



KAYA's Frame Grabbers PoCXP application notes AN-121501

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2.1 Document purpose

The purpose of this document is to describe and demonstrate the control over PoCXP of KAYA's CoaXPress Frame Grabbers, using Vision Point image acquisition software.

2.2 PoCXP automatic management

Starting from Vision Point API 5.0 the PoCXP management has been changed and automatic power management was improved. KAYA Software stack is now constantly monitoring an available connection state and turning PoCXP on/off automatically. The power of a camera will be turned on in the background by the Frame Grabber, even when no Vision Point or other KAYA API based application is running.

This improved feature allows an effortless and quick connection to CoaXPress cameras, which support automatic PoCXP management.

This feature is subject to compatible hardware, firmware and software support. The actual availability of this feature in a particular setup (Grabber card, firmware and software) can be checked by reading Grabber parameter "PoCXPAutoAvailable". In case the result is positive, the feature is supported, otherwise, this feature is not supported by the given combination. "PoCXPAutoActive" can be used to activate/deactivate this feature on a particular Grabber during application run-time.

In addition, the entire functionality of automatic PoCXP monitoring can be activated/deactivated using the following option found in Vision Point-> Tools-> Options. Please note that this global setting only takes effect after system reboot and applied to all connected Grabbers. If you choose to deactivate this functionality globally you can still activate it on a particular Grabber using above mentioned

"PoCXPAutoActive" command at run-time. This command applied to Grabber immediately.

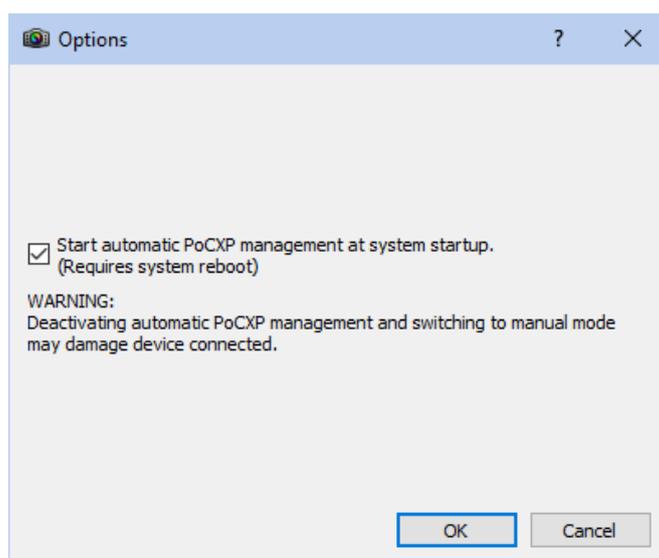


Figure 1 : Automatic PoCXP monitoring activate/deactivate in Vision Point App

In case the feature is not supported or deactivated, legacy manual PoCXP management should be used as described in section 2.3.

In case the feature is supported and activated, the following commands can be used to start/stop camera connection monitoring and changing PoCXP state according to the presence of a camera on a given CoaXPress channel.

1. To forcibly set PoCXP state to OFF execute command "CxpPoCxpTurnOff". In Vision Point GUI it is found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpTurnOff
2. To activate automatic power management execute command "CxpPoCxpAuto". In Vision Point GUI it is found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpAuto
3. To read current state of the PoCXP monitoring read the "CxpPoCxpStatus" parameter. In Vision Point GUI it is found at Frame Grabber tab -> DeviceControl -> CxpPoCxpHostConnectionSelector -> CxpPoCxpAuto

These three parameters are implemented according to GenICam_SFNC standard document with the following addition: CXP channels affected by these commands depend on the current state of

the "CxpPoCxpHostConnectionSelector" parameter value. When this value is "-1" the command is applied to all available CXP channels, otherwise they are applied only to single channel specified by "CxpPoCxpHostConnectionSelector".

Please note that legacy Grabber parameters "PoCXP0" ... "PoCXP7" are still available when automatic PoCXP is active but they become read-only in this case. You can read values of those parameters to get the current state of PoCXP on each channel.

PoCXP 0 control	On	<input type="checkbox"/>
PoCXP 1 control	Off	<input type="checkbox"/>
PoCXP 2 control	Off	<input type="checkbox"/>
PoCXP 3 control	Off	<input type="checkbox"/>
PoCXP 4 control	Off	<input type="checkbox"/>
PoCXP 5 control	Off	<input type="checkbox"/>
PoCXP 6 control	Off	<input type="checkbox"/>
PoCXP 7 control	Off	<input type="checkbox"/>
PoCXPAuto available	Yes	<input type="checkbox"/>
PoCXPAuto Active	<input checked="" type="checkbox"/> True	<input type="checkbox"/>
▼ CxpPoCxpHostConnectionSelector	All CoaXPress physical host connecti...	<input type="checkbox"/>
CxpPoCxpAuto	Execute	<input type="checkbox"/>
CxpPoCxpTurnOff	Execute	<input type="checkbox"/>
CxpPoCxpStatus	Automatically managed	<input type="checkbox"/>

Figure 2 : PoCXP automatic management in Vision Point App

Please refer to the following table for additional information regarding the devices, which support the described feature.

Hardware device	Firmware version	Details
Komodo CoaXPress 4ch and 8ch	4.11 and above	Automatic power monitoring support Note: Starting from hardware revision no. 3
Komodo II CoaXPress	All firmware versions	Automatic power monitoring support
Predator CoaXPress	Not supported	No power monitoring support Please refer to Manual PoXCP control section

Predator II CoaXPress	All firmware versions	Automatic power monitoring support
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2.3 Manual PoCXP during camera discovery

The Frame Grabber card will boot up with PoCXP disabled. PoCXP will be re-enabled during camera discovery process. Once the camera is detected, the PoCXP will remain active only on the relevant links and will be turned off when the camera is unplugged from the Frame Grabber.

NOTE: It is recommended to close the VisionPoint/User application or turn off PoCXP manually before un-plugging the camera from the Frame Grabber.

In scenario when several different cameras are connected to single Frame Grabber, the cameras might have different boot times and therefore the discovery might fail. In such a scenario one of the following methods that are described in the following sections can be applied:

1. Adjusting CameraDiscoveryDelay frame grabber parameter to match the camera with longest boot up time.
2. Manually turn on the PoCXP prior to initiating camera discovery

2.3.1 PoCXP control from API

2.3.1.1 Setting camera discovery delay

In order to initiate discovery process, the cameras should be powered up and ready, thus a discovery delay should be set to match cameras' boot-up time.

In order to set the discovery delay time, "CameraDiscoveryDelay" parameter should be changed to a desired value.

Example:

"CameraDiscoveryDelay" can be set to 20,000(ms), which will delay the camera discovery time by 20 seconds. This will allow all connected cameras to boot-up successfully.

```
KYFG_SetGrabberValueInt(GrabberHandle, "CameraDiscoveryDelay", 20000);
```

2.3.1.2 PoCXP value settings

“PoCXP0” – “PoCXP7” grabber parameters should be used to turn On/Off the Frame Grabber PoCXP, using one of the API dedicated functions:

Example:

To turn on power over CXP for channel 2, the following function can be used:

```
KYFG_SetGrabberValueEnum_ByValueName(GrabberHandle, "PoCXP2", "PoCXPOn");
```

NOTE: "Off" is the display name of the enumeration, the machine name is "PoCXPOff", and "PoCXPOn" is name of value that will switch power over CXP to "ON".

2.3.2 Vision Point App PoCXP control

2.3.2.1 Setting camera discovery delay

The camera discovery delay option is located in the Vision Point Application, as described in the following path:

“Frame Grabber” -> “Frame Grabber Control” -> “Camera Discovery Delay”

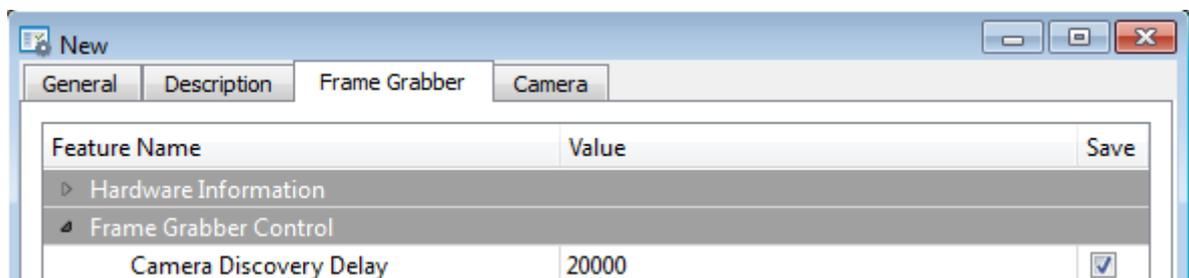


Figure 3 : Setting up Camera Discovery Delay in Vision Point App

2.3.2.2 PoCXP control

1. PoCXP control buttons for manual control of PoCXP can be found in the main Toolbar Menu, as shown in Figure 4:



Figure 4 : Vision Point App main 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

2. To control individual PoCXP channel, follow the PoCXP control options, located under the “Frame Grabber Control” category, as described in Figure 5.

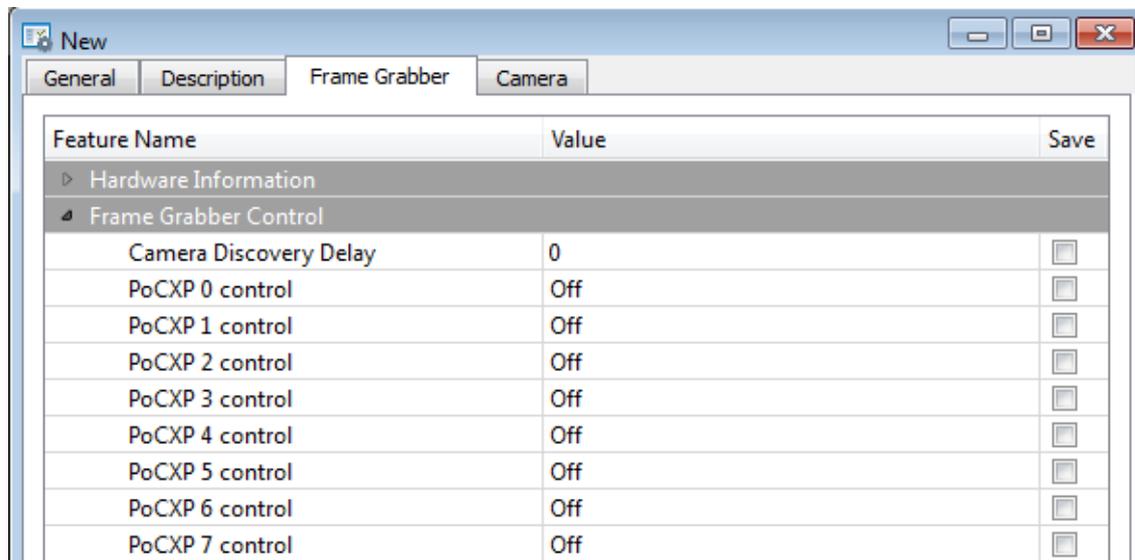


Figure 5 : PoCXP controls in Vision Point App

⚠Caution: Manually enabling PoCXP will drive 24V to all the frame grabber ports. Avoid hot plugging the camera while the PoCXP is enabled to reduce the risk of camera damage.