



Vision Point API and Firmware Release Notes

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International Distributors



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2.1 Safety Precautions

Please take a minute to read carefully the precautions listed below to prevent unnecessary injuries to you or other personnel or cause damage to property.

- **Before using the product, read the safety precautions carefully to assure correct use.**
- **These precautions contain notices which you should observe to ensure your own personal safety, as well as to protect the product.**
- **To avoid mistakes that could lead to a malfunction, please read carefully through this manual and check the appliance for damages before putting the product to service.**



Caution

In the event of a failure, disconnect the power supply.

If the product is used as, a fire or electric shock may occur. Disconnect the power supply immediately and contact our sales personnel for repair.

If an unpleasant smell or smoke appears from the machine, disconnect the power supply.

If the product is used as is, a fire or electric shock may occur. Disconnect the power supply immediately. After verifying that no smoking is observed, contact our sales representatives for repair.

Do not disassemble, repair or modify the product.

Otherwise, a fire or electric shock may occur due to a short circuit or heat generation. For inspection, modification or repair, contact our sales representatives.

Do not touch a cooling fan.

As a cooling fan rotates in high speed, do not put your hand close to it. Otherwise, it may cause personal injury. Never touch a rotating cooling fan.

Do not place the product on unstable locations.

When placed on unstable surfaces, you may drop the product or it might fall. Such actions may cause failure or personal injury.

If the product is dropped or damaged, do not use it.

Otherwise, a fire or electric shock may occur.

Do not touch the product with a metallic object.

Otherwise, a fire or electric shock may occur.

Do not place the product in dusty or humid surfaces. Do not use or store the product near water.

Otherwise, a fire or electric shock may occur.

Do not get the product wet and/or touch it with wet hands.

Otherwise, the product may break down or it may cause a fire, smoke or electric shock.

Do not touch a connector on the product (gold-plated portion).

Otherwise, the surface of a connector may be contaminated with sweat or skin oil, resulting in contact failure of a connector or it may cause a malfunction, fire or electric shock due to static electricity.

Do not use or place the product in the following conditions:

- Humid and dusty environments
- Airless conditions such as closet or bookshelf

- Areas exposed to oily smoke or steam
 - High-temperature environments, some of which are closed cars or heating equipment
 - Static electricity areas
 - Areas with high exposure to chemicals, such as acids
 - Underwater locations and areas with persistent exposure to water (e.g. showers, swimming pools)
- Nonobservance of these instructions can lead to a fire, electric shock, accident or product deformation.

Do not place heavy objects on the product.

Otherwise, the product may be damaged.

Before touching any electronic component, please make sure that the static electricity of your body is diverted.

The electronic circuits in your computer and the circuits on the Frame Grabber board are sensitive to static electricity and surges. Improper handling can seriously damage the circuits. In addition, do not let your clothing come in contact with the circuit boards or components. Otherwise, the product may be damaged.

2.2 Disclaimer

This product should be used for interfacing of imaging devices and acquiring of video streams. KAYA Instruments assumes no responsibility for any damages resulting from the use of this product for purposes other than those stated.

Even if the product is used properly, KAYA Instruments assumes no responsibility for any damages caused by the following:

- Earthquake, thunder, natural disaster or fire resulting from the use beyond our responsibility, acts caused by a third party or other accidents, the customer's willful or accidental misuse or use under other abnormal conditions.
- Secondary impact arising from the use of this product or its unusable state (business interruption or others).
- Use of this product against the instructions given in this manual or malfunctions due to connection to other devices.

KAYA Instruments assumes no responsibility or liability for:

- Erasure or corruption of data arising from use of this product.
- Any consequences or other abnormalities arising from use of this product, or damage of this product not due to our responsibility or failure due to modification.

Repair of this product is carried out by replacing it on a chargeable basis, not repairing the faulty devices. However, non-chargeable replacement is offered for initial failure if such notification is received within two weeks after delivery of the product.

3.1 Purpose of this document

The purpose of this document is to describe the changes, enhancements, and bug fix report for new version release of Vision Point software API as well as for Firmware versions.

3.2 Release notes Vision Point 2019.1/API 5.0.1/Firmware 4.x

3.2.1 New and fixed features in API

1. New function KYFG_UpdateCameraList() updates the list of cameras connected to the device. Currently open camera handles are not affected by this function.
2. Event callback when a camera lost connection
3. GigE: Fix Issue with packed/unpacked PixelFormat
 - Remote device communication enhancement (similar to CLHS)
 - Control the source port on each channel
4. CoaXPress: Option to overwrite ALL size of ControlPacketDataSize via Grabber configurations
5. Virtual Grabber: Add new versioning register to support new suppression of old device version
6. GenTL: Reset STREAM_INFO_NUM_DELIVERED on each new stream start
 - Improved mechanism for EventGetData() function
 - Override camera's xml file using external KYFGLib.json and x.fgprj file

3.2.2 New and fixed features in GUI

1. “Grabber Links” parameter to indicates the device link and camera channel connection
2. System message indication about camera connection loss
3. Camera re-detection retains open cameras and updates cameras list

NOTE:

Vision Point 2019.1 will be the last version to support Windows 7 OS. We encourage our customers to switch to Windows 10 OS in order to support our latest updates and hotfixes.

3.3 Release notes Vision Point 2019.1/API 5.0/ Firmware 4.x

3.3.1 New features for Windows

1. KYService: Starting from API version 2019.1 Windows service, “KYService” and display name “KAYA Instruments Service”, is installed during Vision Point application installation.
2. LogChannel: Starting from API version 2019.1 the registry root part has been moved to “HKEY_CURRENT_USER\Software\KAYA Instruments” and was split into 2 sub-parts: “internal” and “public”. The public part contains the key “LogChannel.(Default)” allowing to suppress the log output. The value of “LogChannel.(Default)” can be one of the following:
 - 0 - Dummy channel, all records discarded,
 - 1 - File
 - 2 - DbgView
 - 3 - Internal buffer (beware in this case memory consumption will grow, this option is designed mainly for internal usage when we are debugging service startup at boot time when file and DbgView options may not work properly). The software initializes all registry values in “lazy” manner, i.e. if a key does not exist when it is being queried than it is created with a default value. This means that this key will not be seen (until Vision Point run or other software linked with KYFGLib at least once. Default value for LogChannel.(Default) is 1, i.e. we are writing log file, but if your installation script will set it to 0 then logs will be suppressed.
3. Visual Studio 2017 flavor support: Starting from API version 2019.1 the user will be able to use our libraries linked to Visual Studio 2017 flavor on run-time:
 - KYFGLib_vc141.dll
 - clserkyi_vc141.dllThe functionality will remain without change and 2012 flavor will remain for backup compatibility until next official software release. We encourage our customers to use vc_141 flavor of our DLLs, since starting from the next release support of Visual Studio 2012 flavor will not be provided.
4. Genicam and OpenCV libraries: Starting from API version 2019.1 those libraries are not installed to Vision Point's "bin" folder which is added to system's PATH. Instead, will be installed into a sub-folder for internal use only. If these libraries are needed by user's application, it should be installed separately.
5. Support for 32 bit under 64 bit Windows.
Notes:
 - 1) Vision Point 2019.1 will be the last version to support Windows 7 OS.
 - 2) In order for Windows OS to support the latest version of Vision Point, please make sure your Windows is up to date and all the latest updates and hotfixes are installed. In case your computer hardware does not support Windows 7 latest updates, please consider using Vision Point 4.4 software version.

3.3.2 New features in API and GUI

1. KY Service improves the automatic monitoring and management of PoCXP for CoaXPress cameras by monitoring the connection state and turning PoCXP on/off automatically. NOTE: The software stack requires “KYService” to be running, otherwise KYFG_Scan() will return 0 and KYFG_Open()/KYFG_OpenEx() will return INVALID_FGHANDLE.
2. KYFGLib_Initialize() - optional call before “KYFGScan” and reserved for future usage.
3. Adjust image level in range of specified minimum and maximum threshold pixel values (Accessible only via Vision Point GUI).
4. Zooming Picture window with the mouse wheel.
5. The software detects an outdated firmware and disables all sets of operation, except firmware update.

3.3.3 Fixes and improvements in API and GUI

1. GenTL producer minor fixes for computability with different GenTL consumers.
2. Resetting device upon application exit (cleanup commands) to prevent BSOD.
3. Pixel value display for RGB image format (location of the mouse cursor) in x:y[R G B].
4. Optimized camera discovery process to reduce detection time.
NOTE: Detection time may vary according to number of physical links, number of connected cameras, camera response time, connection speed etc.
5. Private Global software configurations should be used for debug purposes only (reset each software installation and assigned with default value)
6. Public Global software configurations can be modified and will remain after new software installation

Vision Point version 2019.1 also contains numerous bug fixes, documentation and diagnostic improvements, including improved library stability in debugging mode.

3.3.4 New Frame Grabber parameters

The following new parameters are added in this version:

Category	Parameter name	Gen<i>Cam name	Values	Description
Acquisition Burst Frame Count	Specifies the number of frames to acquire for each stream acquisition trigger. Subject to supported	AcquisitionBurstFrameCount	Integer	

	firmware.			
PoCXP Auto	Indicates whether PoCXP is controlled automatically	PoCXPAuto	Enumeration:	
			<ul style="list-style-type: none"> • PoCXPAutoOff • PoCXPAutoOn 	
Device Reset	Resets the device	DeviceReset	Command:	
			1- Active	

Table 1 : New Frame Grabber parameters

3.3.5 New firmware features

Hardware device	Firmware version	Details
Komodo CoaXPress 4ch and 8ch	4.11	Voltage monitoring support Note: Starting from hardware revision no. 3
Predator CoaXPress	4.5	Voltage monitoring support Note: Starting from hardware revision no. 3

Table 2 : Firmware release notes 2019.1

3.4 Release notes version 4.4/ Firmware 4.x

3.4.1 New device kernel driver for Windows

Installation of this version will replace the previous kernel driver in Windows with the new one

Important note: Previous software versions will NOT work with the new kernel driver.

3.4.2 New features in Vision Point application

1. Improved support of the hexadecimal view of a video frame.
2. A video buffer can also be saved as a single RAW file with all allocated frames. There is also an option to save this file as a series of RAW files, one file per frame.
3. Support for GenCam IRegister type in GUI.

Vision Point version 4.4 also contains numerous bug fixes, documentation and diagnostic improvements, including improved library stability in debugging mode.

3.4.3 New firmware features

Hardware device	Firmware version	Details
Komodo Fiber CXP	4.6	DDR memory size was changed
Komodo CXP	4.9	Support for CXP packet payload bigger than 8 Kbyte
Komodo Fiber	4.14(QSFP), 4.15(SFP)	DDR memory size was changed
Komodo 10G	4.3	DDR memory size was changed
Chameleon Simulator	4.30	<ol style="list-style-type: none"> 1. Improved triggering mechanism with trigger delay and filtering 2. Added option to control video readout timing 3. Added support for GPIO pins configuration Note : Supported with Vision Point application only starting from version 4.0
Predator CXP	4.4	Queued buffer mechanism was added

Table 3 : Firmware release notes 4.x

3.5 Release notes version 4.3/ Firmware 4.x

3.5.1 New OS support

Ubuntu 16, CentOS 7.3 are now supported.

Note: CentOS 6.x is no longer supported.

3.5.2 New protocols

Chameleon CXP 1.1 protocol support.

3.5.3 New features in Vision Point

4. Python & .NET binding
5. Triggering control new parameters for Chameleon Simulator
6. Signed drivers for latest Windows 7 and 10 builds
7. Support of "IRegister" GenICam type. (e.g. "LUTValueAll")
8. Image view as a HEX value in GUI
9. Improved 10GigE cameras compatibility
10. Added support for serial communication interface via an external .dll (clserkyi.dll) using Komodo Fiber devices
11. Improved GenTL producer functionality and input parameters validation

3.5.4 New and changed parameters

1. Additional API was added allowing the usage of Python and .NET binding
2. Chameleon API
3. Definition changes in API:
 - a. Public #define "MAX_CAMERAS" changed to "KY_MAX_CAMERAS"
 - b. Public #define "MAX_CAMERA_INFO_STRING_SIZE" changed to "KY_MAX_CAMERA_INFO_STRING_SIZE"

Vision Point version 4.3 also contains bug fixes, documentation and diagnostic improvements, including improved library stability in debugging mode.

3.5.5 New firmware features

Hardware device	Firmware version	Details
Komodo Fiber CXP	4.5	DDR memory size was changed
Komodo CXP	4.6	Support for CXP packet payload bigger than 8 Kbyte

Komodo Fiber	4.6	DDR memory size was changed
Komodo 10G	4.2	DDR memory size was changed
Chameleon Simulator	4.30	1. Improved triggering mechanism with trigger delay and filtering 2. Added option to control video readout timing 3. Added support for GPIO pins configuration Note : Supported with Vision Point application only starting from version 4.0
Predator CXP	4.3	Queued buffer mechanism was added

Table 4 : Firmware release notes 4.x

3.6 Release notes version 4.2/ Firmware 4.x

3.6.1 New feature

The new software version 4.2 is now capable of supporting all KAYA Instruments JetCam HS Cameras. Additional API functions were added as well.

Vision Point version 4.2 also contains bug fixes, documentation and diagnostic improvements, including improved library stability in debugging mode.

3.6.2 Windows 7 support

KAYA Instruments uses a SHA256 algorithm to sign its drivers digitally.

It is necessary for Windows 7 to support the SHA256 to be compatible with KAYA's Digital Signature.

Please make sure your Windows 7 is up to date, and all the latest updates and hotfixes are installed.

3.6.3 New software update

Please note, this key feature means there is no longer support for devices, which do not use device ID 0x1000, this includes all devices with any firmware below 4.0.

It is necessary to update the device firmware to 4.0 version or higher, before installing new Vision Point software.

3.7 Release notes version 4.1/ Firmware 4.x

3.7.1 New feature

The new software version 4.1 is now capable of supporting both Camera Simulator and Frame Grabber. Additional API was added allowing connection of camera Simulator and generation of a video stream.

Vision Point version 4.1 also contains numerous bug fixes, improved documentation and diagnostic improvements.

Please note, this key feature means that the Chameleon software is longer supported. It is advised to uninstall previous versions of Chameleon software and Vision Point software, before installing new Vision Point software.

3.8 Release notes version 4.0/ Firmware 4.1

3.8.1 Windows 10 support

New SDK will now support Windows 10, this is subject to a firmware update to at least the 4th firmware version.

A firmware update should be performed on Windows 7 first, afterward Frame Grabber driver and SDK will be supported on Windows 10 too.

3.8.2 New protocols

3.8.2.1 CLHS support

Support for CLHS cameras implementing 10G X protocol. GenCP1.1 communication interface.

3.8.2.2 GigE support

Support for 10G GigE Vision cameras. GVCP (GigE Vision Control Protocol) and GVSP (GigE Vision Streaming Protocol) communication protocol).

3.8.3 Vision Point Additions

3.8.3.1 Multiple Camera support

Vision Point will now have full support for controlling multiple cameras simultaneously, changing their parameters, streaming and playing back saved data.

3.8.3.2 Save Video and Replay Mode

In addition to “Single Frame Data Save” feature, we added” Video Save” and “Replay Mode” features to allow review of multiple stream frames. Saved video data will contain up to amount of allocated frames.

3.8.3.3 Firmware update via GUI

The firmware update option is now available, using Vision Point application. The “Firmware update...” option can be found under “Grabber Control” category.

3.8.4 New and changed grabber parameters

3.8.4.1 Renamed parameters

Some parameters that existed in previous versions have been renamed according to Gen<i>Cam Standard Features Naming Convention (SFNC):

- “FrameGrabberControl” category name has been renamed to “DeviceControl”
- “Show output image as RGB”, found under “Image Format Control” category, was renamed to “Transformation Pixel Format”

3.8.4.2 New Frame Grabber parameters

The following new parameters are added in this version:

Category	Parameter name	Gen<i>Cam name	Values	Description
Transport Layer Control	ControlPacketData Size	ControlPacketDataSize	Integer	Override camera bootstrap register value for Control commands packets max size
Transport Layer Control	StreamPacketData Size	StreamPacketDataSize	Integer	Override camera bootstrap register value for Stream packets max size
Transport Layer Control	Image1StreamID	Image1StreamID	Integer	Override camera bootstrap register value for Id of the first stream
Image Format Control	Debayer Mode	DebayerMode	Enum: <ul style="list-style-type: none"> • Demosaic 3x3 • Demosaic 3x2 • DemosaicSoftware 	Selects debayer de-mosaicing algorithm. Added software debayer option
Image Format Control	Frames Per Stream	FramesPerStream	Integer	Number of Frames to be created for stream

Table 5 : New Frame Grabber parameters

3.8.5 API Additional Functions and Features

3.8.5.1 A Packed data output stream mode

Data packing modification options were added to the interface, allowing the user to increase transfer rates without data loss.

3.8.5.2 Queued buffer mechanism

Stream handling mechanism and function interface parameters were modified. “Buffer Interface” was deprecated and substituted with new “Stream Interface”. Old API functions remain exported for backward compatibility.

“Stream Interface” provides additional functionality to support user allocated buffers, management over buffer fill sequence and order, individual information of each frame and compatibility for old buffer management.

The new mechanism solves the issue of previously provided cyclic frame buffer fill mechanism. This method prevents from the frame memory to be modified until user resubmits the frame. While cyclic frame buffer organization is internally and automatically managed, the queued frame scheduling should be managed by a user.

New set of functions was added to support this mechanism:

KYFG_StreamCreateAndAlloc(), KYFG_StreamGetPtr(), KYFG_StreamGetSize(),
KYFG_StreamGetFrameIndex(), KYFG_StreamCreate(), KYFG_BufferAllocAndAnnounce(),
KYFG_BufferAnnounce(), KYFG_StreamGetInfo(), KYFG_BufferGetInfo(),
KYFG_BufferToQueue(), KYFG_BufferQueueAll(), KYFG_StreamDelete(), KYFG_StreamGetAux()

3.9 Release notes version 3.0.0/ Firmware 3.2

3.9.1 Product line renamed

Starting from major version 3, both firmware and software, the product line “Predator” has been renamed to “Vision Point”. The directory structure has been changed, while API still remains backward compatible. It is advised to uninstall previous versions of Predator software before installing new Vision Point.

3.9.2 Timestamp counter added

A timestamp counter feature was added according to GenCam SNFC (See section 2.3.5.2). The timestamp counter generates precise and synchronized timestamp to video frames and I/O controller with 8ns resolution.

3.9.3 Auxiliary data callback from IO controller

A new type of callback function can now be registered using API KYFG_AuxDataCallbackRegister(). The callback will be called when various auxiliary data is generated. The supplied “KYFGLib_Example.c” code demonstrates how to configure IO controller to generate this callback and how to interpret its auxiliary data passed as a parameter to user’s callback function:

Auxiliary data is passed to user callback as a pointer to KYFG_AUX_DATA structure parameter. In the case of callback originated by IO controller, the data portion of this structure is interpreted as KYFG_IO_AUX_DATA:

```
typedef struct _KYFG_IO_AUX_DATA
{
    uint64_t masked_data;
    uint64_t timestamp;
} KYFG_IO_AUX_DATA;
```

Where:

1. 'timestamp' - the event timestamp in units of nanoseconds (nsec)

'masked_data' - indicates the state of the I/O controller feature that can generate an event according to Table 6.

Bit	Function
0	OptoCoupled Input 0
1	OptoCoupled Input 1
2	OptoCoupled Input 2
3	OptoCoupled Input 3
4	OptoCoupled Input 4
5	OptoCoupled Input 5
6	OptoCoupled Input 6
7	OptoCoupled Input 7
8	LVDS Input 0
9	LVDS Input 1
10	LVDS Input 2
11	LVDS Input 3
12	TTL 0
13	TTL 1
14	TTL 2
15	TTL 3
16	TTL 4
17	TTL 5
18	TTL 6
19	TTL 7
20	LVTTL 0
21	LVTTL 1
22	LVTTL 2
23	LVTTL 3
24	LVTTL 4
25	LVTTL 5
26	LVTTL 6
27	LVTTL 7
28	OptoCoupled Output 0
29	OptoCoupled Output 1

30	OptoCoupled Output 2
31	OptoCoupled Output 3
32	OptoCoupled Output 4
33	OptoCoupled Output 5
34	OptoCoupled Output 6
35	OptoCoupled Output 7
36	LVDS Output 0
37	LVDS Output 1
38	LVDS Output 2
39	LVDS Output 3
40	Encoder 0
41	Encoder 1
42	Encoder 2
43	Encoder 3
44	Timer 0
45	Timer 1
46	Timer 2
47	Timer 3
48	Timer 4
49	Timer 5
50	Timer 6
51	Timer 7
52	Camera Trigger 0
53	Camera Trigger 1
54	Camera Trigger 2
55	Camera Trigger 3
56	Camera Trigger 4
57	Camera Trigger 5
58	Camera Trigger 6
59	Camera Trigger 7
60	Acquisition Trigger 0
61	Acquisition Trigger 1
62	Acquisition Trigger 2
63	Acquisition Trigger 3

Table 6 : I/O controller feature

3.9.4 Frame timestamping (Auxiliary data in stream callback)

In addition to information available in stream callback function, it is now possible to retrieve auxiliary data associated with each arrived frame. `KYFG_BufferGetAux()` retrieves this data in form of `KYFG_AUX_DATA` structure. The data portion of this structure, in this case, should be interpreted as `KYFG_FRAME_AUX_DATA`. The supplied “`KYFGLib_Example.c`” code demonstrates how to retrieve this data within stream callback function and read frame timestamp from it.

```
typedef struct _KYFG_FRAME_AUX_DATA
{
    uint32_t sequence_number;
    uint64_t timestamp;
    uint32_t reserved;
}KYFG_FRAME_AUX_DATA;
```

Where:

1. ‘sequence_number’ – sequential index of the frame within allocated frame buffer
2. ‘timestamp’ – frame arrival timestamp in units of nanoseconds (nsec)
3. ‘reserved’ – reserved for future use.

3.9.5 New and changed grabber parameters

3.9.5.1 Renamed parameters

Some parameters that existed in previous versions have been renamed according to Gen<i>Cam Standard Features Naming Convention (SFNC):

- “Video Control” category display name has been renamed to “Image Format Control”
- “LineDecimation”, found under “Image Format Control” category, was renamed to “DecimationVertical”

3.9.5.2 New Frame Grabber parameters

The following new parameters are added in this version:

Category	Parameter name	Gen<i>Cam name	Values	Description
Device Control	Timestamp	Timestamp	Integer (in ns)	Reports the current value of the device timestamp counter. The same timestamp

				counter is used for tagging images and I/O events
Device Control	Timestamp Reset	TimestampReset	Command	Resets the current value of the device timestamp counter
Device Control	Timestamp Latch	TimestampLatch	Command	Latches the current timestamp counter into TimestampLatchValue
Device Control	Timestamp latched value	TimestampLatchValue	Integer (in ns)	Returns the latched value of the timestamp counter
Digital I/O Control	Line Event Mode	LineEventMode	Enum: <ul style="list-style-type: none"> • Disabled • RisingEdge • FallingEdge • AnyEdge 	Selects condition when event for selected IO line will be generated by software
Trigger Control	Trigger Event Mode	TriggerEventMode	Enum: <ul style="list-style-type: none"> • Disabled • RisingEdge • FallingEdge • AnyEdge 	Selects the condition when to generate software event for acquisition trigger
Timer Control	Timer Event Mode	TimerEventMode	Enum: <ul style="list-style-type: none"> • Disabled • RisingEdge • FallingEdge • AnyEdge 	Select the condition when the software event will be generated for selected timer
Encoder Control	Encoder Event Enable	EncoderEventEnable	Enum: <ul style="list-style-type: none"> • Enable • Disable 	Enables event generation for encoder
Image Format Control	Debayer Mode	DebayerMode	Enum: <ul style="list-style-type: none"> • Demosaic 3x3 • Demosaic 3x2 	Selects debayer demosaicing algorithm
Camera Trigger Control	Camera Trigger Event Enable	CameraTriggerEventEnable	Enum: <ul style="list-style-type: none"> • Enable • Disable 	Enables event generation for camera trigger

Table 7 : New Frame Grabber parameters

3.10 Release notes version 2.0.1.484 / Firmware 2.4

3.10.1 API function additions

1. New functions `KYFG_CameraGetXML()` and `KYFG_GetCameraValueStringCopy()` were added to overcome development environment allocation issues.

`KYFG_CameraGetXML()` will substitute existing function `KYFG_GetXML()`. While `KYFG_GetXML()` allocates the needed buffer and user is responsible to free it; the `KYFG_CameraGetXML()` function receives a user pre-allocated buffer and fills it with requested data.

`KYFG_GetCameraValueStringCopy()` will substitute existing function `KYFG_GetCameraValueString()`. While `KYFG_GetCameraValueString()` allocates the needed buffer and user is responsible to free it; the `KYFG_GetCameraValueStringCopy()` function receives a user pre-allocated buffer and fills it with requested data.

If the existing function are used in environment other than Visual Studio 2012 or equivalent, there could be a runtime library conflict issue. The pointer might become corrupted, and `free()` function might cause a crash. To avoid this issue please use the substitute functions.

2. `FGSTATUS_BUFFER_TOO_SMALL` enumeration value was added to `FGSTATUS` error code bank. This error code will indicate that provided buffer length is too small to hold the amount of information needed to be filled in the provided buffer.
Larger or equivalent buffer length should be introduced to `KYFG_CameraGetXML()` and `KYFG_GetCameraValueStringCopy()` functions to overcome this error.
3. `FGSTATUS_EXCEEDED_MAX_CAMERA_CONNECTIONS` enumeration value was added to `FGSTATUS` error code bank. `KYFG_CameraScan()` returns this error code if the number of connected and found cameras exceeds the maximum allowed connected cameras.
4. Full support for multiple camera connectivity, configuration, control and triggers for up to 4 cameras. Different cameras on different links, speeds, and topology can be connected and run simultaneously using provided API.

3.10.2 I/O controller definition

1. Trigger selection for a camera was moved from Digital I/O Control line selector to its camera trigger category.

Camera trigger will now be located in “CameraTriggerControl” category which will be subordinate to a selected camera using Camera selector.

In addition, the Camera Trigger (“KY_CAM_TRIG”) enumeration option has been omitted from Line Selector (“LineSelector”) Frame Grabber configuration parameters.

- Encoder trigger control has been expanded and modified. A filter (“EncoderFilter”), value at reset register (“EncoderValueAtReset”), reset command (“EncoderReset”) and reset activation state (“EncoderResetActivation”) was added for better encoder triggers mechanism control.

3.10.3 PoCXP control

The PoCXP (power over CoaXPress) control and monitoring mechanism were modified.

The Frame Grabber card will boot up with PoCXP disabled. The PoCXP will be re-enabled during camera scan process.

Each camera may have different boot-up times till the cameras are warmed up and ready for operation. A discovery delay should be optimized to match the camera boot-up time, allowing Vision Point API/App to successfully detect such cameras.

To do so “CameraDiscoveryDelay” should be set to e.g. 20000 which will delay camera detection by 20 seconds in order to let all connected cameras to boot-up for successful operation.

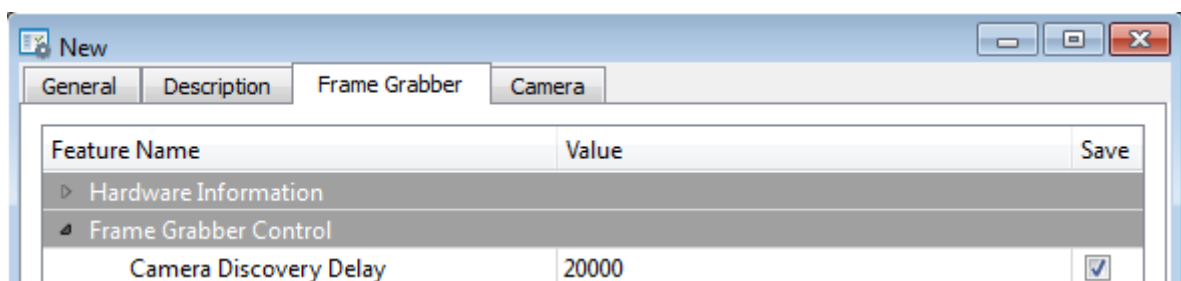


Figure 1 : Setting up the Camera Discovery Delay in Vision Point App

During the discovery process, it might look that the API/App stopped responding during camera discovery. This will last for the duration of discovery delay and discovery process.

To avoid such behavior, one might first manually enable the PoCXP from Vision Point API/App, wait for the cameras to boot-up and then execute camera detection process with short delay parameter.

- Control the PoCXP of the Frame Grabber form API:

“PoCXP0” – “PoCXP7” grabber parameters should be used to turn “On”/”Off” the FG PoCXP using one of the API dedicated functions.

e.g To turn on the power of Frame Grabber channel 2, the following function call may be used: `KYFG_SetGrabberValueEnum_ByValueName(GrabberHandle, “PoCXP2”, “On”)`

2. To control the PoCXP of the Frame Grabber from the Vision Point, please follow the section below.

3.10.4 Vision Point App enhancement

Additional buttons for manual control of PoCXP were added to Toolbar Menu.

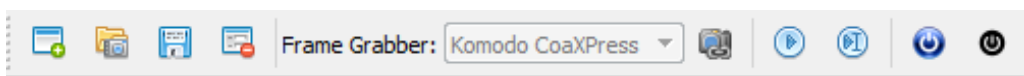




Figure 2 : New Vision Point App Toolbar Menu

To enable PoCXP press the  button – this will enable PoCXP to all links

To disable PoCXP press the  button – this will disable PoCXP to all links

⚠Caution: Manually enabling PoCXP will drive 24V to all the Frame Grabber ports. Avoid hot plugging the camera while the PoCXP was manually enabled to reduce the risk of camera damage.

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