

eGrabber

AVT eGrabber 25.07 Release Notes



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1. Release Benefits

Benefits of added or improved features of eGrabber 25.07

Frame Grabbers

New ReverseY feature

This release of **eGrabber** adds the **ReverseY** feature to the data stream. This feature allows to reverse the order of lines in the output buffer independently of the camera geometry and the value of the **StripeArrangement** feature.

Improved support of multi-bank (Link-sharing) cameras

This release of **eGrabber** improves the support of multi-bank (Link-sharing) cameras by adding a new set of **StreamControl** features which makes it easier to create unified output buffers from two or more sub-Devices.

New "3-camera" area-scan firmware variant for Coaxlink Quad CXP-12 Value

This release of eGrabber adds the "3-camera" firmware variant for **PC3623-T Coaxlink Quad CXP-12 Value** CoaXPress frame grabber.

The "3-camera" firmware variant allows to connect up to 3 area-scan cameras: one with 1 or 2 connections and the others with only 1 connection.

2. Release Specification



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2.1. Supported Products




This topic shows, for each product series and sub-series, the list of officially¹ supported products by **eGrabber 25.07**.

- 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.

CoaXPress CXP-6 products

Product code and name	Class	Icon	First release
28768 PC1633-T Coaxlink Quad G3	Frame Grabber		eGrabber 25.xx
28776 PC3602-T Coaxlink Octo	Frame Grabber		eGrabber 25.xx

CoaXPress CXP-12 products

Product code and name	Class	Icon	First release
28781 PC3621-LH-T Coaxlink Mono CXP-12-LH	Frame Grabber		eGrabber 25.xx
28782 PC3622-T Coaxlink Duo CXP-12	Frame Grabber		eGrabber 25.xx
28783 PC3623-T Coaxlink Quad CXP-12 Value	Frame Grabber		eGrabber 25.xx

¹ Excluding preliminary products

2.2. Firmware Variants

This topic shows, for each officially supported product (group), the list of officially available¹ firmware variants provided with **eGrabber 25.07**.

- 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.

PC1633-T Coaxlink Quad G3

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D4	FFC LUT CFA-12	One 1- or 2- or 4-connection area-scan camera	481
1-camera, 4-data-stream	1D4S4		One 1- or 2- or 4-connection area-scan camera, up to 4 data streams	481
1-camera, line-scan	1D4	FFC LUT FLIPX	One 1- or 2- or 4-connection line-scan camera	481
2-camera	2D22	LUT CFA-35-D0	One or two 1- or 2-connection area-scan cameras	481
2-camera, bayer	2D22	CFA-35	One or two 1- or 2-connection area-scan cameras	481
2-camera, line-scan	2D22	LUT	One or two 1- or 2-connection line-scan cameras	481
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras	481
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	481
4-camera, line-scan	4D1111	LUT	One or two or three or four 1-connection line-scan cameras	481

¹ Excluding custom firmware variants

² Specific assignment of the Device connections to the Host connectors

PC3602-T 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	481
1-camera, line-scan	1D8	LUT MI	One 1- or 2- or 4- or 8-connection line-scan camera	481
2-camera	2D44	FFC LUT CFA-125	One or two 1- or 2- or 4-connection area-scan cameras	481
2-camera, line-scan	2D44	LUT FLIPX MI PLANAR	One or two 1- or 2- or 4-connection line-scan cameras	481
3-camera	3D422	LUT	One 1- or 2- or 4-connection and one or two 1- or 2-connection area-scan cameras	481
4-camera	4D2222	LUT	One or two or three or four 1- or 2-connection area-scan cameras	481
4-camera, line-scan	4D2222	LUT MI	One or two or three or four 1- or 2-connection line-scan cameras	481
5-camera	5D41111	LUT	One 1- or 2- or 4-connection and one or two or three or four 1-connection area-scan cameras	481
5-camera, 5D22211	5D22211	LUT	One or two or three 1- or 2-connection and one or two 1-connection area-scan cameras	481
8-camera	8D11111111	LUT	Up to eight 1-connection area-scan cameras	481
8-camera, line-scan	8D11111111	LUT MI	Up to eight 1-connection line-scan cameras	481

PC3621-LH-T Coaxlink Mono CXP-12-LH

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D1	LUT	One 1-connection area-scan camera	481
1-camera, line-scan	1D1	LUT	One 1-connection line-scan camera	481

PC3622-T Coaxlink Duo CXP-12

Firmware Variant	HCMAP	Features	Description	Rev.
1-camera	1D2	LUT CFA-3	One 1- or 2-connection area-scan camera	481
1-camera, line-scan	1D2	LUT	One 1- or 2-connection line-scan camera	481
2-camera	2D11	LUT	One or two 1-connection area-scan cameras	481
2-camera, line-scan	2D11	LUT	One or two 1-connection line-scan cameras	481

PC3623-T 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	481
1-camera, line-scan	1D4	FFC LUT BIN MI LT	One 1- or 2- or 4-connection line-scan camera	481
2-camera	2D22	LUT	One or two 1- or 2-connection area-scan cameras	481
2-camera, line-scan	2D22	LUT MI LT	One or two 1- or 2-connection line-scan cameras	481
3-camera	3D211	LUT	One 1- or 2-connection and one or two 1-connection area-scan cameras	481
4-camera	4D1111	LUT	One or two or three or four 1-connection area-scan cameras	481
4-camera, line-scan	4D1111	LUT MI	One or two or three or four 1-connection line-scan cameras	481

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
- *JPEG-S1*: JPEG encoding on Stream1
- *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 25.07 comply with:

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

2.4. Supported Operating Systems

See also: [Supported Operating Systems History](#)

Windows

eGrabber driver, eGrabber Studio, eGrabber Gigalink, eGrabber Recorder and GenICam Browser (Deprecated) are designed to support all Windows versions from 10 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 10	x86-64 (64-bit)	Enterprise edition - Version 22H2
Microsoft Windows 11	x86-64 (64-bit)	Enterprise edition - Version 23H2



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.

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

Linux

eGrabber driver, eGrabber Studio, eGrabber Gigalink, 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 Gigalink** 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)**



NOTE

Kindly note that as of **eGrabber 26.01**:

- the Minimum kernel version requirements will change to *Linux kernel version 4.4 or higher*
- the GNU C library (glibc) requirements will change to *GLIBC 2.23 or higher*

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.

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 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 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.

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 Tools

Software tools delivered together with eGrabber 25.07

Name	Description
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 .
GenTL Console	Command-line tool giving access to all the functions and commands exposed by the Euresys GenTL Producer.



NOTE

- 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**.

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 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

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

Number of buffers

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

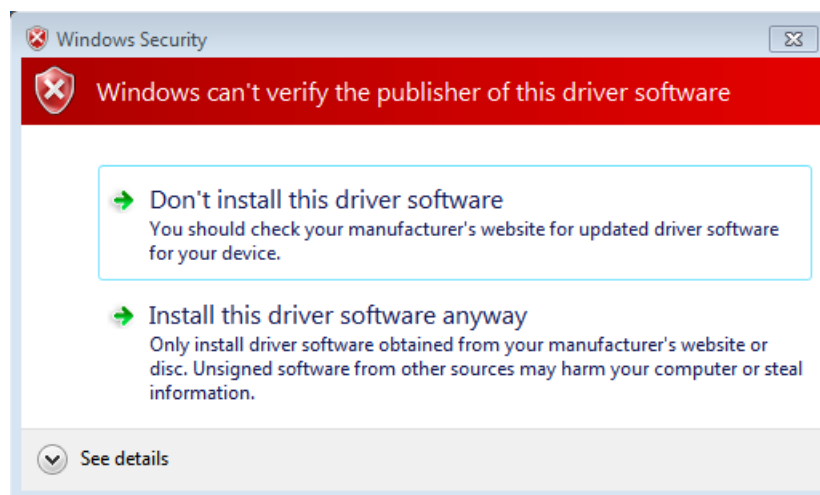
NOTE: when using very large numbers of buffers, DSAnnounceBuffer calls can take longer and longer to complete (or even fail with error code GC_ERR_CUSTOM_IOCTL_BUFFER_ANNOUNCE_FAILED). If this happens, the user should set `DmaEngineOptimization=LowMemoryUsage` in the data stream module.

3.4. Notice for Windows

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

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:
 - Uninstall **eGrabber**.
 - Install **Memento**.
 - Re-install **eGrabber**.
- If NVIDIA RDMA is required, read "[Notice for NVIDIA RDMA](#)" on page 17

3.6. Notice for NVIDIA RDMA

NVIDIA RDMA is only supported on Linux.

NVIDIA RDMA samples require a NVIDIA GPU that supports 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.

3.7. 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 **AVT** -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 AVT-aarch64-kext** packages, newly installed **AVT** kernel extensions must be approved by the administrator in the [Security and Privacy preferences](#) and the system needs to be restarted.

4. Release Details

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4.1. Features Updates

Added and improved features in eGrabber 25.07

Frame grabbers

- **Coaxlink** **Grablink** Added **ReverseY** feature to the data stream module
- **Coaxlink** **Grablink** Added/improved/reorganized **StreamControl** features:
 - Added **MinimumPitch**
 - Added **UserDefinedPitch**
 - Added **VerticalStripeCount**, **VerticalStripeIndex**, and **VerticalStripeOverlap** to a new **VerticalStriping** sub-category
 - Moved **StripeHeight**, **StripePitch**, **StripeOffset**, and **BlockHeight** to a new **InterleavedHorizontalStriping** sub-category
 - Made it possible to set **StripeHeight=1** regardless the value of **StripeArrangement**
- **Coaxlink** **Grablink** Improved support of multi-bank cameras
- **Coaxlink** The data stream module features **DeviceTapGeometry**, **Image1StreamID** and **Image2StreamID** are now locked when the data stream is active
- eGrabber sample programs: improved C++ sample program egrabber-cuda-sdl2

4.2. Solved Issues

Solved issues in eGrabber 25.07

eGrabber

- Fixed installation on Linux kernel 6.15
- GenApi: fixed an issue in EGrabber::interruptScript (and its bindings) which prevented the script from being interrupted in some rare circumstances

4.3. Firmware Changes

Firmware revision 481

Applies to	Description
PC3623-T Coaxlink Quad CXP-12 Value (3-camera)	New variant
PC3623-T Coaxlink Quad CXP-12 Value (1-camera, line-scan)	Improved Metadata insertion stability
All Coaxlink firmware variants	Fixed pixel unpacking - In very rare situations, the output image could be wrong

4.4. Breaking Changes

Changes in the API that are not backward compatible

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_1Y` 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 7 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) instantiated 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 25.07

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5.1. 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 `DSSstartAcquisition` must be accompanied by a call to `DSSstopAcquisition`.
- Argument `iNumToAcquire` passed to `DSSstartAcquisition` sets the number of filled delivered buffers after which the acquisition engine stops automatically.
- There must be a call to `DSSstopAcquisition` accompanying each call to `DSSstartAcquisition` even though the stream already stopped because the number of frames to acquire was reached.
- `DSSstopAcquisition` 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:

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

In other words, `DSSstopAcquisition` 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 `DSSstopAcquisition` and the automatic stop of the data stream) are avoided. Furthermore, if the data stream has stopped automatically after acquiring `iNumToAcquire` images, `DSSstartAcquisition` can be called without first calling `DSSstopAcquisition`.

5.2. Deviations from the PCIe 3.0 Specification

Applies to PC1633-T Coaxlink Quad G3.

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.

5.3. GenlCam Browser (Deprecated) and gentl view Limitations

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

6. Appendix








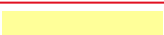






6.1. About Icons

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
	Camera Link product
	CoaXPress product
	CoaXPress-over-Fiber product
	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
	Preliminary
	Product on request
	Not recommended for new designs
	End-of-life product
Top-left corner triangle	Description
	Brand 1 product