Allied Vision

Vimba

Vimba

Vimba CL Config TL Features Manual

1.2.0

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2 Document history and conventions

This chapter includes:

2.1 Document history

Version	Date	Changes
1.0	2014-07-10	Initial version
1.2.0	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 VimbaCLConfigTL - Overview

The VimbaCLConfigTL (Vimba Camera Link Config Transport Layer) allows configuring Goldeye CL cameras on Windows PCs. You can access and configure all camera features, even if the frame grabber doesn't support them.

The image stream is accessed via an API provided by the frame grabber manufacturer. This means that you can configure all camera features with the Vimba API or the Vimba Viewer, whereas the frame grabber provides the API that captures all camera images.

The VimbaCLConfigTL complies with GenICam and thus can serve as a GenTL (GenICam transport layer) producer for every Camera Link standard compatible frame grabber (the clserxxx.dll library must be provided by the frame grabber manufacturer). The VimbaCLConfigTL is included in the Vimba installation since Vimba version 2.0.

As described in the Camera Link V2.0 standard, Vimba accesses the clserxxx.dll via the clallserial.dll. Normally, both DLL files are installed during the frame grabber installation. Vimba additionally installs clallserial.dll in case the frame grabber manufacturer doesn't provide it.

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

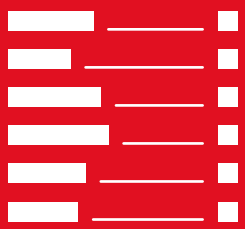
The **functional interface** is needed for dynamically controlling Goldeye CL cameras. It covers the functionality described in GenTL specification 1.5. There is extra functionality, which is described in chapter Vimba functional extensions to GenTL.

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 VimbaCLConfigTL System Features. The System is a module for handling multiple GenTL Interfaces in one transport layer. The VimbaCLConfigTL only provides one Interface.
- Features of the GenTL **Interface module** in chapter VimbaCLConfigTL 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 VimbaCLConfigTL Device Features. The Device module is a host-side representation of the Camera also known as **Remote Device**.
- Camera (**Remote Device**) features in the Goldeye Features Reference.

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

4 VimbaCLConfigTL System Features



This chapter includes:

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

The following categories can be found below the Root category:

- 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	CL("Camera Link")

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 VimbaCLConfigTL Interface Features

This chapter includes:

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

- 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	CL

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

Name	Device Type
Interface	IEnumeration
Access	Read
Visibility	Expert
Values	CL("Camera Link") [Allied Vision]

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

- CL: Camera Link [Allied Vision]

See GenTL specification 1.5 chapter 7 for more details.

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 VimbaCLConfigTL Device Features

This chapter includes:

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

- DeviceInformation
- StreamEnumeration
- DeviceControl

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	CL

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

Selector for the different stream channels.The selector is 0-based in order to match the index of the C interface.
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.

6.3 DeviceControl

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

See GenTL specification 1.5 chapter 7 for more details.

6.3.1 DeviceHeartbeatInterval [Allied Vision]

Name	Device Heartbeat Interval
Interface	IInteger
Access	Read/Write
Visibility	Guru

Controls the current heartbeat interval of the link.

6.3.2 DeviceSerialPortSelector [Allied Vision]

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

Selects which serial port of the device to control.
Possible values:

- CameraLink: Serial port associated to the Camera Link connection.

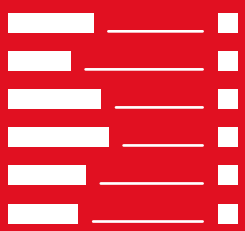
6.3.3 DeviceSerialPortBaudRate [Allied Vision]

Name	Device Serial Port Baud Rate
Interface	IEnumeration
Access	Read/Write
Visibility	Expert
Values	Baud9600, Baud19200, Baud38400, Baud57600, Baud115200, Baud230400, Baud460800, Baud921600

This feature controls the baud rate used by the selected serial port.
Possible values:

- Baud9600: Serial port speed of 9600 baud.
- Baud19200: Serial port speed of 19200 baud.
- Baud38400: Serial port speed of 38400 baud.
- Baud57600: Serial port speed of 57600 baud.
- Baud115200: Serial port speed of 115200 baud.
- Baud230400: Serial port speed of 230400 baud.
- Baud460800: Serial port speed of 460800 baud.
- Baud921600: Serial port speed of 921600 baud.

7 Vimba functional extensions to GenTL



This chapter includes:

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.

7.1 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.

7.1.1 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
}
```

7.1.2 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)
};
```

7.1.3 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
};
```

7.2 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.

7.2.1 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
};
```