



Cayuga R16 Camera Drivers

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Cayuga Support of IP Cameras and Encoders

Cayuga uses several methods to support a large and growing number of camera and encoder models from most camera manufacturers. The Supported Devices list on the Qognify website is updated on a monthly basis and offers a list of cameras and encoders that have been tested and certified to work with Cayuga. Additional information is provided on the website indicating tested firmware versions, which type of driver is used, and supported device features such as I/O and analytic functions. Find it here: <https://www.qognify.com/support-training/supported-devices/>

Device License Requirements

Cameras and encoders are licensed in Cayuga by IP address. One device license is required per IP address used. Find the amount of required licenses per device in the Supported Devices list on the Qognify website

Examples:

- A multi-sensor or multi-stream camera that uses one IP address will only require a single device license – regardless of the number of video streams actually used.
- A 4 or 16 channel encoder using four IP addresses will require four licenses.

Standalone input/output (I/O) modules do not require a license in Cayuga. However, Cayuga S50 has a limitation of 5 I/O modules per server, Cayuga S100 has a limitation of 10 I/O modules per server – Cayuga Infinity does not have any limitations on the number of modules used.

Static Drivers

Many cameras and encoders are supported via static drivers specifically written to the device model. Many of them are flexible as they will work with a series of cameras that vary only in attributes such as camera type (box/minidome), mounting type, indoor vs. outdoor, lens type, etc. Camera specific drivers are available in Cayuga's configuration mode via a drop down menu when adding the device. When using static drivers to add a camera to Cayuga, it is not necessary that the camera is available on the network at the time of configuration.

Smart Drivers

Manufacturer-specific 'Smart Drivers' expand the range of model-specific static drivers. Instead of storing the device's information (codecs, resolutions, frame rates, etc.) statically, Cayuga queries the device for its capabilities. Smart Drivers can be used with any camera or encoder model that meets the specifications in the table below. Configuring a device with a smart driver requires that the camera is available on the network at the time of configuration. Smart Drivers eliminate the need to wait for model-specific drivers and allow new cameras to be used immediately.

Onvif Drivers

ONVIF Drivers can be used for cameras that are not supported via static or smart drivers. The camera needs to support the vendor independent ONVIF standard.

The ONVIF Simple Driver can be used for basic compatibility as it doesn't set any parameters on the camera. It simply authorizes at the camera and performs RTSP streaming. You cannot select the profile to be used. PTZ control is supported.

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The ONVIF Profile-S driver can be used for any camera which is ONVIF Profile-S compliant. In addition to the functionality of the ONVIF Simple Driver this driver also supports setting parameters and receiving event triggers. Also edge storage is supported via Onvif Profile-G.

Generic Video Driver (RTSP/Motion-JPEG)

The 'Generic Video Driver' is the simplest camera driver and is limited to video streaming using the Motion-JPEG or RTSP protocols only. RTSP also allows to stream audio. This driver requires entering the streaming URL manually in the configuration for the device. The streaming URL can be requested directly from each camera manufacturer. It is recommended to test the RTSP/Motion-JPEG compatibility with VLC Media Player first.

Generic Multicast Driver

The 'Generic Multicast Driver' is made to hook up to an RTP multicast video stream on the network.

How to use vendor-specific Smart Drivers and the ONVIF Profile-S Driver

- Connect camera to the network
- Add new camera in configuration mode and select the Smart Driver of the manufacturer
- Cayuga queries the capabilities from the device and offers it for configuration
- Once you see the model name and firmware version the camera is ready for configuration
- If you use a PTZ camera please activate PTZ manually in the configuration

Known issues for vendor-specific Smart Drivers and the ONVIF Profile-S Driver

- In certain cases the number of channels for multi channel devices won't be read correctly. Workaround: delete device, add again.
- The wizard for adding cameras does not fully support Smart Drivers
- If you add a multi channel device the number of channels will be added automatically. If you change the IP address to a device which has a lower number of channels the number of channels cannot be reduced. Workaround: Delete device, add again
- Converting static camera drivers into Smart Drivers may lead to loss of some information
- For multi streaming the same stream from the camera can be selected twice for different streams in Cayuga. Please make sure you use each stream only once. Example: Hikvision Smart Driver: Use 'H.264 Stream 1 (H.264)' for the first stream and use 'H.264 Stream 2 (H.264)' for the second stream or vice versa

FAQ For Vendor Specific Smart Drivers and the ONVIF Profile-S Driver

- **Q:** Which camera user account can I use to operate the camera?
A: Make sure to use a camera user that has administrative rights. For some camera vendors you have to add a specific ONVIF user.
- **Q:** Is my camera supported by a Smart Driver?
A: If your camera meets the requirements described in the table it can be used with the Smart Driver. The compatibility should be tested before productive use. Qognify is continuously testing and certifying new camera models for the Smart Drivers. Find a list of supported devices here: <https://www.qognify.com/support-training/supported-devices/>

Cayuga R16 – Camera Drivers

- **Q:** How can I see that a camera was queried correctly?
A: Once you can see the correct model name and firmware version of the device in the configuration the device is correctly queried and can be configured.
- **Q:** Once the capabilities of a camera are queried in which cases will the information be updated?
A: The device will be queried again if the firmware version of the device was upgraded or you enter a different IP address in order to connect to a different device. You can also query again manually by clicking 'Query device'. This may be necessary if some basic functionality on the device has changed
 - Example 1: For several devices the supported resolutions, frame rates and further capabilities may change if you configure a different capture mode on the device.
 - Example 2: On some devices a digital input can be changed to a digital output.
 - Example 3: For some devices the supported resolutions may change if it is switched from NTSC to PAL)
- **Q:** Will firmware versions different from the specified ones work as well?
A: Firmware versions older than the specified ones may work with restrictions. There is no guarantee that firmware versions newer than the specified ones may work. Adjustments to the driver may be necessary. It is recommended to use the firmware versions specified in the table.
- **Q:** Will further static drivers be released in future?
A: For vendors where a Smart Driver exists no further static drivers are planned.
- **Q:** Can I fully pre-configure a Cayuga system in the lab before installation on site?
A: Yes, for each camera model used on site you need at least one of each for pre-configuration. If a device isn't reachable only limited configuration is possible.
 - Connect the cameras to the network
 - Create each driver once in Cayuga
→ Cayuga reads the cameras' capabilities (resolutions, frame rates, I/Os, etc...)
 - Copy each driver as many times as needed
 - Example: On site the following cameras are used:
 - 5 x Axis Q6035 → You need one sample in the lab
 - 10x Axis P3367 → You need one sample in the lab
 - 20x Sony SNC-EM600 → You need one sample in the lab

	ALLNET Smart Driver	Arecont Vision Smart Driver	Axis Smart Driver	Bosch Smart Driver	Canon Smart Driver	Convision Smart Driver	Dahua Smart Driver	Eclipse Smart Driver	Flir Smart Driver	Grundig Smart Driver	
Protocol	Native Protocol	Native Protocol	Native VAPIX Version 3	Native RCP+	ONVIF	Native	Native	ONVIF	ONVIF	Native	
Camera Generation/Series	ALL-Cam23xx Series	Any MJPEG/H.264 Generation camera (except Contera)	A/D/F/M/P/Q Series (H.264/H.265 Generation)	CPP4, CPP5, CPP6, CPP7, CPP7.3 Platforms	H.264 Generation: VB-H/VB-M/VB-S	CC-7xxx Series Camera	Camera Generation Not Specified	Not Specified	F-Series, PT-Series, FC Series	Not Specified	
Firmware Versions	V5.3.0 or higher	Not Specified	5.x, 6.x, 7.x, 8.x, 9.x, 10.x 1.x (A series)	6.30 or higher	Not specified	V5.3.5 or higher	Not specified	Not specified	Not specified	V1.0.0 or higher	
Basic/Digest Authentication	✓/✓	✓/x	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	
Video Streams	MJPEG	5	8	3	1	1	5	3	3	2	5
	H.264	5	8	3	2	2	5	3	3	2	5
	H.265	5	x	3	2	x	5	3	3	x	5
	Concurrent	5	8	6	3	2	5	3	3	2	5
H.264 Baseline/Main/High Profile	✓/✓/✓	✓/x/x	✓/✓/✓	x/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	x/x/x	✓/✓/✓	
Transmission Modes (MJPEG/H.26x)	UDP ¹⁾	✓/✓	x/✓	x/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	
	TCP ²⁾	✓/✓	x/✓	x/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	
	HTTP(S) ³⁾	x/x	x/x	x/✓	✓/✓	x/x	x/x	x/x	x/x	x/x	
Multicast ⁴⁾	x/x	x/✓	x/✓	✓/✓	x/x	x/x	✓/✓	✓/✓	x/x	x/x	
MJPEG via HTTP_Serverpush	x	✓	✓	x	x	x	x	x	x	x	
Image Rotation											
0°/180°	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
90°/270°	✓	✓	✓	✓	x	✓	✓	✓	x	✓	
Audio-In (listen) / Out (speak)	✓/✓	✓/x	✓/✓	✓/✓	✓/x	✓/✓	✓/✓	✓/✓	x/x	✓/✓	
Multi channel device support	✓	✓	✓	✓	x	x	✓	✓	✓	x	
Set Streaming Parameters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Virtual Cameras (cropping)	x	✓	✓	x	x	x	x	x	x	x	
PTZ	Continuous	✓	x	✓	✓	✓	✓	✓	✓	✓	
	ClickToCenter	✓	x	✓	✓	x	✓	x	x	✓	
	Area Zoom	✓	x	✓	✓	x	✓	x	x	✓	
	Presets	✓	x	✓	✓	✓	✓	✓	✓	✓	
	Day/Night	x	x	✓	✓	✓	x	✓	x	x	
	Focus	✓	x	✓	✓	✓	✓	✓	x	✓	
	Iris	✓	x	✓	✓	x	✓	x	x	✓	
Event Triggers ⁵⁾	✓	✓	✓	✓	✓	✓	✓	✓	✓		
HTTPS/TLS	✓	x	✓	✓	✓	✓	✓	✓	✓		
Digital Inputs/Outputs	✓/✓	✓/✓	✓/✓	✓/✓	✓ ⁶⁾ /✓	✓/✓	✓/✓	✓ ⁶⁾ /✓	✓ ⁶⁾ /✓	✓/✓	
Edge Storage	✓	x	✓	✓	x	✓	x	✓	x	✓	
Modify device password	x	x	✓	✓	x	x	x	x	x	x	
General Information		Event Triggers: Motion Detection only	ACAP event triggers supported incl. VMD3 & VMD4.		Motion Detection and 2nd H.264 stream has to be configured manually on the camera before query. 'Check Time on Authentication' needs to be disabled on the device.			If a device has different capabilities (resolutions, fps, etc.) per channel only the capabilities of channel #1 are offered. Set streaming parameters for channels >1 on the device manually.		Digital Outputs are virtual Outputs that can be mapped to actions on the device.	

¹⁾RTP_Over_UDP_Unicast | ²⁾RTP_Over_RTSP_Over_TCP | ³⁾RTP_Over_RTSP_Over_HTTP_unicast | ⁴⁾RTP_Over_UDP_Multicast
⁵⁾A List of supported event triggers is queried from the device (incl. analytics triggers) | ⁶⁾ Only one digital input supported

	Hanwha Techwin Wisenet Smart Driver	Hikvision Smart Driver	Interlogix Smart Driver	Northern Smart Driver	Panasonic Smart Driver	Smart Driver Generation 6/7	Sony Smart Driver Generation X	TKH Security Solutions Smart Driver	Uniview Smart Driver	Vanderbilt Smart Driver	
Protocol	Native Sunapi 2.0	Native ISAPI / CGI	Native Protocol	Native Protocol	Native CGI	Native	Native	Native	ONVIF	Native	
Camera Generation/Series	WiseNet Devices	Not Specified	Not Specified	NTH-IP3 Series	H.264, H.265 Generation Cameras	Generation 6, 7	Generation X	10xx/11xx Series	Not Specified	Eventys Series	
Firmware Versions	1.00 or higher	5.3.5 or higher	Not Specified	5.3.5 or higher	1.00 or higher	Gen 6: 2.x - 3.x Gen7: 1.x	6.40 or higher	V1.0.0 or higher	Not specified	Not specified	
Basic/Digest Authentication	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	
Video Streams	MJPEG	2	5	5	5	1	2	1	5	3	5
	H.264	3	5	5	5	2	2	2	5	3	5
	H.265	3	5	5	5	2	x	2	5	3	5
	Concurrent	3	5	5	5	3	2	3	5	3	5
H.264 Baseline/Main/High Profile	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	x/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	
Transmission Modes (MJPEG/H.26x)	UDP ¹⁾	✓/✓	✓/✓	✓/✓	✓/✓	x/✓	x/✓	✓/✓	✓/✓	✓/✓	✓/✓
	TCP ²⁾	✓/✓	✓/✓	✓/✓	✓/✓	x/✓	x/✓	✓/✓	✓/✓	✓/✓	✓/✓
	HTTP(S) ³⁾	✓/✓	x/x	x/x	x/x	x/x	x/x	✓/✓	x/x	x/x	x/x
Multicast ⁴⁾	x/x	x/x	x/x	x/x	x/x	x/✓	✓/✓	x/x	✓/✓	x/x	
MJPEG via HTTP_Serverpush	x	x	x	x	x	✓	✓	x	x	x	
Image Rotation	0°/180°	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	90°/270°	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Audio-In (listen) / Out (speak)	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	
Multi channel device support	✓	✓	✓	x	✓	x	✓	x	✓	✓	
Set Streaming Parameters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Virtual Cameras (cropping)	x	x	x	x	x	x	x	x	x	x	
PTZ	Continuous	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ClickToCenter	✓	✓	✓	✓	✓	✓	✓	x	✓	
	Area Zoom	✓	✓	✓	✓	✓	✓	✓	x	✓	
	Presets	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Day/Night	✓	x	x	x	✓	✓	✓	x	✓	x
	Focus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Iris	✓	✓	✓	✓	✓	✓	✓	✓	x	✓
Event Triggers ⁵⁾	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HTTPS/TLS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Digital Inputs/Outputs	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓	✓ ⁶⁾ /✓	✓/✓	
Edge Storage	✓	✓	✓	✓	x	x	✓	✓	✓	✓	
Modify device password	x	x	x	x	x	x	✓	x	x	x	
General Information	If a device has different capabilities (resolutions, fps, etc.) per channel only the capabilities of channel #1 are offered. Set streaming parameters for channels >1 on the device manually.				Event Triggers including iVMD: On older firmware versions VMD only.	Transmission mode Multicast only available for Gen. 7 devices					

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⁵⁾A List of supported event triggers is queried from the device (incl. analytics triggers) | ⁶⁾ Only one digital input supported

	Vivotek Smart Driver	W Box Smart Driver	Onvif Profile-S Driver	Onvif Simple Driver (Legacy)	Generic Video Driver (RTSP)	Generic Video Driver (Motion-JPEG)	Generic Multicast Driver
Protocol	Native WebAPI	Native Protocol	ONVIF	ONVIF	RTP/RTSP	Motion-JPEG	RTP
Camera Generation/Series	H.265, late H.264 Generation	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified
Firmware Versions	Not specified	5.3.x or higher	FW needs to meet Core Specification 2.2.1 and Profile-S	FW needs to meet Core Specification 2.2.1	Not Specified	Not Specified	Not Specified
Basic/Digest Authentication	✓/✓	✓/✓	✓/✓	✓/x	✓/✓	✓/✓	x/x
Video Streams	MJPEG	4	5	10	2	4	1
	H.264	4	5	10	2	x	1
	H.265	4	5	10	x	4	1
	Concurrent	4	5	10	2	4	1
H.264 Baseline/Main/High Profile	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	x/x/x	✓/✓/✓
Transmission Modes (MJPEG/H.26x)	UDP¹⁾	x/✓	✓/✓	✓/✓	✓/✓	✓/✓	x/x
	TCP²⁾	x/✓	✓/✓	✓/✓	✓/✓	✓/✓	x/x
	HTTP(S)³⁾	x/✓	x/x	✓/✓	x/x	✓/✓	x/x
	Multicast⁴⁾	x/x	x/x	✓/✓	x/x	x/x	✓/✓
MJPEG via HTTP_Serverpush	✓	x	x	x	x	✓	x
Image Rotation	0°/180°	✓	✓	✓	✓	✓	x
	90°/270°	✓	✓	✓	x	x	x
Audio-In (listen) / Out (speak)	✓/✓	✓/✓	✓/✓	x/x	✓/✓	x/x	x/x
Multi channel device support	✓	x	✓	x	x	x	x
Set Streaming Parameters	✓	✓	✓	x	x	x	x
Virtual Cameras (cropping)	x	x	x	x	x	x	x
PTZ	Continuous	✓	✓	✓	✓	x	x
	ClickToCenter	✓	✓	✓	x	x	x
	Area Zoom	✓	✓	x	x	x	x
	Presets	✓	✓	✓	✓	x	x
	Day/Night	✓	x	✓	x	x	x
	Focus	✓	✓	✓	x	x	x
	Iris	x	✓	x	x	x	x
Event Triggers⁵⁾	✓	✓	✓	x	x	x	
HTTPS/TLS	✓	✓	✓	x	x	x	
Digital Inputs/Outputs	✓/✓	✓/✓	✓ ⁶⁾ /✓	x/x	x/x	x/x	x/x
Edge Storage	x	✓	✓	x	x	x	x
Modify device password	x	x	x	x	x	x	x
General Information				Stream configuration has to be set on the camera. The stream from the camera cannot be chosen. It is assigned camera internally. Please use the Onvif Profile-S Driver preferred.	RTSP streaming URL has to be entered manually. Stream configuration (resolution, frame rate etc.) has to be set on the device. Some devices allow setting the streaming parameters in the streaming URL	Motion-JPEG URL has to be entered manually. Stream configuration (resolution, frame rate etc.) has to be set on the camera.	Multicast address and port have to be entered manually.

¹⁾ RTP_Over_UDP_Unicast | ²⁾ RTP_Over_RTSP_Over_TCP | ³⁾ RTP_Over_RTSP_Over_HTTP_unicast | ⁴⁾ RTP_Over_UDP_Multicast
⁵⁾ A List of supported event triggers is queried from the device (incl. analytics triggers) | ⁶⁾ Only one digital input supported