Allied Vision

Vimba

# Vimba CL Config TL Features Manual

1.0

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# 2 Document history and conventions

This chapter includes:

## 2.1    Document history

| Version | Date | Changes |
|---------|------|---------|
| 1.0 | 2016-Feb-29 | Initial version |

## 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 1.3. 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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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    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 1.3 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 1.3 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 1.3 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** | Expert |

Update the 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 |
| **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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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 1.3 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 | Expert |

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 |
| 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 1.3 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 1.3 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 1.3 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 1.3 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]
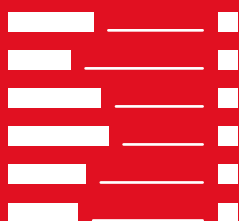
See GenTL specification 1.3 chapter 7 for more details.

## 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 1.3 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 1.3 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 1.3 chapter 7 for more details.

## 6.1.2    DeviceVendorName

| Name | Device Vendor Name |
| --- | --- |
| Interface | IString |
| Access | Read |
| Visibility | Beginner |

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

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.
Corresponds to the DEVICE_INFO_MODEL command of DevGetInfo function.

See GenTL specification 1.3 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 1.3 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 1.3 chapter 7 for more details.

# 6.2    StreamEnumeration

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

See GenTL specification 1.3 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 1.3 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 1.3 chapter 7 for more details.

# 6.3   DeviceControl

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

See GenTL specification 1.3 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.
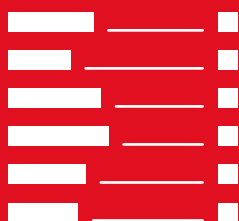
## 6.3.3    DeviceSerialPortBaudRate [Allied Vision]

| 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

<p style="text-align:center">Listing 3: Change Event options</p>

```
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

<p style="text-align:center">Listing 4: URL information</p>

```
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
};
```