name	Stream Count
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Number of available streams.

6.3.2 StreamSelector

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

Selector for the different stream channels.
See GenTL specification 1.3 chapter 7 for more details.

6.3.3 StreamID

Name	Stream ID
Interface	IString
Access	Read
Visibility	Beginner

Device unique ID for the stream.
See GenTL specification 1.3 chapter 7 for more details.

6.4 GigE [Allied Vision]

6.5 GVCP [Allied Vision]

6.5.1 GevHeartbeatTimeout

Name	Heartbeat Timeout
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	..10000

Interval of time (in ms) after which a device rejects control by a host if no heartbeat activity is registered. See GenTL specification 1.3 chapter 7 for more details.

6.5.2 GevHeartbeatInterval [Allied Vision]

Name	Heartbeat Interval
Interface	IInteger
Access	Read/Write
Visibility	Expert

Interval of time (in ms) after which a heartbeat is sent by the host.

6.5.3 GVCPCmdTimeout [Allied Vision]

Name	Command Timeout
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	100..1000

Timeout waiting for an answer from the device.

6.5.4 GVCPCmdRetries [Allied Vision]

Name	Command Retries
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..9

Number of time a particular command to the device will be resent when no answer is being received.

7 VimbaGigETL Stream Features

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
- Stream
  - Multicast
  - Info
  - Settings
  - Statistics

7.1 StreamInformation

Category that contains all Stream Information features of the Data Stream module.
See GenTL specification 1.3 chapter 7 for more details.

7.1.1 StreamID

Name	Stream ID
Interface	IString
Access	Read
Visibility	Beginner

Device unique identifier for this data stream.
See GenTL specification 1.3 chapter 7 for more details.

7.1.2 StreamType

Name	Stream Type
Interface	IEnumeration
Access	Read
Visibility	Beginner
Values	GEV

Identifies the transport layer technology of the stream.
See GenTL specification 1.3 chapter 7 for more details.

7.2 BufferHandlingControl

Contains all features of the Data Stream module that control the used buffers.
See GenTL specification 1.3 chapter 7 for more details.

7.2.1 StreamAnnouncedBufferCount

Name	Stream Announced Buffer Count
Interface	IInteger
Access	Read/Write
Visibility	Beginner

Number of announced (known) buffers on this stream.
See GenTL specification 1.3 chapter 7 for more details.

7.2.2 StreamBufferHandlingMode

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

Available buffer handling modes of this stream.
See GenTL specification 1.3 chapter 7 for more details.

7.2.3 StreamAnnounceBufferMinimum

Name	Stream Announce Buffer Minimum
Interface	IInteger
Access	Read
Visibility	Beginner

Minimal number of buffers to announce to enable selected acquisition mode.
See GenTL specification 1.3 chapter 7 for more details.

7.3 Stream [Allied Vision]

7.4 Multicast [Allied Vision]

Category for features dealing with multicast.

7.4.1 MulticastEnable [Allied Vision]

Name	Multicast Enable
Interface	IBoolean
Access	Read/Write
Visibility	Expert

Enable multicast streaming.

7.4.2 MulticastIPAddress [Allied Vision]

Name	Multicast IP Address
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	224..4294967279

IP address of the target multicasting group.

7.5 Info [Allied Vision]

Category for Stream information features.

7.5.1 GVSPFilterVersion [Allied Vision]

Name	GVSP Filter Version
Interface	IString
Access	Read
Visibility	Expert

Version of the GVSP Filter driver.

7.6 Settings [Allied Vision]

7.6.1 GVSPTimeout [Allied Vision]

Name	GVSP Timeout
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	10..5000

Timeout (in ms) used for stream packets.

7.6.2 GVSPDriver [Allied Vision]

Name	GVSP Driver Selector
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Socket Filter

Streaming driver to be used.

7.6.3 GVSPHostReceiveBuffers [Allied Vision]

Name	GVSP Host Receive Buffers
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	256..2048

Number of receive buffers to be used by the OS' socket (hint).

7.6.4 GVSPBurstSize [Allied Vision]

Name	GVSP Burst Size
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..256

Maximum number of GVSP packets to be processed in a burst.

7.6.5 GVSPMaxLookBack [Allied Vision]

Name	GVSP Max Look Back
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..1024

Size of the missing GVSP packets detection windows.

7.6.6 GVSPMaxRequests [Allied Vision]

Name	GVSP Max Requests
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	1..512

Maximum number of requests (to the device) for a missing GVSP packet.

7.6.7 GVSPMissingSize [Allied Vision]

Name	GVSP Missing Size
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..1024

Maximum number of simulatenous missing GVSP packets before dropping the frame (0 = OFF).

7.6.8 GVSPTiltingSize [Allied Vision]

Name	GVSP Tilting Size
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..1024

Maximum number GVSP packets received from a following frame before dropping the frame (0 = OFF).

7.6.9 GVSPMaxWaitSize [Allied Vision]

Name	GVSP Max Wait Size
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	8..1024

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

7.6.10 GVSPPacketSize [Allied Vision]

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

GVSP Packet size (in bytes).

7.6.11 GVSPAdjustPacketSize [Allied Vision]

Name	GVSP Adjust Packet Size
Interface	ICommand
Access	Read/Write
Visibility	Expert

Request the packet size used to be adjusted automatically.

7.7 Statistics [Allied Vision]

Category for Stream statistics features.

7.7.1 StatFrameDelivered [Allied Vision]

Name	Stat Frames Delivered
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Number of error-free frames that have been delivered to the TL consumer.

7.7.2 StatFrameDropped [Allied Vision]

Name	Stat Frames Dropped
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

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

7.7.3 StatFrameUnderrun [Allied Vision]

Name	Stat Frames Underrun
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

Number of frames missed due to the non-availability of a user supplied buffer (buffer underrun).

7.7.4 StatFrameShoved [Allied Vision]

Name	Stat Frames Shoved
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

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

7.7.5 StatFrameRescued [Allied Vision]

Name	Stat Frames Rescued
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

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

7.7.6 StatPacketReceived [Allied Vision]

Name	Stat Packets Received
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Number of error-free packets received and processed by the host (including successfully resent packets).

7.7.7 StatPacketMissed [Allied Vision]

Name	Stat Packets Missed
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Number of packets expected and not received by the host (not including successfully resent packets).

7.7.8 StatPacketErrors [Allied Vision]

Name	Stat Packets Errors
Interface	IInteger
Access	Read/Write
Visibility	Expert
Values	0..

Number of received packets that are erroneous (usually signal an hardware issue on the device).

7.7.9 StatPacketRequested [Allied Vision]

Name	Stat Packets Requested
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Number of missing packets that were requested for resend from the device.

7.7.10 StatPacketResent [Allied Vision]

Name	Stat Packets Resent
Interface	IInteger
Access	Read/Write
Visibility	Beginner
Values	0..

Number of missing packets that were resent by the device after having been requested.

7.7.11 StatFrameRate [Allied Vision]

Name	Stat Frame Rate
Interface	IFloat
Access	Read/Write
Visibility	Beginner
Values	0.0..

Rate (frames/s) at which the device is sending frames to the host (derived from the frame timestamps).

7.7.12 StatLocalRate [Allied Vision]

Name	Stat Local Rate
Interface	IFloat
Access	Read/Write
Visibility	Expert
Values	0.0..

Rate (frames/s) at which (complete and incomplete) frames have been received by the host (derived from the host clock).

7.7.13 StatTimeElapsed [Allied Vision]

Name	Stat Time Elapsed
Interface	IFloat
Access	Read/Write
Visibility	Expert
Values	0.0..

Elapsed time (in s) since the streaming was started.

8 Vimba extensions to the functional GenTL interface

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.

8.1 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.

8.1.1 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
}
```

8.1.2 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)
};
```

8.1.3 Additional enumeration IFCHANGE_WHAT_LIST

Listing 3: Change Event optionss

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

8.2 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.

8.2.1 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
};
```