euresys
an Allied Vision brand

RELEASE NOTES

eGrabber

eGrabber 26.04 Release Notes

Document **D201EN-eGrabber Release Notes-eGrabber-26.04.1.2216** built on **2026-04-30**

This documentation is provided with **eGrabber 26.04.1** (doc build **2216**).
https://www.euresys.com

Contents

1. Release Benefits

*Benefits of added or improved features of **eGrabber 26.04***

eGrabber

Python Bindings documentation

This release of **eGrabber** adds a new HTML documentation for eGrabber Python bindings.

HorizontalPlanar to Planar conversion

This release of **eGrabber** adds the HorizontalPlanar to Planar conversion feature to the datastream of Coaxlink and Grablink frame grabbers.

2. Release Specification

2.1. Supported Products

This topic shows, for each product series and sub-series, the list of officially[1] supported products by **eGrabber 26.04**.

- The **Product code and name** column shows the order code and the official name of the product.
- The **Class** column shows the functional class of the product (e.g.: Frame Grabber, I/O Extension ...).
- The **Icon** column shows the product icon used in this documentation package.

Camera Link products

Product code and name	Class	Icon	First release
[PC1628] Grablink Duo	Frame Grabber		eGrabber 23.02

CoaXPress CXP-6 products

Product code and name	Class	Icon	First release
[PC1629] Coaxlink Duo PCIe/104-EMB	Frame Grabber		Coaxlink 7.0
[PC1630] Coaxlink Mono	Frame Grabber		Coaxlink 2.0
[PC1631] Coaxlink Duo	Frame Grabber		Coaxlink 2.0
[PC1632] Coaxlink Quad	Frame Grabber		Coaxlink 1.0
[PC1633] Coaxlink Quad G3	Frame Grabber		Coaxlink 4.0
[PC1633-LH] Coaxlink Quad G3 LH	Frame Grabber		Coaxlink 11.1
[PC1635] Coaxlink Quad G3 DF	Frame Grabber		Coaxlink 5.0
[PC1637] Coaxlink Quad 3D-LLE	Frame Grabber		Coaxlink 9.0
[PC3602] Coaxlink Octo	Frame Grabber		Coaxlink 10.0

CoaXPress CXP-12 products

Product code and name	Class	Icon	First release
[PC3603] Coaxlink Quad CXP-12	Frame Grabber		Coaxlink 10.4
[PC3603-4] Coaxlink Quad CXP-12	Frame Grabber		eGrabber 15.0

[1] Excluding preliminary products

Product code and name	Class	Icon	First release
[PC3621] Coaxlink Mono CXP-12	Frame Grabber	Mono12 REQ	Coaxlink 12.4
[PC3621-LH] Coaxlink Mono CXP-12 LH	Frame Grabber	Mono12LH	Coaxlink 12.4
[PC3622] Coaxlink Duo CXP-12	Frame Grabber	Duo12	Coaxlink 12.4
[PC3622-LH] Coaxlink Duo CXP-12 LH	Frame Grabber	Duo12LH REQ	Coaxlink 12.4
[PC3623] Coaxlink Quad CXP-12 Value	Frame Grabber	Value12	eGrabber 23.08
[PC3624] Coaxlink Quad CXP-12 DF	Frame Grabber	Quad12DF	eGrabber 24.03
[PC3633] Coaxlink Quad CXP-12 3D-LLE	Frame Grabber	Quad12LLE	eGrabber 24.12

CoaXPress-over-Fiber products

Product code and name	Class	Icon	First release
[PC3625] Coaxlink QSFP+	Frame Grabber	QSFP+	eGrabber 17.0
[PC3628] Coaxlink QSFP28	Frame Grabber	QSFP28	eGrabber 25.10
[PC3629] Coaxlink CXP-12 to QSFP+ Converter	Converter	QSFP+Conv	eGrabber 24.10

Accessories

Product code and name	Class	Icon	First release
[PC1625] DB25F I/O Adapter Cable	Cable Adapter	1625	
[PC1636] InterPC C2C-Link Adapter	Adapter	1636	Coaxlink 8.0
[PC1676] AC-DC Power Adapter, 24V, 160W	Power Adapter	1676	eGrabber 24.10
[PC3300] HD26F I/O module for Coaxlink Duo PCIe/104	I/O Module	3300 EOL	
[PC3301] Thermal drain (Model 1) for Coaxlink Duo PCIe/104	Heatsink	3301 EOL	
[PC3302] DIN1.0/2.3 Coaxial cable for Coaxlink Duo PCIe/104	Cable	3302 EOL	
[PC3303] C2C-Link Ribbon Cable	Cable	3303	
[PC3304] HD26F I/O Adapter Cable	Cable Adapter	3304	
[PC3610] HD26F I/O Extension Module - TTL-RS422	I/O Extension	3610 EOL	Coaxlink 10.4
[PC3612] HD26F I/O Extension Module - TTL-CMOS5V-RS422	I/O Extension	3612 EOL	Coaxlink 10.4
[PC3613] JTAG Adapter Xilinx for Coaxlink	Cable Adapter	3613	

Product code and name	Class	Icon	First release
[PC3614] HD26F I/O Extension Module - Standard I/O Set	I/O Extension	3614	Coaxlink 10.4
[PC3618] HD26F I/O Extension Module - Fast I/O	I/O Extension	3618	
[PC6514] Neo USB Dongle (empty)	Dongle	6514	
[PC6516] Neo USB Header (empty)	Dongle	Prelim 6516	

Software libraries

Product code and name	Class	Icon	First release
[PC4401] eGrabber Recorder	Library Instance	Recorder	eGrabber 15.1
[PC4401-EV] eGrabber Recorder 30-day evaluation license	Library Instance	RecorderEV	eGrabber 16.0

Free software

Product code and name	Class	Icon	First release
[PC4400] eGrabber Gigelink	Library Instance	Gigelink	eGrabber 15.0
[PC4403] eGrabber Studio	Application	Studio	eGrabber 22.03
PC4405 eGrabber Memento	Application	Memento	
PC4406 eGrabber Driver	Driver	eGrabber	

Product code and name	Class	Icon	First release
[PC4400] eGrabber Gigelink	Library Instance	Gigelink	eGrabber 15.0
[PC4403] eGrabber Studio	Application	Studio	eGrabber 22.03
PC4405 eGrabber Memento	Application	Memento	
PC4406 eGrabber Driver	Driver	eGrabber	

2.2. Firmware Variants

This topic shows, for each officially supported product (group), the list of officially available[1] firmware variants provided with **eGrabber 26.04**.

- The **Firmware variant** column shows the name of the firmware variant.
- The **HCMAP** column shows the Host Connection Map[2] .
- The **Features** column shows the main features of the firmware variant.
- The **Description** column shows a one-phrase description of the connection scheme.
- The **Rev.** column shows the revision number of the firmware delivered with this release.

[PC1628] Grablink Duo

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D2_CL	LUT CFA-12	One 1- or 2-connection area-scan camera	516
1-camera, line-scan	1D2_CL	LUT MI PLANAR	One 1- or 2-connection line-scan camera	516
2-camera	2D11_CL	LUT CFA-12	One or two 1-connection area-scan cameras	516
2-camera, line-scan	2D11_CL	LUT MI PLANAR	One or two 1-connection line-scan cameras	516

[PC1629] Coaxlink Duo PCIe/104-EMB

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D2	LUT	One 1- or 2-connection area-scan camera	506
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera	506
2-camera	2D11	LUT	One or two 1-connection area-scan cameras	506

[PC1630] Coaxlink Mono

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D1	LUT	One 1-connection area-scan camera	506

[PC1631] Coaxlink Duo

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D2	LUT	One 1- or 2-connection area-scan camera	506
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera	506
2-camera	2D11	LUT	One or two 1-connection area-scan cameras	506
2-camera, line-scan	2D11	LUT	One or two 1-connection line-scan cameras	506

[1] Excluding custom firmware variants

[2] Specific assignment of the Device connections to the Host connectors

[PC1632] Coaxlink Quad

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LUT	One 1- or 2- or 4-connection area-scan camera	506
1-camera, line-scan	1D4	LUT	One 1- or 2- or 4-connection line-scan camera	506
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras	506

[PC1633] Coaxlink Quad G3 and [PC1633-LH] Coaxlink Quad G3 LH

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	FFC LUT CFA-12	One 1- or 2- or 4-connection area-scan camera	506
1-camera, 4-data-stream	1D4S4		One 1- or 2- or 4-connection area-scan camera, up to 4 data streams	506
1-camera, line-scan	1D4	FFC LUT FLIPX	One 1- or 2- or 4-connection line-scan camera	506
2-camera	2D22	LUT CFA-35-D0	One or two 1- or 2-connection area-scan cameras	506
2-camera, bayer	2D22	CFA-35	One or two 1- or 2-connection area-scan cameras	506
2-camera, line-scan	2D22	LUT FLIPX	One or two 1- or 2-connection line-scan cameras	506
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras	506
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	506
4-camera, line-scan	4D1111	LUT	One or two or three or four 1-connection line-scan cameras	506

[PC1635] Coaxlink Quad G3 DF

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LUT CFA-123	One 1- or 2- or 4-connection area-scan camera	508
1-df-camera	1DF4	LUT CFA-123	One 1- or 2- or 4-connection area-scan data-forwarded camera	508
1-camera, line-scan	1D4	FFC LUT FLIPX	One 1- or 2- or 4-connection line-scan camera	508
1-df-camera, line-scan	1DF4	FFC LUT FLIPX	One 1- or 2- or 4-connection line-scan data-forwarded camera	508

[PC1637] Coaxlink Quad 3D-LLE

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LUT LLE	One 1- or 2- or 4-connection area-scan camera	506
2-camera	2D22	LUT LLE	One or two 1- or 2-connection area-scan cameras	506

[PC3602] Coaxlink Octo

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D8	LUT CFA-123	One 1- or 2- or 4- or 8-connection area-scan camera	506
1-camera, line-scan	1D8	LUT MI	One 1- or 2- or 4- or 8-connection line-scan camera	506
2-camera	2D44	FFC LUT CFA-125	One or two 1- or 2- or 4-connection area-scan cameras	506
2-camera, line-scan	2D44	LUT FLIPX MI PLANAR	One or two 1- or 2- or 4-connection line-scan cameras	506
3-camera	3D422	LUT	One 1- or 2- or 4-connection and one or two 1- or 2-connection area-scan cameras	506
4-camera	4D2222	LUT	One or two or three or four 1- or 2-connection area-scan cameras	506
4-camera, line-scan	4D2222	LUT MI	One or two or three or four 1- or 2-connection line-scan cameras	506
5-camera	5D41111	LUT	One 1- or 2- or 4-connection and one or two or three or four 1-connection area-scan cameras	506
5-camera, 5D22211	5D22211	LUT	One or two or three 1- or 2-connection and one or two 1-connection area-scan cameras	506
8-camera	8D11111111	LUT	Up to eight 1-connection area-scan cameras	506
8-camera, line-scan	8D11111111	LUT MI	Up to eight 1-connection line-scan cameras	506

[PC3603] Coaxlink Quad CXP-12 and [PC3603-4] Coaxlink Quad CXP-12

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera	506
1-camera, line-scan	1D4	FFC LUT BIN MI LT	One 1- or 2- or 4-connection line-scan camera	506
2-camera	2D22	FFC LUT	One or two 1- or 2-connection area-scan cameras	506
2-camera, line-scan	2D22	LUT MI LT	One or two 1- or 2-connection line-scan cameras	506
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras	506
3-camera, line-scan	3D211	LUT MI	One 1- or 2-connection and one or two 1-connection line-scan cameras	506
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	506
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras	513

[PC3621] Coaxlink Mono CXP-12 and [PC3621-LH] Coaxlink Mono CXP-12 LH

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D1	LUT	One 1-connection area-scan camera	506
1-camera, line-scan	1D1	LUT	One 1-connection line-scan camera	506

[PC3622] Coaxlink Duo CXP-12 and [PC3622-LH] Coaxlink Duo CXP-12 LH

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D2	LUT CFA-3	One 1- or 2-connection area-scan camera	506
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera	506
2-camera	2D11	LUT	One or two 1-connection area-scan cameras	506
2-camera, line-scan	2D11	LUT	One or two 1-connection line-scan cameras	506

[PC3623] Coaxlink Quad CXP-12 Value

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera	506
1-camera, line-scan	1D4	FFC LUT BIN MI LT	One 1- or 2- or 4-connection line-scan camera	506
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras	506
2-camera, line-scan	2D22	LUT MI LT	One or two 1- or 2-connection line-scan cameras	506
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras	506
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	506
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras	513

[PC3624] Coaxlink Quad CXP-12 DF

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan camera	509
1-df-camera	1DF4	FFC LUT CFA-12 BIN	One 1- or 2- or 4-connection area-scan data-forwarded camera	509
1-camera, line-scan	1D4	LUT MI	One 1- or 2- or 4-connection line-scan camera	509
1-df-camera, line-scan	1DF4	LUT MI	One 1- or 2- or 4-connection line-scan data-forwarded camera	509

[PC3625] Coaxlink QSFP+

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LUT CFA-12	One 1- or 2- or 4-connection area-scan camera	507
1-camera, line-scan	1D4	LUT MI	One 1- or 2- or 4-connection line-scan camera	507
2-camera	2D22	FFC LUT	One or two 1- or 2-connection area-scan cameras	507
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	507
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras	507

[PC3628] Coaxlink QSFP28

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LUT CFA-12	One 1- or 2- or 4-connection area-scan camera	517
1-camera, line-scan	1D4	LUT	One 1- or 2- or 4-connection line-scan camera	517

[PC3629] Coaxlink CXP-12 to QSFP+ Converter

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D1		One 1-connection area-scan camera	477
2-camera	2D22		One or two 1- or 2-connection area-scan cameras	477
4-camera	4D1111		One or two or three or four 1-connection area-scan cameras	477

[PC3633] Coaxlink Quad CXP-12 3D-LLE

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	LLE	One 1- or 2- or 4-connection area-scan camera	506

Features 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
- *LLE*: Laser line extraction
- *LT*: Mapping of events from the I/O Toolbox to CoaXPress trigger messages `LinkTrigger0` and `LinkTrigger1`
- *LUT*: Lookup table processing
- *MI*: Metadata insertion
- *PLANAR*: RGB to PLANAR_RGB or BGR to PLANAR_BGR conversions

2.3. Camera Interfaces Standard Compliance

CoaXPress

Coaxlink frame grabbers together with **eGrabber 26.04** comply with:

- *CoaXPress Standard 1.0*
- *CoaXPress Standard 1.1*
- *CoaXPress Standard 1.1.1*
- *CoaXPress Standard 2.0*
- *CoaXPress Standard 2.1*[1]

CoaXPress-over-Fiber

[PC3625] Coaxlink QSFP+, **[PC3628] Coaxlink QSFP28** and the QSFP+ port of **[PC3629] Coaxlink CXP-12 to QSFP+ Converter** comply with:

- *CoaXPress-over-Fiber Bridge Protocol 1.1*

Camera Link

Grablink Duo together with **eGrabber 26.04** comply with

- *Camera Link Standard 2.1*[2]

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

[2] Including PoCL

2.4. Supported Operating Systems

See also: "Supported Operating Systems History " on page 51

Windows

eGrabber driver, **eGrabber Studio**, **eGrabber Gigelink**, **eGrabber Recorder** and **GenICam Browser (Deprecated)** are designed to support all versions of **Windows 10** and **Windows 11**, including the **Server** and the **IoT Enterprise** versions on **x86-64 (64-bit)** platforms.

Minimum version requirements

Windows 10 version 1809 or later

Release validation

This release has been validated with the following Windows versions:

OS Name & Version	Platform	Notes
Microsoft Windows 10	x86-64 (64-bit)	IoT Enterprise LTSC 2019 - Version 1809
		Enterprise edition - Version 1809
		Enterprise edition - Version 22H2
Microsoft Windows 11	x86-64 (64-bit)	Enterprise edition - Version 22H2
		Enterprise edition - Version 23H2
		Enterprise edition - Version 24H2
Microsoft Windows Server 2025	x86-64 (64-bit)	Standard edition - Version 24H2

NOTE

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

See also: Installing eGrabber on Windows in the Getting Started section of the Coaxlink series or Grablink Duo Handbooks

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

All tools and libraries require kernel version 4.4 or higher

GNU C library (glibc) requirements

All tools and libraries require `glibc` library version 2.23 (or higher)

Release validation

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

OS Name & Version	Platform	Notes
Linux CachyOS 25.11	x86-64 (64-bit)	Kernel version 6.18.5-2
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
Linux Ubuntu 24.10	x86-64 (64-bit)	Kernel version 6.12.1-realtime

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

See also: Installing eGrabber on Linux in the Getting Started section of the Coaxlink series or Grablink Duo Handbooks

macOS

eGrabber driver, **eGrabber Studio** and **GenICam Browser (Deprecated)** are designed to support **all macOS versions from version 12.3**.

Minimum version requirements

macOS 12.3 or higher

Minimum recommended version

macOS 12.6.3 or higher

Release validation

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

OS Name & Version	Platform	Notes
macOS 12.6.3	AArch64 (64-bit)	A.k.a. Monterey
macOS 12.7.4	x86-64 (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.

See also: Installing eGrabber on macOS in the Getting Started section of the Coaxlink series or Grablink Duo Handbooks

2.5. Memento

Memento version 4.0 or later is required when using **Coaxlink driver** version 4.0 or later and any version of **eGrabber driver**.

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 four GenICam GenTL producers: `coaxlink.cti`, `grablink.cti`, `gigelink.cti` and `playlink.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 **[PC1628] 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.

playlink.cti

`playlink.cti` allows acquiring images recorded in a **Recorder** container as if they were coming from a remote device, 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

- `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.

NOTE: `Updating an application to use EGrabber.NETFramework.dll or EGrabber.NET.dll instead of Coaxlink_NetApi.dll is easy and recommended.`

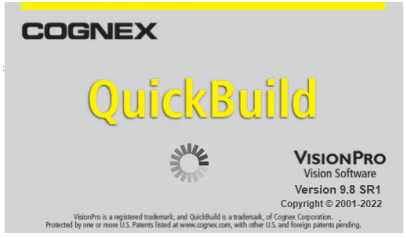
Python

Python bindings for **eGrabber** allow users to call eGrabber functions and operate **eGrabber-driven frame grabbers** from Python scripts. They are compatible with Python 3.8 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 Adapters

eGrabber adapter for Cognex VisionPro



Compatible GenTL producers

- `coaxlink.cti`
  All frame grabbers of the **Coaxlink series** (for CoaXPress and CoaXPress-over-fiber cameras)
- `grablink.cti`
  Grablink Duo frame grabber (for Camera Link cameras)
- gigelink.cti
  eGrabber Gigelink (for GigE Vision cameras)

2.8. Software Tools

*Software tools delivered together with **eGrabber 26.04***

Name	Description
eGrabber Gigelink	Free-of-charge 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 **eGrabber-driven frame grabbers**. **StudioLink** enables the **new Open eVision Studio** application to connect to an opened **eGrabber Studio** EGrabber source, control the acquisition and get images to process within **Open eVision Studio**.
Firmware Manager Console	Command-line tool for installing or upgrading the firmware embedded in **eGrabber-driven 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.
converter-firmware	Command line tool to perform firmware updates of the **[PC3629] Coaxlink CXP-12 to QSFP+ Converter**

NOTE

- **eGrabber Recorder** requires the user to purchase and activate a license to be operated. They are compatible with Euresys' **Neo Licensing System**.
- It is allowed to use **Playlink** with no license for evaluation purposes on Windows 10 (x86_64) and Linux (x86_64 and aarch64) only.
- The **eGrabber driver**, **eGrabber Studio**, **eGrabber Gigelink**, 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.

2.9. Online Documentation

This release of eGrabber comes with a new edition of the *eGrabber documentation package*.

The package is published to the Internet at the following URL:

`https://documentation.euresys.com/Products/eGrabber/eGrabber_26_04/Default.htm`

A copy is also published to the Internet at the *Default eGrabber Documentation* URL:

`https://documentation.euresys.com/Products/eGrabber/eGrabber/Default.htm`

TIP

- The first URL (with a version number) gives access to a specific public edition. Its content is permanent.
- The *Default eGrabber Documentation* URL gives access to the latest public edition. Its content is updated every release.

See also: https://documentation.euresys.com Euresys Documentation Portal

3. Important Notices

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

3.1. Firmware Revisions

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 **eGrabber-driven frame grabbers** in your system, it is *mandatory* to apply the Firmware Upgrade procedure prior to using this version of the driver.

NOTE
Starting with eGrabber 25.03, the firmware revision numbers are listed, for each firmware-variant in the Firmware Variants table

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

`0xfffffff0` 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. 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:
  - Uninstall **eGrabber**.
  - Install **Memento**.
  - Re-install **eGrabber**.
- If NVIDIA RDMA is required, read "Notice for NVIDIA RDMA" on page 23

3.5. Notice for NVIDIA RDMA

NVIDIA RDMA is only suppported on Linux.

NVIDIA RDMA samples require a NVIDIA GPU that suppports RDMA.

The NVIDIA RDMA samples allocate memory on the GPU and announce this memory using `NvidiaRdmaMemory`.

See the following files in the eGrabber sample programs:

- `cpp/egrabber/samples/503-grabn-cuda-rdma-process.*`
- `cpp/nvidia/egrabber-cuda` with the command line argument `cudaRDMA`

Installation instructions:

- NVIDIA CUDA drivers:

  - Follow the installation instructions from: https://developer.nvidia.com/cuda-downloads?target_os=Linux&target_arch=x86_64&Distribution=Ubuntu&target_version=20.04&target_type=deb_network

- NVIDIA driver sources:
  - These are needed to produce the `Module.symvers` file associated with the installed nvidia driver. This file will be required to install the `eGrabber` package
  - Select the appropriate driver from https://www.nvidia.com/download/index.aspx?lang=en-us
  - Make sure to download the version that matches the `nvidia-<version>` already installed in `/usr/src/`
  - Extract the archive with `-x` option
  - Change to directory kernel in the extracted archive
  - Run `make module`
  - The file `Module.symvers` should have been generated
- eGrabber package
  - Extract the `egrabber-linux-x86_64` archive
  - Install the package with the following command:
    `sudo NVIDIA_KERNEL_PATH=<dir path containing Module.symvers> ./install.sh`

The line `Enabling NVIDIA RDMA build` should appear during the installation of the `eGrabber` package.

A successful build can be confirmed if the command `lsmod | grep coaxlink` (or `lsmod | grep grablink`) indicates that `coaxlink` (or `grablink`) module depends on `nvidia`.

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-x86_64-dext-<MA.MI.RE.BU>.pkg`	`memento-macos-x86_64-dext-<MA.MI.RE.BU>.pkg`

TIP

`dext` drivers operate in user-mode using the default `Full Security` policy level.

3.7. Notice for Early Coaxlink Drivers

Several **Coaxlink frame grabbers** underwent 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
[PC1629] Coaxlink Duo PCIe/104-EMB	KDI	10,000
[PC1633] Coaxlink Quad G3	KQG	10,000
[PC1633-LH] Coaxlink Quad G3 LH	KQH	10,000
[PC1635] Coaxlink Quad G3 DF	KDF	10,000
[PC1637] 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

4.1. Features Updates

*Added and improved features in **eGrabber 26.04***

eGrabber

New features

- Python Added new HTML documentation for eGrabber Python bindings. This documentation is accessible from the Python section of the eGrabber Programmer's Guide.
- Added buffer part info command `BUFFER_PART_INFO_CUSTOM_LINE_PITCH` that reports the pitch of a buffer part.
- Added `convert` method to `Buffer` and `ScopedBuffer` C++ classes; this new method provides a simpler way over `Euresys::FormatConverter` to convert the pixel format of images.
- .NET Added new methods related to multi-part buffers:
  - `EGrabber.GetBufferNumParts`
  - `Buffer.GetNumParts`
  - `Buffer.GetPartInfo`
  - `ScopedBuffer.GetNumParts`
  - `ScopedBuffer.GetPartInfo`

Improvements

- Python
  - Improved API support for bytes-like objects
  - Updated get method of the GenApi port modules to return a bytearray by default when getting a register feature

Frame grabbers

New features

Coaxlink Added HorizontalPlanarToPlanar feature to the data stream to enable conversion of RGBN_HorizontalPlanar to RGBN_Planar formats. The "multi-parts" API of eGrabber can be used to retrieve information about each image plane separately.

Coaxlink Grablink GenTL producers now implement `DSGetNumBufferParts` and `DSGetBufferPartInfo`

eGrabber Gigelink

Improvements

Increased the number of RDMA upstream messages that can be sent out before the first acknowledge signal is received from the remote device.

eGrabber Studio

Improvements

- Source information display now provides two modes: the first mode shows statistics computed by the application (not relying on `DataStream` features); the second mode extends the first one with the StreamStatistics category features as well as the DiagnosticCounters category features; complete source information display is now shown for all GenDC parts (previously, only the first part could display the complete information).
- Improved StudioLink connection setup and tear-down (added a 60-second connection timeout).

4.2. Solved Issues

*Solved issues in **eGrabber 26.04***

eGrabber

- Linux installation The `Unpatched return thunk in use` Linux kernel message that could appear (depending on the kernel configuration) on driver loading.

Frame grabbers

- Coaxlink QSFP28 Fixed uplink speed for CXP-31

eGrabber Gigelink

- Fixed an issue in the filter driver that would stop one stream when a second stream is abruptly interrupted.
- Fixed value returned by `BUFFER_INFO_SIZE_FILLED`, `BUFFER_INFO_DATA_SIZE`, and `BUFFER_INFO_DELIVERED_IMAGEHEIGHT` when GVSP packets are not received in order.

4.3. Changes

*Other changes in **eGrabber 26.04***

eGrabber

- Python Deprecated modules `egrabber.py` and `egentl.py`; definitions of these modules have been moved to `__init__.py` and new modules `event.py`, `image.py`, and `memory.py`
- Python Changed the return type of the following functions:
  - `EGrabber.gc_read_port` returns `bytearray` instead of `ctypes.c_char_Array_N`
  - `RemoteDeviceData.data` returns `bytes` instead of `ctypes.c_ubyte_Array_1012`
  - `Buffer.get_pixels` returns `bytearray` instead of `ctypes.c_ubyte_Array_N`
  - `Buffer.pixels` returns `bytearray` instead of `ctypes.c_ubyte_Array_N`
  - `ConvertedBuffer.pixels` returns `bytearray` instead of `ctypes.c_char_Array_N`
  - `Recorder.read` returns `bytearray` instead of `ctypes.c_char_Array_N`
- cti Added new default StatisticsSamplingSelector value Auto, which accommodates slower frame rates.
- Changed definition of the `BUFFER_INFO_SIZE` info command; `BUFFER_INFO_SIZE` now consistently reports the size announced to the datastream
- Added new info command `BUFFER_INFO_CUSTOM_ALLOCATED_SIZE` that reports the size allocated by the datastream; if the buffer was not allocated by the datastream, reports the same value as `BUFFER_INFO_SIZE`

Frame grabbers

- Coaxlink Grablink The info command `BUFFER_INFO_PAYLOADTYPE` now reports `PAYLOAD_TYPE_UNKNOWN` for buffers with no new data (i.e. when `BUFFER_INFO_NEW_DATA` returns false)

eGrabber Recorder

- Recorder The value of `BUFFER_INFO_CUSTOM_ALLOCATED_SIZE` is now the recommended value for the field `size` of the `RECORDER_BUFFER_INFO` struct when writing to a Recorder container (see samples). Using the previously recommended value, `BUFFER_INFO_SIZE`, can lead to performance degradation due to extra copies done to meet alignment constraints of Recorder

4.4. Firmware Changes

Firmware revision 509

Applies to	Description
PC3624 Coaxlink Quad CXP-12 DF (all firmware-variants)	Improved CoaXPress transceiver CDR locking

Firmware revision 513

Applies to	Description
PC3603 Coaxlink Quad CXP-12 (4-camera, line-scan) PC3603-4 Coaxlink Quad CXP-12 (4-camera, line-scan) PC3623 Coaxlink Quad CXP-12 Value (4-camera, line-scan)	Added LinkTrigger0 and LineTrigger1 capability in I/O Toolbox

Firmware revision 516

Applies to	Description
PC1628 Grablink Duo (line-scan firmware variants)	Add Multiple Cycle Timings in linescan variants

Firmware revision 517

Applies to	Description
PC3628 Coaxlink QSFP28 (all firmware variants)	Fixed the reception of remote device events

4.5. Breaking Changes

Changes in the API that are not backward compatible

Since eGrabber 26.04

- Python Changed the return type of the following functions:
  - `EGrabber.gc_read_port` returns `bytearray` instead of `ctypes.c_char_Array_N`
  - `RemoteDeviceData.data` returns `bytes` instead of `ctypes.c_ubyte_Array_1012`
  - `Buffer.get_pixels` returns `bytearray` instead of `ctypes.c_ubyte_Array_N`
  - `Buffer.pixels` returns `bytearray` instead of `ctypes.c_ubyte_Array_N`
  - `ConvertedBuffer.pixels` returns `bytearray` instead of `ctypes.c_char_Array_N`
  - `Recorder.read` returns `bytearray` instead of `ctypes.c_char_Array_N`
- Recorder The value of `BUFFER_INFO_CUSTOM_ALLOCATED_SIZE` is now the recommended value for the field `size` of the `RECORDER_BUFFER_INFO` struct when writing to a Recorder container (see samples). Using the previously recommended value, `BUFFER_INFO_SIZE`, can lead to performance degradation due to extra copies done to meet alignment constraints of Recorder

Since eGrabber 26.01

Moved built-in scripts `egrabber://save-state.js` and `egrabber://restore-state.js` into `egrabber://deprecated/`

Since eGrabber 25.09

- On Windows, `coaxlink.cti`, `grablink.cti`, `gigelink.cti`, and `playlink.cti` now look for their configuration files (`coaxlink.ini`, `grablink.ini`, `gigelink.ini`, and `playlink.cfg` respectively) in `%PUBLIC%\Documents\Euresys\eGrabber\` instead of `%PUBLIC%\Documents\eGrabber\`
- Removed 2 member variables from `NewBufferData`; these member variables are for internal use only and should not be used:
  - Python `NewBufferData.dsh` and `NewBufferData.bh`
  - .NET `NewBufferData::DataStreamHandle` and `NewBufferData::BufferHandle`

Since eGrabber 25.07

Removed `BUFFER_INFO_CUSTOM_STREAM_LINE_WIDTH`, `BUFFER_INFO_CUSTOM_STREAM_LINE_PITCH`, `BUFFER_INFO_CUSTOM_STREAM_STRIPE_HEIGHT`, `BUFFER_INFO_CUSTOM_STREAM_STRIPE_PITCH`, `BUFFER_INFO_CUSTOM_STREAM_STRIPE_OFFSET`, and `BUFFER_INFO_CUSTOM_STREAM_BLOCK_HEIGHT`, which were deprecated since eGrabber 24.09

WARNING

- `BUFFER_INFO_CUSTOM_STREAM_STRIPE_ARRANGEMENT` is deprecated and will be removed in a future release
- StripeArrangement=Geometry_1X_1YE is deprecated and will be removed in a future release; StripeArrangement=Geometry_1X_1Y with ReverseY=True should be used instead

Since eGrabber 25.04

- .NET Fixed a typo in `EGrabberDiscovery`; the property `GentTL` has been renamed to `GenTL`; an application using `EGrabberDiscovery.GentTL` will no longer work starting from this release of eGrabber unless it's updated to use `EGrabberDiscovery.GenTL` instead
- Deprecation of `EGrabbers.h` is now enforced; `EGrabbers.h` was deprecated in **eGrabber 22.03**; two options to fix user code:
  - recommended change use `EGrabberDiscovery` instead of `EGrabbers`
  - add `#define EURESYS_USE_EGRABBERS_DEPRECATED_API` before `#include <EGrabbers.h>`

Since eGrabber 24.09

.NET Improved `EGrabber.NET` API to support buffers larger than 2GiB

Since eGrabber 24.06

cti configuration files locations

- `coaxlink.cti`, `grablink.cti`, and `gigelink.cti` now look for their configuration file (`coaxlink.ini`, `grablink.ini`, and `gigelink.ini`, respectively) in the eGrabber configuration directory:
  - on Windows: `%PUBLIC%\Documents\Euresys\eGrabber\`
  - on Linux: `/etc/opt/euresys/egrabber/`
  - on macOS: `/usr/local/etc/opt/euresys/egrabber/`

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` 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

`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.

NOTE: 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

- **[PC1637] Coaxlink Quad 3D-LLE**: `STREAM_INFO_CUSTOM_WIDTH` and `BUFFER_INFO_WIDTH` are now multiplied by two if two laser-lines are extracted
- 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 [PC1637] 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" on page 9 for the applicable connection schemes.

Image converter

Updated `ImageConvertInput` and `ImageConvertOutput` structures.
Subsequent potential build issues can be fixed by either:

- using `IMAGE_CONVERT_INPUT` and `IMAGE_CONVERT_OUTPUT` initialization macros (recommended approach) or
- 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`) instanciated by `EGrabbers` require the additional constructor parameter (`bool remoteRequired`).

See also: sample "*213-egrabbers*" for details

Since Coaxlink 10

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: 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

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 `GenICam::Client` to `GenTL`,
- Coaxlink custom GenTL definitions have been moved accordingly from the namespace `GenICam::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

Product Rename

Renamed **Coaxlink Duo PCIe/104** into **Coaxlink Duo PCIe/104-MIL**; this will impact the names of GenTL interfaces (i.e., `INTERFACE_INFO_ID`)

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

NOTE: 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

NOTE: 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` function

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 changes

- 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 26.04***

5.1. [PC1628] Grablink Duo Limitations

*Unsupported device types and unavailable features of **[PC1628] Grablink Duo** in **eGrabber 26.04***

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

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)
- All geometries with more than 1-tap along the Y-direction (*_1Y2, *_1Y3 and *_2YE)
- 4X2E_1Y geometry with DECA_8T10 configuration

Unavailable features

Pixel processing

- White Balance Operator

Image processing

- Horizontal 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 PCI Express Specification

Applies to **[PC1633] Coaxlink Quad G3**, **[PC1633-LH] Coaxlink Quad G3 LH** and **[PC1635] Coaxlink Quad G3 DF**.

QuadG3 QuadG3LH QuadG3DF EOL

[PC1633] Coaxlink Quad G3, **[PC1633-LH] Coaxlink Quad G3 LH** and **[PC1635] 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.

Applies to **[PC3628] Coaxlink QSFP28**.

QSFP28

[PC3628] Coaxlink QSFP28 operates only at PCIe 4.0 link speeds.

This product is not compatible with PCIe slots using revisions 1.x, 2.x, and 3.x.

NOTE: The support for PCIe 3.0 will be included in a future release.

5.4. GenICam Browser (Deprecated) and gentl view Limitations

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

6. Appendix

6.1. Firmware Variants History

This topic shows, for each product (group), the history of the firmware variants releases.

- The **Firmware variant** column shows the name of the firmware variant.
- The **First release** column shows the version of the first eGrabber (or Coaxlink driver) providing this firmware variant.
- The **Last release** column shows, when available, the version of the last Grabber (or Coaxlink driver) providing this firmware variant.
- The **Notes** column gives additional information.

[PC1628] Grablink Duo

Firmware Variant	First release	Last release	Notes
1-camera	23.02		
1-camera, line-scan	23.02		
2-camera	23.02		
2-camera, line-scan	23.02		

[PC1629] Coaxlink Duo PCIe/104-EMB and [PC1634] Coaxlink Duo PCIe/104-MIL

Firmware Variant	First release	Last release	Notes
1-camera	6.0		
1-camera, line-scan	6.0		
2-camera	6.0		

[PC1630] Coaxlink Mono

Firmware Variant	First release	Last release	Notes
1-camera	2.0		

[PC1631] Coaxlink Duo

Firmware Variant	First release	Last release	Notes
1-camera	2.0		
1-camera, line-scan	9.1		
2-camera	3.2		
2-camera, line-scan	9.1		

[PC1632] Coaxlink Quad

Firmware Variant	First release	Last release	Notes
1-camera	1.0		
1-camera, line-scan	4.1		
2-camera	4.2		

[PC1633] Coaxlink Quad G3 and [PC1633-LH] Coaxlink Quad G3 LH

Firmware Variant	First release	Last release	Notes
1-camera	4.0		
1-camera, 4-data-stream	9.3		
1-camera, line-scan	4.1		
1-slm-camera	6.1	24.12	Retired firmware variant
1-sls-camera	6.1	24.12	Retired firmware variant
2-camera	4.2		
2-camera, bayer	22.1		
2-camera, line-scan	4.3		
3-camera	11.2		
4-camera	4.0		
4-camera, line-scan	7.1		

[PC1635] Coaxlink Quad G3 DF

Firmware Variant	First release	Last release	Notes
1-camera	5.0		
1-df-camera	5.0		
1-camera, line-scan	5.0		
1-df-camera, line-scan	5.0		

[PC1637] Coaxlink Quad 3D-LLE

Firmware Variant	First release	Last release	Notes
1-camera	9.0		
2-camera	24.07		

[PC1638] Coaxlink Quad CXP-3

Firmware Variant	First release	Last release	Notes
4-camera	8.0	10.5	Retired product

[PC3602] Coaxlink Octo

Firmware Variant	First release	Last release	Notes
1-camera	10.1		
1-camera, line-scan	10.1		
2-camera	10.0		
2-camera, line-scan	10.1		
3-camera	12.7		
4-camera	10.2		
4-camera, line-scan	10.5		
5-camera	10.2		
5-camera, 5D22211	16.1		
8-camera	10.0		
8-camera, line-scan	24.12		

[PC3603] Coaxlink Quad CXP-12 and [PC3603-4] Coaxlink Quad CXP-12

Firmware Variant	First release	Last release	Notes
1-camera	10.4		
1-camera, line-scan	11.0		
2-camera	12.5		
2-camera, line-scan	22.1		
3-camera	25.04		
3-camera, line-scan	25.12		
4-camera	10.4		
4-camera, line-scan	23.08		

[PC3620] Coaxlink Quad CXP-12 JPEG and [PC3620-4] Coaxlink Quad CXP-12 JPEG

Firmware Variant	First release	Last release	Notes
4-camera	11.0	25.12	Retired product

[PC3621] Coaxlink Mono CXP-12 and [PC3621-LH] Coaxlink Mono CXP-12 LH

Firmware Variant	First release	Last release	Notes
1-camera	12.4		
1-camera, line-scan	19.0		

[PC3622] Coaxlink Duo CXP-12 and [PC3622-LH] Coaxlink Duo CXP-12 LH

Firmware Variant	First release	Last release	Notes
1-camera	12.4		
1-camera, line-scan	18.0		
2-camera	12.4		
2-camera, line-scan	19.0		

[PC3623] Coaxlink Quad CXP-12 Value

Firmware Variant	First release	Last release	Notes
1-camera	23.08		
1-camera, line-scan	23.08		
2-camera	23.08		
2-camera, line-scan	23.08		
3-camera	25.07		
4-camera	23.08		
4-camera, line-scan	23.08		

[PC3624] Coaxlink Quad CXP-12 DF

Firmware Variant	First release	Last release	Notes
1-camera	24.03		
1-df-camera	24.03		
1-camera, line-scan	24.03		
1-df-camera, line-scan	24.03		

[PC3625] Coaxlink QSFP+

Firmware Variant	First release	Last release	Notes
1-camera	17.0		
1-camera, line-scan	21.0		
2-camera	25.10		
4-camera	25.02		
4-camera, line-scan	26.02		

[PC3628] Coaxlink QSFP28

Firmware Variant	First release	Last release	Notes
1-camera	25.10		
1-camera, line-scan	25.10		

[PC3629] Coaxlink CXP-12 to QSFP+ Converter

Firmware Variant	First release	Last release	Notes
1-camera	24.10		
2-camera	25.10		
4-camera	25.10		

[PC3633] Coaxlink Quad CXP-12 3D-LLE

Firmware Variant	First release	Last release	Notes
1-camera	24.12		

6.2. Supported Operating Systems History

This table shows the whole history of **eGrabber** driver (Previously named **Coaxlink**) regarding the supported operating systems.

- The **OS** column shows the Operating System name, possibly suffixed by its version number.
- The **PA** column shows the Processor Architecture.
- The **First release** column shows the name of the first eGrabber (or Coaxlink driver) supporting this OS/PA combination.
- The **Last release** column shows, when available, the name of the last eGrabber (or Coaxlink driver) supporting this OS/PA combination.
- The **Notes** column gives additional information about this OS/PA combination

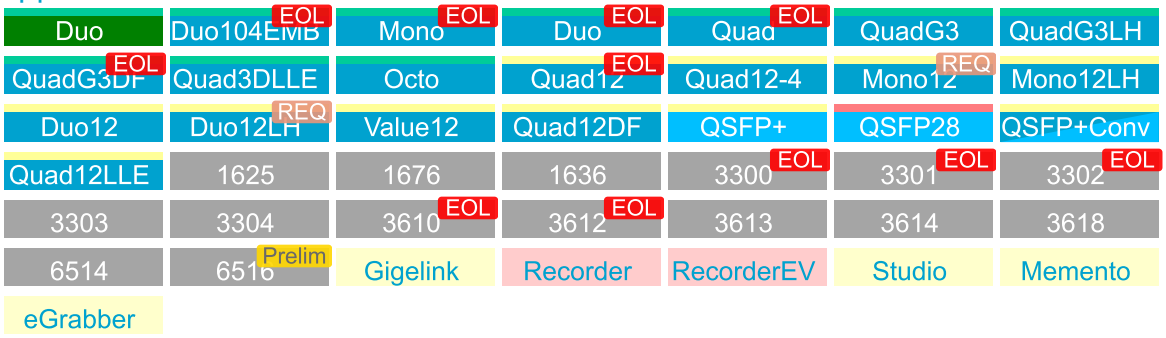
OS	PA	First release	Last release	Notes
Windows 7 SP1	x86 (32-bit)	Coaxlink 1.0	eGrabber 21.0	
Windows 7 SP1	x86-64 (64-bit)	Coaxlink 1.0	eGrabber 24.12	Includes Windows Server 2008 R2
Windows 8	x86 (32-bit)	Coaxlink 1.0	Coaxlink 9.4	
Windows 8	x86-64 (64-bit)	Coaxlink 1.0	Coaxlink 9.4	
Windows 8.1	x86 (32-bit)	Coaxlink 4.5	eGrabber 21.0	
Windows 8.1	x86-64 (64-bit)	Coaxlink 4.5	eGrabber 24.12	Includes Windows Server 2012 R2
Windows 10	x86 (32-bit)	Coaxlink 4.5	eGrabber 21.0	
Windows 10	x86-64 (64-bit)	Coaxlink 4.5	eGrabber 25.12	Versions < 1809
Windows 10	x86-64 (64-bit)	Coaxlink 4.5		
Windows 11	x86-64 (64-bit)	eGrabber 22.03		
Linux	x86 (32-bit)	Coaxlink 3.0	eGrabber 17.0	
Linux	x86-64 (64-bit)	Coaxlink 3.0	eGrabber 25.12	Linux kernels < v4.4; GLIBC < 2.23
Linux	AArch64 (64-bit)	Coaxlink 7.0	eGrabber 25.12	Linux kernels < v4.4; GLIBC < 2.23
Linux	x86-64 (64-bit)	Coaxlink 3.0		
Linux	AArch64 (64-bit)	Coaxlink 7.0		
macOS 10.12	x86-64 (64-bit)	Coaxlink 10.0	eGrabber 22.12	(kext drivers) A.k.a. Sierra
macOS 10.13	x86-64 (64-bit)	Coaxlink 10.0	eGrabber 22.12	(kext drivers) A.k.a. High Sierra
macOS 12.3	AArch64 (64-bit)	eGrabber 22.08		Studio added in 23.04
macOS	AArch64 (64-bit)	eGrabber 22.08	eGrabber 25.12	kext drivers
macOS	x86-64 (64-bit)	eGrabber 22.08	eGrabber 25.12	kext drivers
macOS	AArch64 (64-bit)	eGrabber 23.04		dext drivers using Driver Kit extension
macOS	x86-64 (64-bit)	eGrabber 25.09		dext drivers using Driver Kit extension

NOTE: Linux OS: Gigelink and Recorder were added in eGrabber 22.08

6.3. About Icons

Icons are used everywhere in the eGrabber documentation to represent a specific product. They are particularly useful in "Applies to" elements to obtain a compact representation of a product list.

Applies to:



Icons used in this edition of the eGrabber documentation

Icons are composed of graphical elements characterizing the product:

Background	Description
	Analog product (Domino series)
	SDTV product (Picolo series)
	HDTV product (Picolo HD and Picolo.net series)
	Camera Link product (Grablink series)
	CoaXPress product (Coaxlink series)
	CoaXPress-over-Fiber product (Coaxlink series)
	Accessory product
	Software libraries
	Free software

Text	Description
Alphanumeric	Shortened product name (e.g. "Value12", "QSFP+") - Only for main products
Number	Product code w.o. prefix (e.g. 1625) - For accessories

Top border	Description
	Low performance camera interface (e.g. CXP-6, CL-85)
	High performance camera interface (e.g.CoF 10, CXP-12)
	Highest performance camera interface (e.g. CoF-25)

Badge	Description
Prelim	Preliminary
REQ	Product on request
NRND	Not recommended for new designs

Badge	Description
EOL	End-of-life product