

eGrabber

eGrabber 24.04 Release Notes

1628 Grablink Duo

1629 Coaxlink Duo PCIe/104-EMB

1630 Coaxlink Mono

1631 Coaxlink Duo

1632 Coaxlink Quad

1633 Coaxlink Quad G3

1633-LH Coaxlink Quad G3 LH

1635 Coaxlink Quad G3 DF

1637 Coaxlink Quad 3D-LLE

3602 Coaxlink Octo

3603 Coaxlink Quad CXP-12

4400 eGrabber Gigalink

4401 eGrabber Recorder

3603-4 Coaxlink Quad CXP-12

3620 Coaxlink Quad CXP-12 JPEG

3620-4 Coaxlink Quad CXP-12 JPEG

3621 Coaxlink Mono CXP-12

3621-LH Coaxlink Mono CXP-12 LH

3622 Coaxlink Duo CXP-12

3622-LH Coaxlink Duo CXP-12 LH

3623 Coaxlink Quad CXP-12 Value

3624 Coaxlink Quad CXP-12 DF

3625 Coaxlink QSFP+

4403 eGrabber Studio



This documentation is provided with **eGrabber 24.04.0** (doc build 2187).
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1. Release Benefits

Benefits of added or improved features of eGrabber 24.04

eGrabber Studio

Improved ergonomy

The **Output** and the **Features** panes can be undocked and displayed in individual windows.

Improved buffer queue allocation

Buffer queue allocation is no longer automatically performed when opening a grabber.

The **Buffer Pane** user interface provides more details and feedback while reconfiguring the buffer queue, including the possibility to abort the operation.

2. Release Specification

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2.1. Supported Products

Products supported by eGrabber 24.04

Frame grabbers

Product code and name	Camera Interface	Icon
1628 Grablink Duo	Camera Link ECCO-85	Duo
1629 Coaxlink Duo PCIe/104-EMB	CoaXPress CXP-6	Duo104EMB
1630 Coaxlink Mono	CoaXPress CXP-6	Mono
1631 Coaxlink Duo	CoaXPress CXP-6	Duo
1632 Coaxlink Quad	CoaXPress CXP-6	Quad
1633 Coaxlink Quad G3	CoaXPress CXP-6	QuadG3
1633-LH Coaxlink Quad G3 LH	CoaXPress CXP-6	QuadG3LH
1635 Coaxlink Quad G3 DF	CoaXPress CXP-6	QuadG3DF
1637 Coaxlink Quad 3D-LLE	CoaXPress CXP-6	Quad3DLLE
3602 Coaxlink Octo	CoaXPress CXP-6	Octo
3603 Coaxlink Quad CXP-12	CoaXPress CXP-12	Quad12
3603-4 Coaxlink Quad CXP-12	CoaXPress CXP-12	Quad12-4
3620 Coaxlink Quad CXP-12 JPEG	CoaXPress CXP-12	Quad12J
3620-4 Coaxlink Quad CXP-12 JPEG	CoaXPress CXP-12	Quad12J-4
3621 Coaxlink Mono CXP-12	CoaXPress CXP-12	Mono12
3621-LH Coaxlink Mono CXP-12 LH	CoaXPress CXP-12	Mono12LH
3622 Coaxlink Duo CXP-12	CoaXPress CXP-12	Duo12
3622-LH Coaxlink Duo CXP-12 LH	CoaXPress CXP-12	Duo12LH
3623 Coaxlink Quad CXP-12 Value	CoaXPress CXP-12	Value12
3624 Coaxlink Quad CXP-12 DF	CoaXPress CXP-12	Quad12DF
3625 Coaxlink QSFP+	CoaXPress-over-Fiber CoF-10	QSFP+

Frame grabbers accessories

Product code and name	Icon
1625 DB25F I/O Adapter Cable	1625
1636 InterPC C2C-Link Adapter	1636
3300 HD26F I/O module for Coaxlink Duo PCIe/104	3300 <small>Not recommended for new designs</small>
3301 Thermal drain (Model 1) for Coaxlink Duo PCIe/104	3301 <small>Not recommended for new designs</small>
3302 DIN1.0/2.3 Coaxial cable for Coaxlink Duo PCIe/104	3302 <small>Not recommended for new designs</small>
3303 C2C-Link Ribbon Cable	3303
3304 HD26F I/O Adapter Cable	3304
3610 HD26F I/O Extension Module - TTL-RS422	3610 <small>Not recommended for new designs</small>
3612 HD26F I/O Extension Module - TTL-CMOS5V-RS422	3612 <small>Not recommended for new designs</small>
3613 JTAG Adapter Xilinx for Coaxlink	3613
3614 HD26F I/O Extension Module - Standard I/O Set	3614
3618 HD26F I/O Extension Module - Fast I/O	3618

Libraries

Product code and name	Icon
4400 eGrabber Gigalink	Gigalink
4400-EV eGrabber Gigalink 30-day evaluation license	GigalinkEV
4401 eGrabber Recorder	Recorder
4401-EV eGrabber Recorder 30-day evaluation license	RecorderEV

Tools

Product code and name	Icon
4403 eGrabber Studio	Studio
4406 eGrabber Driver	eGrabber

2.2. Firmware Variants per Product

List of available firmware variants per product supported by **eGrabber 24.04**

Pixel processing abbreviations

- *BIN*: Pixel binning
- *CFA-12*: Bayer CFA decoding - Methods 1 and 2
- *CFA-123*: Bayer CFA decoding - Methods 1, 2, and 3
- *CFA-125*: Bayer CFA decoding - Methods 1, 2, and 5
- *CFA-2-S0*: Bayer CFA decoding - Method 2 on Stream0
- *CFA-3*: Bayer CFA decoding - Method 3
- *CFA-35*: Bayer CFA decoding - Methods 3 and Method 5
- *CFA-35-D0*: Bayer CFA decoding - Methods 3 and 5 on Device0
- *FLIPX*: Horizontal image flipping
- *FFC*: Flat-field correction
- *JPEG-S1*: JPEG encoding on Stream1
- *LLE*: Laser line extraction
- *LUT*: Lookup table processing
- *MI*: Metadata insertion

1628 Grablink Duo

Firmware Variant	HCMAP	Processing	Description
1-camera	1D2_CL	LUT CFA-12	One 1- or 2-connection area-scan camera
1-camera, line-scan	1D2_CL	LUT MI	One 1- or 2-connection line-scan camera
2-camera	2D11_CL	LUT CFA-12	One or two 1-connection area-scan cameras
2-camera, line-scan	2D11_CL	LUT MI	One or two 1-connection line-scan cameras

1629 Coaxlink Duo PCIe/104-EMB and 1634 Coaxlink Duo PCIe/104-MIL

Firmware Variant	HCMAP	Processing	Description
1-camera	1D2	LUT	One 1- or 2-connection area-scan camera
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera
2-camera	2D11	LUT	One or two 1-connection area-scan cameras

1630 Coaxlink Mono

Firmware Variant	HCMAP	Processing	Description
1-camera	1D1	LUT	One 1-connection area-scan camera

1631 Coaxlink Duo

Firmware Variant	HCMAP	Processing	Description
1-camera	1D2	LUT	One 1- or 2-connection area-scan camera
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera
2-camera	2D11	LUT	One or two 1-connection area-scan cameras
2-camera, line-scan	2D11	LUT	One or two 1-connection line-scan cameras

1632 Coaxlink Quad

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	LUT	One 1- or 2- or 4-connection area-scan camera
1-camera, line-scan	1D4	LUT	One 1- or 2- or 4-connection line-scan camera
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras

1633 Coaxlink Quad G3 and 1633-LH Coaxlink Quad G3 LH

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	FFC LUT CFA-12	One 1- or 2- or 4-connection area-scan camera
1-camera, 4-data-stream	1D4S4		One 1- or 2- or 4-connection area-scan camera, up to 4 data streams
1-camera, line-scan	1D4	FFC LUT	One 1- or 2- or 4-connection line-scan camera
1-slm-camera	1D8SLM4	LUT	Master 4-connection sub-link of an 8-connection area-scan camera
1-sls-camera	1D8SLS4	LUT	Slave 4-connection sub-link of an 8-connection area-scan camera
2-camera	2D22	LUT CFA-35-D0	One or two 1- or 2-connection area-scan cameras
2-camera, bayer	2D22	CFA-35	One or two 1- or 2-connection area-scan cameras
2-camera, line-scan	2D22	LUT	One or two 1- or 2-connection line-scan cameras
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras
4-camera, line-scan	4D1111	LUT	One or two or three or four 1-connection line-scan cameras

1635 Coaxlink Quad G3 DF

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	LUT CFA-123	One 1- or 2- or 4-connection area-scan camera
1-df-camera	1DF4	LUT CFA-123	One 1- or 2- or 4-connection area-scan data-forwarded camera
1-camera, line-scan	1D4	FFC LUT	One 1- or 2- or 4-connection line-scan camera
1-df-camera, line-scan	1DF4	FFC LUT	One 1- or 2- or 4-connection line-scan data-forwarded camera

1637 Coaxlink Quad 3D-LLE

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	LUT LLE	One 1- or 2- or 4-connection area-scan camera

3602 Coaxlink Octo

Firmware Variant	HCMAP	Processing	Description
1-camera	1D8	LUT CFA-123	One 1- or 2- or 4- or 8-connection area-scan camera
1-camera, line-scan	1D8	LUT MI	One 1- or 2- or 4- or 8-connection line-scan camera
2-camera	2D44	FFC LUT CFA-125	One or two 1- or 2- or 4-connection area-scan cameras
2-camera, line-scan	2D44	LUT FLIPX MI	One or two 1- or 2- or 4-connection line-scan cameras
3-camera	3D422	LUT	One 1- or 2- or 4-connection and one or two 1- or 2-connection area-scan cameras
4-camera	4D2222	LUT	One or two or three or four 1- or 2-connection area-scan cameras
4-camera, line-scan	4D2222	LUT MI	One or two or three or four 1- or 2-connection line-scan cameras
5-camera	5D41111	LUT	One 1- or 2- or 4-connection and one or two or three or four 1-connection area-scan cameras
5-camera, 5D22211	5D22211	LUT	One or two or three 1- or 2-connection and one or two 1-connection area-scan cameras
8-camera	8D11111111	LUT	Up to eight 1-connection area-scan cameras

3603 Coaxlink Quad CXP-12 and 3603-4 Coaxlink Quad CXP-12

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera
1-camera, line-scan	1D4	LUT BIN MI	One 1- or 2- or 4-connection line-scan camera
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras
2-camera, line-scan	2D22	LUT MI	One or two 1- or 2-connection line-scan cameras
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras

3620 Coaxlink Quad CXP-12 JPEG and 3620-4 Coaxlink Quad CXP-12 JPEG

Firmware Variant	HCMAP	Processing	Description
4-camera	4D1111	CFA-2-S0 JPEG-S1	One or two or three or four 1-connection area-scan cameras

3621 Coaxlink Mono CXP-12 and 3621-LH Coaxlink Mono CXP-12 LH

Firmware Variant	HCMAP	Processing	Description
1-camera	1D1	LUT	One 1-connection area-scan camera
1-camera, line-scan	1D1	LUT	One 1-connection line-scan camera

3622 Coaxlink Duo CXP-12 and 3622-LH Coaxlink Duo CXP-12 LH

Firmware Variant	HCMAP	Processing	Description
1-camera	1D2	LUT CFA-3	One 1- or 2-connection area-scan camera
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera
2-camera	2D11	LUT	One or two 1-connection area-scan cameras
2-camera, line-scan	2D11	LUT	One or two 1-connection line-scan cameras

3623 Coaxlink Quad CXP-12 Value

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera
1-camera, line-scan	1D4	LUT BIN MI	One 1- or 2- or 4-connection line-scan camera
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras
2-camera, line-scan	2D22	LUT MI	One or two 1- or 2-connection line-scan cameras
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras

3624 Coaxlink Quad CXP-12 DF

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera
1-df-camera	1DF4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan data-forwarded camera
1-camera, line-scan	1D4	LUT MI	One 1- or 2- or 4-connection line-scan camera
1-df-camera, line-scan	1DF4	LUT MI	One 1- or 2- or 4-connection line-scan data-forwarded camera

3625 Coaxlink QSFP+

Firmware Variant	HCMAP	Processing	Description
1-camera	1D4	LUT CFA-12	One 1- or 2- or 4-connection area-scan camera
1-camera, line-scan	1D4	LUT MI	One 1- or 2- or 4-connection line-scan camera

2.3. Camera Interfaces Standard Compliance

CoaXPress standard

Coaxlink frame grabbers together with **eGrabber 24.04** comply with:

- *CoaXPress Standard 1.0*
- *CoaXPress Standard 1.1*
- *CoaXPress Standard 1.1.1*
- *CoaXPress Standard 2.0*
- *CoaXPress Standard 2.1¹*

In addition, **3625 Coaxlink QSFP+** complies with the *CoaXPress over Fiber Bridge Protocol 1.0*.

Camera Link standard

Grablink Duo together with **eGrabber 24.04** comply with Camera Link Standard version 2.1 (including PoCL).

¹ GenICam GenDC (Generic Data Container) support is optional in CoaXPress 2.1 and is currently not included.

2.4. Supported Operating Systems

Windows

eGrabber driver, eGrabber Studio, eGrabber Gigelink, eGrabber Recorder and GenICam Browser (Deprecated) are designed to support all Windows versions from 7 SP1 to 11, including the server versions, on **x86-64 (64-bit)** platforms.

[Release validation](#)

This release has been validated with the following Windows versions:

OS Name & Version	Platform	Notes
Microsoft Windows 8.1	x86-64 (64-bit)	Enterprise edition
Microsoft Windows 10	x86-64 (64-bit)	Enterprise edition - Version 20H2
		Enterprise edition - Version 21H2
Microsoft Windows 11	x86-64 (64-bit)	Enterprise edition - Version 21H2
		Enterprise edition - Version 22H2



NOTE

- The driver is signed by Microsoft.
- Power saving modes of the operating systems (StandBy, Sleep, Suspend...) are not supported.



WARNING

We will discontinue the distribution of the installation file of **eGrabber** for Windows 7 and Windows 8.1 after 2024-12-31.

Linux

eGrabber driver, eGrabber Studio, eGrabber Gigelink, eGrabber Recorder and GenICam Browser (Deprecated) are designed to be distribution-independent on **x86-64 (64-bit)**, and **AArch64 (64-bit)** platforms. They are expected to work with a wide range of distributions.

[Minimum kernel version requirements](#)

- eGrabber Gigelink requires kernel version 3.14 or higher
- Other tools and libraries requires kernel version 3.2 or higher

[GNU C library \(glibc\) requirements](#)

- eGrabber Studio requires glibc version 2.17 (or higher)
- Other tools and libraries require glibc version 2.17 (or higher) on **AArch64 (64-bit)**, version 2.15 (or higher) on **x86-64 (64-bit)**

[Release validation](#)

This release has been validated with the following distribution(s):

OS Name & Version	Platform	Notes
Linux Debian 7	x86-64 (64-bit)	Kernel version 3.2
Linux Fedora 33	x86-64 (64-bit)	Kernel version 5.8.15
Linux OpenSUSE Leap 15.4	x86-64 (64-bit)	Kernel version 5.14
Linux Ubuntu 17.04	x86-64 (64-bit)	Kernel version 4.10
Linux Ubuntu 18.04	AArch64 (64-bit)	Kernel version 5.4.0-42
Linux Ubuntu 20.04 LTS	x86-64 (64-bit)	Kernel version 5.15
Linux Ubuntu 22.04 LTS	AArch64 (64-bit)	Kernel version 5.15
Linux Ubuntu 23.10	x86-64 (64-bit)	Kernel version 6.5



NOTE

Power saving modes of the operating systems (StandBy, Sleep, Suspend...) are not supported.

macOS

eGrabber driver, eGrabber Studio and GenICam Browser (**Deprecated**) are designed to support **all macOS versions from version 10.14 on x86-64 (64-bit) platforms and all macOS versions from version 12.3 on AArch64 (64-bit) platforms.**

Release validation

This release has been validated with the following version(s):

OS Name & Version	Platform	Notes
macOS 10.15.7	x86-64 (64-bit)	A.k.a. Catalina
macOS 12.6.3	AArch64 (64-bit)	A.k.a. Monterey



NOTE

- The driver for macOS is signed by Euresys using a certificate that has been signed by Apple.
- Power saving modes of the operating systems (StandBy, Sleep, Suspend...) are not supported.

2.5. Memento

Memento version 4.0 or later is required when using **Coaxlink driver** version 4.0 or later.

Memento version 9.5 is required to use the **Memento Analyzer**.

2.6. Development Tools

eGrabber driver should be usable with any development tool that supports at least one of these interfaces:

C/C++

eGrabber driver provides three GenICam GenTL producers: `coaxlink.cti`, `grablink.cti` and `gigelink.cti`.

[coaxlink.cti](#)

`coaxlink.cti` supports **Coaxlink frame grabbers**, it includes following libraries:

- An `x86_64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of x86-64 (64-bit) applications.
- An `AArch64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of `AArch64` (64-bit) applications.

[grablink.cti](#)

`grablink.cti` supports **1628 Grablink Duo**, it includes following libraries:

- An `x86_64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of x86-64 (64-bit) applications.
- An `AArch64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of `AArch64` (64-bit) applications.

[gigelink.cti](#)

`gigelink.cti` supports GigE Vision cameras, it includes following libraries:

- An `x86_64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of x86-64 (64-bit) applications.
- An `AArch64` dynamic library designed to be used with ISO-compliant C/C++ compilers for the development of `AArch64` (64-bit) applications.

eGrabber

eGrabber driver also provides the eGrabber library, a library of C++ classes that provide a high-level interface.

- On Linux, the eGrabber library requires `GLIBCXX_3.4.21/CXXABI_1.3.9` → `libstdc++.so.6.0.21` or higher.

.NET

- **NEW** EGrabber.NET assembly for Windows, Linux and macOS (Any CPU) targeting .NET 6.0 (previously called .NET Core)
- EGrabber.NETFramework.dll: a .NET assembly designed to be used with development environments compatible with .NET Framework 4.6 or higher.
- Coaxlink_NetApi.dll: a .NET assembly designed to be used with development environments compatible with .NET Framework 4.0 or higher.



NOTE

- Updating an application to use EGrabber.NETFramework.dll or EGrabber.NET.dll instead of Coaxlink_NetApi.dll is easy and recommended.
- Coaxlink_NetApi.dll is deprecated and will be removed in the future.

Python

Python bindings for **eGrabber** allow users to call eGrabber functions and operate **Coaxlink and Grablink Duo frame grabbers** from Python scripts. They are compatible with Python 3.7 or higher under Windows, Linux and macOS.

On Windows, the eGrabber installer adds a shortcut in the Windows Start Menu to install the eGrabber Python bindings.

2.7. Software Tools

Software tools delivered together with eGrabber 24.04

Name	Description
eGrabber Gigalink	Licensed library providing a hardware-independent access to GigE Vision cameras.
eGrabber Recorder	Licensed library that enables image acquisition applications, such as eGrabber -based applications, to write acquired buffers to disk efficiently.
eGrabber Studio	GUI tool for testing the image acquisition with eGrabber from Camera Link, CoaXPress and GigE Vision cameras and upgrading the firmware of Coaxlink and Grablink Duo frame grabbers .
Firmware Manager Console	Command-line tool for installing or upgrading the firmware embedded in Coaxlink and Grablink Duo frame grabbers .
GenICam Browser (Deprecated)	GUI tool giving access to all the GenApi features exposed by the GenTL Producer(s) in your system.
GenTL Console	Command-line tool giving access to all the functions and commands exposed by the Euresys GenTL Producer.



NOTE

- **eGrabber Gigalink** and **eGrabber Recorder** require the user to purchase and activate a license to be operated. They are compatible with Euresys' **Neo Licensing System**.
- The **eGrabber driver**, **eGrabber Studio**, the **Firmware Manager Console**, the **GenICam Browser (Deprecated)** and the **GenTL Console** can be used free of charge with other Euresys products.
- Starting from release 23.04, **eGrabber Studio** includes a **Firmware Manager**.
- **GenICam Browser** is deprecated and will be removed in a future release. It is still available as **GenICam Browser [Deprecated]** in this release.

3. Important Notices

Important notifications to be read before installing and/or using the product on your PC!

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3.1. Firmware Version Requirements

Minimum firmware version number required by eGrabber 24.04

The following table lists, for each product/firmware variant combination, the *minimum firmware version number* required to use this driver:

Product/Firmware Variant Combinations	Min. Firmware Version Number
3624 Coaxlink Quad CXP-12 DF (All firmware-variants)	444
Other product/firmware variants	445



WARNING

eGrabber driver checks the compatibility of the firmware installed on every frame grabber. For those having an incompatible firmware, the GenTL driver exposes 0 (zero) Device.

If the requirement is not satisfied for all the **Coaxlink and Grablink Duo frame grabbers** in your system, it is *mandatory* to apply the Firmware Upgrade procedure prior to using this version of the driver.

3.2. CPU Requirements

The image converter requires a CPU that has the Supplemental Streaming SIMD Extension 3 (SSSE3) instruction set.

3.3. Image Buffer Limits

Maximum buffer size

0xffffffff0 bytes (4 GiB - 16 B) for all operating systems

Number of buffers

The number of buffers is only limited by available system resources.

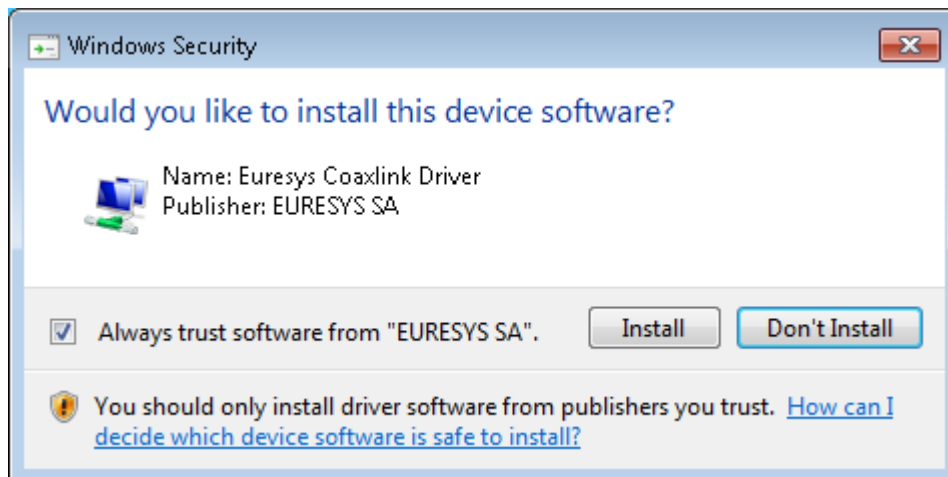
NOTE: when using very large numbers of buffers, DSAnnounceBuffer calls can take longer and longer to complete (or even fail with error code GC_ERR_CUSTOM_IOCTL_BUFFER_ANNOUNCE_FAILED). If this happens, the user should set **DmaEngineOptimization=LowMemoryUsage** in the data stream module.

3.4. Notices for Windows

Important notifications to be read before installing and/or using the product on your Windows PC

Always trust Euresys code-signing certificate on Windows 7 and 8.1

The following Windows Security warning message may occur at driver installation on Microsoft Windows 7 and 8.1:

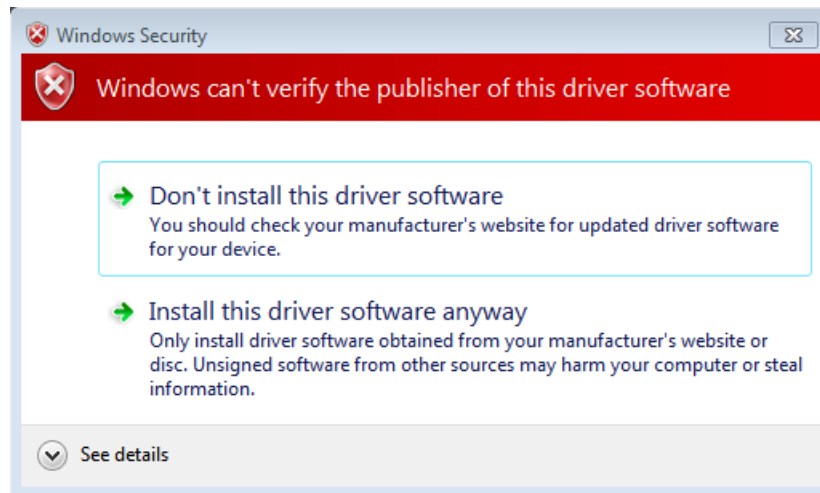


This Windows security warning message occurs when the Euresys code-signing certificate is missing from the "Trusted Publishers" Windows Certificate store. This happens, for instance, when the Euresys code-signing certificate must be renewed.

Follow the instructions to install the current Euresys code-signing certificate into the "Trusted Publishers" Windows certificate store.

Missing time-stamping certificate

The following Windows Security warning message may occur at driver installation on Microsoft Windows:



This Windows security warning occurs when the **GlobalSign Root CA - R6** certificate is missing from the Windows certificate store.

This issue can be solved by installing this missing certificate which can be downloaded [here](#) on the GlobalSign website then installed in the Trusted Root Certification Authorities (local computer) certificate store.

3.5. Notice for Linux

Important notification to be read before installing and/or using the product on your Linux PC

Memento must be installed prior to **eGrabber**.

If the **eGrabber** package is already installed, proceed as follows:

1. Uninstall **eGrabber**.
2. Install **Memento**.
3. Re-install **eGrabber**.

3.6. Notices for macOS

Important notifications to be read before installing the driver on your Mac

Driver types

Install the **Memento** package corresponding to the **eGrabber** driver type:

eGrabber driver package	Memento package
egrabber-macos-aarch64-dext-<MA.MI.RE.BU>.pkg	memento-macos-aarch64-dext-<MA.MI.RE.BU>.pkg
egrabber-macos-aarch64-kext-<MA.MI.RE.BU>.pkg	memento-macos-aarch64-kext-<MA.MI.RE.BU>.pkg
egrabber-macos-x86_64-kext-<MA.MI.RE.BU>.pkg	memento-macos-x86_64-kext-<MA.MI.RE.BU>.pkg



TIP

dext drivers operate in user-mode using the default Full Security policy level. It is not necessary to change the security setting.

Reduced Security level (only for kext drivers on Mac computers with Apple silicon)

Kernel extensions must be explicitly enabled before the installation of Euresys -aarch64-kext-packages on Mac computers with Apple silicon.

See <https://support.apple.com/fr-be/guide/security/sec8e454101b/web>

To enable kernel extensions on a Mac with Apple silicon:

1. Enter macOS recovery
2. In `Utilities > Startup Security Utility > Security Policy`
 - a. Select `Reduced Security`
 - b. Check `Allow user management of kernel extensions from identified developers`
3. Restart the system

Step 3. Approval of kernel extension (only for kext drivers on Mac computers with Apple silicon)

After installing **eGrabber** or **Memento** Euresys -aarch64-kext packages, newly installed Euresys kernel extensions must be approved by the administrator in the `Security and Privacy preferences` and the system needs to be restarted.

3.7. Flash EEPROM Change Note



WARNING

Important notification to be read before installing and/or using the product on your PC!

Several **Coaxlink frame grabbers** will undergo a hardware change of the Flash EEPROM control logic.



NOTE

The Flash EEPROM is the memory that stores the contents of the on-board FPGA.

Affected products list

Product	S/N Prefix	First Serial Number of New Cards
1629 Coaxlink Duo PCIe/104-EMB	KDI	10,000
1633 Coaxlink Quad G3	KQG	10,000
1633-LH Coaxlink Quad G3 LH	KQH	10,000
1635 Coaxlink Quad G3 DF	KDF	10,000
1637 Coaxlink Quad 3D-LLE	KQE	10,000

Consequences

Existing applications using a **Coaxlink driver** prior to version 10.0.0 are required to use a new procedure to install or update the firmware on new boards.

The change has no impact for applications already using **Coaxlink driver 10.0.0** or higher.

With the exception of the firmware update, the change has strictly no impact on the product functionality, performance and specifications:

- The hardware design of these new cards, including the CoaXPress interface, PCI Express interface, the FPGA and the I/O, has not been changed.
- The functionality, performance and specification of the new cards is guaranteed to remain unchanged. Once programmed with the corresponding firmware, the new cards remain compatible with all previous versions of the **Coaxlink driver**.



TIP

For further information, read the *D207EN-Flash EEPROM Change Note* PDF document.

4. Release Details

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4.1. Features Updates

Added and improved features in eGrabber 24.04

eGrabber

- **NEW** Added new member `deviceSerialNumber` to `EGrabberInfo` (cf. `EGrabberDiscovery`) storing information from the `DEVICE_INFO_SERIAL_NUMBER` command, collected during the discovery; the field is available in C++, Python and .NET

GenApi

- **NEW** Added support for `PollingTime` element (hint to invalidate cache) to `Command`, `Enumeration` and `Register` nodes. Added virtual features `@poll` and `@pollable`:
 - `@poll`: invalidate and report features with expired polling time
 - `@pollable`: list features with a defined polling time

Coaxlink, Grablink and Gigelink

- `StreamStatistics` features now have a polling time defined to 1 second; **eGrabber Studio** refreshes them every second when they are visible

eGrabber Recorder

- Added parameter `RECORDER_PARAMETER_DEVICE_TEMPERATURE`

eGrabber Studio

- **NEW** Added the possibility to undock the `Output` and the `Features` panes to display them in individual windows
- Show device user name (or serial number if there is no defined user name) of discovered cameras in the `Welcome Tab`; the device serial number also appears as camera (or device) tooltip in the `Welcome Tab`
- Automatically refresh visible features according to their `PollingTime` hint if defined
- Show GenApi Command features currently in progress with a spinning icon
- Buffer queue allocation is no longer automatically performed when opening a grabber
- `Buffer Pane` user interface provides more details and feedback while reconfiguring the buffer queue, including the possibility to abort the operation

4.2. Solved Issues

Solved issues in eGrabber 24.04

Coaxlink and Grablink Duo

- Fixed a bug in macOS dext packages that could lead to GC_ERR_CUSTOM_DRIVER_IO_ERROR errors in rare circumstances

eGrabber Studio

- Fixed an issue that could lead to an empty tab when closing the Firmware Manager in some conditions
- Fixed memory leaks
- Avoid unnecessary buffer queue reallocation occurring sometimes when starting the acquisition after an explicit buffer queue reconfiguration

4.3. Firmware Changes

[Revision 445](#)

Applies to	Description
3602 Coaxlink Octo 3603 Coaxlink Quad CXP-12 3603-4 Coaxlink Quad CXP-12 3623 Coaxlink Quad CXP-12 Value 3625 Coaxlink QSFP+	Improve FPGA die temperature reporting
3602 Coaxlink Octo (line-scan variants) 3603 Coaxlink Quad CXP-12(line-scan variants) 3603-4 Coaxlink Quad CXP-12 (line-scan variants) 3623 Coaxlink Quad CXP-12 Value(line-scan variants) 3625 Coaxlink QSFP+(line-scan variants)	Add support of BufferFilledRule=DiscardRemainingData

4.4. Breaking Changes

Changes in the API that are not backward compatible

Since eGrabber 22.08

eGrabber Recorder : Removed asynchronous writes

- The eGrabber Recorder binary interface has not changed, however the arguments related to async handles are no longer functional; applications using this API need to be adapted (depending on the application architecture, a dedicated thread will be required to perform the writes in the background).
- The Recorder Python bindings have been adapted to remove the asynchronous writes as well as the Record flags (e.g. `recorder.read()` now returns a tuple with 2 elements instead of 3).

Since eGrabber 22.05

Previously, `enableEvent<NewBufferData>` was implicitly performed in the constructor of `EGrabber`.

Now, `enableEvent<NewBufferData>` is performed in `start` unless `NewBufferData` event has been disabled beforehand; any attempt to pop a `NewBufferData` structure before `start` and without explicitly enabling `NewBufferData` event will lead to an error.

Since eGrabber 19.0

The minimal GLIBC version required for x86-64 (64-bit) Linux binaries is now 2.14.

Since eGrabber 14.0

BUFFER_INFO_SIZE_FILLED

`BUFFER_INFO_SIZE_FILLED` now reports the number of bytes transferred, excluding padding (if any)

`BUFFER_INFO_DATA_SIZE` reports the value that was previously reported by `BUFFER_INFO_SIZE_FILLED`

Since Coaxlink 12.2

New default value of CxpLinkConfigurationOption

NeverWrite is the new default value of CxpLinkConfigurationOption.



NOTE

The recommended way to set the CoaXPress link configuration is by using the equivalent feature in the remote device module; this can be named ConnectionConfig, LinkConfig, or CxpLinkConfiguration depending on the camera.



WARNING

Alternatively, the previous behavior can be restored by setting CxpLinkConfigurationOption to AlwaysWrite. However, the GenApi cache for this register might become invalid!

Since Coaxlink 12.0

1637 Coaxlink Quad 3D-LLE

STREAM_INFO_CUSTOM_WIDTH and BUFFER_INFO_WIDTH are now multiplied by two if two laser-lines are extracted

.NET Framework compatibility

The Coaxlink .NET assembly targets:

- the .NET framework 2.0 in Coaxlink versions up to 11.x
- the .NET framework 4.0 in Coaxlink versions 12.0 and higher

Since Coaxlink 11.1

Behavior of 1637 Coaxlink Quad 3D-LLE from firmware revision 285.

The line pitch alignment has been changed to 16 bytes (before firmware revision 285, the line pitch alignment of the card was 8 bytes); this means the Width of the camera must be a multiple of 16 (Mono8).

When the extraction is disabled, the card behaves like an area-scan variant (and the data stream feature **BufferHeight** is not available); when the extraction is enabled, **BufferHeight** is available and determines the number of profiles to extract; when the extraction is disabled, applications no longer require extra care to make sure acquisitions always start with the first line of the acquired images.

CoaXPress

Ignore any remote device whose master connection is not connected to the first connector of a Coaxlink Device; the driver now requires a master connection to be connected to the first connector whereas the extension connections can be connected to the remaining Coaxlink Device connectors in any order.

See also: "Firmware Variants per Product" on page 8 for the applicable connection schemes.

Updated ImageConvertInput and ImageConvertOutput structures

Subsequent potential build issues can be fixed by either:

1. using `IMAGE_CONVERT_INPUT` and `IMAGE_CONVERT_OUTPUT` initialization macros (recommended approach) or
2. adding the suffix `Version0` to `ImageConvertInput` and `ImageConvertOutput` types.

NOTE: Users of EGrabber are not affected by this breaking change

Since Coaxlink 10.3

PayLoadSize Behavior

The feature `PayLoadSize` is not available anymore when the remote device `Width` is not in line with the data stream `Width.Inc`

Since Coaxlink 10.2

Additional constructor parameter required

The grabber classes (based on EGrabber) instantiated by EGrabbers require the additional constructor parameter (bool `remoteRequired`).

See also: sample "213-egrabbers" for details

Since Coaxlink 10

Deprecated functions from namespace Euresys

Deprecated the functions `Features`, `RegexFeatures`, `GlobFeatures`, `EnumEntries`, `RegexEnumEntries`, `GlobEnumEntries` from namespace `Euresys`, which are still available by #defining `EURESYS_USE_NS_EURESYS_DEPRECATED_API`.

Two options to fix user code:

1. *Recommended change* Replace all occurrences of:
 - `Euresys::Features()` by `Euresys::query::features()`
 - `Euresys::RegexFeatures(re)` by `Euresys::query::features().regex(re)`
 - `Euresys::GlobFeatures(g)` by `Euresys::query::features().glob(g)`
 - `Euresys::EnumEntries(f)` by `Euresys::query::enumEntries(f)`
 - `Euresys::RegexEnumEntries(f, re)` by `Euresys::query::enumEntries(f).regex(re)`
 - `Euresys::GlobEnumEntries(f, g)` by `Euresys::query::enumEntries(f).glob(g)`
2. Or add `#define EURESYS_USE_NS_EURESYS_DEPRECATED_API` before `#include <EGrabber.h>` (or `#include <EGenTL.h>`), a quick fix that doesn't require changing source code.

Since Coaxlink 9.3.1

Removed data stream event counts from the list of possible contexts of device event notifications

Removed data stream event counts from the list of possible contexts of device event notifications.

`StartOfCameraReadoutEventCount`, `EndOfCameraReadoutEventCount`, `StartOfScanEventCount`, `EndOfScanEventCount`, `RejectedFrameEventCount`, and `RejectedScanEventCount` are no longer valid values for `EventNotificationContext1`, `EventNotificationContext2`, and `EventNotificationContext3` in the device module.

Since Coaxlink 9.3

Reset of StartOfScanTriggerSource, EndOfScanTriggerSource and ScanLength features

Data stream features `StartOfScanTriggerSource`, `EndOfScanTriggerSource` and `ScanLength` are now reset by the data stream feature `StreamReset`. Previously, they were reset by the device feature `DeviceReset`.

Since Coaxlink 9.2

GenApi Features Range Checking

Range checking will prevent applications from setting forbidden values to camera features. A meaningful error will be reported if such an event should happen.

Since Coaxlink 9.1.1

Camera Model - Exposure Time Range Boundaries

When `ExposureTimeMin` and/or `ExposureTimeMax` are/is set, the order in which the features `ExposureTimeMin`, `ExposureTimeMax` and `ExposureTime` are set is imposed by the constraints.

Since Coaxlink 7.1.1

GenTL 1.5 Header File

Moved to standard GenTL 1.5 header file (was previously GenTL 1.4):

- GenTL 1.5 changed namespace from GenlCam::Client to GenTL,
- Coaxlink custom GenTL definitions have been moved accordingly from the namespace GenlCam::Client::Euresys to namespace GenTL::EuresysCustomGenTL,
- replaced header file GenTL_v1_4.h by GenTL_v1_5.h,
- replaced header file GenTL_v1_4_EuresysCustom.h by GenTL_v1_5_EuresysCustom.h.

Euresys::GenTL Class Renaming

Renamed the class Euresys::GenTL into Euresys::EGenTL to avoid name conflicts with the new standard GenTL 1.5 namespace GenTL. This will impact any code using the class Euresys::GenTL:

- renamed header file EuresysGenTL.h into EGenTL.h,
- renamed header file EuresysGenTLErrors.h into EGenTLErrors.h,
- Euresys::EGenTL is now declared in header file EGenTL.h.

Deprecated Euresys::SharedGenTL Class

Deprecated the class Euresys::SharedGenTL, which is still available by defining EURESYS_USE_SHAREDGENTL_DEPRECATED_API.

Two options to fix user code:

1. *Recommended change* Replace all occurrences of Euresys::SharedGenTL by Euresys::EGenTL,
2. Or add `#define EURESYS_USE_SHAREDGENTL_DEPRECATED_API` before `#include <EGrabber.h>`, a quick fix that doesn't require changing source code.

GenTL 1.5 Changes

Announcing or revoking buffers while acquiring returns the error code GC_ERR_BUSY (was GC_ERR_RESOURCE_IN_USE for GenTL 1.4)

Revoking a queued buffer returns the error code GC_ERR_BUSY (was GC_ERR_RESOURCE_IN_USE for GenTL 1.4)

New device access status values (defined by GenTL 1.5) returned by the GenTL functions IFGetDeviceInfo and DevGetInfo for the command DEVICE_INFO_ACCESS_STATUS:

- DEVICE_ACCESS_STATUS_OPEN_READWRITE: when the device is opened by the current producer with read/write access
- DEVICE_ACCESS_STATUS_OPEN_READONLY: when the device is opened by the current producer with read-only access

Since Coaxlink 7.0.0

OemSafetyKey Length

The length of `ProgramOemSafetyKey` and `CheckOemSafetyKey` is now limited by a user-configurable `MaximumOemKeyLength` (4096 characters by default)

LUT Configuration Locking

LUT configuration features (datastream) are locked while grabbing.

CIC Features Availability

Features related to the CIC (device) are not available when `CameraControlMethod` is `NC` or `EXTERNAL`.

Since Coaxlink 4.6.1

EGrabber API

Deprecated EGrabber method `announceBuffer` (superseded by `announceAndQueue`).

Two options to fix user code:

1. *Recommended change* Replace all occurrences of `announceBuffer` by `announceAndQueue` (`GenTLMemory(...)` or `announceAndQueue(UserMemory(...))`),
2. Or add `#define EURESYS_USE_EGRABBER_DEPRECATED_API` before `#include <EGrabber.h>`.

Since Coaxlink 4.5.1

Euresys Name Space for EGrabber Classes

EGrabber C++ classes now belong to Euresys namespace.

Two options to fix user code:

1. *Recommended change* Replace each occurrence of EGrabber by `Euresys::EGrabber`,
2. Or add `using namespace Euresys;` after `#include <EGrabber.h>`.

Since Coaxlink 4.4.1

EGrabber API

The API of EGrabber .NET classes have changed since Coaxlink 4.4.0 beta
GenTL class now behaves like `SharedGenTL`, which is what most users need

- The GenTL constructor accepts a new argument, named `shared`, which can be used to revert to the old behavior.

RGBConverter.h

Added `inplace1x2yeReordering` methods instead of `Inplace1x2yeReordering` class

- User code needs to be adapted to call `inplace1x2yeReordering` instead of creating an `Inplace1x2yeReordering` instance, please see `include/RGBConverter.h` for a code sample.

Since Coaxlink 4.4.0

.NET Assembly

Added new assembly exposing EGrabber classes, previous CoaxlinkGrabber classes are removed from the assembly.

EGrabber

Deprecated getInfoString methods (replaced by getInfo).

Two options to fix user code:

1. *Recommended change* Replace all occurrences of getInfoString<module> (and getBufferInfoString) by getInfo<module, std::string> (and getBufferInfo<std::string>)
2. Or add `#define EURESYS_USE_EGRABBER_DEPRECATED_API` before `#include <EGrabber.h>`.

GenTL C++ class

Deprecated bayerConvert

Though the function bayerConvert is superseded by the image converter, it is still possible to use it, if required please add `#define EURESYS_USE_BAYER_DEPRECATED_API` before `#include <EuresysGenTL.h>` or `#include <EGrabber.h>`

Since Coaxlink 4.3

Data Stream Module GenApi feature

UnpackingMode: Changed default value to LSB (instead of MSB)

Since Coaxlink 4.1

Device Module Features

Merged `CycleTriggerSource` and `CycleHardwareTriggerSource` features.

Renamed `CycleSoftwareTrigger` into `StartCycle`.

Renamed `CyclePeriodTarget` into `CycleMinimumPeriod`.

Renamed `ErrorCounter` into `ErrorCount`.

Renamed `ErrorCounterReset` into `ErrorCountReset`.

Removed backward compatibility for deprecated features: `TriggerSource`, `TargetFramePeriod`, `ExposureRecovery`.

5. Known Issues

Known issues of eGrabber 24.04

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5.1. 1628 Grablink Duo Limitations

Unsupported device types and unavailable features of 1628 Grablink Duo in eGrabber 24.04

Applies to:

Duo

Unsupported device types

Color RGB cameras (other than RGB8)

- RGB10, RGB12, RGB14, RGB16 color cameras
- RGBI color cameras
- Bayer CFA bilinear color line-scan cameras

Cameras with specific Camera Link requirements

- Camera Link Lite configuration
- Skipping Camera Link clocks at begin-of-line
- Skipping LVAL lines at begin-of-frame
- Using DVAL as a clock qualifier

Cameras with specific tap configurations and geometries

- Tap configurations for RGB10, RGB12, RGB14, RGB16 pixels (*T30, *T36, *T42, *T48)
- Tap configurations for all RGBI pixels (*T32, *T40, *T48, *T56, *T64)
- Tap configurations with multiple time slots (*B3)
- All geometries with more than 1-tap along the Y-direction (*_1Y2, *_1Y3 and *_2YE)
- 4X2E_1Y geometry with DECA_8T10 configuration

See also: Check the availability with the "Camera Link Tap Configuration and Tap Geometry Selector" tool in the Resources section of the [Grablink Duo](#) documentation

Unavailable features

Pixel processing

- White Balance Operator

Image processing

- Horizontal image flipping
- Vertical image flipping
- Image cropping

Other features

- Connect Camera Link enable signals of Channel Links Y and Z as general-purpose inputs
- C2C Synchronization QDC forwarding

5.2. Deviations from the GenTL Specification

EventKill

GenTL specification

The GenTL specification states that:

- In case of multiple pending wait operations EventKill causes one wait operation to return with a GC_ERR_ABORT error code.
- This means that if more than one thread waits for an event, the EventKill function terminates only one wait operation and other threads will continue execution.
- Therefore in order to cancel all pending wait operations EventKill must be called as many times as wait operations are pending.
- In case this function is called while no wait operation was pending the next call to EventGetData will return a GC_ERR_ABORT.



NOTE

- This implementation is prone to race conditions: calling EventKill N times in a row to kill exactly N waiting threads is not guaranteed to work as expected because signaling an event that is already in the signaled state has no effect. In other words, some of the EventKill calls could have no effect.
- EventKill as specified is not easy to use: How many EventKill calls are required? How many EventGetData calls should we expect to return GC_ERR_ABORT? Note that race conditions affect these questions.

Euresys GenTL implementation

The Euresys GenTL implementation solves these issues, but differs slightly:

- EventKill aborts all pending wait operations on the event handle.
- EventKill has no impact on subsequent wait operations.

DSStopAcquisition

GenTL specification

The GenTL specification states that:

- Each call to DSStartAcquisition must be accompanied by a call to DSStopAcquisition.
- Argument iNumToAcquire passed to DSStartAcquisition sets the number of filled delivered buffers after which the acquisition engine stops automatically.
- There must be a call to DSStopAcquisition accompanying each call to DSStartAcquisition even though the stream already stopped because the number of frames to acquire was reached.
- DSStopAcquisition returns GC_ERR_RESOURCE_IN_USE when the acquisition engine has already been terminated or has not been started.

Euresys GenTL implementation

The Euresys GenTL implementation differs slightly:

- DSStopAcquisition will not return GC_ERR_RESOURCE_IN_USE if the data stream hasn't been started.
- DSStopAcquisition will not return GC_ERR_RESOURCE_IN_USE if the data stream has already been stopped by a prior call to DSStopAcquisition.
- DSStopAcquisition will not return GC_ERR_RESOURCE_IN_USE if the data stream has stopped automatically after iNumToAcquire images have been captured.

In other words, DSStopAcquisition is idempotent: it can be applied multiple times without changing the result beyond the initial application.

With the Euresys implementation, it is not necessary to treat some errors as normal, and race conditions (between DSStopAcquisition and the automatic stop of the data stream) are avoided. Furthermore, if the data stream has stopped automatically after acquiring iNumToAcquire images, DSStartAcquisition can be called without first calling DSStopAcquisition.

5.3. Deviations from the PCIe 3.0 Specification

Applies to ¹

QuadG3

QuadG3LH

QuadG3DF

1633 Coaxlink Quad G3, 1633-LH Coaxlink Quad G3 LH and 1635 Coaxlink Quad G3 DF operate only at PCIe 2.0 and PCIe 3.0 link speeds.

These products cannot be used when inserted in PCIe revision 1.x slots.

5.4. GenlCam Browser (Deprecated) and gentl view Limitations

Only images having a width aligned on a 4-bytes boundary can be displayed correctly.

¹ 1633 Coaxlink Quad G3, 1633-LH Coaxlink Quad G3 LH and 1635 Coaxlink Quad G3 DF.