Integrated Camera Interface Specifications

Supplement for Web Control

Target Models

AW-HE130 (Network: V01.06)

First Edition

Panasonic Corporation

Change History

February 19, 2016	Initial Release

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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 may not be disclosed about communication between the camera and browser.

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 Live (only video acquisition allowed), camera control, or Administrator authority are necessary
Admin (All SETUP controls)	... ID/password for Administrator authority are necessary

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 h264_2 h264_3 h264_4	jpeg: During JPEG transmission h264: During H.264(1) transmission h264_2: During H.264(2) transmission h264_3: During H.264(3) transmission h264_4: During H.264(4) transmission
		page	-	Dummy for disabling cache
		reply	browser info	Command response format specification (can be omitted) browser: for the camera browser info: for the application
		resolution	160 320 640 1280 1920	Resolution 160 : 160x90 320 : 320x180 640 : 640x360 1280 : 1280x720 1920 : 1920x1080
		quality	1 2	1: Image quality 1 2: Image quality 2

Usage example) Acquisition of user ID (during H264(1) 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]
ImageFormat=< Video format >[CR][LF]
ImageCaptureMode=< Image Capture Mode >[CR][LF]
ratio=< Aspect ratio >[CR][LF]
Maxfps=< Max fps >[CR][LF]
StreamMode=< Stream mode >[CR][LF]
iBitrate=< H.264 bitrate >[CR][LF]
iResolution=< H.264 resolution >[CR][LF]
iQuality=<H.264 quality >[CR][LF]
sDelivery=< setting >[CR][LF]
iUniPort=< Unicast port number >[CR][LF]
iMultiAdd1=< 1st octet of multicast address >[CR][LF]
iMultiAdd2=< 2nd octet of multicast address >[CR][LF]
iMultiAdd3=< 3rd octet of multicast address >[CR][LF]
iMultiAdd4=< 4th octet of multicast address >[CR][LF]
iMultiAdd=< multicast address >[CR][LF]
iMultiPort=< Multicast port number >[CR][LF]
aEnable=< Audio mode>[CR][LF]
aEnc=< Audio enc >[CR][LF]
aBitrate=< Audio bit rate >[CR][LF]
aBitrate2=< Audio bit rate >[CR][LF]
aInterval=< Audio input interval >[CR][LF]
aInPort=< Audio unicast port number >[CR][LF]
aOutInterval=< Audio output interval >[CR][LF]
aOutPort=< Audio output port >[CR][LF]
aOutStatus=< Audio output status >[CR][LF]
aOutUID=< Audio output UID >[CR][LF]
ePort=< Event notification port number >[CR][LF]
sAlarm=< Alarm status >[CR][LF]
SDrec=< Recording status >[CR][LF]
SDrec2=< Recording status >[CR][LF]
sAUX=< Aux status >[CR][LF]
iHttpPort=< HTTP port number >[CR][LF]
iMultiAuto_h264=< Multicast auto H.264(1) >[CR][LF]
iMultiAuto_h264_2=< Multicast auto H.264(2) >[CR][LF]
iMultiAuto_h264_3=< Multicast auto H.264(3) >[CR][LF]
iMultiAuto_h264_4=< Multicast auto H.264(4) >[CR][LF]
sRtspMode_h264=< Control mode H.264(1) >[CR][LF]
sRtspMode_h264_2=< Control mode H.264(2) >[CR][LF]
sRtspMode_h264_3=< Control mode H.264(3) >[CR][LF]
sRtspMode_h264_4=< Control mode H.264(4) >[CR][LF]

The description of the response data is as shown below.

Item	Value of response	Description
UID	Numeric value	User ID
ImageFormat	jpeg h264 h264_X	During JPEG transmission During H.264(1) transmission During H.264(X) transmission
ImageCaptureMode	2m	Fixed value
ratio	16_9	Fixed value
Maxfps	30 60	Max. frame rate
StreamMode	1	Fixed value
iBitrate	Numeric value	Bit rate setting of H.264
iResolution	160 320 640 1280 1920	Horizontal resolution setting of H.264 160 : 160x90 320 : 320x180 640 : 640x360 1280 : 1280x720 1920 : 1920x1080
iQuality	fine low normal	Image quality setting of H.264
sDelivery	uni multi uni_manual	uni : unicast(auto) multi : multicast uni_manual : unicast(manual)
iUniPort	1024 to 50000	Unicast port number (image)
iMultiAdd1	224 to 239	First octet of multicast address
iMultiAdd2	0 to 255	Second octet of multicast address
iMultiAdd3	0 to 255	Third octet of multicast address
iMultiAdd4	0 to 255	Fourth octet of multicast address
iMultiAdd	(IP address)	H.264 multicast address
iMultiPort	Numeric value	Multicast port number
aEnable	off in	off: Audio OFF in: Audio ON (reception)
aEnc	3	Audio encoder settings 3: AAC HIGH
aBitrate	128 96 64	Bit rate setting of audio
aBitrate2	64	Fixed value
aInterval	20 40 80 160	Audio transmission interval
aInPort	1024 to 50000	Unicast port number (audio)
aOutInterval	640	Fixed value
aOutPort	34004	Fixed value

Item	Value of response	Description
aOutStatus	Off	Fixed value
aOutUID	0	Fixed value
ePort	31004	Fixed value
sAlarm	OFF	Fixed value
SDrec	disable	Fixed value
SDrec2	disable	Fixed value
sAUX	off	Fixed value
iHttpPort	Numeric value	HTTP port number
iMultiAuto_h264	0	Fixed value
iMultiAuto_h264_2	0	Fixed value
iMultiAuto_h264_3	0	Fixed value
iMultiAuto_h264_4	0	Fixed value
sRtspMode_h264	0	Fixed value
sRtspMode_h264_2	0	Fixed value
sRtspMode_h264_3	0	Fixed value
sRtspMode_h264_4	0	Fixed value

2.2. Device Information Acquisition

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Device information acquisition	/cgi-bin/getinfo	FILE	1	1 (Fixed)

Usage example) Acquisition of user ID (during H264(1) transmission)

http://192.168.0.10/cgi-bin/getinfo?FILE=1

The response data is as shown below.

MAC=< Mac address >[CR][LF]
SERIAL=< Serial number >[CR][LF]
VERSION=< Firmware version >[CR][LF]
NAME=< Model name >[CR][LF]
SDrec=< Recording status >[CR][LF]
SDrec2=< Recording status >[CR][LF]
sAlarm=< Alarm status >[CR][LF]
sAUX=< Aux status >[CR][LF]
ePort=< Event notification port number >[CR][LF]
aEnable=< Audio mode>[CR][LF]
aEnc=< Audio enc >[CR][LF]
aBitrate=< Audio bit rate >[CR][LF]
aBitrate2=< Audio bit rate >[CR][LF]
aInterval=< Audio input interval >[CR][LF]
aOutInterval=< Audio output interval >[CR][LF]
aOutPort=< Audio output port >[CR][LF]
aOutStatus=< Audio output status >[CR][LF]
aOutUID=< Audio output UID >[CR][LF]
aInPort_h264=< Audio with H.264 1st stream unicast port number >[CR][LF]
aInPort_h264_2=< Audio with H.264 2nd stream unicast port number >[CR][LF]
aInPort_h264_3=< Audio with H.264 3rd stream unicast port number >[CR][LF]
aInPort_h264_4=< Audio with H.264 4th stream unicast port number >[CR][LF]
sRtspMode_h264=< Control mode H.264(1) >[CR][LF]
sRtspMode_h264_2=< Control mode H.264(2) >[CR][LF]
sRtspMode_h264_3=< Control mode H.264(3) >[CR][LF]
sRtspMode_h264_4=< Control mode H.264(4) >[CR][LF]
ImageCaptureMode=< Iimage Capture Mode >[CR][LF]
ratio=< Aspect ratio >[CR][LF]
Maxfps=< Max fps >[CR][LF]
StreamMode=< Stream mode >[CR][LF]
iTransmit_h264=< H.264 1st stream ON/OFF setting >
sDelivery_h264=< H.264 1st stream setting >[CR][LF]
iBitrate_h264=< H.264 1st stream bit rate >[CR][LF]
iResolution_h264=< H.264 1st stream resolution >[CR][LF]
iQuality_h264=< H.264 1st stream quality >[CR][LF]

iMultiAuto_h264=< Multicast auto H.264(1) >[CR][LF]
iTransmit_h264_2=< H.264 2nd stream ON/OFF setting >
sDelivery_h264_2=< H.264 2nd stream setting >[CR][LF]
iBitrate_h264_2=< H.264 2nd stream bit rate >[CR][LF]
iResolution_h264_2=< H.264 2nd stream resolution >[CR][LF]
iQuality_h264_2=< H.264 2nd stream quality >[CR][LF]
iMultiAuto_h264_2=< Multicast auto H.264(2) >[CR][LF]
iTransmit_h264_3=< H.264 3rd stream ON/OFF setting >
sDelivery_h264_3=< H.264 3rd stream setting >[CR][LF]
iBitrate_h264_3=< H.264 3rd stream bit rate >[CR][LF]
iResolution_h264_3=< H.264 3rd stream resolution >[CR][LF]
iQuality_h264_3=< H.264 3rd stream quality >[CR][LF]
iMultiAuto_h264_3=< Multicast auto H.264(3) >[CR][LF]
iTransmit_h264_4=< H.264 4th stream ON/OFF setting >
sDelivery_h264_4=< H.264 4th stream setting >[CR][LF]
iBitrate_h264_4=< H.264 4th stream bit rate >[CR][LF]
iResolution_h264_4=< H.264 4th stream resolution >[CR][LF]
iQuality_h264_4=< H.264 4th stream quality >[CR][LF]
iMultiAuto_h264_4=< Multicast auto H.264(4) >[CR][LF]

The description of the response data is as shown below.

Item	Value of response	Description
MAC	XX-XX-XX-XX-XX-XX	MAC address
SERIAL	XXXXXXXXX	Product serial number
VERSION		Software version
NAME	AW-XXXX	Product number
SDrec	disable	Fixed value
SDrec2	disable	Fixed value
sAlarm	OFF	Fixed value
sAUX	off	Fixed value
ePort	31004	Fixed value
aEnable	off in	off: Audio OFF in: Audio ON (reception)
aEnc	3	Audio encoder settings 3: AAC HIGH
aBitrate	32	Bit rate
aBitrate2	64	Fixed value
aInterval	20 40 80 160	Audio transmission interval
aOutInterval	640	Fixed value
aOutPort	34004	Fixed value
aOutStatus	off	Fixed value
aOutUID	0	Fixed value

aInPort_h264	1024 to 50000	H.264(1) Audio reception port number
aInPort_h264_2	1024 to 50000	H.264(2) Audio reception port number
aInPort_h264_3	1024 to 50000	H.264(3) Audio reception port number
aInPort_h264_4	1024 to 50000	H.264(4) Audio reception port number
sRtspMode_h264	0	Fixed value
sRtspMode_h264_2	0	Fixed value
sRtspMode_h264_3	0	Fixed value
sRtspMode_h264_4	0	Fixed value
ImageCaptureMode	2m	Fixed value
ratio	16_9	Fixed value
Maxfps	30 60	Max. frame rate
StreamMode	1	Fixed value
iTransmit_h264	1	Fixed value
sDelivery_h264	uni multi uni_manual	uni: Unicast (auto) multi: Multicast uni_manual: Unicast (manual)
iBitrate_h264	Numeric value	Bit rate setting of H.264(1)
iResolution_h264	160 320 640 1280 1920	Horizontal resolution setting of H.264(1) 160 : 160x90 320 : 320x180 640 : 640x360 1280 : 1280x720 1920 : 1920x1080
iQuality_h264	fine low normal	Image quality setting of H.264(1)
iMultiAuto_h264	0	Fixed value
iTransmit_h264_2	see.H.264(1)	see.H.264(1)
sDelivery_h264_2		
iBitrate_h264_2		
iResolution_h264_2		
iQuality_h264_2		
iMultiAuto_h264_2		
iTransmit_h264_3	see.H.264(1)	see.H.264(1)
sDelivery_h264_3		
iBitrate_h264_3		
iResolution_h264_3		
iQuality_h264_3		
iMultiAuto_h264_3		
iTransmit_h264_4	see.H.264(1)	see.H.264(1)
sDelivery_h264_4		
iBitrate_h264_4		
iResolution_h264_4		
iQuality_h264_4		
iMultiAuto_h264_4		

2.3. 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	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50 Hz 1 2 5 10 12.5 25	Image refresh interval (during JPEG server push) (fps)
		resolution	160 320 640 1280 1920	Resolution 160：160x90 320：320x180 640：640x360 1280：1280x720 1920：1920x1080
		quality	1 2	Image quality 1: Image quality 1 2: Image quality 2
		UID	Numeric value	User ID * UI acquired by /cgi-bin/getuid
JPEG image transmission (MJPEG)	/cgi-bin/mjpeg	resolution	160 320 640 1280 1920	160：160x90 320：320x180 640：640x360 1280：1280x720 1920：1920x1080

CGI item name	URL	Parameter name	Parameter value	Description
		framerate	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50 Hz 1 2 5 10 12.5 25	Image refresh interval (during JPEG server push) (fps)
JPEG image 1 shot request	/cgi-bin/camera	resolution	160 320 640 1280 1920	160：160x90 320：320x180 640：640x360 1280：1280x720 1920：1920x1080
		quality	1 2	1: Image quality 1 2: Image quality 2
		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.

In Internet Explorer, the plug-in software is used when calling JPEG(1) to (3).
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.
In Safari, movie display is possible by entering only this CGI in the URL field of the browser.
Not supported by Internet Explorer.

Usage example) When acquiring a 320 x 180 video in 30 fps in the MJPEG format:
http://192.168.0.10/cgi-bin/mjpeg?resolution=320&framerate=30

Usage example) When acquiring a 640 x 360 video in 15 fps in the MJPEG format:
http://192.168.0.10/cgi-bin/mjpeg?resolution=640&framerate=15

Usage example) When acquiring a video of approx. 5 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/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.

In Internet Explorer, the plug-in software is used when acquiring a screen shot.

The notes common for each CGI are as described below.

When a video is acquired simultaneously by several PCs and receivers, the best effort judgment is performed at the camera side.
Therefore, the expected frame rate display may not be achieved.

As for the resolution and frame rate, the content registered in the WEB menu/Video over IP/JPEG is given priority.
Therefore, even if the resolution is specified in the arguments, the response may be issued with an unexpected resolution and frame rate.

Example) If JPEG(1) = 640 x 360/30 fps, JPEG(2) = 1280 x 720/5 fps, JPEG(3) = 320 x 180/15 fps,

/cgi-bin/mjpeg?resolution=320&framerate=15
=> As instructed, the response is in the form of content of the 320 x 180 JPEG(3).

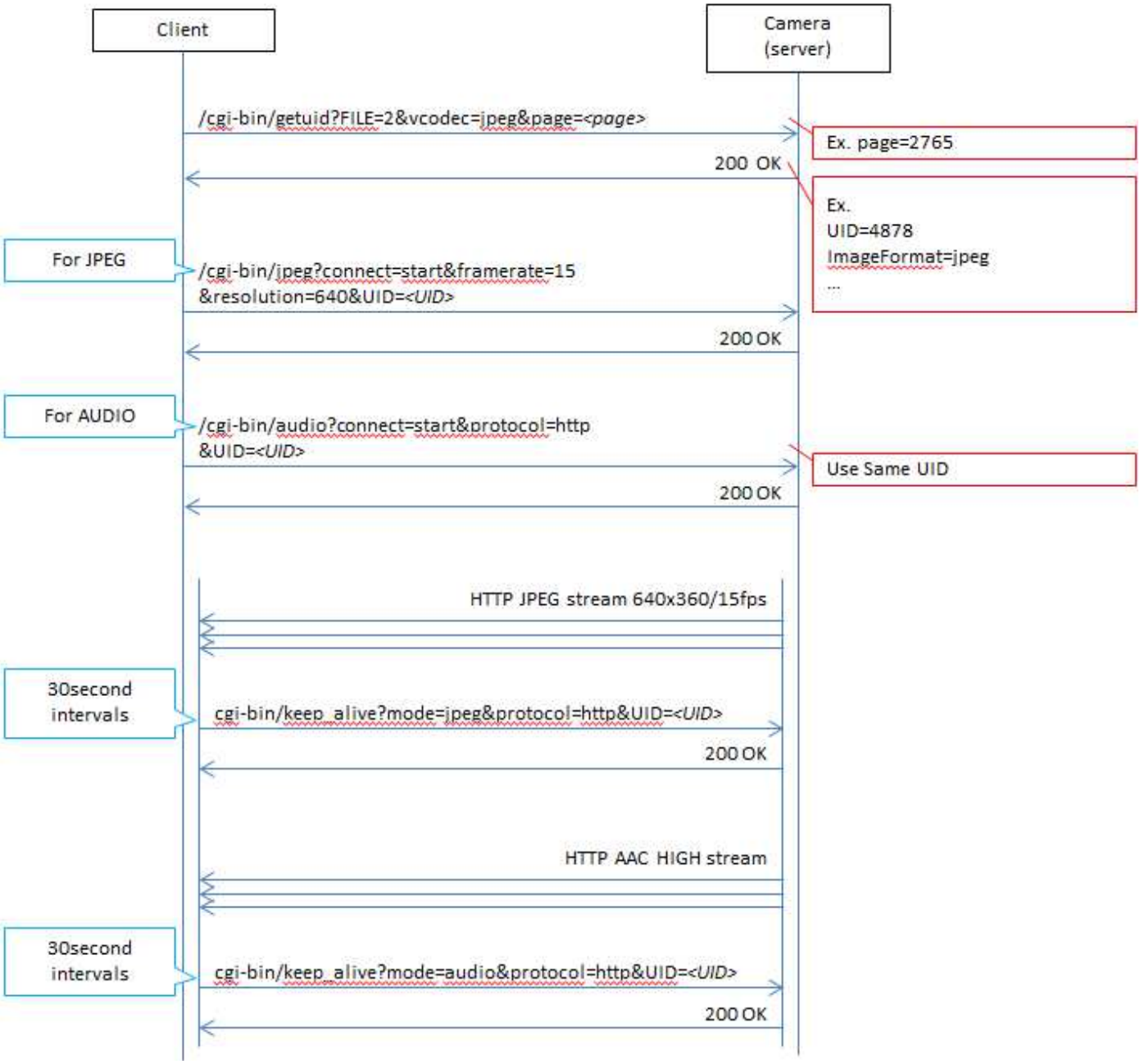
/cgi-bin/mjpeg?resolution=640&framerate=15
=> As instructed, the response is issued by subtracting the frame rate from the content of the 640 x 360 JPEG(1).

/cgi-bin/mjpeg?resolution=1280&framerate=15
=> The response is issued with a resolution of 1280 x 720, but the frame rate is 5 fps, which is the upper limit of JPEG(2).

/cgi-bin/mjpeg?resolution=320&framerate=1920
=> Because no content is registered in JPEG(1) to (3), the response is issued with the resolution of JPEG(1) and a frame rate of 5 fps.

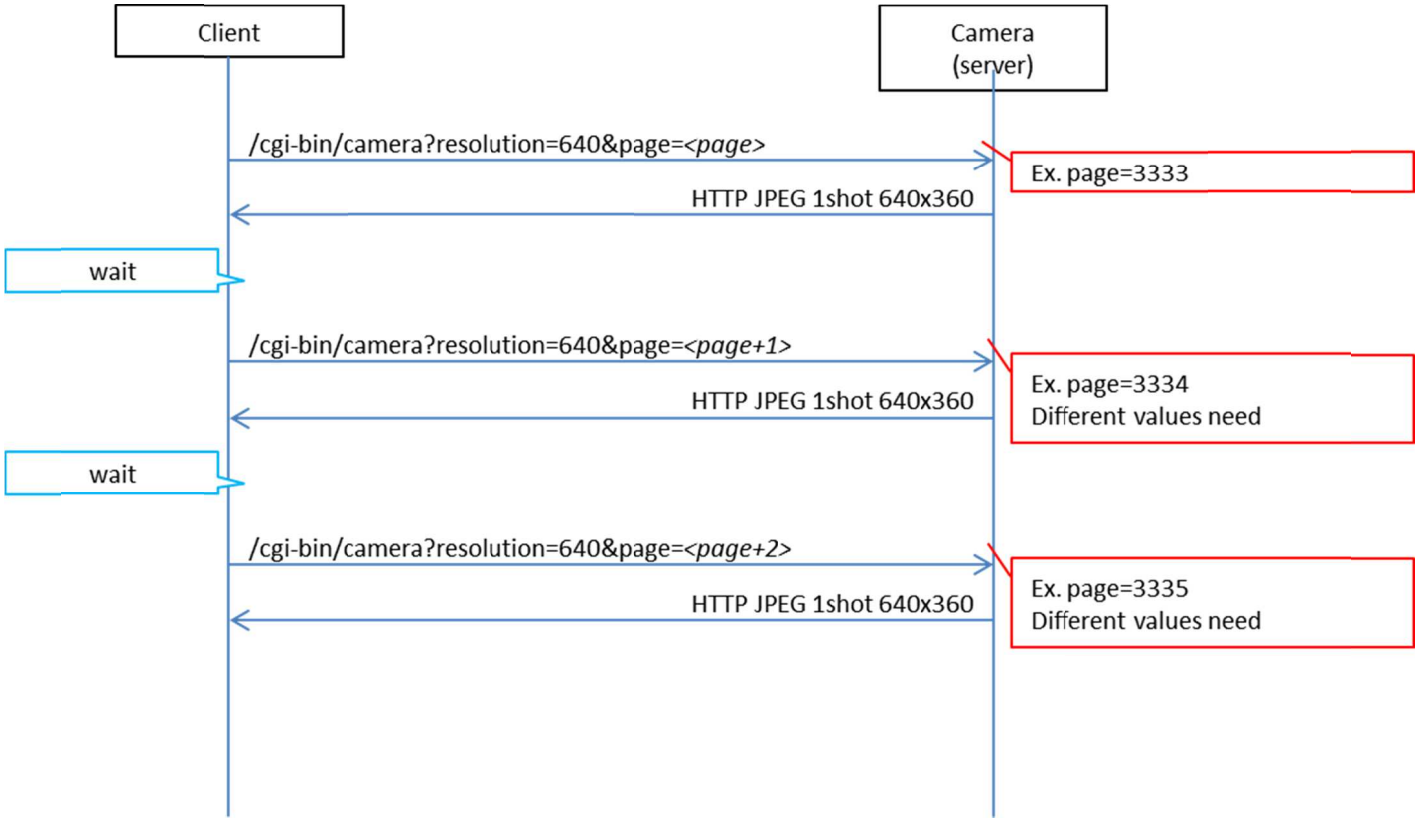
/cgi-bin/mjpeg
=> Because there are no parameters, the response is issued with the resolution of JPEG(1) and a frame rate of 5 fps.

2.4. Image Transmission Sequence based on MJPEG



MJPEG Sequence

2.5. Image Transmission Sequence based on JPEG Image 1 shot



JPEG 1 shot Sequence

2.6. H.264/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 * UI acquired by /cgi-bin/getuid
		stream	1 2 3 4	1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4
Forced insertion of I frame	/cgi-bin/h264_I_insert	stream	1 2 3 4	1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4
H.264 SDP notification	/cgi-bin/h264_sdp	-	-	Sends SDP information in the HTTP response to the SDP request from the client
Audio transmission	/cgi-bin/audio	connect	start stop	start: Starts audio transmission stop: Stops audio transmission
		protocol	rtp http	rtp: RTP transmission http: HTTP transmission
		my_port	Numeric value	Reception port number of audio data * Only when protocol = rtp Can be omitted during HTTP transmission
		UID	Numeric value	User ID * UI acquired by /cgi-bin/getuid
		mode	in	in: Sound collection
		stream	1 2 3 4	1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4
Keep alive	/cgi-bin/keep_alive	mode	h.264 h.264_2 h.264_3 h.264_4 jpeg audio	h.264: H.264 keep alive h.264_2: H.264(2) keep alive h.264_3: H.264(3) keep alive h.264_4: H.264(4) keep alive jpeg: JPEG keep alive audio: Audio keep alive

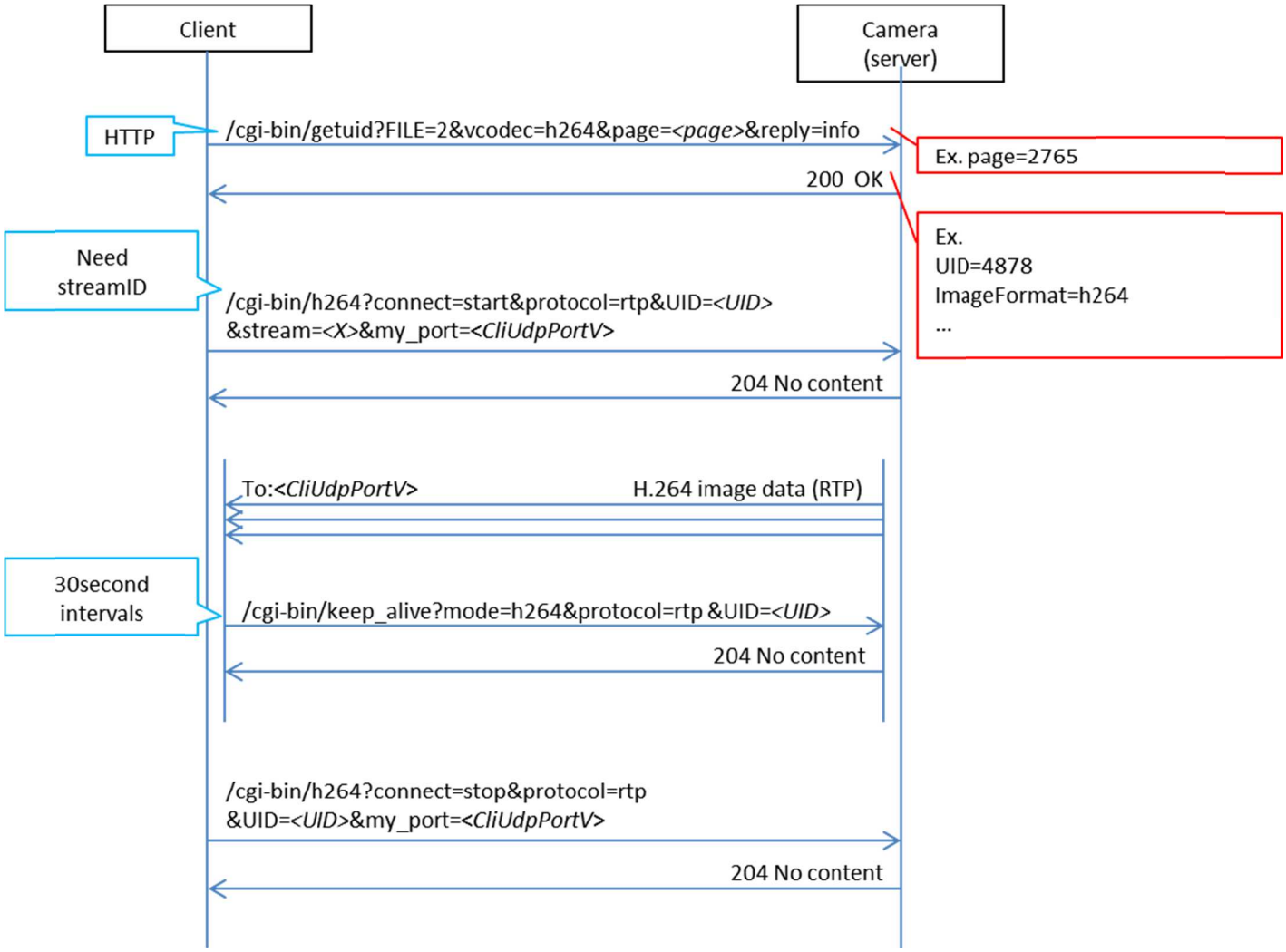
CGI item name	URL	Parameter name	Parameter value	Description
		protocol	rtp http	rtp: RTP transmission http: HTTP transmission
		UID	Numeric value	User ID * UI acquired by /cgi-bin/getuid
		stream	1 2 3 4	1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4 * Can be omitted

Usage example) H264(1) 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

Usage example) Audio transmission start
http://192.168.0.10/cgi-bin/audio?my_port=38004&connect=start&protocol=rtp&UID=263&mode=in

Usage example) Keep alive (JPEG)
http://192.168.0.10/cgi-bin/keep_alive?mode=jpeg&protocol=http&UID=263

2.7. Unicast Image Transmission Sequence based on H.264



H264 Sequence

3. CGI List for Camera Control

3.1. Pan/Tilt/Zoom

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Camera control (Web)	/cgi-bin/camctrl	pan	-5~5	Specification of distance moved in the left and right directions Negative: Movement in left direction Positive: Movement in right direction
		tilt	-4~4	Specification of distance moved in the upward and downward directions Negative: Movement in upward direction Positive: Movement in downward direction
		times	1 down up	Magnification specification 1: Actual size down: Adjustment in Wide direction up: Adjustment in Tele direction
		focus	-3 3	Focus adjustment Negative: Adjustment in Far direction Positive: Adjustment in Near direction * No operation is performed when AutoFocus is set.
		af	on	Auto focus adjustment
		bright	1 2 3	Brightness 1: Standard 2. Reduce brightness 3: Increase brightness * No operation is performed when AutoIris is set.
		preset	0, 1 to 256	0: Home position 1 to 256: Specify number
Camera control (main monitor)	/cgi-bin/directctrl	pan	-16 to 16	Specification of distance moved in the left and right directions (speed control in 16 levels) Negative: Movement in left direction Positive: Movement in right direction

		tilt	-16 to 16	Specification of distance moved in the upward and downward directions (speed control in 16 levels) Negative: Movement in upward direction Positive: Movement in downward direction
		dpan	-256 to 256	Specification of distance moved in the left and right directions (speed control in 256 levels) Negative: Movement in left direction Positive: Movement in right direction
		dtilt	-256 to 256	Specification of distance moved in the upward and downward directions (speed control in 256 levels) Negative: Movement in upward direction Positive: Movement in downward direction
		zoom	-4 to 4	Zoom Negative: Adjustment in Wide direction Positive: Adjustment in Tele direction
		focus	-4 to 4	Focus adjustment Negative: Adjustment in Far direction Positive: Adjustment in Near direction

Usage example) Enable auto focus adjustment by moving the camera five levels in the right direction and two levels in the downward direction.

http://192.168.0.10/cgi-bin/camctrl?pan=5&tilt=2&af=on

Usage example) Perform zoom by moving the camera 128 levels in the right direction and 128 levels in the downward direction.

http://192.168.0.10/cgi-bin/directctrl?dpan=128&dtilt=128&zoom=2

4. CGI List for Update Notification

4.1. Starting/Stopping Update Notification

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Start/stop update notification	/cgi-bin/event	connect	start stop	start: Start update notification stop: Stop update notification
		myport	1 to 65535	Port number
		uid	Transmission user	0 to maximum value of unsigned int (depends on OS)

Usage example) Start update notification
http://192.168.0.10/cgi-bin/event?connect=start&my_port=30000&uid=100

5. CGI List for Various Settings

5.1. Basic Settings

Method : 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)
		plugin_download	enable disable	Auto installation of plug-in software enable: Allowed disable: Not allowed
		plugin_disp	0 1	0: Real time consideration (Off) 1: Smooth display (On)

Usage example) Set the camera title
http://192.168.0.10/cgi-bin/set_basic?cam_title=AW-HE130

5.2. NTP Settings

Method: POST
Access level: Admin

CGI item name	URL	Parameter name	Parameter value	Description
NTP settings	/cgi-bin/time	time_adjust	1	1: Synchronized with the NTP server (fixed as 1)
		ntp_addr_dhcp	0 1	0: OFF (manual input) 1: ON (acquired from DHCP)
		ntp_addr	String	IP address
		ntp_port	Numeric value	1 to 65535
		ntp_interval	Numeric value	1 to 24 (hours)
		timezone	1 to 74	Timezone settings Firmware for domestic use: 63 (GMT + 09:00) Other than the above: 26 (GMT + 0:00)
		summer_time	0 1 2	Summer time 0: Summer time is not set (Out) 1: Summer time is set (In) 2: Summer time is auto-adjusted according to (Start/End) (Auto)
		start_month	1 to 12	Summer time start month
		start_week	1 2 3 4 5	Summer time start date and time setting (week number) 1: First week, 2: Second week 3: Third week, 4: Fourth week 5: Last week
		end_dotw	0 1 2 3 4 5 6	Summer time end date and time setting (day of the week) 0: Sunday, 1: Monday 2: Tuesday, 3: Wednesday 4: Thursday, 5: Friday 6: Saturday
		end_hour	1 to 12	Summer time end hour
		end_ampm	0 1	Summer time end am/pm 0: AM 1: PM

Usage example) NTP settings
http://192.168.0.10/cgi-bin/time?time_adjust=1&ntp_addr_dhcp=0&ntp_addr=192.168.0.1&ntp_port=123&ntp_interval=12

5.3. Video over IP Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
JPEG settings	/cgi-bin/set_jpeg	jpeg_interval	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50 Hz 1 2 5 10 12.5 25	Image refresh interval 3, 6, 15, and 30 can be set only when the system frequency is 60 Hz 12.5 and 25 can be set only when the system frequency is 50 Hz
		jpeg_resolution	160 320 640 1280 1920	Default resolution 160 : 160x90 320 : 320x180 640 : 640x360 1280 : 1280x720 1920 : 1920x1080
		jpeg_base_quality	1 2	Default image quality 1: Image quality 1 2: Image quality 2
		jpeg_quality	0 to 9 superfine fine normal low	0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		nr_jpeg_quality	0 to 9 superfine fine normal low	0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		nr_jpeg_resoluti	160	160 : 160x90

CGI item name	URL	Parameter name	Parameter value	Description
		on	320 640 1280 1920	320:320x180 640:640x360 1280:1280x720 1920:1920x1080
		quality_1280_1	0 to 9 superfine fine normal low	Image quality setting 1 for 1280 X 720 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		quality_1280_2	0 to 9 superfine fine normal low	Image quality setting 2 for 1280 X 720 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		quality_640_1	0 to 9 superfine fine normal low	Image quality setting 1 for 640 X 320 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		quality_640_2	0 to 9 superfine fine normal low	Image quality setting 2 for 640 X 320 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		quality_320_1	0 to 9 superfine fine normal low	Image quality setting 1 for 320 X 180 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		quality_320_2	0 to 9 superfine fine normal low	Image quality setting 2 for 320 X 180 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		resol_stream1	160 320 640 1280 1920	160:160x90 320:320x180 640:640x360 1280:1280x720 1920:1920x1080

CGI item name	URL	Parameter name	Parameter value	Description
		resol_stream2	160 320 640 1280 1920	160:160x90 320:320x180 640:640x360 1280:1280x720 1920:1920x1080
		resol_stream3	160 320 640 1280 1920	160:160x90 320:320x180 640:640x360 1280:1280x720 1920:1920x1080
JPEG stream settings	/cgi-bin/setdata	LIVEINT	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50 Hz 1 2 5 10 12.5 25	JPEG refresh interval 3, 6, 15, and 30 can be set only when the system frequency is 60 Hz 12.5 and 25 can be set only when the system frequency is 50 Hz
		LIVESIZE	160 320 640 1280 1920	Resolution of JPEG(1) 160:160x90 320:320x180 640:640x360 1280:1280x720 1920:1920x1080
		LIVESIZE2	160 320 640 1280 1920	Resolution of JPEG(2) 160:160x90 320:320x180 640:640x360 1280:1280x720 1920:1920x1080
		LIVESIZE3	160 320 640 1280 1920	Resolution of JPEG(3) 160:160x90 320:320x180 640:640x360 1280:1280x720

CGI item name	URL	Parameter name	Parameter value	Description
				1920：1920x1080
		LIVEQUAL1280	0 to 9 superfine fine normal low	Image quality of JPEG(1) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		LIVEQUAL1280_2	0 to 9 superfine fine normal low	Image quality (2) of JPEG(1) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		LIVEQUAL640	0 to 9 superfine fine normal low	Image quality of JPEG(2) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		LIVEQUAL640_2	0 to 9 superfine fine normal low	Image quality (2) of JPEG(2) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		LIVEQUAL320	0 to 9 superfine fine normal low	Image quality of JPEG(3) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5 low: Same image quality as 9
		LIVEQUAL320_2	0 to 9 superfine fine normal low	Image quality (2) of JPEG(3) 0 to 4: High image quality 5 to 9: Low image quality superfine: Same image quality as 0 fine: Same image quality as 1 normal: Same image quality as 5

CGI item name	URL	Parameter name	Parameter value	Description
				low: Same image quality as 9
H.264(1) stream settings	/cgi-bin/set_h264	h264_transmit	0 1	0: OFF Do not transmit 1: ON Transmit
		h264_rtsp_mode	0 1	Internet mode settings 0: OFF 1: ON
		h264_resolution	1280 1920	1280：1280x720 1920：1920x1080
		f_priority	0 1 2 3 4	0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission 3: AVBR 4: VBR
		nr_framerate	When the system frequency is 60 Hz 60 When the system frequency is 50 Hz 50	JPEG refresh interval
		avbr_bandwidth_max	0 1 2	Maximum bit rate (during burst) 0: High 1: Medium 2: Low
		avbr_control_cycle	1 to 168	AVBR control cycle (hour)
		h264_bandwidth	256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576	Transmission volume per client (kbps)

CGI item name	URL	Parameter name	Parameter value	Description
		h264_bandwidth_min	256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576	Transmission volume per client (minimum) (kbps)
		h264_quality	fine normal low	fine: Image quality priority normal: normal standard low: Motion priority
		h264_Ivop	0.2 0.25 0.33 0.5 1 2 3 4 5	Refresh cycle 0.2 (sec) 0.25 (sec) (can be set only when the system frequency is 60 Hz) 0.33 (sec) (can be set only when the system frequency is 60 Hz) 0.5 (sec) 1 (sec) 2 (sec) 3 (sec) 4 (sec) 5 (sec)
		h264_unimulti	uni multi uni_manual	uni : unicast(auto) multi : multicast uni_manual : unicast(manual)
		unicast_port	1024 to 50000	Port number: 1024 to 50000
		unicast_audio_port	1024 to 50000	Port number: 1024 to 50000
		multicast_addr1	224 to 239	224.0.0.0 - 239.255.255.255
		multicast_addr2	0 to 255	224.0.0.0 - 239.255.255.255 *.*.*.* format *:*:*:*:*:*:*:* format
		multicast_addr3	0 to 255	
		multicast_addr4	0 to 255	
		multicast_addr	*.*.*.* format *:*:*:*:*:*:*:* format	

CGI item name	URL	Parameter name	Parameter value	Description
		multicast_port	1024 to 50000	1024 to 50000
		multicast_ttl	1 to 254	1 to 254
		nr_h264_bandwidth	256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576	Transmission volume per client (kbps) (transmission is not stopped)
		nr_h264_resolution	1280 1920	Live screen resolution (transmission is not stopped) 1280：1280x960 1920：1920x1440
		nr_h264_quality	fine normal low	fine: Image quality priority normal: normal standard low: Motion priority
		multicast_auto	0 1	Multicast AutoStart settings
H.264(2) stream settings	/cgi-bin/set_h264_2	h264_transmit	0 1	H.264 transmission 2 0: OFF Do not transmit 1: ON Transmit
		h264_rtsp_mode	0 1	Internet mode setting 2 0: ON - CGI 1: ON - RTSP
		h264_resolution	160 320 640 1280 1920	Live screen resolution 2 160：160x90 320：320x180 640：640x360 1280：1280x720 1920：1920x1080

CGI item name	URL	Parameter name	Parameter value	Description
		f_priority	0 1 2 3 4	Live screen Transmission mode 2 0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission 3: AVBR 4: VBR
		nr_framerate	When the system frequency is 60 Hz 1 3 5 7.5 10 12 15 20 30 When the system frequency is 50Hz 1 5 10 12.5 25	Live screen Frame rate 2 3, 7.5, 12, 15, 20, and 30 can be set only when the system frequency is 60 Hz 12.5 and 25 can be set only when the system frequency is 50 Hz
		avbr_bandwidth_max	1 to 168	AVBR control cycle 2 (hour)
		h264_bandwidth	64 128 256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336	H.264 Transmission volume per client 2 (kbps)

CGI item name	URL	Parameter name	Parameter value	Description
		h264_bandwidth_min	64 128 256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336	H.264 Transmission volume per client 2 (minimum) (kbps)
		h264_quality	0 to 9 fine normal low	Live screen Image quality 2 fine: Image quality priority normal: normal standard low: Motion priority
		h264_Ivop	When the system frequency is 60 Hz 0.2 0.33 0.5 1 to 5 When the system frequency is 50 Hz 0.2 0.25 0.5 1 to 5	Refresh cycle 2 (sec)
		h264_unimulti	uni multi uni_manual	Transfer setting 2 uni : unicast(auto) multi : multicast uni_manual : unicast(manual)
		unicast_port	1024 to 50000	Video transmission destination port number 2
		unicast_audio_port	1024 to 50000	Audio transmission destination port number 2
		multicast_addr1	224 to 239	Multicast address 2 224.0.0.0 to 239.255.255.255
		multicast_addr2	0 to 255	
		multicast_addr3	0 to 255	
		multicast_addr4	0 to 255	
		multicast_addr	*.*.*.* format	Multicast address 2

CGI item name	URL	Parameter name	Parameter value	Description
			::*:*:*:*:*:* format	
		multicast_port	1024 to 50000	Multicast port number 2
		multicast_ttl	1 to 254	Multicast TTL/HOPLimit value 2
		nr_h264_bandwidth	64 128 256 384 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336	Transmission volume per client (kbps) (transmission is not stopped)
		multicast_auto	0 1	Multicast AutoStart settings
H.264(3) stream settings	/cgi-bin/set_h264_3	Same as H.264(2) stream settings.		
H.264(4) stream settings	/cgi-bin/set_h264_4			
RTSP settings	/cgi-bin/set_rtsp	rtsp_port	1 to 65535	RTSP port number
		h264_rtsp_mode	0 1	Internet mode settings of H.264(1) 0: OFF Do not transmit 1: ON Transmit
		h264_rtsp_mode2	0 1	Internet mode settings of H.264(2) 0: OFF Do not transmit 1: ON Transmit
		h264_rtsp_mode3	0 1	Internet mode settings of H.264(3) 0: OFF Do not transmit 1: ON Transmit
		h264_rtsp_mode4	0 1	Internet mode settings of H.264(4) 0: OFF Do not transmit 1: ON Transmit

CGI item name	URL	Parameter name	Parameter value	Description
Live screen initial stream selection	/cgi-bin/set_livestart	stream	h264 h264_2 h264_3 h264_4 jpeg jpeg_2 jpeg_3	Live screen initial stream selection
		jpeg_interval	1 2 3 5 6 10 12.5 15 25 30	JPEG image refresh interval 1: 1 fps 2: 2 fps 3: 3 fps (only when the system frequency is 60 Hz) 5: 5 fps 6: 6 fps (only when the system frequency is 60 Hz) 10: 10 fps 12.5: 12.5 fps (only when the system frequency is 50 Hz) 15: 15 fps (only when the system frequency is 60 Hz) 25: 25 fps (only when the system frequency is 50 Hz) 30: 30 fps (only when the system frequency is 60 Hz)
		jpeg_quality	1 2	JPEG image quality selection 1: Image quality 1 2: Image quality 2
H.264 I frame insertion interval	/cgi-bin/h264_I_interval	interval	0.2 0.25 0.33 0.5 1 2 3 4 5	The following values can be set only when the system frequency is 60 Hz. 0.25 0.33
		stream	1 2 3 4	1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4
Movie transmission method settings	/cgi-bin/set_stream	h264_mode	1	Movie transmission format 1: H.264
		h264_profile	0 1	Profile type specification 0: High profile 1: Baseline profile

CGI item name	URL	Parameter name	Parameter value	Description
Live screen smooth display with plug-in software (buffering)	/cgi-bin/set_pswbuffer	disp	0 1	Live screen smooth display selection 0: Real time consideration (Off) 1: Smooth display (On)
Preset position	/cgi-bin/camposiset	presetset	1 to 256	Preset position registration
		presetdel	1 to 256	Preset position deletion

Usage example) Change the resolution of H.264(4) to 320 x 180.

http://192.168.0.10/cgi-bin/set_h264_4?h264_resolution=320

Usage example) Change the RTSP waiting port at the remote camera side from 554 (factory settings) to 555.

http://192.168.0.10/cgi-bin/set_rtsp?&rtsp_port=555

* The h264_rtsp_mode of set_rtsp is a mirror of the WEB menu. RTSP/RTP does not change to TCP even if turned ON.

5.4. Audio Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Audio settings	/cgi-bin/set_audio	audio	off in	off: OFF in: ON
		audio_encoder	AAC_HIGH	Encoder settings
		audio_sens	low middle high line_low line_middle line_high	low: Mic Low middle: Mic Middle high: Mic High line_low: Line Low line_middle: Line Middle line_high: Line High
		audio_bitrate	64 96 128	64: 64 kbps 96: 96 kbps 128: 128 kbps
		audio_interval	20 40 80 160	Audio transmission interval
		multicast_addr	*.*.*.* format *:*:*:*:*:*:*:* format	Audio multicast address
		plugin_power	0 1	0 : Off 1 : On
Audio LR output switching	/cgi-bin/set_audio_lr	mode	0 1	Audio LR switching 0 : L 1 : R

Usage example) Turn ON the Audio input signal from the device connected to the AUDIO IN terminal.
http://192.168.0.10/cgi-bin/set_audio?audio=in

5.5. Multi-screen Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Multi-screen settings	/cgi-bin/multi_screen	multi_addr1	"*.*.*.*" format or "*.*.*.*: 1 to 65535" or "String" or "String": 1 to 65535"	"*.*.*.*" format or "*.*.*.*: 1 to 65535" or "String" or "String": 1 to 65535"
		multi_addr2		
		multi_addr3		
		multi_addr4		
		multi_addr5		
		multi_addr6		
		multi_addr7		
		multi_addr8		
		multi_addr9		
		multi_addr10		
		multi_addr11		
		multi_addr12		
		multi_addr13		
		multi_addr14		
		multi_addr15		
		multi_addr16		
		multi_name1	String (within 20 double-byte characters)	Name of the camera
		multi_name2		
		multi_name3		
		multi_name4		
		multi_name5		
		multi_name6		
		multi_name7		
		multi_name8		
		multi_name9		
		multi_name10		
		multi_name11		
		multi_name12		
		multi_name13		
		multi_name14		
		multi_name15		
		multi_name16		

Usage example) Set 192.168.0.100/he130 in the first frame.
http://192.168.0.10/cgi-bin/multi_screen?multi_addr1=192.168.0.100&multi_name1=he130

5.6. Priority Stream Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Priority stream settings	/cgi-bin/set_priority	priority	0 1	0: Priority Stream OFF 1: Priority Stream ON
		ip_addr	*:*:*:*:*:*:*:* format	*:*:*:*:*:*:*:* format
		ip4_addr1	0 to 255	Transmission destination IP address (IPv4) First octet
		ip4_addr2	0 to 255	Transmission destination IP address (IPv4) Second octet
		ip4_addr3	0 to 255	Transmission destination IP address (IPv4) Third octet
		ip4_addr4	0 to 255	Transmission destination IP address (IPv4) Fourth octet
		ip_addr_2	"*.*.*.*" format or "*:*:*:*:*:*:*:*" format	"*.*.*.*" format or "*:*:*:*:*:*:*:*" format
		ip4_addr1_2	0 to 255	Transmission destination IP address 2 (IPv4) First octet
		ip4_addr2_2	0 to 255	Transmission destination IP address 2 (IPv4) Second octet
		ip4_addr3_2	0 to 255	Transmission destination IP address 2 (IPv4) Third octet
		ip4_addr4_2	0 to 255	Transmission destination IP address 2 (IPv4) Fourth octet
		kind	jpeg jpeg2 jpeg3 stream_1 stream_2 stream_3 stream_4	Stream type jpeg : JPEG(1) jpeg2 : JPEG(2) jpeg3 : JPEG(3) stream_1 : H.264(1) stream_2 : H.264(2) stream_3 : H.264(3) stream_4 : H.264(4)

CGI item name	URL	Parameter name	Parameter value	Description
		jpeg_interval	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50Hz 1 2 5 10 12.5 25	Image refresh interval (ips) 3, 6, 15, and 30 can be set only when the system frequency is 60 Hz 12.5 and 25 can be set only when the system frequency is 50 Hz

Usage example) The transmission of H.264(1) to 192.168.0.99 is implemented on priority.
http://192.168.0.10/cgi-bin/set_priority? priority=1&ip_addr=192.168.0.99&ip_addr_2=&kind=stream_1

5.7. Network Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Network settings	/cgi-bin/network (*)	dhcp	0 1 2 3	0: Static 1: DHCP 2: Auto (Auto IP) 3: Auto (Advanced)
		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	1 to 65535
		dns	manual auto	manual: Manual setting auto: Auto setting
		pri_server1	0 to 255	Primary server address (DNS) First octet
		pri_server2	0 to 255	Primary server address (DNS) Second octet
		pri_server3	0 to 255	Primary server address (DNS) Third octet
		pri_server4	0 to 255	Primary server address (DNS) Fourth octet
		sec_server1	0 to 255	Secondary server address (DNS) First octet
		sec_server2	0 to 255	Secondary server address (DNS) Second octet
		sec_server3	0 to 255	Secondary server address (DNS) Third octet
		sec_server4	0 to 255	Secondary server address (DNS) Fourth octet
		speed	1 2 3 4 5	Communication speed settings 1: Auto 2: 100 Mbps (full-duplex) 3: 100 Mbps (half-duplex) 4: 10 Mbps (full-duplex) 5: 10 Mbps (half-duplex)

CGI item name	URL	Parameter name	Parameter value	Description
		ip6_auto	0 1	IPv6 address manual setting 1 : off 0 : on
		ip6_addr	*:*:*:*:*:*:*:* format	IP address
		sub_prefix	0 to 128	Subnet prefix length
		ip6_gateway	*:*:*:*:*:*:*:* format	Default gateway
		pri_server	*:*:*:*:*:*:*:* format *.*.*.* format	Primary server (shared between IPv4 and IPv6)
		sec_server	*:*:*:*:*:*:*:* format *.*.*.* format	Secondary server (shared between IPv4 and IPv6)
		ip6_pri_server	*:*:*:*:*:*:*:* format	Primary server (IPv6 only)
		ip6_sec_server	*:*:*:*:*:*:*:* format	Secondary server (IPv6 only)
		ip6_dhcp	0 1	0: DHCPv6 OFF 1: DHCPv6 ON
		rtp_packet_max	1500 1280	RTP packet max. transmission size 1500: Unlimited (1500 byte) 1280: Limited (1280 byte)
		mss	1460 1280 1024	Max. segment size of TCP (MSS) 1460: Unlimited (1460 byte) 1280: Limited (1280 byte) 1024: Limited (1024 byte)
		time	20 unlimited	Effective limit 20: 20 minutes unlimited: Unlimited

CGI item name	URL	Parameter name	Parameter value	Description
		bandwidth	0 64 128 256 384 512 768 1024 2048 4096 8192	Transmission volume of entire network 0: Unlimited 64 : 64kbps 128 : 128kbps 256 : 256kbps 384 : 384kbps 512 : 512kbps 768 : 768kbps 1024 : 1024kbps 2048 : 2048kbps 4096 : 4096kbps 8192 : 8192kbps
		ftpserver	0 1	0: FTP server OFF 1: FTP server ON
FTP server settings	/cgi-bin/set_server	ftpserver	0 1	0: FTP server OFF 1: FTP server ON
Easy IP Setup protocol settings	/cgi-bin/easyipset	time	unlimited 20	Time period during which Easy IP Setup can be performed from the time power is turned ON unlimited: Unlimited 20: 20 minutes

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

5.8. UPnP Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
UPnP settings	/cgi-bin/upnp	upnp_portmap	0 1	Auto port-forwarding 0: Disabled 1: Enabled
		upnp_icon	0 1	Shortcut to camera 0: Disabled 1 : Enabled

Usage example) Set UPnP to ON
http://192.168.0.10/cgi-bin/upnp?upnp_portmap=1

5.9. SNMP Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
SNMP settings	/cgi-bin/set_snmp	community	String	Community name String (within 32 single-byte alphanumeric characters)
		sysname	String	Device name String (within 32 single-byte alphanumeric characters)
		syslocation	String	Physical location of device String (within 32 single-byte alphanumeric characters)
		syscontact	String	Contact String (within 256 single-byte alphanumeric characters)

Usage example) Set community name to "TEST" and device name to "TEST1".
http://192.168.0.10/cgi-bin/set_snmp?community=TEST&sysname=TEST1

5.10. Diffserv Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Diffserv settings	/cgi-bin/set_diffserve	dscp	0 to 63	"DSCP" (differentiated services code point) 0: Default 10: Class 1 - Drop precedence low 12: Class 1 - Drop precedence medium 14: Class 1 - Drop precedence high 18: Class 2 - Drop precedence low 20: Class 2 - Drop precedence medium 22: Class 2 - Drop precedence high 26: Class 3 - Drop precedence low 28: Class 3 - Drop precedence medium 30: Class 3 - Drop precedence high 34: Class 4 - Drop precedence low 36: Class 4 - Drop precedence medium 38: Class 4 - Drop precedence high

Usage example) Set DSCP to Class 1 - Drop precedence high
http://192.168.0.10/cgi-bin/set_diffserve?dscp=14

5.11. Data Upload

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Data upload	/cgi-bin/data_upload (*)	kind	setupdata awcamdata	setupdata: Setting value file awcamdata: Camera setting file
		datascorp	0 1	Setting value reflection range 0: No change in network settings 1: Change in network settings
		res_data	normal simple	Response body format during normal response normal: HTML format simple: Text format
	/cgi-bin/dataupl	-	-	Same operation as that for kind = awcamdata, res_mode = normal of /cgi-bin/data_upload

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

5.12. Initialization/Restart

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Initialization	/cgi-bin/initial (*)	cmd	data html all reset	data: Setting data initialization html: HTML initialization all: Setting data/HTML initialization reset: Camera restart

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

5.13. User Authentication Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
User authentication settings	/cgi-bin/reg_user (*)	user	0 1	User authentication 0: User authentication OFF 1: User authentication ON
		auth_method	0 1 2	User authentication method 0 : Digest or Basic 1 : Digest 2 : Basic
		name	String	User name String within 32 single-byte alphanumeric characters
		password	String	Password String within 32 single-byte alphanumeric characters
		repassword	String	Password reconfirmation String within 32 single-byte alphanumeric characters
		access_level	1 2 3	Access level 1 : admin 2 : control 3 : live
User deletion	/cgi-bin/del_user (*)	name	String	User name

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

5.14. Host Authentication Settings

Method : POST
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Host authentication settings	/cgi-bin/reg_host (*)	host	0 1	Host authentication 0: Host authentication OFF 1: Host authentication ON
		host_addr	*.*.*.* format *.*.*.*/mask length format	Host authentication IP address *.*.*.* format *.*.*.*/mask length format (within 128 single-byte alphanumeric characters)
		access_level	1 2 3	Access level 1 : admin 2 : control 3 : live
Host deletion	/cgi-bin/del_host (*)	host_addr	*.*.*.* format *.*.*.*/mask length format	Host authentication IP deletion

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

6. CGI List for Acquisition of Different Types of Information

6.1. Basic Settings Information Acquisition

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Setting value acquisition CGI	/cgi-bin/getdata	req -	-	Specify the item name of the setting value to be acquired.
			img_mode	Imaging mode
			imgratio	Image ratio
			img_fps	Frame rate
			livestream	Live screen initial stream selection
			liveint	liveint: JPEG(1) refresh interval
			livequalbase	livequalbase: JPEG(1) default image quality
			livebasequal	livebasequal: JPEG default image quality
			Livesize	livesize: JPEG(1) image resolution
			Livequal	livequal: JPEG(1) image quality
			liveframerate	Live screen initial frame rate (JPEG)
			livejpeg	Resolution of JPEG(1)
			livejpeg2	Resolution of JPEG(2)
			livejpeg3	Resolution of JPEG(3)
			livequal1280	JPEG(1) image quality (1)
			livequal1280_2	JPEG(1) image quality (2)
			livequal640	JPEG(2) image quality (1)
			livequal640_2	JPEG(2) image quality (2)
			livequal320	JPEG(3) image quality (1)
			livequal320_2	JPEG(3) image quality (2)
			livequalbase	JPEG default image quality
			livestream	Live screen initial stream selection
			liveframerate	Live screen initial frame rate (JPEG)
			h264	H.264(1) transmission ON/OFF
			h264rtspmode	Internet mode (H.264 transmission 1) ON/OFF
			h264bwc	Bit rate per client
			nrh264bwc	Bit rate per client at which transmission does not stop
			h264bwcmin	H.264(1) Bit rate per client (minimum)
			h264rtspmode_2	h264rtspmode_2: Internet mode (H.264 transmission 2) ON/OFF
			h264rtspmode_3	h264rtspmode_3: Internet mode (H.264 transmission 3) ON/OFF
			h264rtspmode_4	h264rtspmode_4: Internet mode (H.264

CGI item name	URL	Parameter name	Parameter value	Description
				transmission 4) ON/OFF
			rtspport	rtspport: RTSP server port number
			h264size	h.264size: h.264 resolution
			h264qual	h.264qual: h.264 image quality
			h264rint	h.264rint: Refresh cycle (I frame cycle)
			h264mtd	h.264mtd: h.264 transmission method
			h264mladd1	h.264mladd1: h.264 multicast address First octet
			h264mladd2	h.264mladd2: h.264 multicast address Second octet
			h264mladd3	h.264mladd3: h.264 multicast address Third octet
			h264mladd4	h.264mladd4: h.264 multicast address Fourth octet
			h264mlport	h.264mlport: h.264 multicast transmission destination port number
			h264mlttl	h.264mlttl: h.264 multicast TTL
			h264uniport	h.264uniport: Unicast (for video) port number
			h264uniport2	h.264uniport2: Unicast (for audio) port number
			h264profile	H.264 profile
			h264codind	H.264 encoding system
			h264_2	h.264_2: h.264 transmission ON/OFF 2
			h264bwc_2	h.264bwc_2: Bit rate per client 2
			h264size_2	h.264size_2: h.264 resolution 2
			h264qual_2	h.264qual_2: h.264 image quality 2
			h264rint_2	h.264rint_2: Refresh cycle (I frame cycle) 2
			h264mtd_2	h.264mtd: h.264 transmission method 2
			h264mladd1_2	h.264mladd1_2: h.264 multicast address First octet 2
			h264mladd2_2	h.264mladd2_2: h.264 multicast address Second octet 2
			h264mladd3_2	h264mladd3_2: h264 multicast address Third octet 2
			h264mladd4_2	h264mladd4_2: h264 multicast address Fourth octet 2
			h264mlport_2	h264mlport_2: h264 multicast transmission destination port number 2
			h264mlttl_2	h264mlttl_2: h264 multicast TTL2
			h.264uniport_2	h.264uniport_2: Unicast (for video) port number 2
			h264uniport2_2	h.264uniport2_2: Unicast (for audio) port

CGI item name	URL	Parameter name	Parameter value	Description
				number 2
			h264profile_2	H.264 profile 2
			h264codind_2	H.264 encoding system 2
			h264_3	h.264_3: h.264 transmission ON/OFF 3
			h264bwc_3	h.264bwc_3: Bit rate per client 3
			h264size_3	h.264size_3: h.264 resolution 3
			h264qual_3	h.264qual_3: h.264 image quality 3
			h264rint_3	h.264rint_3: Refresh cycle (I frame cycle) 3
			h264mtd_3	h.264mtd_3: h.264 transmission method 3
			h264mladd1_3	h.264mladd1_3: h.264 multicast address First octet 3
			h264mladd2_3	h.264mladd2_3: h.264 multicast address Second octet 3
			h264mladd3_3	h264mladd3_3: h.264 multicast address Third octet 3
			h264mladd4_3	h264mladd4_3: h.264 multicast address Fourth octet 3
			h264mlport_3	h264mlport_3: h.264 multicast transmission destination port number 3
			h264mlttl_3	h264mlttl_3: h.264 multicast TTL3
			h.264uniport_3	h.264uniport_3: Unicast (for video) port number 3
			h264uniport2_3	h.264uniport2_3: Unicast (for audio) port number 3
			h264profile_3	H.264 profile 3
			h264codind_3	H.264 encoding system 3
			h264_4	h.264_4: h.264 transmission ON/OFF 4
			h264bwc_4	h.264bwc_4: Bit rate per client 4
			h264size_4	h.264size_4: h.264 resolution 4
			h264qual_4	h.264qual_4: h.264 image quality 4
			h264rint_4	h.264rint_4: Refresh cycle (I frame cycle) 4
			h264mtd_4	h.264mtd_4: h.264 transmission method 4
			h264mladd1_4	h.264mladd1_4: h.264 multicast address First octet 4
			h264mladd2_4	h.264mladd2_4: h.264 multicast address Second octet 4
			h264mladd3_4	h264mladd3_4: h.264 multicast address Third octet 4
			h264mladd4_4	h264mladd4_4: h264 multicast address Fourth octet 4

CGI item name	URL	Parameter name	Parameter value	Description
			h264mlport_4	h264mlport_4: h.264 multicast transmission destination port number 4
			h264mlttl_4	h264mlttl_4: h.264 multicast TTL4
			h.264uniport_4	h.264uniport_4: Unicast (for video) port number 4
			h264uniport2_4	h.264uniport2_4: Unicast (for audio) port number 4
			h264profile_4	H.264 profile 4
			h264codind_4	H.264 encoding system 4
			h264mlauto	H.264(1) multicast auto start
			h264mlauto_2	H.264(2) multicast auto start
			h264mlauto_3	H.264(3) multicast auto start
			h264mlauto_4	H.264(4) multicast auto start
			audio_level	audio_level: Audio authorization and authentication level setting
			audio_sens	audio_sens: Sound collection sensitivity
			g726.audio	g726.audio: G.726 audio setting
			g726.bitrate	g726.bitrate: G.726 bit rate
			g726.interval	g726.interval: G.726 audio transmission interval
			g726.multicast	g726.multicast: G.726 audio multicast address
			nrlivequal	nrlivequal: JPEG image quality at which transmission does not stop
			nrh264size	nrh264size: H.264 resolution at which transmission does not stop
			nrh264qual	nrh264qual: H.264 image quality at which transmission does not stop
			nrh264bwc	nrh264bwc: Bit rate per client at which transmission does not stop
			nrh264bwc_2	nrh264bwc_2: Bit rate per client 2 at which transmission does not stop
			nrh264size_2	nrh264size_2: H.264 resolution 2 at which transmission does not stop
			nrh264qual_2	nrh264qual_2: H.264 image quality 2 at which transmission does not stop
			nrh264bwc_3	nrh264bwc_3: Bit rate per client 3 at which transmission does not stop
			nrh264size_3	nrh264size_3: H.264 resolution 3 at which transmission does not stop
			nrh264qual_3	nrh264qual_3: H.264 image quality 3 at which transmission does not stop
			nrh264bwc_4	nrh264bwc_4: Bit rate per client 4 at which transmission does not stop

CGI item name	URL	Parameter name	Parameter value	Description
			nrh264size_4	nrh264size_4: H.264 resolution 4 at which transmission does not stop
			nrh264qual_4	nrh264qual42: H.264 image quality 4 at which transmission does not stop
			h264fpriority	h264fpriority: H.264(1) transmission mode
			h264nrframerate	h264nrframerate: H.264(1) frame rate
			h264fpriority_2	h264fpriority_2: H.264(2) transmission mode
			h264nrframerate_2	h264nrframerate_2: H.264(2) frame rate
			h264fpriority_3	h264fpriority_3: H.264(3) transmission mode
			h264nrframerate_3	h264nrframerate_3: H.264(3) frame rate
			h264fpriority_4	h264fpriority_4: H.264(4) transmission mode
			h264nrframerate_4	h264nrframerate_4: H.264(4) frame rate
			h264bwcmin	H.264 Bit rate per client (minimum)
			h264bwcmin_2	H.264(2) Bit rate per client (minimum)
			h264bwcmin_3	H.264(3) Bit rate per client (minimum)
			h264bwcmin_4	H.264(4) Bit rate per client (minimum)
			h264avbrbwc	H.264(1) Maximum bit rate (during burst)
			h264avbrbwc_2	H.264(2) Maximum bit rate (during burst)
			h264avbrbwc_3	H.264(3) Maximum bit rate (during burst)
			h264avbrbwc_4	H.264(4) Maximum bit rate (during burst)
			h264avbrcyc	H.264(1) AVBR control period
			h264avbrcyc_2	H.264(2) AVBR control period
			h264avbrcyc_3	H.264(3) AVBR control period
			h264avbrcyc_4	H.264(4) AVBR control period
			plugin_halftone_jpeg	Enabling/disabling of half-tone function for JPEG images in Active X
			plugin_halftone_h264	Enabling/disabling of half-tone function for H.264 movies in Active X
			-	If there is no parameter specification, issue the list of setting data in a batch, as the response.
Acquisition of session information	/cgi-bin/man_session	command	release get release_all aw_get	release: Release of the specified UID get: Information response release_all: Release of all UIDs aw_get: Acquisition of the number of external terminals in the remote camera

CGI item name	URL	Parameter name	Parameter value	Description
				to which update notification is to be transfered
		uid	0~65535	User ID

* Although parameters that have not been specified above may be included in the response, such parameters are not supported.
For details, see "Acquiring the List of Setting Values".

6.2. Data Download

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
Data download	/cgi-bin/data_download	kind	setupdata awcamdata	setupdata: Setting value file awcamdata: Camera setting file
	/cgi-bin/datadownl	-	-	Same operation as that for kind = awcamdata of /cgi-bin/data_download

* If you send this command from a browser such as Internet Explorer, the remote camera (encoder) will return an error (400 Bad request). (Operation is not performed normally.)
This operation has been specified for strengthening the security.
If you use this command from other than a browser such as the Internet Explorer (for example, a unique application), operation will be performed without any problem.

7. CGI List for HTTPS Control

7.1. Setting Information and Acquiring Certification

Method : GET
Access level : Admin

CGI item name	URL	Parameter name	Parameter value	Description
HTTPS self-signed certificate	https_self_signed	mode	get_info delete	get_info: Information check delete: Deletion
HTTPS CA certificate	https_signed	mode	get_info delete	get_info: Information check delete: Deletion
HTTPS CRT key history usage	https_crt_key	mode	refresh	Processing of CRT key refresh: Update
HTTPS connection method	set_https	live	http https	http: HTTP https: HTTPS
		https_port	1 to 65535	HTTPS port number
HTTPS self-signed certificate generate	https_creat_self_signed	common_name	String	Host name
		country	String	Country name
		state	String	Prefecture name
		locality	String	Locality name
		organization	String	Organization name
		organization_unit	String	Department name
HTTPS CSR generate	https_creat_signed	common_name	String	Host name
		country	String	Country name
		state	String	Prefecture name
		locality	String	Locality name
		organization	String	Organization name
		organization_unit	String	Department name
HTTPS CSR download	/cgi-bin/https_download_csr	-	-	-
HTTPS CA certificate install	https_install_signed	-	-	-
HTTPS CRT key generate	https_change_crt_key	rsa_length	1024 2048	1024 : 1024bit 2048 : 2048bit
Status update	renewal	cgi_name	self_create csr_create ca_install key_create	self_create: Self-signed certificate creation status csr_create: CSR creation status ca_install: CA certificate installation status key_create: CRT key generation status

It is recommended to implement the HTTPS settings through GUI from the WEB menu.

8. Acquiring the List of Setting Values

Method : GET
Access level : Live

CGI item name	URL	Parameter name	Parameter value	Description
Acquisition of list of setting values	/cgi-bin/setdata			Parameters are not required.

The response data is as shown below.

```
CAMTITLE,"AW-HE130"
TIMEDATE,"2013,1,1,2,52,11"
TIMEFORMAT,"5"
TIMEDISP,"24"
TIMEZONE,"26"
STIME,"0"
STIMES_MON,"1"
STIMES_WEEK,"1"
STIMES_DOTW,"0"
STIMES_HOUR,"1"
STIMES_AMPM,"0"
STIMEE_MON,"1"
STIMEE_WEEK,"1"
STIMEE_DOTW,"0"
STIMEE_HOUR,"1"
STIMEE_AMPM,"0"
UPSIDEDOWN,"0"
LED,"0"
PLUGINDISP,"0"
FRONTOPTION,"0"
BACKOPTION,"0"
IMAGEFPS,"60"
LIVESTREAM,"h264"
LIVEINT,"5"
LIVEQUALBASE,"1"
LIVESIZE,"1920"
LIVEQUAL,"5"
LIVEQUAL_2,"8"
LIVESIZE2,"640"
LIVEQUAL2,"5"
LIVEQUAL2_2,"8"
LIVESIZE3,"320"
LIVEQUAL3,"5"
LIVEQUAL3_2,"8"
STREAMMODE,"1"
H264,"1"
```

H264RTSPMODE,"0"
H264BWC,"4096"
NRH264BWC,"4096"
H264BWCMIN,"1024"
H264SIZE,"1280"
NRH264SIZE,"1280"
H264FPRIORITY,"1"
H264NRFRAMERATE,"60"
H264AVBRBWC,"2"
H264AVBRCYC,"24"
H264QUAL,"normal"
NRH264QUAL,"normal"
H264RINT,"1"
H264MTD,"uni"
H264MLADD1,"239"
H264MLADD2,"192"
H264MLADD3,"0"
H264MLADD4,"20"
H264MLADD,"239.192.0.20"
H264MLPORT,"37004"
H264MLTTL,"16"
H264UNIPORT,"32004"
H264UNIPORT2,"33004"
H264ENCTYPE,"0"
H264_2,"1"
H264RTSPMODE_2,"0"
H264BWC_2,"1536"
NRH264BWC_2,"1536"
H264BWCMIN_2,"512"
H264SIZE_2,"1920"
NRH264SIZE_2,"1920"
H264FPRIORITY_2,"1"
H264NRFRAMERATE_2,"30"
H264AVBRBWC_2,"2"
H264AVBRCYC_2,"24"
H264QUAL_2,"normal"
NRH264QUAL_2,"normal"
H264RINT_2,"1"
H264MTD_2,"uni"
H264MLADD1_2,"239"
H264MLADD2_2,"192"
H264MLADD3_2,"0"
H264MLADD4_2,"21"
H264MLADD_2,"239.192.0.21"
H264MLPORT_2,"37004"
H264MLTTL_2,"16"
H264UNIPORT_2,"32014"
H264UNIPORT2_2,"33014"

H264ENCTYPE_2,"0"
H264_3,"1"
H264RTSPMODE_3,"0"
H264BWC_3,"1024"
H264BWCMIN_3,"128"
H264SIZE_3,"320"
H264FPRIORITY_3,"1"
H264NRFRAMERATE_3,"30"
H264AVBRBWC_3,"2"
H264AVBRCYC_3,"24"
H264QUAL_3,"normal"
H264RINT_3,"1"
H264MTD_3,"uni"
H264MLADD1_3,"239"
H264MLADD2_3,"192"
H264MLADD3_3,"0"
H264MLADD4_3,"22"
H264MLADD_3,"239.192.0.22"
H264MLPORT_3,"37004"
H264MLTTL_3,"16"
H264UNIPORT_3,"32024"
H264UNIPORT2_3,"33024"
H264ENCTYPE_3,"0"
H264_4,"1"
H264RTSPMODE_4,"0"
H264BWC_4,"512"
H264BWCMIN_4,"128"
H264SIZE_4,"160"
H264FPRIORITY_4,"1"
H264NRFRAMERATE_4,"30"
H264AVBRBWC_4,"2"
H264AVBRCYC_4,"24"
H264QUAL_4,"normal"
H264RINT_4,"1"
H264MTD_4,"uni"
H264MLADD1_4,"239"
H264MLADD2_4,"192"
H264MLADD3_4,"0"
H264MLADD4_4,"23"
H264MLADD_4,"239.192.0.23"
H264MLPORT_4,"37004"
H264MLTTL_4,"16"
H264UNIPORT_4,"32034"
H264UNIPORT2_4,"33034"
H264ENCTYPE_4,"0"
RTSPPORT,"554"
H264MLAUTO,"0"
H264MLAUTO_2,"0"

H264MLAUTO_3,"0"
H264MLAUTO_4,"0"
AUDIO,"in"
AUDIOSENS,"line_high"
AUDIOENC,"3"
AUDIOBITRATE,"32"
AUDIOINT,"40"
AUDIOSTATUS,"off"
AUDIOAUTH,"all"
UAUTH,"1"
UAUTHMTD,"0"
UNAME,""admin",1,"Live",3,"Cam",2"
HAUTH,"0"
HADD,""192.168.0.80",1"
PRIORITY,"1"
PRIP4ADDR1,""
PRIP4ADDR2,""
PRIP4ADDR3,""
PRIP4ADDR4,""
PRIP6ADDR,""
PRIP4ADDR1_2,""
PRIP4ADDR2_2,""
PRIP4ADDR3_2,""
PRIP4ADDR4_2,""
PRIP6ADDR_2,""
PRKIND,"jpeg"
PRJPEGINTERVAL,"10"
NW,"0"
EIP1,"192"
EIP2,"168"
EIP3,"0"
EIP4,"10"
EMASK1,"255"
EMASK2,"255"
EMASK3,"255"
EMASK4,"0"
EDGW1,"192"
EDGW2,"168"
EDGW3,"0"
EDGW4,"1"
DNS,"manual"
PRISRV1,"0"
PRISRV2,"0"
PRISRV3,"0"
PRISRV4,"0"
SECSRV1,"0"
SECSRV2,"0"
SECSRV3,"0"

SECSRV4,"0"
IP6_AUTO,"1"
IP6,"fe80::280:45ff:fe0d:222,,,,,,"
IP6_DGW,""
IP6_DHCP,"0"
PRISRV_V6,""
SECSRV_V6,""
HTTPPORT,"80"
SPEED,"1"
RTPSIZE,"1500"
MSS,"1460"
BWC,"0"
EASYIPSETUP,"unlimited"
FTPS,"0"
TIMEADJUST,"1"
NTPSVR,"1"
NTPADD,"192.168.0.188"
NTPPORT,"123"
NTPINTERVAL,"1"
PORTFORWARD,"0"
CAM_SC,"0"
DDNS,"0"
DDHOST,""
DDINT,"1440"
SNMPCOM,"TEST"
SNMPTITLE,"TEST1"
SNMPLOCATION,""
SNMPCONTACT,""
DSCP,"14"
PLUGIN_HALFTONE_JPEG,"0"
PLUGIN_HALFTONE_H264,"0"
PTZENDLESS,"0"

The description of the response data is as shown below.

Setting name	Value	Description
CAMTITLE	String	Camera name
TIMEDATE	String	Encoder unit name
TIMEFORMAT	1 2 3 4 5	Date and time display format 1:DD/MM/YYYY HH:MM:SS 2:MM/DD/YYYY HH:MM:SS 3:DD/Mmm/YYYY HH:MM:SS 4:YYYY/MM/DD HH:MM:SS 5:Mmm/DD/YYYY HH:MM:SS
TIMEDISP	12 24	Hour display format 12: 12-hour format 24: 24-hour format
TIMEZONE	Numeric value	Timezone 1 to 74
STIME	0 1	Summer time 1: Set the time according to the summer time 0: Cancel the summer time
STIMES_MON	1 to 12	Summer time auto setting (start month)
STIMES_WEEK	1 to 5	Summer time auto setting Start date and time setting (week number) 1: First week, 2: Second week 3: Third week, 4: Fourth week 5: Last week
STIMES_DOTW	0 to 6	Summer time auto setting Start date and time setting (day of the week) 0: Sunday, 1: Monday 2: Tuesday, 3: Wednesday 4: Thursday, 5: Friday 6: Saturday
STIMES_HOUR	1 to 12	Summer time auto setting Start date and time setting (hour) 1 to 12
STIMES_AMPM	0 1	Summer time auto setting Start date and time setting (AM/PM) 0: AM (before noon) 1: PM (after noon)
STIMEE_MON	1 to 12	Summer time auto setting End date and time setting (month) 1: January, 2: February, 3: March 4: April, 5: May, 6: June 7: July, 8: August, 9: September 10: October, 11: November, 12: December
STIMEE_WEEK	1 to 5	Summer time auto setting End date and time setting (week number) 1: First week, 2: Second week 3: Third week, 4: Fourth week

Setting name	Value	Description
		5: Last week
STIMEE_DOTW	0 to 6	Summer time auto setting End date and time setting (day of the week) 0: Sunday, 1: Monday 2: Tuesday, 3: Wednesday 4: Thursday, 5: Friday 6: Saturday
STIMEE_HOUR	1 to 12	Summer time auto setting Start date and time setting (hour) 1 to 12
STIMEE_AMPM	0 1	Summer time auto setting Start date and time setting (AM/PM) 0: AM (before noon) 1: PM (after noon)
PLUGINDISP	0 1	Live screen smooth display with plug-in software (buffering) 0: Real time consideration (Off) 1: Smooth display (On)
IMAGESELECT	2m	Imaging mode 2m: 2 M pixel
IMAGERATIO	16_9	Image ratio 16_9: 16:9 mode
IMAGEFPS	60	Frame rate 60: 60 fps
LIVESTREAM	h264 h264_2 h264_3 h264_4 jpeg jpeg_2 jpeg_3	Live screen initial stream selection h264 : H.264(1) h264_2 : H.264(2) h264_3 : H.264(3) h264_4 : H.264(4) jpeg : JPEG(1) jpeg_2 : JPEG(2) jpeg_3 : JPEG(3)
LIVEINT	1 5 15(12.5) 30(25)	JPEG(1) refresh interval 1 : 1fps 5 : 5fps 15(12.5) : 15(12.5)fps 30(25) : 30(25)fps * The values within () are for the case when the system frequency is 50 Hz
LIVEQUALBASE	1	JPEG(1) default image quality 1: Image quality 1
LIVESIZE	320 640 1280 1920	JPEG(1) image resolution 320 : 320x180 640 : 640x360 1280 : 1280x720 1920 : 1920x1080

Setting name	Value	Description
LIVESIZE2	320 640 1280	JPEG(2) image resolution 320 : 320x180 640 : 640x360 1280 : 1280x720
LIVESIZE3	320 640 1280	JPEG(3) image resolution 320 : 320x180 640 : 640x360 1280 : 1280x720
LIVEQUAL	1 5	JPEG(1) image quality (1) 1 : Fine 5 : Normal
LIVEQUAL2	1 5	JPEG(2) image quality (1) 1 : Fine 5 : Normal
LIVEQUAL3	1 5	JPEG(3) image quality (1) 1 : Fine 5 : Normal
LIVEQUAL_2	1 5	JPEG(1) image quality (2) 1 : Fine 5 : Normal
LIVEQUAL2_2	1 5	JPEG(2) image quality (2) 1 : Fine 5 : Normal
LIVEQUAL3_2	1 5	JPEG(3) image quality (2) 1 : Fine 5 : Normal
STREAMMODE	1	Movie transmission method 1 : H.264
H264 H264_2 H264_3 H264_4	0 1	H.264 transmission ON/OFF 0 : OFF 1 : ON
H264RTSPMODE H264RTSPMODE_2 H264RTSPMODE_3 H264RTSPMODE_4	0 1	Internet mode ON/OFF 0 : OFF 1 : ON
H264BWC H264BWC_2 H264BWC_3 H264BWC_4	512,768,1024,1536, 2048,3072,4096,6144, 8192,10240,12288, 14336,16384,20480, 24576, 32768(*1), 40960(*1), 51200(*1)	Bit rate per client 512 (kbps) ~ 24576 (kbps) ～ 51200 (kbps) (*1): Only for AW-UE70

Setting name	Value	Description
H264BWCMIN	512,768,1024,1536, 2048,3072,4096,6144, 8192,10240,12288, 14336,16384,20480, 24576, 32768(*1), 40960(*1), 51200(*1)	Minimum bit rate per client 512 (kbps) ~ 24576 (kbps) ~ 51200 (kbps) (*1): Only for AW-UE70
H264BWCMIN_2		
H264BWCMIN_3		
H264BWCMIN_4		
NRH264BWC	Numeric value	Bit rate per client at which transmission does not stop Unit [kbps] * The value acquired by setdata depends on the minimum bit rate per client.
NRH264BWC_2		
NRH264BWC_3		
NRH264BWC_4		
H264SIZE	320 640 1280 1920 3840(*1)	H.264(1) resolution 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 (*1): Only for AW-UE70
H264SIZE_2	320 640 1280	H.264(2) resolution 320:320x180 640:640x360 1280:1280x720
H264SIZE_3	320 640 1280	H.264(3) resolution 320:320x180 640:640x360 1280:1280x720
H264SIZE_4	320 640 1280	H.264(4) resolution 320:320x180 640:640x360 1280:1280x720
NRH264SIZE	320 640 1280 1920 3840(*1)	H.264(1) resolution at which transmission does not stop 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 3840:3840x2160(*1) (*1): Only for AW-UE70 The value acquired by setdata depends on the value of H.264(1)

Setting name	Value	Description
NRH264SIZE_2	320 640 1280	H.264(2) resolution at which transmission does not stop 320 : 320x180 640 : 640x360 1280 : 1280x720 The value acquired by setdata depends on the value of H.264(2)
NRH264SIZE_3	320 640 1280	H.264(3) resolution at which transmission does not stop 320 : 320x180 640 : 640x360 1280 : 1280x720 The value acquired by setdata depends on the value of H.264(3)
NRH264SIZE_4	320 640 1280	H.264(4) resolution at which transmission does not stop 320 : 320x180 640 : 640x360 1280 : 1280x720 The value acquired by setdata depends on the value of H.264(4)
H264FPRIORITY H264FPRIORITY_2 H264FPRIORITY_3 H264FPRIORITY_4	0 1 2	Transmission mode 0 : Constant bit rate 1 : Frame rate 2 : Best effort
H264NRFRAMERATE	5 15(12.5) 30(25) 60(50)	H264(1) frame rate 5 : 5fps 15(12.5) : 15(12.5)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
H264NRFRAMERATE_2	5 15(12.5) 30(25)	H264(2) frame rate 5 : 5fps 15(12.5) : 15(12.5)fps 30(25) : 30(25)fps * The values within () are for the case when the system frequency is 50 Hz
H264NRFRAMERATE_3	5 15(12.5) 30(25)	H264(3) frame rate 5 : 5fps 15(12.5) : 15(12.5)fps 30(25) : 30(25)fps * The values within () are for the case when the system frequency is 50 Hz
H264NRFRAMERATE_4	5 15(12.5) 30(25)	H.264(4) frame rate 5 : 5fps 15(12.5) : 15(12.5)fps 30(25) : 30(25)fps * The values within () are for the case when the system frequency is 50 Hz

Setting name	Value	Description
H264AVBRBWC H264AVBRBWC_2 H264AVBRBWC_3 H264AVBRBWC_4	0 1 2	H.264 Maximum bit rate (during burst) 0: Four times the target bit rate, or the upper-limit clip value (whichever is smaller) 1: Three times the target bit rate, or the upper-limit clip value (whichever is smaller) 2: Twice the target bit rate, or the upper-limit clip value (whichever is smaller)
H264AVBRCYC H264AVBRCYC_2 H264AVBRCYC_3 H264AVBRCYC_4	1 to 168	H.264 AVBR control period The period during which the total bit rate of a compressed video stream is to be converged in AVBR. 1 hour to 168 hours (one week)
H264ENCTYPE H264ENCTYPE_2 H264ENCTYPE_3 H264ENCTYPE_4	0 1	H.264 encoding system 0 : CABAC 1 : CAVLC
H264QUAL H264QUAL_2 H264QUAL_3 H264QUAL_4	fine low	H.264 image quality fine : Image quality priority low : Motion priority
NRH264QUAL NRH264QUAL_2 NRH264QUAL_3 NRH264QUAL_4	normal	H264 image quality at which transmission does not stop normal: Standard
H264RINT H264RINT_2 H264RINT_3 H264RINT_4	1	Refresh cycle 1: 1 second
H264MTD H264MTD_2 H264MTD_3 H264MTD_4	uni uni_manual multi	H.264 transmission method uni : Unicast port(AUTO) uni_manual : Unicast port(MANUAL) multi : Multicast
H264MLADD1	Numeric value	H.264(1) multicast address First octet 224 to 239
H264MLADD2	Numeric value	H.264(1) multicast address Second octet 0 to 255
H264MLADD3	Numeric value	H.264(1) multicast address Third octet 0 to 255
H264MLADD4	Numeric value	H.264(1) multicast address Fourth octet 0 to 255
H264MLADD1_2	Numeric value	H.264(2) multicast address First octet 224 to 239
H264MLADD2_2	Numeric value	H.264(2) multicast address Second octet 0 to 255
H264MLADD3_2	Numeric value	H.264(2) multicast address Third octet 0 to 255

Setting name	Value	Description
H264MLADD4_2	Numeric value	H.264(2) multicast address Fourth octet 0 to 255
H264MLADD1_3	Numeric value	H.264(3) multicast address First octet 224 to 239
H264MLADD2_3	Numeric value	H.264(3) multicast address Second octet 0 to 255
H264MLADD3_3	Numeric value	H.264(3) multicast address Third octet 0 to 255
H264MLADD4_3	Numeric value	H.264(3) multicast address Fourth octet 0 to 255
H264MLADD1_4	Numeric value	H.264(4) multicast address First octet 224 to 239
H264MLADD2_4	Numeric value	H.264(4) multicast address Second octet 0 to 255
H264MLADD3_4	Numeric value	H.264(4) multicast address Third octet 0 to 255
H264MLADD4_4	Numeric value	H.264(4) multicast address Fourth octet 0 to 255
H264MLADD	(IPv4 address) or (IPv6 address)	H.264 multicast address
H264MLADD_2		
H264MLADD_3		
H264MLADD_4		
H264MLPORT	Numeric value	H.264 multicast port 1024 to 50000
H264MLPORT_2		
H264MLPORT_3		
H264MLPORT_4		
H264MLTTL	Numeric value	H.264 multicast TTL 1 to 254
H264MLTTL_2		
H264MLTTL_3		
H264MLTTL_4		
H264UNIPORT	Numeric value	H.264 unicast (for video) port number 1024 to 50000 (only even numbers)
H264UNIPORT_2		
H264UNIPORT_3		
H264UNIPORT_4		
H264UNIPORT2	Numeric value	H.264 unicast (for audio) port number 1024 to 50000 (only even numbers)
H264UNIPORT2_2		
H264UNIPORT2_3		
H264UNIPORT2_4		

Setting name	Value	Description
H264PROFILE	0	H.264 profile 0: High profile
H264PROFILE_2		
H264PROFILE_3		
H264PROFILE_4		
RTSPPORT	Numeric value	RTSP server port number
H264MLAUTO	0	Multicast delivery is started automatically 0: OFF
H264MLAUTO_2		
H264MLAUTO_3		
H264MLAUTO_4		
AUDIO	in off	Audio settings in : ON off : OFF
AUDIOSENS	low middle high line_low line_middle line_high	Sound collection sensitivity low: Mic Low middle: Mic Middle high: Mic High line_low: Line Low line_middle: Line Middle line_high: Line High
AUDIOBITRATE	64 96 128	64 : 64kbps 96 : 96kbps 128 : 128kbps
AUDIOENC	3	Audio encoder settings 3 : AAC HIGH
AUDIOINT	20 40 80 160	Audio receiving interval (camera -> PC) 20: 20 millisecond 40: 40 millisecond 80: 80 millisecond 160: 160 millisecond
AUDIOSTATUS	on off	Audio transmission status (PC -> camera) on : ON off : OFF
AUDIOAUTH	level1 level2 all	Audio permission level all: Allow all level1: 1. Administrator only level2: 2. Camera control and above
UAUTH	0 1	User authentication settings ON/OFF 1 : ON 0 : OFF

Setting name	Value	Description
UAUTHMTD	0 1 2	User authentication method 0 : Digest or Basic 1 : Digest 2 : Basic
UNAME	String	User authentication user name
HAUTH	0 1	Host authentication settings ON/OFF 1 : ON 0 : OFF
HADD	IP address IP address/mask length String	Host authentication IP address
PRIORITY	0 1	Priority stream 0: Do not use 1: Use
PRIP4ADDR1	Numeric value	Priority stream transmission destination IP address (IPv4) First to fourth octet
PRIP4ADDR2		
PRIP4ADDR3		
PRIP4ADDR4		
PRIP4ADDR1_2	Numeric value	Priority stream transmission destination IP address 2 (IPv4) First to fourth octet
PRIP4ADDR2_2		
PRIP4ADDR3_2		
PRIP4ADDR4_2		
PRIP6ADDR	IP address (IPv6)	Priority stream transmission destination IP address (IPv6)
PRIP6ADDR_2		
PRKIND	jpeg stream_1 stream_2	Priority stream type jpeg : JPEG stream_1 : H.264(1) stream_2 : H.264(2)

Setting name	Value	Description
PRJPEGINTERVAL	When the system frequency is 60 Hz 1 2 3 5 6 10 15 30 When the system frequency is 50 Hz 1 2 5 10 12.5 25	Priority stream JPEG frame rate (ips)
NW	0 1 2 3	0: Static 1: DHCP 2: Auto (Auto IP) 3: Auto (Advanced)
EIP1	Numeric value	IP address First to fourth octet
EIP2		
EIP3		
EIP4		
EMASK1	Numeric value	Subnet mask First to fourth octet
EMASK2		
EMASK3		
EMASK4		
EDGW1	Numeric value	Default gateway First to fourth octet
EDGW2		
EDGW3		
EDGW4		
DNS	manual auto	DNS manual：MANUAL auto：AUTO
PRISRV1	Numeric value	Primary server address (DNS) First to fourth octet
PRISRV2		
PRISRV3		
PRISRV4		

Setting name	Value	Description
SECSRV1	Numeric value	Secondary server address (DNS) First to fourth octet
SECSRV2		
SECSRV3		
SECSRV4		
IP6_AUTO	0 1	Manual setting (IPv6) 0: ON (manual setting) 1: OFF (auto setting)
IP6	IP address (IPv6)	IP address (IPv6)
IP6_DGW	IP address (IPv6)	Default gateway (IPv6)
IP6_DHCP	0 1	IPv6 DHCP settings 0:OFF 1:ON
PRISRV_V6	IP address (IPv6)	IPv6 primary server
SECSRV_V6	IP address (IPv6)	IPv6 secondary server
HTTPPORT	Numeric value	HTTP port number
SPEED	1 2 3 4 5	Communication speed 1:AUTO 2:100M-FULL 3:100M-HALF 4:10M-FULL 5:10M-HALF
RTPSIZE	1280 1500	Maximum packet length setting during RTP transmission 1500: Normal packet length 1280: Maximum packet length limit
MSS	1024 1280 1460	HTTP maximum segment size (MSS) 1460:Unlimited(1460byte) 1280:Limited(1280byte) 1024:Limited(1024byte)
BWC	0 64 128 256 512 1024 2048 4096 10000	Transmission volume control 0: No limit 64:64 kbps 128:128kbps 256:256kbps 512:512kbps 1024:1024kbps 2048:2048kbps 4096:4096kbps 10000:10Mbps

Setting name	Value	Description
EASYIPSETUP	unlimited 20	Time period during which Easy IP Setup can be performed from the time power is turned ON unlimited: Unlimited 20: 20 minutes (default value)
FTPS	0 1	FTP access to camera 1: Allowed 0: Prohibited
TIMEADJUST	0 1	Time adjustment method 0: Manual setting 1: Synchronized with the NTP server
NTPSVR	0 1	0 : Auto 1 : Manual
NTPADD	IP address String	NTP server address
NTPPORT	Numeric value	NTP port number
NTPINTERVAL	Numeric value	Interval of acquisition to NTP server 1 to 24 (hours)
PORTFORWARD	0 1	Auto port-forwarding 0 : OFF 1 : ON
CAM_SC	0 1	Shortcut to camera 0 : OFF 1 : ON
HTTPS_TYPE	0 1	HTTPS setting ON/OFF 0 : OFF 1 : ON
HTTPS_MIE_CAMURLSEL FSTATE	0 1 2 3	Self-signed certificate status 0: Not created 1: Invalid (CA certificate already installed) 2: Valid self-signed certificate 3: Validity period expired
HTTPS_CASTATE	0 1 2 3	CA certificate status 0: Not installed 1: Not installed (signature request already created) 2: Valid CA certificate 3: Validity period expired
HTTPS_PORT	1 to 65535	HTTPS port number
DDNS	0 1	DDNS setting ON/OFF 0 : OFF 1 : ON
DDHOST	String	Host name

Setting name	Value	Description
DDINT	1 10 30 60 360 1440	Interval of access to server 1: 1 minute 10: 10 minutes 30: 30 minutes 60: 1 hour 360: 6 hours 1440: 24 hours
SNMPCOM	String	Community name
SNMPTITLE	String	Device name
SNMPLOCATION	String	Physical location of device
SNMPCONTACT	String	Contact
DSCP	0 to 63	DSCP value of Diffserv
PLUGIN_HALFTONE_JPEG	0	Enabling/disabling of half-tone function for JPEG images in Active X 0: Disabled
PLUGIN_HALFTONE_H264	0	Enabling/disabling of half-tone function for H.264 in Active X 0: Disabled

* Although parameters that have not been specified above may be included in the response, such parameters are not supported.

9. 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.

9.1. 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 H.264(1) of the remote camera can be requested.
rtsp://<cam_ip>/mediainput/h264/stream_2	Videos set in WEB menu H.264(2) of the remote camera can be requested.
rtsp://<cam_ip>/mediainput/h264/stream_3	Videos set in WEB menu H.264(3) of the remote camera can be requested.
rtsp://<cam_ip>/mediainput/h264/stream_4	Videos set in WEB menu H.264(4) of the remote camera can be requested.

The RTSP port at the remote camera (RTSP Server) side is set to 554 according to the factory settings. If it is to be changed, use the cgi-bin/set_rtsp (POST command).

The relationship between "H.264 transmission" and "Audio Transmission" in the WEB menu of the remote camera is as shown below.

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Audio Transmission</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="2">H.264 transmission</td><td>ON</td><td>Both video and audio can be used.
* As for DESCRIBE, the SDP information of video + audio is issued as response.</td><td>Only video can be used.
* As for DESCRIBE, only the SDP information of video is issued as response.</td></tr>
<tr><td>OFF</td><td colspan="2">Both video and audio cannot be used.
* As for SETUP, 503 is issued as response.</td></tr>
</table>

When "Audio Transmission" is ON, the remote camera issues a response by adding Audio information to the DESCRIBE information. If necessary, the audio can be transmitted by issuing the SETUP command. On the contrary, if the SETUP command is not issued, only the video can be transmitted. Moreover, if "Audio" in the WEB menu of the remote camera is "OFF", or nothing is connected to the "Audio IN terminal", it results in silent transmission.

In this manual, the description is provided by assuming that "H.264 transmission" and "Audio Transmission" are in the ON state.

9.2. About the rtsp Methods

The RTSP methods supported in the remote camera are as described below.

Supported Method	Description
OPTIONS	Check for the corresponding command
DESCRIBE	Acquisition of session information and Audio support
SETUP	Initialization of the session and mutual exchange of port information
PLAY	Transfer started
PAUSE	Transfer paused * Transmission is stopped, and this method is ignored during multicast.
GET_PARAMETER	Acquisition of session parameter * Operation is performed by assuming Keep Alive.
TEARDOWN	Transfer end/session end

SET_PARAMETER is not supported. 501 is issued as response.

The timeout based on GET_PARAMETER is 120 seconds. If Keep Alive from all clients is blocked including during multicast, the remote camera stops transmission.

10. About Acquisition of Stream from RTSP

The RTSP communication methods supported in the remote camera are as described below. No matter which method is used, TCP communication (554 is set as the waiting port at the remote camera side) is used during initial negotiation of RTSP.

1. UDP Unicast
   - Used for transmitting video/audio to a single client in one remote camera.
   - Although transmission to multiple clients is also supported, network bandwidth is needed for each connection.
2. UDP Multicast
   - Used for transmitting video/audio simultaneously to multiple clients in one remote camera.
   - The network bandwidth at the camera side does not increase even when transmission is performed to multiple clients.
   - A separate router that supports multicast is needed.
3. TCP Unicast
   - Used for transmitting video/audio to a single client in one remote camera.
   - The video and audio data communicated via RTP/UDP can be transmitted via TCP.

10.1. UDP Unicast

You must make the settings described below in the WEB menu as preparations at the remote camera side.

- Set H.264(X)/Transmission type to Unicast (AUTO).

The port number during transmission of video and audio stream is decided as described below.

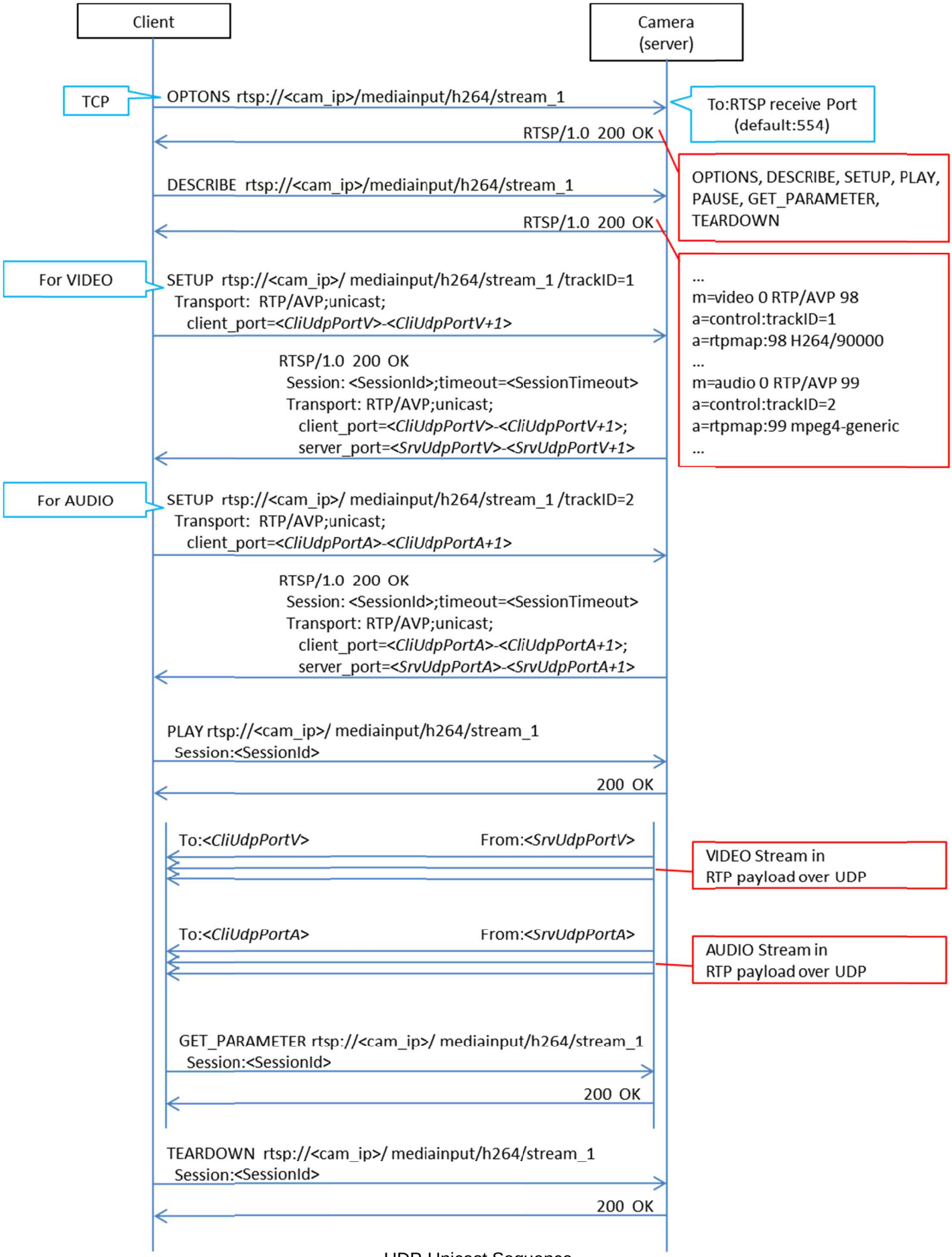
- client_port (receiving port at the client side):
  The client explicitly issues a command to the remote camera in an RTSP "SETUP" sequence.
  * The methods of deciding the port number differ according to the client, and include random settings and dedicated menu.

- server_port (transmitting port of the remote camera):
  The remote camera issues a response to the client through response in the RTSP "SETUP" sequence.
  * The port number is decided randomly.

Note that if you want to fix the client_port forcibly, you can do so by making the WEB menu settings described below.

- Set H.264(X)/Transmission type to Unicast (MANUAL).
- Set Unicast port (Image)/Unicast port (Audio).
  * However, in the RTSP "SETUP" sequence, the content instructed explicitly by the client to the remote camera are ignored, and therefore, it is not used normally.

The acquisition method of video and audio stream by the UDP Unicast method is illustrated below.



UDP Unicast Sequence

```
OPTIONS rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 2
User-Agent: <User-Agent>

RTSP/1.0 200 OK
CSeq: 2
Public: OPTIONS, DESCRIBE, SETUP, PLAY, PAUSE, GET_PARAMETER, TEARDOWN

DESCRIBE rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 3
User-Agent: <User-Agent>

RTSP/1.0 200 OK
CSeq: 3
Content-Base: rtsp://<cam_ip>/mediainput/h264/stream_1/
Content-Type: application/sdp
Content-Length: <Length>

v=0
o=- 1 1 IN IP4 <cam_ip>
s=Media Presentation
e=NONE
c=IN IP4 0.0.0.0
b=AS:14464
t=0 0
a=control:*
a=range:npt=now-
m=video 0 RTP/AVP 98
b=AS:14336
a=framerate:30.0
a=control:trackID=1
a=rtpmap:98 H264/90000
a=fmtp:98 packetization-mode=1
a=h264-esid:201
m=audio 0 RTP/AVP 99
a=control:trackID=2
a=rtpmap:99 mpeg4-generic/48000/2
a=fmtp:99 streamType=5; profile-level-id=41; mode=AAC-hbr; config=1190; sizeLength=13; indexLength=3;
 indexDeltaLength=3; bitrate=128000
a=h264-esid:101

SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=1 RTSP/1.0
CSeq: 4
User-Agent: <User-Agent>
Transport: RTP/AVP;unicast;client_port=<CliUdpPortV>-<CliUdpPortV+1>

RTSP/1.0 200 OK
CSeq: 4
Session: <SessionId>;timeout=120
Transport: RTP/AVP/UDP;unicast;client_port=<CliUdpPortV>-<CliUdpPortV+1>;
                                server_port=<SrvUdpPortV>-<SrvUdpPortV+1>;ssrc=<SSRC>
```

UDP Unicast Packets (1/2)

```
SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=2 RTSP/1.0
CSeq: 5
User-Agent: <User-Agent>
Transport: RTP/AVP;unicast;client_port=<CliUdpPortA>-<CliUdpPortA+1>
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 5
Session: <SessionId>;timeout=120
Transport: RTP/AVP/UDP;unicast;client_port=<CliUdpPortA>-<CliUdpPortA+1>;
                                    server_port=<SrvUdpPortA>-<SrvUdpPortA+1>;ssrc=<SSRC>

PLAY rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 6
User-Agent: <User-Agent>
Session: <SessionId>
Range: npt=0.000-

RTSP/1.0 200 OK
CSeq: 6
Session: <SessionId>
RTP-Info: url=trackID=1;seq=<SequenceNumber>;rtptime=...
          url=trackID=2;seq=<SequenceNumber>;rtptime=...


<VIDEO Stream in RTP payload over UDP>
<AUDIO Stream in RTP payload over UDP>

GET_PARAMETER rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 7
User-Agent: <User-Agent>
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 7
Session: <SessionId>

TEARDOWN rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 8
User-Agent: <User-Agent>
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 8
Session: <SessionId>
```

UDP Unicast Packets (2/2)

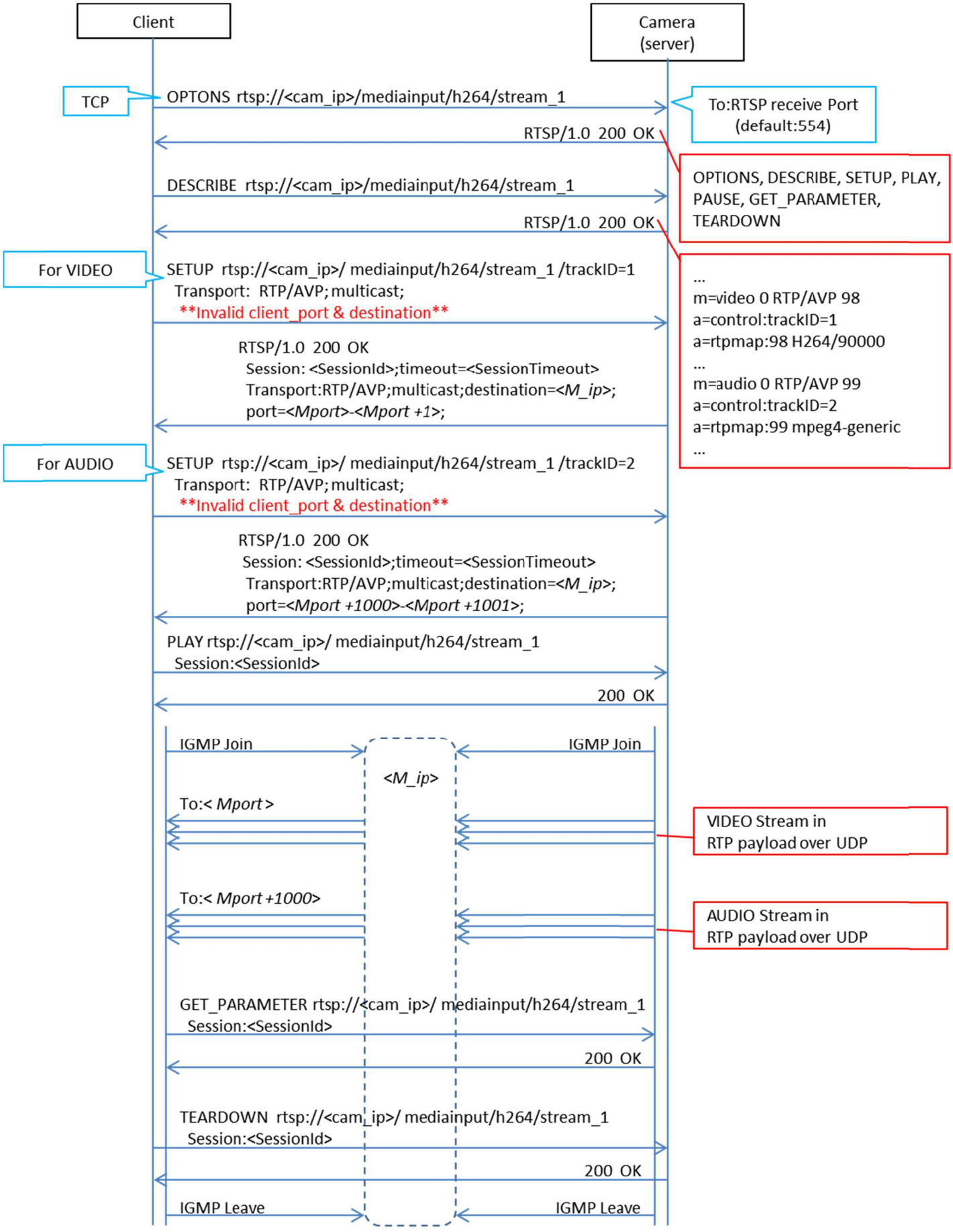
10.2. UDP Multicast

You must make the settings described below in the WEB menu as preparations at the remote camera side.

- Set H.264(X)/Transmission type to Multicast.
- Set H.264(X)/Multicast address (set to 239.192.0.20 for H.264(1) according to factory settings)
- Set H.264(X)/Multicast port (set to 37004 for H.264(1) according to factory settings)

The port number and multicast address during transmission of the video and audio stream depend on the values of the WEB menu of the remote camera, and the commands from the client side are ignored.

The acquisition method of video and audio stream by the UDP Multicast method is illustrated below.



UDP Multicast Sequence

```
OPTIONS rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 2
User-Agent: <User-Agent>

RTSP/1.0 200 OK
CSeq: 2
Public: OPTIONS, DESCRIBE, SETUP, PLAY, PAUSE, GET_PARAMETER, TEARDOWN

DESCRIBE rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 3
User-Agent: <User-Agent>

RTSP/1.0 200 OK
CSeq: 3
Content-Base: rtsp://<cam_ip>/mediainput/h264/stream_1/
Content-Type: application/sdp
Content-Length: <Length>

v=0
o=- 1 1 IN IP4 <cam_ip>
s=Media Presentation
e=NONE
c=IN IP4 0.0.0.0
b=AS:14464
t=0 0
a=control:*
a=range:npt=now-
m=video 0 RTP/AVP 98
b=AS:14336
a=framerate:30.0
a=control:trackID=1
a=rtpmap:98 H264/90000
a=fmtp:98 packetization-mode=1
a=h264-esid:201
m=audio 0 RTP/AVP 99
a=control:trackID=2
a=rtpmap:99 mpeg4-generic/48000/2
a=fmtp:99 streamType=5; profile-level-id=41; mode=AAC-hbr; config=1190; sizeLength=13; indexLength=3;
 indexDeltaLength=3; bitrate=128000
a=h264-esid:101

SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=1 RTSP/1.0
CSeq: 4
User-Agent: <User-Agent>
Transport: RTP/AVP;multicast;client_port=52944-52945

RTSP/1.0 200 OK
CSeq: 4
Session: <SessionId>;timeout=120
Transport: RTP/AVP/UDP;multicast;destination=<M_ip>;
 ttl=16;port=<Mport>-<Mport+1>
```

UDP Multicast Packets (1/2)

```
SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=2 RTSP/1.0
CSeq: 5
User-Agent: <User-Agent>
Transport: RTP/AVP;multicast;client_port=52946-52947
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 5
Session: <SessionId>;timeout=120
Transport: RTP/AVP/UDP;multicast;destination=<M_ip>;
 ttl=16;port=<Mport+1000>-<Mport+1001>

PLAY rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 6
User-Agent: <User-Agent>
Session: <SessionId>
Range: npt=0.000-

RTSP/1.0 200 OK
CSeq: 6
Session: <SessionId>
RTP-Info: url=trackID=1;seq=<SequenceNumber>;rtptime=...
          url=trackID=2;seq=<SequenceNumber>;rtptime=...


GET_PARAMETER rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 7
User-Agent: <User-Agent>
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 7
Session: <SessionId>
```

UDP Multicast Packets (2/2)

10.3. TCP Unicast

You must make the settings described below in the WEB menu as preparations at the remote camera side.

- Set H.264(X)/Transmission type to Unicast (AUTO).

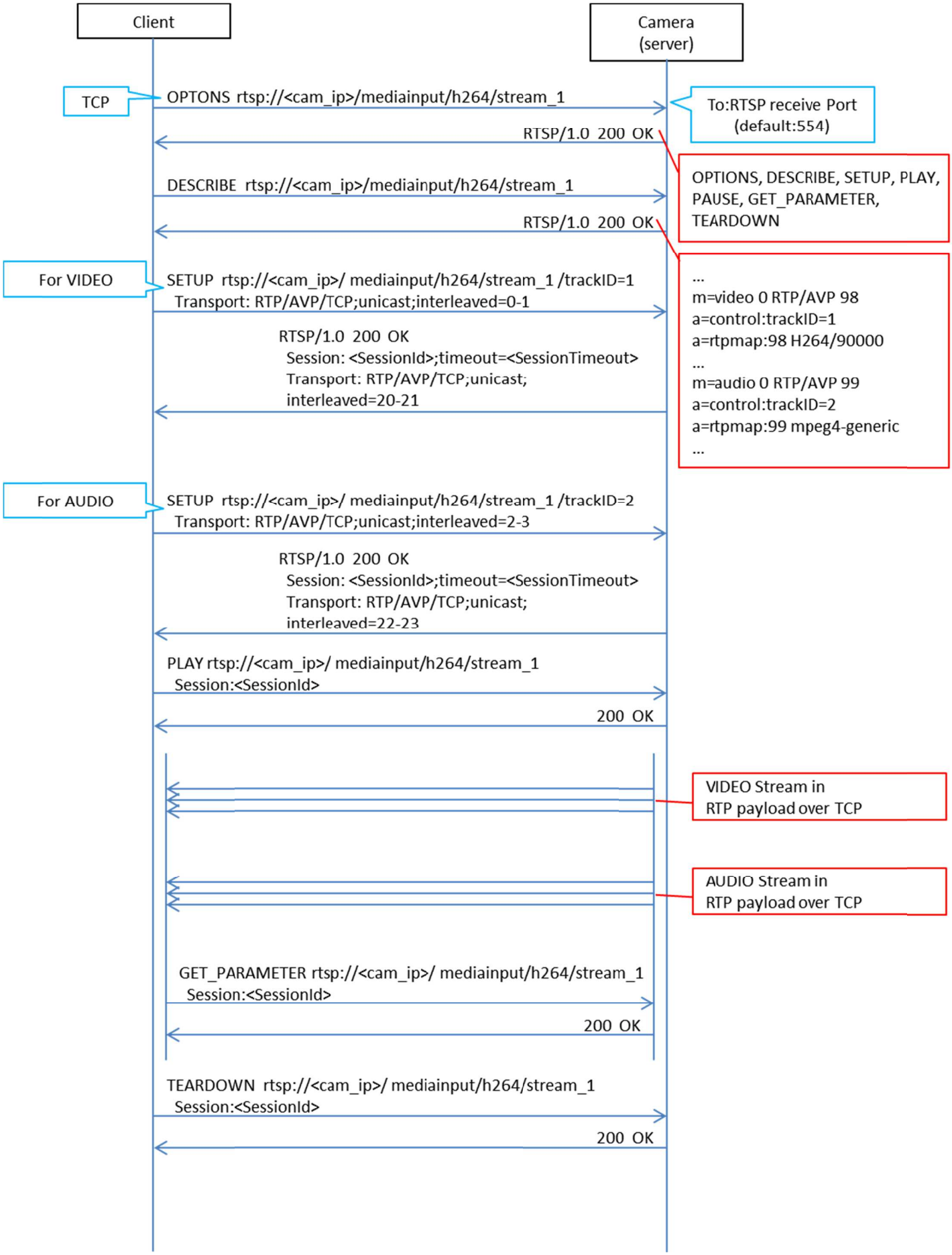
The port number during transmission of video and audio stream is decided as described below.

- client_port (receiving port at the client side):
  The transmission-side port of the client that is used in the RTSP "PLAY" sequence becomes the receiving port at the client side.
  * The methods of deciding the port number differ according to the client, and include random settings and dedicated menu.

- server_port (transmitting port of the remote camera):
  The RTSP waiting port (set to 554 according to factory settings) is used.

The interleave header specified from the client side is ignored at the camera side, and a new interleave header is issued.

The acquisition method of video and audio stream by the TCP Unicast method is illustrated below.



TCP Unicast Sequence

```
OPTIONS rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 2
User-Agent: <User-Agent>

RTSP/1.0 200 OK
CSeq: 2
Public: OPTIONS, DESCRIBE, SETUP, PLAY, PAUSE, GET_PARAMETER, TEARDOWN

DESCRIBE rtsp://<cam_ip>/mediainput/h264/stream_1 RTSP/1.0
CSeq: 3
User-Agent: <User-Agent>
Accept: application/sdp

RTSP/1.0 200 OK
CSeq: 3
Content-Base: rtsp://<cam_ip>/mediainput/h264/stream_1/
Content-Type: application/sdp
Content-Length: <Length>

v=0
o=- 1 1 IN IP4 <cam_ip>
s=Media Presentation
e=NONE
c=IN IP4 0.0.0.0
b=AS:14464
t=0 0
a=control:*
a=range:npt=now-
m=video 0 RTP/AVP 98
b=AS:14336
a=framerate:30.0
a=control:trackID=1
a=rtpmap:98 H264/90000
a=fmtp:98 packetization-mode=1
a=h264-esid:201
m=audio 0 RTP/AVP 99
a=control:trackID=2
a=rtpmap:99 mpeg4-generic/48000/2
a=fmtp:99 streamType=5; profile-level-id=41; mode=AAC-hbr; config=1190; sizeLength=13;
 indexLength=3; indexDeltaLength=3; bitrate=128000
a=h264-esid:101

SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=1 RTSP/1.0
CSeq: 4
User-Agent: <User-Agent>
Transport: RTP/AVP/TCP;unicast;interleaved=0-1

RTSP/1.0 200 OK
CSeq: 4
Session: <SessionId>;timeout=120
Transport: RTP/AVP/TCP;unicast;interleaved=20-21;ssrc=<SSRC>
```

TCP Unicast Packets 1/2

```
SETUP rtsp://<cam_ip>/mediainput/h264/stream_1/trackID=2 RTSP/1.0
CSeq: 5
User-Agent: <User-Agent>
Transport: RTP/AVP/TCP;unicast;interleaved=2-3
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 5
Session: <SessionId>;timeout=120
Transport: RTP/AVP/TCP;unicast;interleaved=22-23;ssrc=<SSRC>

PLAY rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 6
User-Agent: <User-Agent>
Session: <SessionId>
Range: npt=0.000-

RTSP/1.0 200 OK
CSeq: 6
Session: <SessionId>
RTP-Info: url=trackID=1;seq=<SequenceNumber>;rtptime=...
          url=trackID=2;seq=<SequenceNumber>;rtptime=...

GET_PARAMETER rtsp://<cam_ip>/mediainput/h264/stream_1/ RTSP/1.0
CSeq: 7
User-Agent: <User-Agent>
Session: <SessionId>

RTSP/1.0 200 OK
CSeq: 7
Session: <SessionId>
```

TCP Unicast Packets 2/2

10.4 About the rtpmap Attribute

The response of "rtpmap" with respect to the RTSP "DESCRIBE" request is as described below.

Codec	rtpmap Attribute Value
H.264	a=rtpmap:98 H264/90000
AAC HIGH	a=rtpmap:99 mpeg4-generic/48000/2

The values described above are used for both video and audio regardless of the bit rate.

11. About Control Based on RTCP

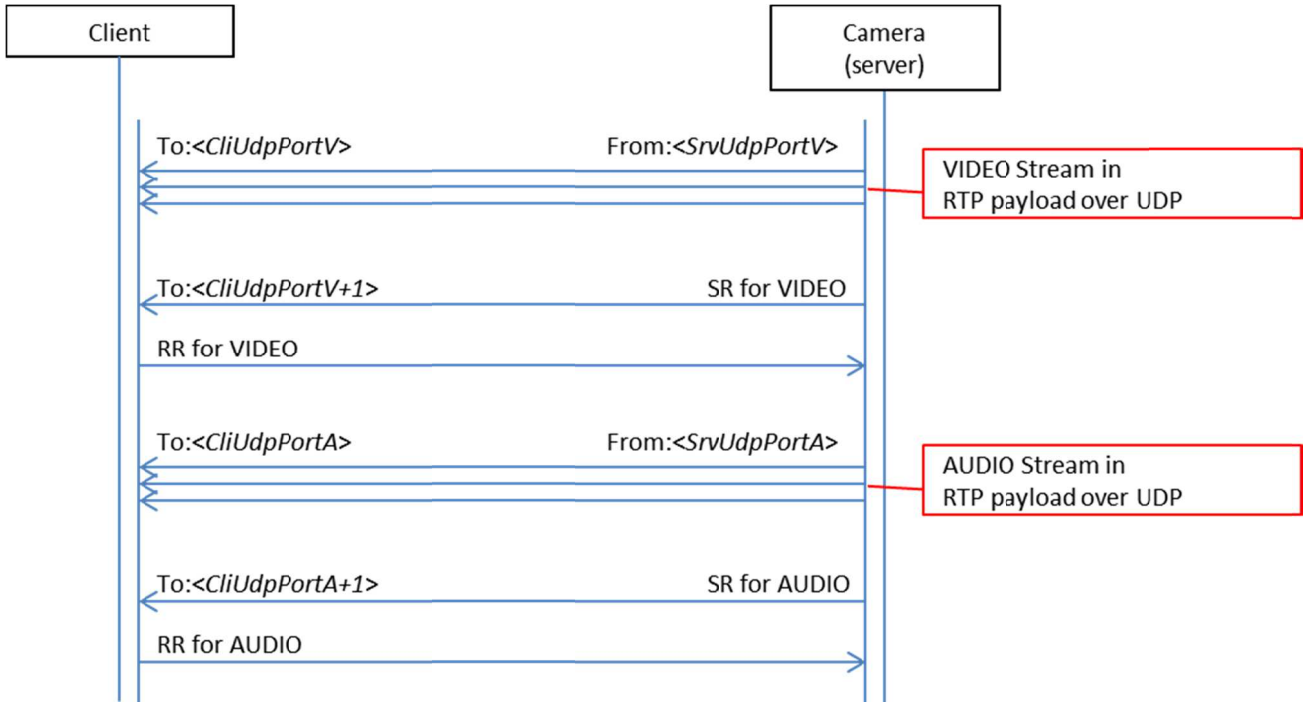
The remote camera also supports dynamic control of bit rate and frame rate according to the line status using RTCP. As a prerequisite, a client that supports RTCP/SR (Sender Report) and RTCP/RR (Receiver Report) is necessary.

You must make the settings described below in the WEB menu as preparations at the remote camera side.

- Set H.264(X)/Transmission priority to Best effort.
  * In the case of the frame rate (factory settings) and constant bit rate, an RTCP/SR is transmitted and an RTCP/RR is received, but these are not used for controlling the bit rate and frame rate.

- Select H.264(X)/Image quality from Motion priority or Image quality priority.
  Motion priority: This is the motion priority mode.
  The bit rate is actively changed and supported.
  Image quality priority: This is the image quality priority mode.
  The frame rate is actively changed.

The sequence during RTCP control is illustrated below:



Note that in the remote camera, an RTCP/SR is transmitted every five seconds, and of the RTCP/RRs, only those related to VIDEO are used.

12. About RTP/Data Format

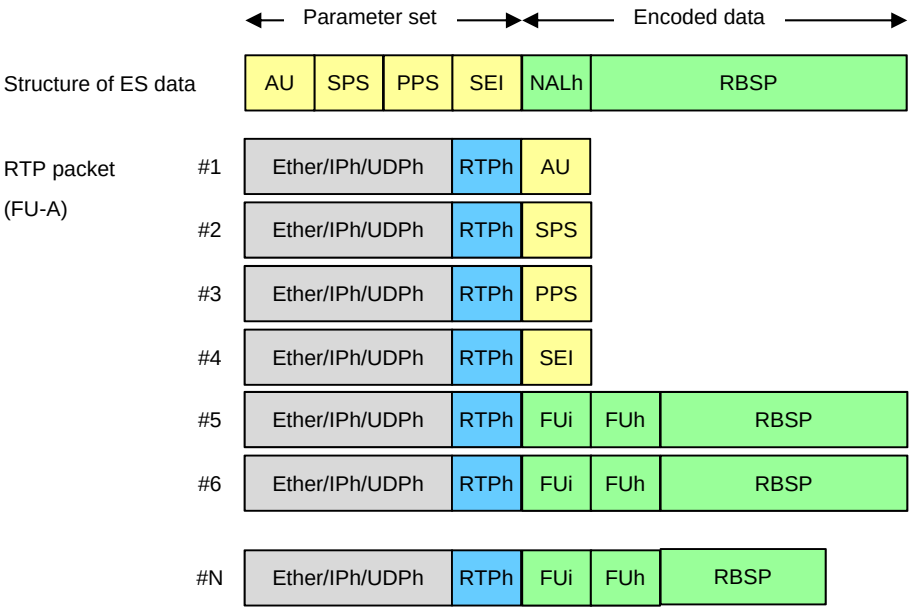
12.1. RTP Header Format

Bit / Byte	0.				8.		16.	24.
	2	1	1	4	1	7	8	8
0	V	P	X	CC	M	PT	Sequence number	
4	Timestamp							
8	SSRC (Synchronization Source Identifier)							
12	Defined by profile						Extension length	
16	Additional Information (1)							
	Additional Information (N)							

Parameter name	length(Bit)	Values and comments
V (Version)	2	2 (fixed)
P (Padding)	1	0 (fixed)
X (Extension)	1	0: false , 1: true
CC (CSRC Count)	4	0 (fixed)
M (Marker)	1	In case of the last RTP packet of a picture, this value is set to 1
PT (Payload Type)	7	98 (fixed for H.264) 99 (fixed for AAC)
Sequence number	16	The value in which one increment is done in each RTP packet is set. An initial value is generated at random.
Timestamp	32	Time stamp
SSRC	32	0x0000 0000 (fixed)
CSRC	0	Unused
Defined by profile(*)	16	0 (fixed)
Extension length(*)	16	Length of the Header Extension (Unit of 32bit word)
meta information (Additional Information) (*)		

12.2. Relationship with H.264/ES Data

The structure of ES data and RTP packet of H.264 is as shown below.



[Notes]

NALh	: NAL header	(1 byte)
Fui	: FU identifier	(1 byte)
Fuh	: FU header	(1 byte)
Ether/IPh/UDPh	: Ether/IP header/UDP header	
RTPh	: RTP header	

12.3. H.264 Syntax

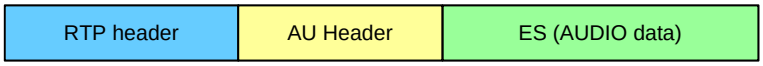
In the remote camera, the Codec information described below is applicable regardless of the resolution/frame rate.

Codec Info
H.264/High profile (no B frame/CABAC)

12.4. Audio Data Format

The structure of the audio ES data and RTP packet differs depending on the audio compression method.

When the audio compression method is AAC HIGH:
An AU header (2 bytes) is inserted between the RTP header and audio data, and then transmitted.



Memo: