Integrated Camera Interface Specifications

Supplement for Web Control

Target Models
AW-UE4 (Ver.1.80)
AW-HE20/AW-UE20 (Ver.1.16)

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1. Introduction

This manual describes the specifications for video transmission and network application operation when a remote camera is operated via the network. For details on the general camera operations of the remote camera, see the separate volume "HD Integrated Camera Interface Specifications".

Panasonic shall not take any responsibility of damages caused as a result of the use of this information. This information may be changed without prior notice due to upgrade of product version in future. The usage examples are only reference examples for this series. Support cannot be offered for each program. Moreover, some information of the communication between the camera and browser is not disclosed.

About the access levels

In this manual, "Live" and "Admin" are defined as the access levels. The necessity of the ID/password during CGI execution is changed from the User auth. menu of the remote camera.

When User auth. is OFF (factory settings):

Live (Video acquisition and camera control)	... Authentication not necessary
Admin (All SETUP controls)	... ID/password for Administrator authority are necessary

When User auth. is ON:

Live (Video acquisition and camera control)	... ID/password for camera control or Administrator authority are necessary
Admin (All SETUP controls)	... ID/password for Administrator authority are necessary

About the priority mode

The type of CGI that can be executed and the range of parameter values differ depending on the priority mode of the remote camera.
For details, see the instruction manual.

2. CGI List for Video Transmission

2.1. Transmission User Management

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Transmission user management	/cgi-bin/getuid	FILE	2	2 (Fixed)
		vcodec	jpeg h264 h265	jpeg: During JPEG transmission h264: During H.264 transmission h265: During H.265 transmission
		reply	browser info	Command response format specification (can be omitted) browser: for the camera browser info: for the application

Usage example) Acquisition of user ID (during H264 transmission)
http://192.168.0.10/cgi-bin/getuid?FILE=2&vcodec=h264

The response data is as shown below.
UID=< User ID >[CR][LF]

The description of the response data is as shown below.

Item	Value of response	Description
UID	Numeric value	User ID

2.2. JPEG-based Image Transmission

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
JPEG image transmission (MJPEG)	/cgi-bin/jpeg	connect	start stop	start: Starts JPEG image transmission stop: Stops JPEG image transmission
		framerate	[60Hz/59.94Hz] 10 30 [50Hz] 10 25	10 fps (1280x720 only for AW-UE4) 30 (25) fps : 640 x 360 only The values within () are for the case when the system frequency is 50 Hz
		resolution	640 1280	640: 640 x 360 1280: 1280 x 720
		UID	Numeric value	User ID * UID acquired by /cgi-bin/getuid
JPEG image transmission (MJPEG)	/cgi-bin/mjpeg	resolution	640 1280	640: 640 x 360 1280: 1280 x 720
		framerate	[60Hz/59.94Hz] 10 30 [50Hz] 10 25	10 fps (1280x720 only for AW-UE4) 30 (25) fps : 640 x 360 only The values within () are for the case when the system frequency is 50 Hz
JPEG image 1shot request	/cgi-bin/view.cgi	action	snapshot	snapshot: Acquires one JPEG image
JPEG image 1shot request	/cgi-bin/camera	resolution	640 1280	640: 640 x 360 1280: 1280 x 720
		page	Numeric value	Dummy for disabling cache

[Notes]

In a remote camera, various techniques are provided for acquisition of a JPEG video. Use the technique suitable to your purpose.

MJPEG

By continuously displaying the videos that arrive, a movie display can be realized.
The frame rate is decided based on the arguments.
Depending on the software and hardware at the receiving side, some frame rates may not be supported.

JPEG image 1 shot

By repeating the processes of acquisition, display, and standby for a single JPEG image, a movie display can be realized.
The frame rate is decided according to the standby time in the software and hardware at the receiving side.

The characteristics of each CGI of MJPEG are as described below.

/cgi-bin/jpeg

When CGI is called once, the MJPEG stream is transmitted continuously.
Before calling, the acquisition of UID with /cgi-bin/getuid is necessary.

Specific usage examples and sequences are described in the next chapter.

/cgi-bin/mjpeg

When CGI is called once, the MJPEG stream is transmitted continuously.
Before calling, the acquisition of UID with /cgi-bin/getuid is not necessary.

It is used when calling JPEG from some mobile terminals.

Usage example) When acquiring a 1280 x 720 video in 10 fps in the MJPEG format:
http://192.168.0.10/cgi-bin/mjpeg?resolution=1280&framerate=10

Usage example) When acquiring a 640 x 360 video in 30 fps in the MJPEG format:
http://192.168.0.10/cgi-bin/mjpeg?resolution=640&framerate=30

Usage example) When acquiring a 1280 x 720 video in 10 fps in the MJPEG format (parameter omitted):
http://192.168.0.10/cgi-bin/mjpeg

The characteristics of each CGI of JPEG image 1 shot are as described below.

/cgi-bin/view.cgi

When CGI is called once, only one JPEG image is transmitted.
Before calling, the acquisition of UID with /cgi-bin/getuid is not necessary.
Not supported by other than 1280 x 720, 640 x 360 resolution which is set by set_jpeg command.

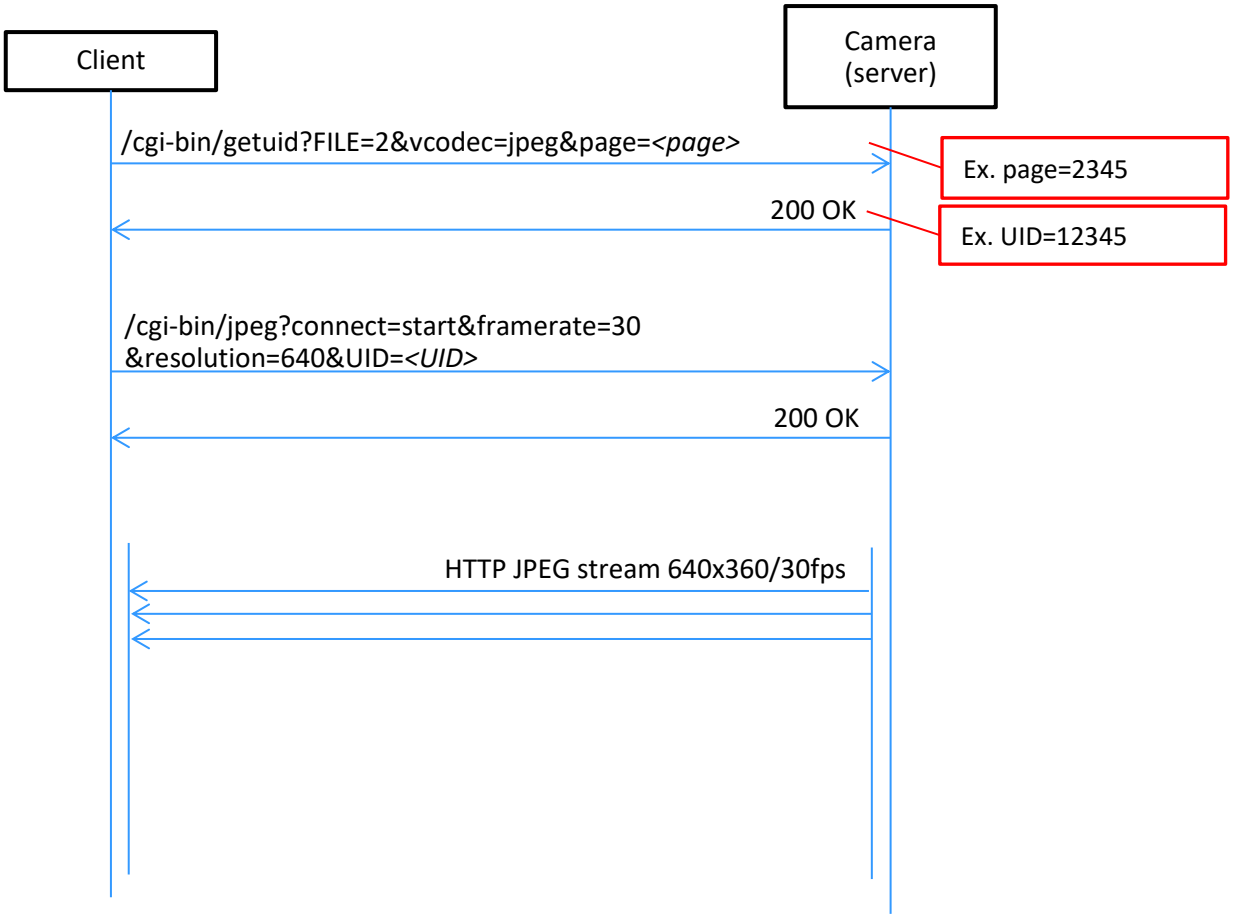
Usage example) When acquiring a 640 x 360 video through a JPEG image 1 shot request:

http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3333
<Appropriate standby time>
http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3334
<Appropriate standby time>
http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3335

/cgi-bin/camera

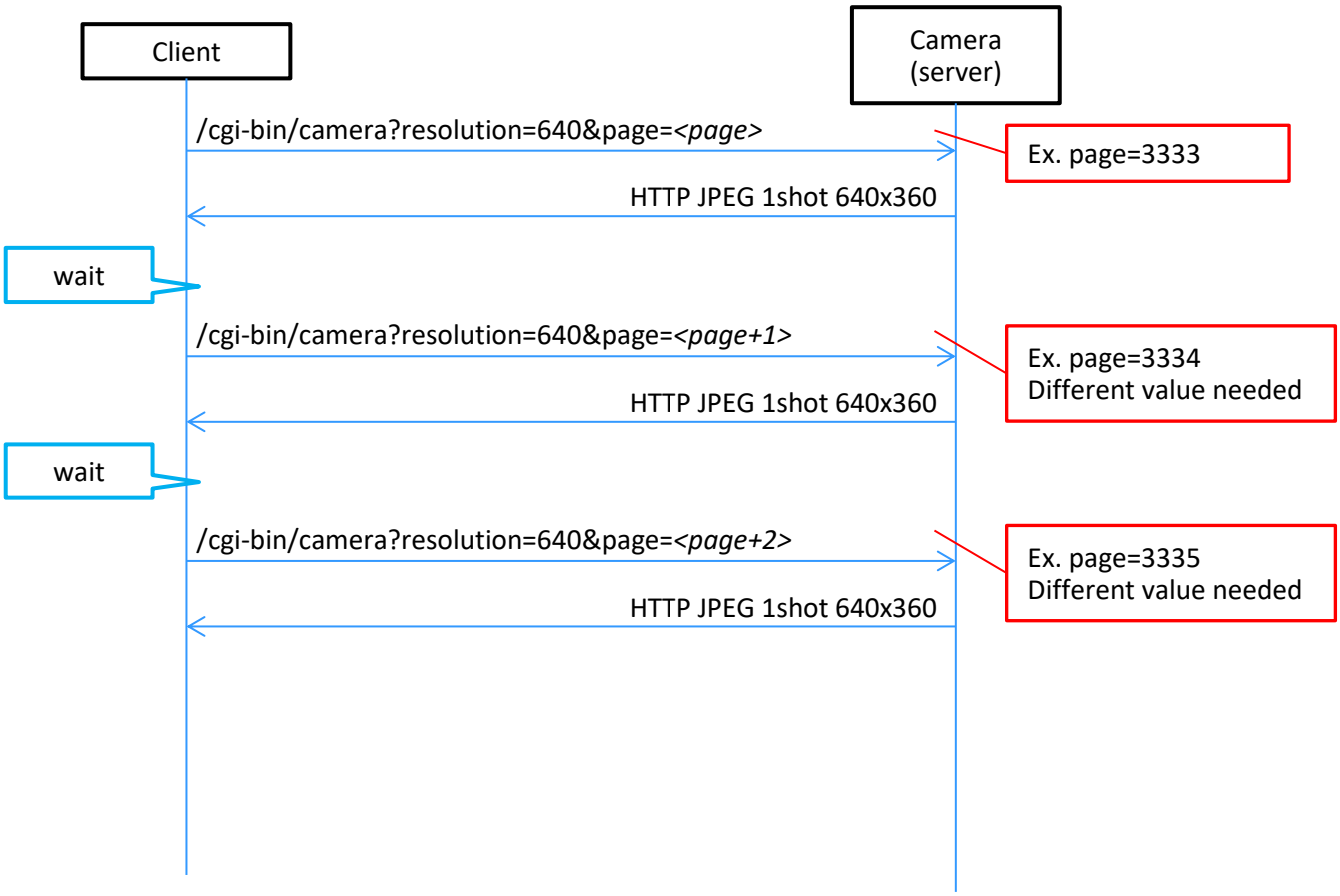
When CGI is called once, only one JPEG image is transmitted.
Before calling, the acquisition of UID with /cgi-bin/getuid is not necessary.

2.3. Image Transmission Sequence based on MJPEG



MJPEG Sequence

2.4. Image Transmission Sequence based on JPEG Image 1 shot



JPEG 1shot Sequence

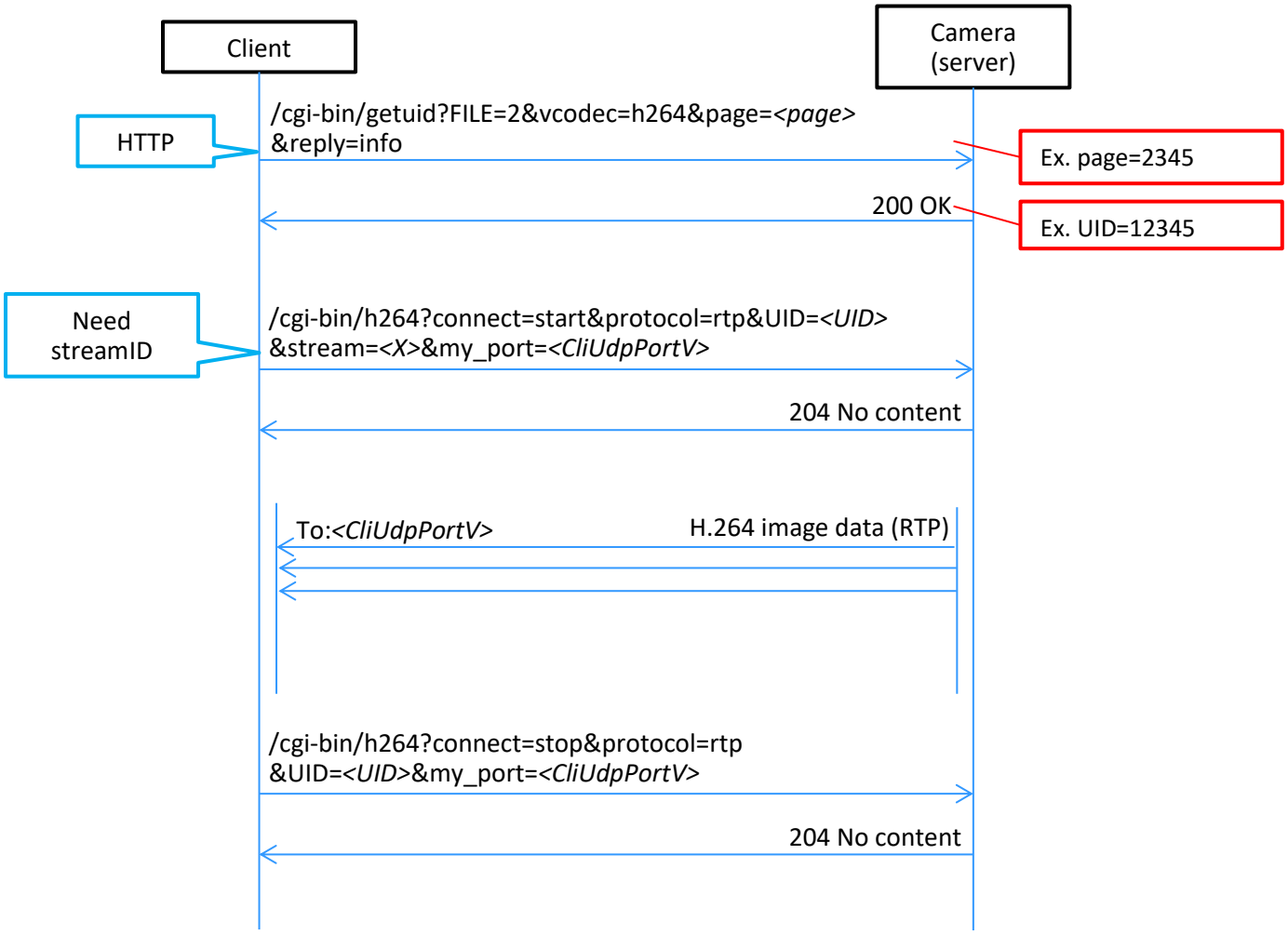
2.5. H264/AUDIO-based Image Transmission

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
H.264 image transmission	/cgi-bin/h264	my_port	Numeric value	Reception port number of H.264 * This parameter cannot be omitted if unicast is set.
		connect	start stop	start: Starts H.264 transmission stop: Stops H.264 transmission
		protocol	rtp	rtp: RTP format (can be omitted)
		UID	Numeric value	User ID * UID acquired by /cgi-bin/getuid
		stream	1	1: Stream 1

Usage example) H264 image transmission start (when the port number is "40000" and User ID is "263")
http://192.168.0.10/cgi-bin/h264?my_port=40000&connect=start&protocol=rtp&UID=263&stream=1

2.6. Unicast Image Transmission Sequence based on H264



H264 Sequence

3. CGI List for Various Settings

3.1. Basic Settings

Method : GET / POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Basic settings	/cgi-bin/set_basic	cam_title	String	Camera title (within 20 double-byte characters)

Usage example) Set the camera title
http://192.168.0.10/cgi-bin/set_basic?cam_title=he20

Method :GET
Access level :Admin

CGI 項目名	URL	パラメータ名	パラメータ値	説明
Priority mode setting	/cgi-bin/set_priority_mode	mode	ip usb ip_4k usb_4k hdmi_4k usb_video_conference	ip: IP usb: HDMI/USB ip_4k: IP(4K) usb_4k: USB(4K) hdmi_4k: HDMI(4K) usb_video_conference: USB(Video Conference)

Usage example）Set the priority mode to IP
http://192.168.0.10/cgi-bin/set_priority_mode?mode=ip

3.2. Video over IP Settings

Method : GET / POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
JPEG settings	/cgi-bin/set_jpeg	resol_stream1	640 1280	640: 640 x 360 1280: 1280 x 720
		jpeg_transmit1	0 1	0: OFF Do not transmit 1: ON Transmit
		jpeg_interval1	[60Hz/59.94Hz] 10 30 [50Hz] 10 25	Frame rate of JPEG 10:10fps (1280x720 only for AW-UE4) 30(25):30(25)fps : 640 x 360 only * The values within () are for the case when the system frequency is 50 Hz
H.264 stream settings	/cgi-bin/set_h264	h264_transmit	0 1	0: OFF Do not transmit 1: ON Transmit
		h264_resolution	640 1280 1920 3840	640: 640 x 360 1280:1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 (Not available on AW-HE20)
		framerate	[60Hz/59.94Hz] 5 15 30 60 [50Hz] 5 10 25 50	5: 5 fps 15 (10): 15 (10) fps 30 (25): 30 (25) fps 60 (50): 60 (50) fps * The values within () are for the case when the system frequency is 50 Hz
H.265 stream settongs	/cgi-bin/set_h265	h265_transmit	0 1	0: OFF Do not transmit 1: ON Transmit
		h265_resolution	640 1280 1920 3840	640: 640 x 360 1280:1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 (Not available on AW-HE20)
		framerate	[60Hz/59.94Hz] 5 15 30 60 [50Hz] 5 10	5: 5 fps 15 (10): 15 (10) fps 30 (25): 30 (25) fps 60 (50): 60 (50) fps * The values within () are for the case when the system frequency is 50 Hz

CGI item name	URL	Parameter name	Parameter value	Description
			25 50	

3.3. Network Settings

Method : GET / POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Network settings	/cgi-bin/network	dhcp	0 1	0: DHCP OFF (Static settings) 1: DHCP ON
		IP_addr1	0 to 255	IP address First octet
		IP_addr2	0 to 255	IP address Second octet
		IP_addr3	0 to 255	IP address Third octet
		IP_addr4	0 to 255	IP address Fourth octet
		netmask1	0 to 255	Subnet mask First octet
		netmask2	0 to 255	Subnet mask Second octet
		netmask3	0 to 255	Subnet mask Third octet
		netmask4	0 to 255	Subnet mask Fourth octet
		gateway1	0 to 255	Default gateway First octet
		gateway2	0 to 255	Default gateway Second octet
		gateway3	0 to 255	Default gateway Third octet
		gateway4	0 to 255	Default gateway Fourth octet
		port	1 to 65535	Port number
		dns	manual auto	manual: Manual setting auto: Auto setting
		pri_server1	0 to 255	IPv4 Primary server address (DNS) First Octet
		pri_server2	0 to 255	IPv4 Primary server address (DNS) Second Octet
		pri_server3	0 to 255	IPv4 Primary server address (DNS) Third Octet
		pri_server4	0 to 255	IPv4 Primary server address (DNS) Fourth Octet
		sec_server1	0 to 255	IPv4 Secondary server address (DNS) First Octet
		sec_server2	0 to 255	IPv4 Secondary server address (DNS) Second Octet
		sec_server3	0 to 255	IPv4 Secondary server address (DNS) Third Octet
		sec_server4	0 to 255	IPv4 Secondary server address (DNS) Fourth Octet

CGI item name	URL	Parameter name	Parameter value	Description
		ip6_addr	*:*:*:*:*:*:*:* format	IP address
		ip6_gateway	*:*:*:*:*:*:*:* format	Default gateway
		ip6_pri_server	*:*:*:*:*:*:*:* format	Primary server (IPv6 only)
		ip6_sec_server	*:*:*:*:*:*:*:* format	Secondary server (IPv6 only)
		time	20 unlimited	Effective limit for Easy IP Setup 20: 20 minutes unlimited: Unlimited
Easy IP Setup protocol settings	/cgi-bin/easyipset	time	20 unlimited	Time period during which Easy IP Setup can be performed from the time power is turned ON 20: 20 minutes unlimited: Unlimited

Usage example) Change the IP address to 192.168.0.30, Netmask to 255.255.128.0, Gateway address to 192.168.0.50.

http://192.168.0.10/cgi-bin/network?IP_addr1=192&IP_addr2=168&IP_addr3=0&IP_addr4=30&netmask1=255&netmask2=255&netmask3=128&netmask4=0&gateway1=192&gateway2=168&gateway3=0&gateway4=50

3.4. Restarting

Method : GET / POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Initialization	/cgi-bin/initial	cmd	reset	Camera restart
		Randomnum	Hexadecimal string	16 single-byte character string

Usage example) Restarting the remote camera

http://192.168.0.10/cgi-bin/initial?cmd=reset&Randomnum=12345

4. CGI List for Acquisition of Different Types of Information

4.1. Basic Settings Information Acquisition

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Basic settings information acquisition	/cgi-bin/get_basic			

The response data is as shown below.
cam_title = Camera title

4.2. Priority Mode Acquisition

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Priority mode acquisition	/cgi-bin/get_priority_mode			

The response data is as shown below.
priority_mode = xxx
* For details on the value notified by xxx, see the parameters of set_priority_mode.

4.3. VideoOverIP Screen Information Acquisition

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
VideoOverIP screen information acquisition	/cgi-bin/get_video_over_ip			▪ The response is issued in a random order ▪ If transmission to a specific ch is not possible due to the specifications, the response for the desired ch is not returned Example) If transmission to h264 (ch4) is not possible,

				h264_xxxxx_ch4 is not included in the response.

The response data is as shown below.

livestart_stream=jpeg/h264/h265
h264_resolution_ch1=1920
h264_framerate_ch1=5/15(10)/30(25)/60(50)

4.4. Network Settings Information Acquisition

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Network settings information acquisition	/cgi-bin/get_network			

The response data is as shown below.

ip4_dhcp=0/1
ip4_addr=*.*.*.*
ip4_netmask=*.*.*.*
ip4_gateway=*.*.*.*
ip4_pri_server=*.*.*.*
ip4_sec_server=*.*.*.*
port = Numeric value (1 to 65535)
dns=auto/manual
ip6_auto=0/1
ip6_addr=*:*:*:*:*:*:*:*
ip6_gateway=*:*:*:*:*:*:*:*
ip6_pri_server=*:*:*:*:*:*:*:*
ip6_sec_server=*:*:*:*:*:*:*:*
ip6_dhcp=0/1
time=20/unlimited

4.5. System Log Information Acquisition

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
System log	/cgi-bin/get_systemlog (Not available on AW-UE4)	type	eventlog errorlog	eventlog: Event log errorlog: Error log
		num	100 (fix value)	Acquisition number
		index	1 (fix value)	Acquisition start position

The response data is as shown below.

no\mm/dd/yyyy hh:mm\event code\description$no\mm/dd/yyyy hh:mm\event code\description$

▪
▪
▪

* No line feed.
A "\" is entered between two parameters.
A "$" is entered between numbers, such as between No. 1 and No. 2.

5. CGI List for RTMP Control

5.1. RTMP Stream control

Method :GET
Access level :Live

CGI item name	URL	Parameter name	Parameter value	Description
RTMP Stream Control	/cgi-bin/rtmp_ctrl	cmd	start stop	start:RTMP Stream Start stop:RTMP Stream Stop

5.2. RTMP Stream Status Aquisition

Method :GET
Access level :Live

CGI item name	URL	Parameter name	Parameter value	Description
RTMP Stream Status Aquisition	/cgi-bin/get_rtmp_status			0:Stream suspended 1:During Stream

The response data is as shown below.

status = Numeric value (0/1)

5.3. RTMP Server Setting

Method :GET
Access level :Admin

CGI item name	URL	Parameter name	Parameter value	Description
RTMP Server Setting	/cgi-bin/set_rtmp_param	type	0 1	0:URL, Stream key concatenation 1:URL, Stream key split
		url	String	Server URL
		key	String	Stream Key *Optional if 0 is specified for type

5.4. RTMP Server Setting Acquisition

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
RTMP Server Setting Aquisition	/cgi-bin/get_rtmp_param			

The response data is as shown below

type = 0/1

url = String

key = String

6. About Control Based on RTSP

The remote camera supports general RTSP protocols as well. This chapter illustrates usage methods based on RTSP. The customer must have knowledge of RTSP/RTP/RTCP when using such usage methods.

6.1. About the URLs for an RTSP Request

The URLs for RTSP requests of the remote camera are as described below.

Request URL	Description
rtsp://<cam_ip>/mediainput/h264/stream_1	Videos set in WEB menu or set_h264 of the remote camera can be requested.
rtsp://<cam_ip>/mediainput/h265/stream_1	Videos set in WEB menu or set_h265 of the remote camera can be requested.

Note: **<cam_ip>** indicates IP address of the remote camera.

Memo: