

Integrated Camera Interface Specifications

Supplement for Web Control

Target Models
AW-UE100(Ver.01.54)

Panasonic Connect Co., Ltd.

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1. Introduction

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

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

About the access levels

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

When User auth. is OFF (factory settings):

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

When User auth. is ON:

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

About the streaming mode

The type of CGI that can be executed and the range of parameter values differ depending on the streaming mode of the remote camera.

For details, see the instruction manual.

Example) When the priority mode (/cgi-bin/set_stream_mode, /cgi-bin/get_stream_mode) is RTMP
=> Control cannot be performed for H.264 (1) to (4).

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 |
| | | reply | browser info | Command response format specification (can be omitted) browser: for the camera browser info: for the application |

Usage example) Acquisition of user ID (during H264(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 | 320, 640, 1280, 1920, 3840 | Horizontal resolution setting of H.264 |
| iQuality | fine, low | 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 |

| Item | Value of response | Description |
|-------------------|-------------------|--|
| iMultiAdd | (IP address) | H.264 multicast address |
| iMultiPort | Numeric value | Multicast port number |
| aEnable | off, in | off: Audio OFF in: Audio ON (reception) |
| aEnc | 2 | Fixed value (2: AAC) |
| aBitrate | 128,96, 64 | Bit rate setting of audio |
| aBitrate2 | 64 | Fixed value |
| aInterval | 20 | Fixed value |
| aInPort | 1024 to 50000 | Unicast port number (audio) |
| aOutInterval | 640 | Fixed value |
| aOutPort | 34004 | Fixed value |
| 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 | disable | 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]
alnPort_h264=< Audio with H.264/H.265 1st stream unicast port number >[CR][LF]
alnPort_h264_2=< Audio with H.264/H.265 2nd stream unicast port number >[CR][LF]
alnPort_h264_3=< Audio with H.264 3rd stream unicast port number >[CR][LF]
alnPort_h264_4=< Audio with H.264 4th stream unicast port number >[CR][LF]
sRtspMode_h264=< Control mode H.264(1)/H.265(1) >[CR][LF]
sRtspMode_h264_2=< Control mode H.264(2)/H.265(2) >[CR][LF]
sRtspMode_h264_3=< Control mode H.264(3) >[CR][LF]
sRtspMode_h264_4=< Control mode H.264(4) >[CR][LF]
ImageCaptureMode=< Image Capture Mode >[CR][LF]
ratio=< Aspect ratio >[CR][LF]
Maxfps=< Max fps >[CR][LF]
StreamMode=< Stream mode >[CR][LF]
StreamEncode=< Encode Type>[CR][LF]
iTransmit_h264=< H.264/H.265 1st stream ON/OFF setting >
sDelivery_h264=< H.264/H.265 1st stream setting >[CR][LF]
iBitrate_h264=< H.264/H.265 1st stream bit rate >[CR][LF]
```


iResolution_h264=< H.264/H.265 1st stream resolution >[CR][LF]
iQuality_h264=< H.264/H.265 1st stream quality >[CR][LF]
iMultiAuto_h264=< Multicast auto H.264(1)/H.265(1) >[CR][LF]
iTransmit_h264_2=< H.264/H.265 2nd stream ON/OFF setting >
sDelivery_h264_2=< H.264/H.265 2nd stream setting >[CR][LF]
iBitrate_h264_2=< H.264/H.265 2nd stream bit rate >[CR][LF]
iResolution_h264_2=< H.264/H.265 2nd stream resolution >[CR][LF]
iQuality_h264_2=< H.264/H.265 2nd stream quality >[CR][LF]
iMultiAuto_h264_2=< Multicast auto H.264(2) /H.265(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 | XXXXXXXXXX | 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 | 2 | Fixed value (2: AAC) |
| aBitrate | 128,96,64 | Bit rate setting of audio |
| aBitrate2 | 64 | Fixed value |
| aInterval | 20 | Fixed value |
| aOutInterval | 640 | Fixed value |
| aOutPort | 34004 | Fixed value |
| aOutStatus | off | Fixed value |
| aOutUID | 0 | Fixed value |
| alnPort_h264 | 1024 to 50000 | H.264(1)/H.265 Audio reception port number |
| alnPort_h264_2 | 1024 to 50000 | H.264(2) Audio reception port number |

| | | |
|--------------------|-------------------------------|--|
| alnPort_h264_3 | 1024 to 50000 | H.264(3) Audio reception port number |
| alnPort_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 |
| StreamEncode | 1, 2 | 1 : H.264 2 : H.265 |
| 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)/H.265(1) |
| iResolution_h264 | 320, 640, 1280, 1920, 3840 | Horizontal resolution setting of H.264(1)/H.265(1) |
| iQuality_h264 | fine, low | Image quality setting of H.264(1)/H.265(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. Camera-specific Information (Capability) Acquisition

Method : POST, GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|-------------------------|----------------|-----------------|-------------------------------|
| Camera-specific information (Capability) acquisition | /cgi-bin/get_capability | - | - | Explained under the next item |

Usage example) Camera-specific information (Capability) acquisition

http://192.168.0.10/cgi-bin/get_capability

The description of the response data is as shown below.

| Group name | Parameter name | Parameter value | Description |
|--|--------------------|--|--|
| common | capability_version | 1.00 | Version of the capability format |
| | category | camera | Category |
| video_server.basic | type | dome | Product shape |
| | fisheye | no | Fisheye camera |
| video_server.basic.analogu e_input | supported | ntsc,pal | Supported video signals of the analog camera (encoder) |
| video_server.peripheral.io | number | - | Not supported |
| video_server.image.sensor | aspect_ratio | 16_9 | Aspect ratio of sensor |
| | sd | - | Not supported |
| | fog | - | Not supported |
| | hlc | - | Not supported |
| video_server.image | format | jpeg, mjpeg, h264, h265 | Supported image transmission format |
| | mode | 2m_r16_9 | Supported imaging mode |
| video_server.image.jpeg | resolution | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Resolution parameters supported in the JPEG1 shot |
| | quality | 0 to 9 | Image quality parameters supported in the JPEG1 shot |
| video_server.image.jpeg.res olution_each_mode | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Transmission-enabled JPEG resolution |
| video_server.image.jpeg.res olution_each_mode_all | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360, | Transmission-enabled JPEG resolution |

| Group name | Parameter name | Parameter value | Description |
|---|----------------|--|---|
| | | 320x180 | |
| video_server.image.jpeg.max_size | 3840x2160 | 1920,1920,1920,1920,1920,860,860,860,860,860 | Max. data size of one JPEG image per resolution Unit [Kbyte] |
| | 1920 x 1080 | 240,240,240,240,240,120,120,120,120,120 | Values are separated by a comma and enumerated Configuration: <Value 1>,<Value 2>,<Value 3>,<Value 4>,<Value 5>,<Value 6>, ..., <Value (n)>, .. |
| | 1280 x 720 | 180,180,180,180,180,90,90,90,90,90 | When video_server.image.jpeg.quality (JPEG image quality setting parameter) is 0,1,2,3,4,5,6,7,8,9, it indicates the below-mentioned meaning. |
| | 640 x 360 | 60,60,60,60,60,30,30,30,30,30 | <Value 1>: Max. data size when the JPEG image quality setting is "0" <Value 2>: Max. data size when the JPEG image quality setting is "1" ... |
| | 320 x 180 | 30,30,30,30,30,15,15,15,15,15 | <Value 10>: Max. data size when the JPEG image quality setting is "9" |
| video_server.image.mjpeg | resolution | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Resolution parameters supported in the JPEG stream |
| | quality | 0 to 9 | Image quality parameters supported in the JPEG stream |
| | framerate | 1 to 30 | Frame rates supported in the JPEG stream Rounded down to the nearest whole number NTSC: 1 to 30 PAL: 1 to 25 |
| video_server.image.mjpeg.max_framerate | 2m_r16_9 | 30 | Max. frame rate of JPEG stream |
| video_server.image.mjpeg.resolution_each_mode | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Setting-enabled JPEG resolution |
| video_server.image.mjpeg.resolution_each_mode_all | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360, | Setting-enabled JPEG resolution |

| Group name | Parameter name | Parameter value | Description |
|--|----------------|--|---|
| | | 320x180 | |
| video_server.image.h264 | resolution | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Resolution parameters supported in H.264(1) |
| | stream_mode | bitrate, framerate, best_effort | Transmission modes supported in H.264(1) |
| | quality | fine, normal | Image quality parameters supported in H.264(1) |
| | bandwidth | 512,768,1024,153 6,2048,3072,4096 ,6144,8192,10240 ,12288,12800, 14336,16384, 20480,24576, 25600, 51200, 76800 | Bit rate parameters supported in H.264(1) |
| | framerate | 5,15(12.5),24(*1), 30(25),60(50) | Frame rate parameters supported in H.264(1) * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| video_server.image.h264.resolution_each_mode | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360, 320x180 | Supported H.264(1) resolutions |
| video_server.image.h264.max_framerate | 2m_r16_9 | 60 | Supported max. H.264(1) frame rate |
| video_server.image.h264-2 | Same as H264-1 | | |
| video_server.image.h264-2.resolution_each_mode | | | |
| video_server.image.h264-2.max_framerate | | | |
| video_server.image.h264-3 | | | |
| video_server.image.h264-3.resolution_each_mode | | | |
| video_server.image.h264-3.max_framerate | | | |
| video_server.image.h264-4 | | | |
| video_server.image.h264-4.resolution_each_mode | | | |
| video_server.image.h264-4. | | | |

| Group name | Parameter name | Parameter value | Description |
|---|----------------|--|---|
| max_framerate | | | |
| video_server.image.h265 | resolution | 3830x2160, 1920x1080, 1280x720, 640x360 | Resolution parameters supported in H.265 |
| | bandwidth | 512,768,1024,153 6,2048,3072,4096 ,6144,8192,10240 ,12288,12800,143 36,16384,20480,2 4576,25600,5120 0,76800 | Bitrate parameters supported in H.265 |
| | framerate | 24(*1),30(25) ,60(50) | Frame rate parameters supported in H.265 * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| video_server.image.h265, resolution_each_mode | 2m_r16_9 | 3840x2160, 1920x1080, 1280x720, 640x360 | Supported H.265(2) resolution |
| video_server.image.h265.max_framerate | 2m_r16_9 | 60 | Supported max H.265(2) frame rate |
| video_server.image.h265-2 | resolution | 1920x1080, 1280x720, 640x360 | Resolution parameters supported in H.265(2) |
| | bandwidth | 512,768,1024,153 6,2048,3072,4096 ,6144,8192,10240 ,12288, 14336,16384,204 80,24576 | Bitrate parameters supported in H.265(2) |
| | framerate | 24(*1),30(25),60(50) | Frame rate parameters supported in H.265(2) * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| video_server.image.h265, resolution_each_mode | 2m_r16_9 | 1920x1080, 1280x720, 640x360 | Supported H.265(2) resolution |
| video_server.image.h265.max_framerate | 2m_r16_9 | 60 | Supported max H.265(2) frame rate |
| video_server.audio | transmission | input | Audio transmission setting mode |
| video_server.audio.audio_in | number | 1 | Audio microphone input number |

| Group name | Parameter name | Parameter value | Description |
|----------------------------|----------------|---|---|
| put | encode_type | aac-1c_64K aac-1c_96K aac-1c_128K | Supported audio input encoding type |
| video_server.network | nw_bandwidth | 0(unlimited) | Parameters supported in the overall transmission volume setting |
| video_server.network.ipv6 | supported | yes | IPv6 support status |
| video_server.network.https | supported | yes | HTTPS (SSL) support status |
| video_server.vmd | supported | no | VMD support status |

2.4. 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 | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | 1 fps 5 fps 15 (12.5) fps 30 (25) fps The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | resolution | 320 640 1280 1920 3840 | 320: 320 x 180 640: 640 x 360 1280: 1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 |
| | | UID | Numeric value | User ID * UID acquired by /cgi-bin/getuid |
| JPEG image transmission (MJPEG) | /cgi-bin/mjpeg | resolution | 320 640 1280 1920 3840 | 320: 320 x 180 640: 640 x 360 1280: 1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 |
| | | framerate | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | 1 fps 5 fps 15 (12.5) fps 30 (25) fps The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | vcodec | jpeg jpeg_2 jpeg_3 | jpeg:jpeg(1) transmission jpeg:jpeg(2) transmission jpeg:jpeg(3) transmission |
| JPEG image 1 shot request | /cgi-bin/view.cgi | action | Snapshot start stop | snapshot: Acquires one JPEG image start: Starts JPEG transmission stop: Stops JPEG transmission |
| | | vcodec | jpeg jpeg_2 jpeg_3 | jpeg:jpeg(1) transmission jpeg:jpeg(2) transmission jpeg:jpeg(3) transmission |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------------------------|-----------------|----------------|-----------------|------------------------------------|
| Resolution setting for view.cgi | /cgi-bin/aw_ptz | cmd | %23RZL1&res=1 | %23RZL1&res = 1: 320 x 180 setting |
| | | | %23RZL0&res=1 | %23RZL0&res = 1: 640 x 360 setting |
| JPEG image 1 shot request | /cgi-bin/camera | resolution | 320 | 320: 320 x 180 |
| | | | 640 | 640: 640 x 360 |
| | | | 1280 | 1280: 1280 x 720 |
| | | | 1920 | 1920: 1920 x 1080 |
| | | | 3840 | 3840: 3840 x 2160 |
| | | page | Numeric value | Dummy for disabling cache |
| | | vcodec | jpeg | jpeg:jpeg(1) transmission |
| | | | jpeg_2 | jpeg:jpeg(2) transmission |
| | | | jpeg_3 | jpeg:jpeg(3) transmission |

[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>

Usage example) When acquiring a 320x180 video in 30fps in the JPEG(2) MJPEG format (parameter omitted):

http://192.168.0.10/cgi-bin/mjpeg?resolution=320&framerate=30&vcodec=jpeg_2

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

/cgi-bin/view.cgi

When CGI is called once, only one JPEG image is transmitted.

Before calling, the acquisition of UID with /cgi-bin/getuid is not necessary.

The resolution can be set with the /cgi-bin/aw_ptz?cmd=%23RZLx&res=1 command.

Not supported by other than 1920 x 1080 / 1280 x 720 / 640 x 360 / 320 x 180.

Used when calling a JPEG image without the use of plug-in software in Internet Explorer.

Usage example) When acquiring a 320 x 180 video through a JPEG image 1 shot request:

http://192.168.0.10/cgi-bin/aw_ptz?cmd=%23RZL1&res=1

<http://192.168.0.10/cgi-bin/view.cgi?action=start>

<http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3333>

<Appropriate standby time>

<http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3334>

<Appropriate standby time>

<http://192.168.0.10/cgi-bin/view.cgi?action=snapshot&n=3335>

While the "start" command is mandatory after turning the power supply ON, the "stop" command is not mandatory. The "start" command may be issued any number of times without any problem.

/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.

When the WEB menu/Video over IP/JPEG/JPEG(1)~(3) transmission are OFF, the response may be in the form of a pitch black JPEG image.

As for the resolution and frame rate, the content registered in the WEB menu/Video over IP/JPEG(1)~(3) 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) = 1280 x 720/30 fps, JPEG(2) = 640 x 360/5 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=1280&framerate=15`

=> As instructed, the response is issued by subtracting the frame rate from the content of the 1280 x 720 JPEG(1)

`/cgi-bin/mjpeg?resolution=640&framerate=15`

=> The response is issued with a resolution of 640 x 360, 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.

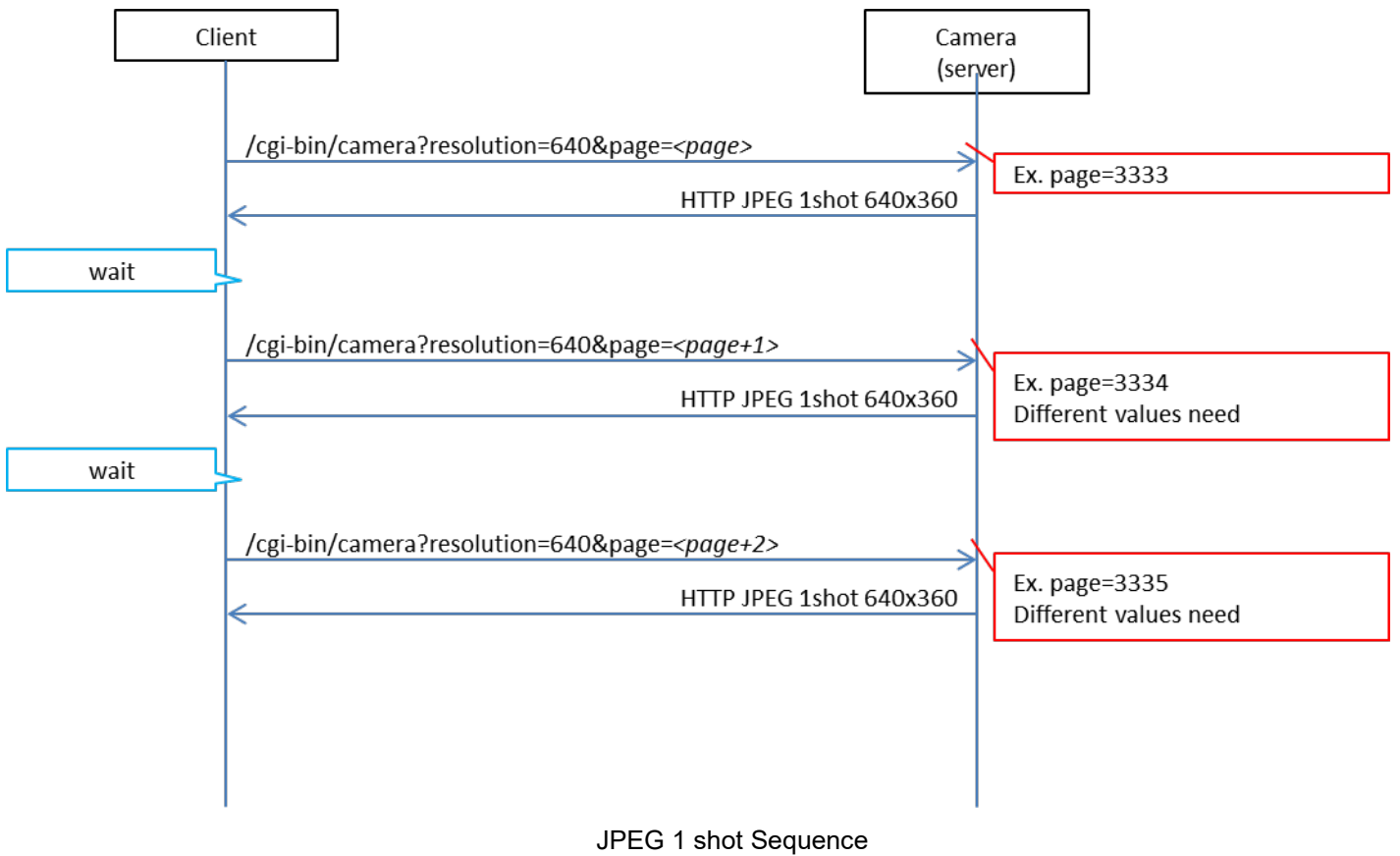
Note that if you use `/cgi-bin/aw_ptz?cmd=%23RZLx&res=1`, the resolution of JPEG(1) changes.

2.5. Image Transmission Sequence based on MJPEG



MJPEG Sequence

2.6. Image Transmission Sequence based on JPEG Image 1 shot



2.7. H264/AUDIO-based Image Transmission

Method : GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|---------------------|----------------|---|---|
| H.264 image transmission | /cgi-bin/h264 | my_port | Numeric value | Reception port number of H.264 * This parameter cannot be omitted if unicast is set. |
| | | connect | start stop | start: Starts H.264 transmission stop: Stops H.264 transmission |
| | | protocol | rtp | rtp: RTP format (can be omitted) |
| | | UID | Numeric value | User ID * UID acquired by /cgi-bin/getuid |
| | | stream | 1 2 3 4 | 1: Stream 1 2: Stream 2 3: Stream 3 4: Stream 4 |
| 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 * UID acquired by /cgi-bin/getuid |
| | | mode | in | in: Fixed |
| 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 |
| | | protocol | rtp http | rtp: RTP transmission http: HTTP transmission |
| | | UID | Numeric value | User ID * UID 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

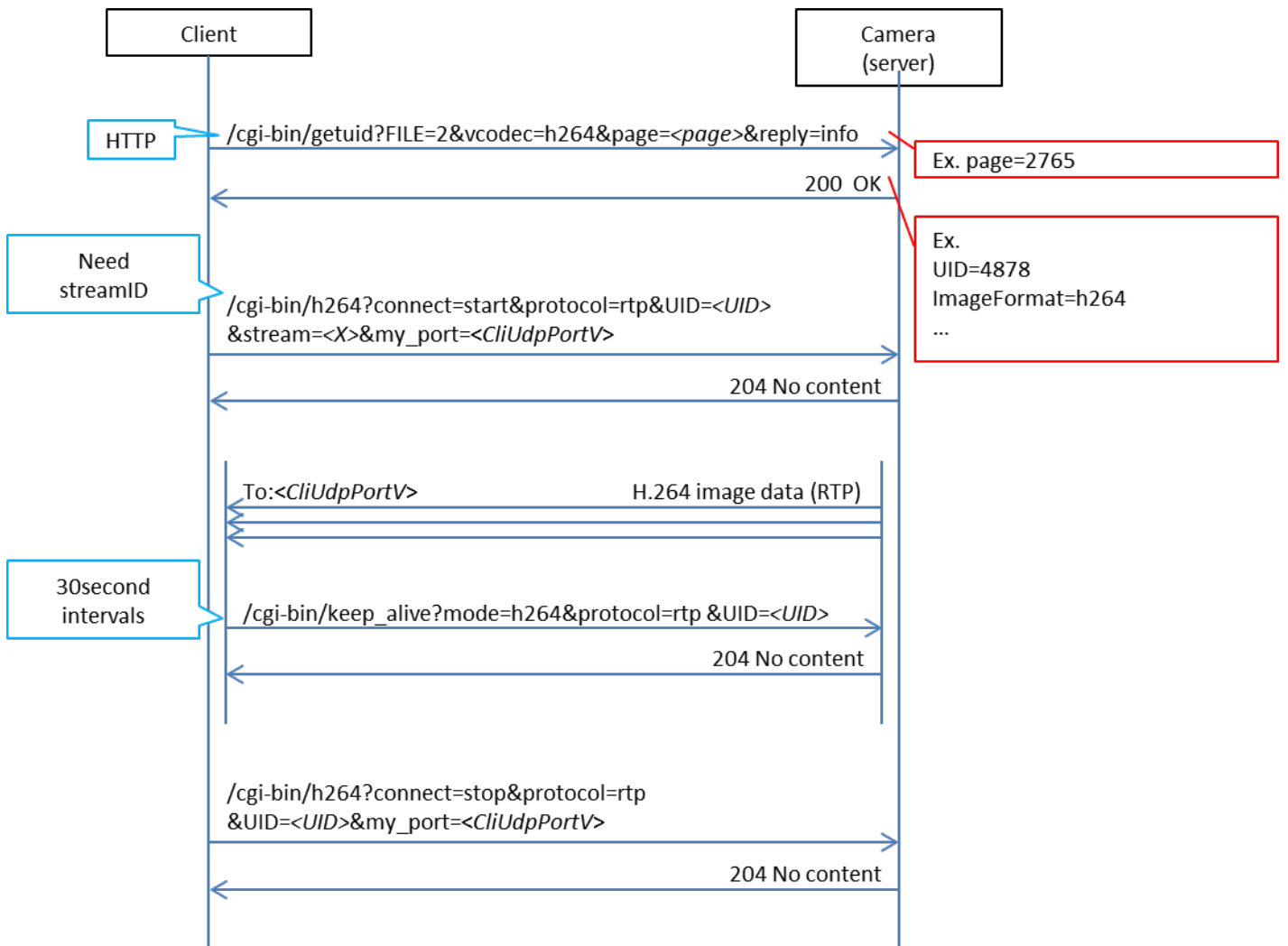
Usage example) Audio transmission start

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

2.8. Unicast Image Transmission Sequence based on H264



H264 Sequence

3. CGI List for Various Settings

3.1. 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=he40

Method : GET

Access level : Admin

| CGI 項目名 | URL | パラメータ名 | パラメータ値 | 説明 |
|------------------------|--------------------------|--------|--------------|----------------------------|
| Streaming mode setting | /cgi-bin/set_stream_mode | mode | h264 | h264 : H.264 |
| | | | h264_uhd | h264_uhd : H.264(4K) |
| | | | h265 | h265 : H.265 |
| | | | h265_uhd | h265_uhd : H.265(4K) |
| | | | rtmp | rtmp : RTMP |
| | | | ndi | ndi : High bandwidth NDI |
| | | | ndi_hx_v2 | ndi_hx_v2:NDI HX version 2 |
| | | | jpeg_uhd | jpeg_uhd:JPEG(UHD) |
| | | | srt_h264 | srt_h264:SRT H.264 |
| | | | srt_h264_uhd | srt_h264_uhd:SRT H.264(4K) |
| | | | srt_h265 | srt_h265:SRT H.265 |
| | | | srt_h265_uhd | srt_h265_uhd:SRT H.265(4K) |
| | | | ts_udp | ts_udp:MPEG2-TS over UDP |

Usage example) Set the streaming mode to H.264

http://192.168.0.10/cgi-bin/set_priority_mode?mode=h264

3.2 Clock Settings

Method : POST

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|----------------|--------------------|----------------|-----------------|---|
| NTP settings | /cgi-bin/time | time_adjust | 0 1 | 0: Manual 1: Synchronized with the NTP server |
| | | 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) |
| Clock settings | /cgi-bin/date_time | display | 0 1 | 0: off 1: on |
| | | date_year | 2013 to 2035 | Year |
| | | date_month | 1 to 12 | Month |
| | | date_day | 1 to 31 | Day |
| | | date_hour | 0 to 23 | Hour |
| | | date_min | 0 to 59 | Minutes |
| | | date_sec | 0 to 59 | Seconds |
| timezone | 1 to 75 | 1 to 75 | | |

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

Usage example) Clock settings

http://192.168.0.10/cgi-bin/date_time?display=0&date_year=2015&date_month=1&date_day=1&date_hour=0&date_min=0&date_sec=0

3.3. 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_quality | 0 to 9 | 0 to 4: High image quality 5 to 9: Low image quality |
| | | jpeg_quality_ch2 | 0 to 9 | 0 to 4: High image quality 5 to 9: Low image quality |
| | | jpeg_quality_ch3 | 0 to 9 | 0 to 4: High image quality 5 to 9: Low image quality |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|--------------------|---|--|
| | | resol_stream1 | 320 640 1280 1920 3840 | 320: 320 x 180 640: 640 x 360 1280: 1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 |
| | | resol_stream2 | 320 640 | 320: 320 x 180 640: 640 x 360 |
| | | resol_stream3 | 320 640 | 320: 320 x 180 640: 640 x 360 |
| | | jpeg_transmit 1 | 0 1 | 0: OFF Do not transmit 1: ON Transmit |
| | | jpeg_transmit 2 | 0 1 | 0: OFF Do not transmit 1: ON Transmit |
| | | jpeg_transmit 3 | 0 1 | 0: OFF Do not transmit 1: ON Transmit |
| | | jpeg_interval1 | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | Frame rate of JPEG(1) 1:1fps 4:4fps 5:5fps 12:12fps 15(12.5):15(12.5)fps 24:24fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | jpeg_interval2 | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | Frame rate of JPEG(2) 1:1fps 4:4fps 5:5fps 12:12fps 15(12.5):15(12.5)fps 24:24fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | jpeg_interval3 | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | Frame rate of JPEG(3) 1:1fps 4:4fps 5:5fps 12:12fps 15(12.5):15(12.5)fps 24:24fps * The values within () are for the case |

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|-------------------|-----------------|---|---|
| | | | | when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| JPEG stream settings | /cgi-bin/setdata | LIVESIZE | 320 640 1280 1920 3840 | Resolution of JPEG(1) 320: 320 x 180 640: 640 x 360 1280: 1280 x 720 1920: 1920 x 1080 3840: 3840 x 2160 |
| | | LIVESIZE2 | 320 640 | Resolution of JPEG(2) 320: 320 x 180 640: 640 x 360 |
| | | LIVESIZE3 | 320 640 | Resolution of JPEG(3) 320: 320 x 180 640: 640 x 360 |
| | | LIVEQUAL1280 | 0 to 9 | Image quality of JPEG(1) 0 to 4: High image quality 5 to 9: Low image quality |
| | | LIVEQUAL640 | 0 to 9 | Image quality of JPEG(2) 0 to 4: High image quality 5 to 9: Low image quality |
| | | LIVEQUAL320 | 0 to 9 | Image quality of JPEG(3) 0 to 4: High image quality 5 to 9: Low image quality |
| 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 3840 | 1280:1280x720 1920: 1920 x 1080 3840: 3840 x 2160 |
| | | f_priority | 0 1 2 | 0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission |
| | | framerate | 5 15(12.5) 24(*1) 30(25) 60(50) | 5: 5 fps 15 (12.5): 15 (12.5) fps 24: 24fps 30 (25): 30 (25) fps 60 (50): 60 (50) fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|--------------------|--------------------|---|
| | | | | 24Hz and 23.98Hz |
| | | h264_bandwidth | 512 | 512:512(kbps) |
| | | | 768 | 768:768(kbps) |
| | | | 1024 | 1024:1024(kbps) |
| | | | 1536 | 1536:1536(kbps) |
| | | | 2048 | 2048:2048(kbps) |
| | | | 3072 | 3072:3072(kbps) |
| | | | 4096 | 4096:4096(kbps) |
| | | | 6144 | 6144:6144(kbps) |
| | | | 8192 | 8192:8192(kbps) |
| | | | 10240 | 10240:10240(kbps) |
| | | | 12288 | 12288:12288(kbps) |
| | | | 14336 | 14336:14336(kbps) |
| | | | 16384 | 16384:16384(kbps) |
| | | | 20480 | 20480:20480(kbps) |
| | | | 24576 | 24576:24576(kbps) |
| | | | h264_bandwidth_min | 12800 |
| | | 25600 | | 25600:25600(kbps) |
| | | 51200 | | 51200:51200(kbps) |
| | | 76800 | | 76800:76800(kbps) |
| | | h264_bandwidth_min | 512 | 512:512(kbps) |
| | | | 768 | 768:768(kbps) |
| | | | 1024 | 1024:1024(kbps) |
| | | | 1536 | 1536:1536(kbps) |
| | | | 2048 | 2048:2048(kbps) |
| | | | 3072 | 3072:3072(kbps) |
| | | | 4096 | 4096:4096(kbps) |
| | | | 6144 | 6144:6144(kbps) |
| | | | 8192 | 8192:8192(kbps) |
| | | | 10240 | 10240:10240(kbps) |
| | | | 12288 | 12288:12288(kbps) |
| | | | 14336 | 14336:14336(kbps) |
| | | | 16384 | 16384:16384(kbps) |
| | | | 20480 | 20480:20480(kbps) |
| | | | 24576 | 24576:24576(kbps) |
| | | | | * Can be set when f_priority = 2 (Best effort transmission) |
| | | h264_bandwidth_min | 12800 | 12800:12800(kbps) |
| | | | 25600 | 25600:25600(kbps) |
| | | | 51200 | 51200:51200(kbps) |
| | | | 76800 | 76800:76800(kbps) |

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|---------------------|--------------------|---|---|
| | | h264_quality | fine low | fine: Image quality priority low: Motion priority |
| | | 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 | |
| | | multicast_addr3 | 0 to 255 | |
| | | multicast_addr4 | 0 to 255 | |
| | | multicast_addr | *.*.* format *.*.*.*.* format | *.*.* format *.*.*.*.* format |
| | | multicast_port | 1024 to 50000 | 1024 to 50000 |
| | | multicast_ttl | 1 to 254 | 1 to 254 |
| H.264(2) stream settings | /cgi-bin/set_h264_2 | h264_transmit | 01 | 0: OFF Do not transmit 1: ON Transmit |
| | | h264_rtsp_mode | 0 1 | Internet mode settings 0: OFF 1: ON |
| | | h264_resolution | 320 640 1280 1920 | 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 |
| | | f_priority | 0 1 2 | 0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission |
| | | framerate | 5 15(12.5) 24(*1) 30(25) 60(50) | 5:5fps 15(12.5):15(12.5)fps 24:24fps 30(25):30(25)fps 60(50):60(50)fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|--------------------|--|--|
| | | h264_bandwidth | 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) 10240:10240(kbps) 12288:12288(kbps) 14336:14336(kbps) 16384:16384(kbps) 20480:20480(kbps) 24576:24576(kbps) |
| | | h264_bandwidth_min | 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) 10240:10240(kbps) 12288:12288(kbps) 14336:14336(kbps) 16384:16384(kbps) 20480:20480(kbps) 24576:24576(kbps) * Can be set when f_priority = 2 (Best effort transmission) |
| | | h264_quality | fine low | fine: Image quality priority low: Motion priority |
| | | 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_address1 | 224 to 239 | 224.0.0.0 - 239.255.255.255 |
| | | multicast_address2 | 0 to 255 | |
| | | multicast_address3 | 0 to 255 | |

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|---------------------|---------------------|--|--|
| | | r3 | | |
| | | multicast_add r4 | 0 to 255 | |
| | | multicast_add r | *.*.* format *.*.*.*.* format format | *.*.* format *.*.*.*.* format |
| | | multicast_port | 1024 to 50000 | 1024 to 50000 |
| | | multicast_ttl | 1 to 254 | 1 to 254 |
| H.264(3) stream settings | /cgi-bin/set_h264_3 | 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 | 320 640 1280 | 320:320x180 640:640x360 1280:1280x720 |
| | | f_priority | 0 1 2 | 0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission |
| | | framerate | 5 15 (12.5) 30 (25) | 5: 5 fps 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 |
| | | h264_bandwidth | 512 768 1024 1536 2048 3072 4096 6144 8192 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) |
| | | h264_bandwidth_min | 512 768 1024 1536 2048 3072 4096 6144 8192 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) * Can be set when f_priority = 2 (Best effort transmission) |

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|---------------------|--------------------|---|--|
| | | h264_quality | fine low | fine: Image quality priority low: Motion priority |
| | | 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 | |
| | | multicast_addr3 | 0 to 255 | |
| | | multicast_addr4 | 0 to 255 | |
| | | multicast_addr | *.*.*.* format *.*.*.*.*.*.*.* format | *.*.*.* format *.*.*.*.*.*.*.* format |
| | | multicast_port | 1024 to 50000 | 1024 to 50000 |
| | | multicast_ttl | 1 to 254 | 1 to 254 |
| H.264(4) stream settings | /cgi-bin/set_h264_4 | 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 | 320 640 1280 | 320:320x180 640:640x360 1280:1280x720 |
| | | f_priority | 0 1 2 | 0: Fixed bit rate 1: Frame rate priority 2: Best effort transmission |
| | | framerate | 5 15 (12.5) 30 (25) | 5: 5 fps 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 |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|-----------------------|--|--|
| | | h264_bandwidth | 512 768 1024 1536 2048 3072 4096 6144 8192 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) |
| | | h264_bandwidth_min | 512 768 1024 1536 2048 3072 4096 6144 8192 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) * Can be set when f_priority = 2 (Best effort transmission) |
| | | h264_quality | fine low | fine: Image quality priority low: Motion priority |
| | | 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 | |
| | | multicast_addr3 | 0 to 255 | |
| | | multicast_addr4 | 0 to 255 | |
| | | multicast_addr | *** format*:*:*:*: :* format | *:*:* format*:*:*:*:* format |
| | | multicast_port | 1024 to 50000 | 1024 to 50000 |
| | | multicast_ttl | 1 to 254 | 1 to 254 |
| | | H.265 stream settings | /cgi-bin/set_h265 | h265_transmit |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|--------------------|--|---|
| | | h265_rtsp_mode | 0 1 | Internet mode settings 0: OFF 1: ON |
| | | h265_resolution | 640 1280 1920 3840 | 640:640x360 1280:1280x720 1920:1920x1080 3840:3840x2160 |
| | | framerate | 24(*1) 30(25) 60(50) | 24:24fps 30(25):30(25)fps 60(50):60(50)fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | h265_bandwidth | 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 12800 14336 16384 20480 24576 25600 51200 76800 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) 10240:10240(kbps) 12288:12288(kbps) 12800:12800(kbps) 14336:14336(kbps) 16384:16384(kbps) 20480:20480(kbps) 24576:24576(kbps) 25600:25600(kbps) 51200:51200(kbps) 76800:76800(kbps) |
| | | h265_unimulti | uni multi uni_manual | uni: unicast(auto) multi: multicast uni_manual: unicast(manual) |
| | | unicast_port | 1024~50000 | Port number: 1024~50000 |
| | | unicast_audio_port | 1024~50000 | Port number: 1024~50000 |
| | | multicast_addr1 | 224~239 | 224.0.0.0 - 239.255.255.255 |
| | | multicast_addr2 | 0~255 | |
| | | multicast_addr3 | 0~255 | |

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|---------------------|-----------------|--|---|
| | | multicast_addr4 | 0~255 | |
| | | multicast_addr | *.*.*format *.*.*.*.*.*.*.*format | *.*.*format *.*.*.*.*.*.*.*format |
| | | multicast_port | 1024~50000 | 1024~50000 |
| | | multicast_ttl | 1~254 | 1~254 |
| | | rtsp_port | 1 to 65535 | 1 to 65535 * Set to 554 according to factory settings |
| H.265(2) stream settings | /cgi-bin/set_h265_2 | h265_transmit | 0 1 | 0: OFF Do not transmit 1: ON Transmit |
| | | h265_rtsp_mode | 0 1 | Internet mode settings 0: OFF 1: ON |
| | | h265_resolution | 640 1280 1920 | 640:640x360 1280:1280x720 1920:1920x1080 |
| | | framerate | 24(*1) 30(25) 60(50) | 24:24fps 30(25):30(25)fps 60(50):60(50)fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| | | h265_bandwidth | 512 768 1024 1536 2048 3072 4096 6144 8192 10240 12288 14336 16384 20480 24576 | 512:512(kbps) 768:768(kbps) 1024:1024(kbps) 1536:1536(kbps) 2048:2048(kbps) 3072:3072(kbps) 4096:4096(kbps) 6144:6144(kbps) 8192:8192(kbps) 10240:10240(kbps) 12288:12288(kbps) 14336:14336(kbps) 16384:16384(kbps) 20480:20480(kbps) 24576:24576(kbps) |
| | | h265_unimulti | uni multi uni_manual | uni: unicast(auto) multi: multicast uni_manual: unicast(manual) |
| | | unicast_port | 1024~50000 | Port number: 1024~50000 |
| | | unicast_audio | 1024~50000 | Port number: 1024~50000 |

| | | | | |
|-----------------------------|--------------------------|--------------------|-------------------------------------|---|
| | | _port | | |
| | | multicast_address1 | 224~239 | 224.0.0.0 - 239.255.255.255 |
| | | multicast_address2 | 0~255 | 224.0.0.0 - 239.255.255.255 *.*.*format *.*.*.*.*format |
| | | multicast_address3 | 0~255 | |
| | | multicast_address4 | 0~255 | |
| | | multicast_address | *.*.* format *.*.*.*.* format | |
| | | multicast_port | 1024~50000 | 1024~50000 |
| | | multicast_ttl | 1~254 | 1~254 |
| High bandwidth NDI settings | /cgi-bin/set_ndi_info | unicast_protocol | tcp udp | tcp :TCP transmit udp :UDP transmit |
| | | multicast_transmit | 0 1 | 0:Off 1:On |
| | | multicast_address | *.*.* format | *.*.* format |
| | | multicast_subnet | *.*.* format | *.*.* format |
| | | multicast_ttl | 1~254 | 1~254 |
| | | group_uses | 0 1 | 0:Disable 1:Enable |
| | | group_name | String | strings : NDI Group (Only single-byte alphanumeric characters) |
| | | server_uses | 0 1 | 0:Disable 1:Enable |
| | | server_addr | *.*.* format | *.*.* format |
| | | source_name | String | String : NDI Source name (single-byte alphanumeric characters, "-", "_", half-width space) |
| NDI HX version2 設定 | /cgi-bin/set_ndi_hx_info | unicast_protocol | tcp udp | tcp:TCP streaming udp:UDP streaming |
| | | multicast_transmit | 0 1 | 0:Off 1:On |
| | | multicast_address | *.*.* fromat | *.*.* format |
| | | multicast_subnet | *.*.* format | *.*.* format |
| | | multicast_ttl | 1~254 | 1~254 |
| | | group_uses | 0 1 | 0:Disable 1:Enable |

| | | | | |
|---------------|-------------------|------------------------|----------------|---|
| | | group_name | String | NDI Group String (Alphanumeric characters) |
| | | server_uses | 0 1 | 0:Disable 1:Enable |
| | | server_addr | *.*.*.* format | *.*.*.* format |
| | | source_name | String | NDI Source name String (Alphanumeric characters, "-", "_", Half width space) |
| RTSP settings | /cgi-bin/set_rtsp | rtsp_port | 1~65535 | 1~65535 * Set to 554 according to factory settings |
| | | h264_rtsp_m ode | 0 1 | Internet mode settings of H264(1) 0: OFF Do not Transmit 1: ON Transmit |
| | | h264_rtsp_m ode2 | 0 1 | Internet mode settings of H264(2) 0: OFF Do not Transmit 1: ON Transmit |
| | | h264_rtsp_m ode3 | 0 1 | Internet mode settings of H264(3) 0: OFF Do not Transmit 1: ON Transmit |
| | | h264_rtsp_m ode4 | 0 1 | Internet mode settings of H264(4) 0: OFF Do not Transmit 1: ON Transmit |
| | | h265_rtsp_m ode | 0 | Internet mode settings of H265 0: OFF Do not Transmit |
| | | h265_rtsp_m ode2 | 0 | Internet mode settings of H265(2) 0: OFF Do not Transmit |
| | | h264_rtsp_re q_uri1 | string | URI for RTSP streaming of H.264(1) |
| | | h264_rtsp_re q_uri2 | string | URI for RTSP streaming of H.264(2) |
| | | h264_rtsp_re q_uri3 | string | URI for RTSP streaming of H.264(3) |
| | | h264_rtsp_re q_uri4 | string | URI for RTSP streaming of H.264(4) |
| | | h265_rtsp_re q_uri1 | string | URI for RTSP streaming of H.265 |
| | | h265_rtsp_re q_uri1 | string | URI for RTSP streaming of H.265 |
| | | h265_rtsp_re q_uri2 | string | URI for RTSP streaming of H.265(2) |

| | | | | |
|---|----------------------------|--------|--|---|
| Live screen initial stream selection | /cgi-bin/set_livest art | stream | h264 h264_2 h264_3 h264_4 jpeg jpeg_2 jpeg_3 | h264:H264(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) |
|---|----------------------------|--------|--|---|

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.

3.4. Audio Settings

Method : POST

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|----------------|--------------------|----------------|-----------------|---|
| Audio settings | /cgi-bin/set_audio | audio_bitrate | 64 96 128 | 64: 64 Kbps 96: 96 Kbps 128: 128 Kbps |
| | | audio_transmit | 0 1 | 0: Off 1: On |

Usage example) Turn ON the Audio Over IP from the device connected to the AUDIO IN terminal.

http://192.168.0.10/cgi-bin/set_audio?audio_transmit=1

3.5. Network Settings

Method : POST

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|------------------|---------------------------|-------------------------------|--|---|
| Network settings | /cgi-bin/network | dhcp | 0 1 | 0: DHCP OFF (Static settings) 1: DHCP ON |
| | | IP_addr1 | 0 to 255 | IP address First octet |
| | | IP_addr2 | 0 to 255 | IP address Second octet |
| | | IP_addr3 | 0 to 255 | IP address Third octet |
| | | IP_addr4 | 0 to 255 | IP address Fourth octet |
| | | netmask1 | 0 to 255 | Subnet mask First octet |
| | | netmask2 | 0 to 255 | Subnet mask Second octet |
| | | netmask3 | 0 to 255 | Subnet mask Third octet |
| | | netmask4 | 0 to 255 | Subnet mask Fourth octet |
| | | gateway1 | 0 to 255 | Default gateway First octet |
| | | gateway2 | 0 to 255 | Default gateway Second octet |
| | | gateway3 | 0 to 255 | Default gateway Third octet |
| | | gateway4 | 0 to 255 | Default gateway Fourth octet |
| | | port | 1 to 65535 | 1 to 65535 |
| | | dns | manual auto | manual: Manual setting auto: Auto setting |
| | | pri_server | *.*.*.*.*.*.*.* format or *.*.*.* format | Primary server address (DNS) IPv4, IPv6 Only |
| | | sec_server | *.*.*.*.*.*.*.* format or *.*.*.* format | Secondary server address (DNS) IPv4, IPv6 Only |
| | | ip6_auto | 0 1 | IPv6 address manual setting 1: off 0: on |
| | | ip6_addr | *.*.*.*.*.*.*.* format | IP address |
| | | ip6_gateway | *.*.*.*.*.*.*.* format | Default gateway |
| ip6_pri_server | *.*.*.*.*.*.*.* format | Primary server (IPv6 only) | | |
| ip6_sec_server | *.*.*.*.*.*.*.* format | Secondary server (IPv6 only) | | |
| ip6_dhcp | 0 1 | 0: DHCPv6 OFF 1: DHCPv6 ON | | |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------------------------------|------------------------|----------------|----------------------|--|
| | | 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 |
| | | bandwidth | 0 | Transmission volume of entire network 0: Unlimited |
| 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 |
| Transmission volume of entire network | /cgi-bin/set_bandwidth | bandwidth | 0 | Transmission volume of entire network 0: Unlimited |
| Max. packet length settings | /cgi-bin/set_rtp | rtp_size | 1280 1500 | 1280: Max. packet length limit 1500: Normal packet length |

Usage example) Change the IP address to 192.168.0.30

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

3.6. Virtual Studio Settings

Method :GET

Access level :live

| CGI item name | URL | Parameter name | Parameter value | Description |
|-------------------------------|----------------------------------|---------------------|--|---|
| Virtual StudioClient Settings | /cgi-bin/set_virtual_client_info | client_1_trans port | 0 1 | 0: Regular notification of Camera status is OFF 1: Regular notification of Camera status is ON |
| | | client_1_ipad dr | *.*.*.*format *.*.**/Mask length format | *.*.*.* format *.*.**/Mask length format (Up to 128 single-byte alphanumeric characters) |
| | | client_1_port | Numeric Value | Port Number |
| | | client_2_trans port | 0 1 | 0: Regular notification of Camera status is OFF 1: Regular notification of Camera status is ON |
| | | client_2_ipad dr | *.*.*.*format *.*.**/Mask length format | *.*.*.* format *.*.**/Mask length format (Up to 128 single-byte alphanumeric characters) |
| | | client_2_port | Numeric Value | Port Number |
| | | client_3_trans port | 0 1 | 0: Regular notification of Camera status is OFF 1: Regular notification of Camera status is ON |
| | | client_3_ipad dr | *.*.*.*format *.*.**/Mask length format | *.*.*.* format *.*.**/Mask length format (Up to 128 single-byte alphanumeric characters) |
| | | client_3_port | Numeric Value | Port Number |
| | | client_4_trans port | 0 1 | 0: Regular notification of Camera status is OFF 1: Regular notification of Camera status is ON |
| | | client_4_ipad dr | *.*.*.*format *.*.**/Mask length format | *.*.*.* format *.*.**/Mask length format (Up to 128 single-byte alphanumeric characters) |
| | | client_4_port | Numeric Value | Port Number |

Usage example) Setting Virtual Studio Client info

`http://192.168.0.10/cgi-bin/set_virtual_client_info?client_1_transport=1&client_1_ipaddr=192.168.0.11&client_1_port=1111&client_2_transport=1&client_2_ipaddr=192.168.0.12&client_2_port=1112&client_3_transport=1&client_3_ipaddr=192.168.0.13&client_3_port=1113&client_4_transport=1&client_4_ipaddr=192.168.0.14&client_1_port=1114`

3.7. 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 |

Usage example) Set UPnP to ON

http://192.168.0.10/cgi-bin/upnp?upnp_portmap=1

3.8. Restarting

Method : POST

Access level : Admin

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

Usage example) Restarting the remote camera

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

4. CGI List for Acquisition of Different Types of Information

4.1. Basic Settings Information Acquisition

Method : GET

Access level : Live

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

The response data is as shown below.

cam_title = Camera title

plugin_download = enable/disable

plugin_disp = 0/1

4.2. NTP Settings Information Acquisition

Method : GET

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------------------|-------------------|----------------|-----------------|-------------|
| NTP settings information acquisition | /cgi-bin/get_time | | | |

The response data is as shown below.

time_adjust = 0/1

ntp_addr_dhcp = 0/1

ntp_addr = String

ntp_port = Numeric value (1 to 65535)

ntp_interval = Numeric value (1 to 24)

4.3. Clock Settings Information Acquisition

Method : GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|------------------------|----------------|-----------------|-------------|
| Clock settings information acquisition | /cgi-bin/get_date_time | | | |

The response data is as shown below.

display = 0/1
date_year = Numeric value
date_month = Numeric value
date_day = Numeric value
date_hour = Numeric value
date_min = Numeric value
date_sec = Numeric value
timezone = Numeric value (1 to 74)

4.4. Streaming Mode Acquisition

Method : GET

Access level : Live

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

The response data is as shown below.

stream_mode = xxx
* For details on the value notified by xxx, see the parameters of set_stream_mode.

4.5. VideoOverIP Screen Information Acquisition

Method : GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|----------------------------|----------------|-----------------|--|
| VideoOverIP screen information acquisition | /cgi-bin/get_video_over_ip | | | <ul style="list-style-type: none"> The response is issued in a random order If transmission to a specific ch is not possible due to the specifications, the response for the desired ch is not returned <p>Example) If transmission to h264 (ch4) is not possible, h264_xxxxx_ch4 is not included in the response.</p> |

The response data is as shown below.

```

livestart_stream=h264/h264_2/h264_3/h264_4/jpeg/jpeg_2/jpeg_3
jpeg_quality=1/5
jpeg_quality_ch2=1/5
jpeg_quality_ch3=1/5
resol_stream1=320/640/1280/1920/3840
resol_stream2=320/640/1280
resol_stream3=320/640/1280
jpeg_transmit1=0/1
jpeg_transmit2=0/1
jpeg_transmit3=0/1
jpeg_interval1=1/4/5/12/15(12.5)/24/30(25)
jpeg_interval2=1/4/5/12/15(12.5)/24/30(25)
jpeg_interval3=1/4/5/12/15(12.5)/24/30(25)
h264_transmit_ch1=0/1
h264_transmit_ch2=0/1
h264_transmit_ch3=0/1
h264_transmit_ch4=0/1
h264_rtsp_mode_ch1=0/1
h264_rtsp_mode_ch2=0/1
h264_rtsp_mode_ch3=0/1
h264_rtsp_mode_ch4=0/1
h264_resolution_ch1=1920/3840
h264_resolution_ch2=320/640/1280/1920
h264_resolution_ch3=320/640/1280
h264_resolution_ch4=320/640/1280
h264_f_priority_ch1=0/1/2
h264_f_priority_ch2=0/1/2
h264_f_priority_ch3=0/1/2

```

h264_f_priority_ch4=0/1/2
h264_framerate_ch1=5/15(12.5)/24/30(25)/60(50)
h264_framerate_ch2=5/15(12.5)/24/30(25)/60(50)
h264_framerate_ch3=5/15(12.5)/30(25)
h264_framerate_ch4=5/15(12.5)/30(25)
h264_bandwidth_ch1 = Numeric value
h264_bandwidth_ch2 = Numeric value
h264_bandwidth_ch3 = Numeric value
h264_bandwidth_ch4 = Numeric value
h264_bandwidth_min_ch1 = Numeric value
h264_bandwidth_min_ch2 = Numeric value
h264_bandwidth_min_ch3 = Numeric value
h264_bandwidth_min_ch4 = Numeric value
h264_quality_ch1=fine/low1/5
h264_quality_ch2=fine/low1/5
h264_quality_ch3=fine/low1/5
h264_quality_ch4=fine/low1/5
h264_unimulti_ch1=uni/multi/uni_manual
h264_unimulti_ch2=uni/multi/uni_manual
h264_unimulti_ch3=uni/multi/uni_manual
h264_unimulti_ch4=uni/multi/uni_manual
h264_unicast_port_ch1 = Numeric value (1024 to 50000)
h264_unicast_port_ch2 = Numeric value (1024 to 50000)
h264_unicast_port_ch3 = Numeric value (1024 to 50000)
h264_unicast_port_ch4 = Numeric value (1024 to 50000)
h264_unicast_audio_port_ch1 = Numeric value (1024 to 50000)
h264_unicast_audio_port_ch2 = Numeric value (1024 to 50000)
h264_unicast_audio_port_ch3 = Numeric value (1024 to 50000)
h264_unicast_audio_port_ch4 = Numeric value (1024 to 50000)
h264_multicast_addr_ch1=xxx.xxx.xxx.xxx
h264_multicast_addr_ch2=xxx.xxx.xxx.xxx
h264_multicast_addr_ch3=xxx.xxx.xxx.xxx
h264_multicast_addr_ch4=xxx.xxx.xxx.xxx
h264_multicast_port_ch1 = Numeric value (1024 to 50000)
h264_multicast_port_ch2 = Numeric value (1024 to 50000)
h264_multicast_port_ch3 = Numeric value (1024 to 50000)
h264_multicast_port_ch4 = Numeric value (1024 to 50000)
h264_multicast_ttl_ch1 = Numeric value (1 to 254)
h264_multicast_ttl_ch2 = Numeric value (1 to 254)
h264_multicast_ttl_ch3 = Numeric value (1 to 254)
h264_multicast_ttl_ch4 = Numeric value (1 to 254)
h265_transmit_ch1=0/1
h265_rtsp_mode_ch1=0
h265_resolution_ch1=640/1280/1920/3840
h265_framerate_ch1=24/30(25)/ 60(50)
h265_bandwidth_ch1= Numeric value
h265_unimulti_ch1=uni/multi/uni_manual
h265_unicast_port_ch1= Numeric value (1024~50000)

h265_unicast_audio_port_ch1= Numeric value (1024~50000)
 h265_multicast_addr_ch1=xxx.xxx.xxx.xxx
 h265_multicast_port_ch1= Numeric value (1024~50000)
 h265_multicast_ttl_ch1= Numeric value (1~254)
 h265_transmit_ch2=0/1
 h265_rtsp_mode_ch2=0
 h265_resolution_ch2=640/1280/1920
 h265_framerate_ch2=24/30(25)/60(50)
 h265_bandwidth_ch2=Numeric value
 h265_unimulti_ch2=uni/multi/uni_manual
 h265_unicast_port_ch2= Numeric value (1024~50000)
 h265_unicast_audio_port_ch2= Numeric value (1024~50000)
 h265_multicast_addr_ch2=xxx.xxx.xxx.xxx
 h265_multicast_port_ch2= Numeric value (1024~50000)
 h265_multicast_ttl_ch2= Numeric value (1~254)

4.6. High bandwidth NDI Information Acquisition

Method : GET
 Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|-----------------------|----------------|-----------------|-------------|
| High bandwidth NDI information Acquisition | /cgi-bin/get_ndi_info | | | |

The response data is as shown below

```

image_size=2160_5994/2160_2997/2160_50/2160_25/2160_24/2160_2398/1080_5994/1080_2997/1080_50/1080_25/1080_24/1080_2398/720_5994/720_50
unicast_protocol=tcp(TCP)/udp(UDP)
multicast_transmit=0(Off)/1(On)
multicast_addr=***.***.***.***
multicast_subnet=***.***.***.***
multicast_ttl=Numeric value
group_uses=0(Disable)/1(Enable)
group_name=String
server_uses=0(Disable)/1(Enable)
server_addr=***.***.***.***
source_name=String
  
```

4.7. NDI|HX version2 Settings Information Acquisition

Method :GET

Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|---|------------------------------|----------------|-----------------|-------------|
| NDI HX version2 Information acquisition | /cgi-bin/get_ndi_ hx_info | | | |

The response data is as shown below

image_size=1080_5994/1080_2997/1080_50/1080_25/1080_24/1080_2398/720_5994/720_50

unicast_protocol=tcp(TCP)/udp(UDP)

multicast_transmit=0(Off)/1(On)

multicast_addr=***.***.***.***

multicast_subnet=***.***.***.***

multicast_ttl=Numeric value

group_uses=0(Disable)/1(Enable)

group_name=String

server_uses=0(Disable)/1(Enable)

server_addr=***.***.***.***

source_name=String

4.8. Audio Settings Information Acquisition

Method : GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|--------------------|----------------|-----------------|-------------|
| Audio settings information acquisition | /cgi-bin/get_audio | | | |

The response data is as shown below.

audio_transmit=0/1

audio_bitrate=64/96/128

4.9. Virtual Studio Client Settings Information Acquisition

Method : GET

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|----------------------------------|----------------|-----------------|-------------|
| Virtual Studio Client Settings information acquisition | /cgi-bin/get_vstudio_client_info | | | |

The response data is as shown below.

client_1_transport=1(Transport is enable) or 0(Transport is unable)

client_1_ipaddr=*****

client_1_port=***

client_2_transport=1 or 0

client_2_ipaddr=*****

client_2_port=***

client_3_transport=1 or 0

client_3_ipaddr=*****

client_3_port=***

client_4_transport=1 or 0

client_4_ipaddr=*****

client_4_port=***

4.10. Host Authentication Settings Information Acquisition

Method : GET
 Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|-----------------------|----------------|-----------------|-------------|
| Host authentication settings information acquisition | /cgi-bin/get_reg_host | | | |

The response data is as shown below.

```
host = 0/1
host_addr1 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr2 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr3 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr4 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr5 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr6 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr7 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr8 = *.*.* format/*.*.**/Mask length format, level = 1/2
host_addr9 = *.*.* format/*.*.**/Mask length format, level = 1/2
```

4.11. Network Settings Information Acquisition

Method : GET
 Access level : Admin

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

The response data is as shown below.

```
ip4_dhcp=0/1
ip4_addr=.*.*.*
ip4_netmask=.*.*.*
ip4_gateway=.*.*.*
dns=auto/manual
ip4_pri_server=.*.*.*
ip4_sec_server=.*.*.*
ip6_auto=0/1
ip6_addr=.*.*.*.*.*.*
ip6_gateway=.*.*.*.*.*.*
ip6_dhcp=0/1
```


4.14. System Log Information Acquisition

Method : GET
Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|----------------------------|----------------|------------------------------|--|
| System log | /cgi-bin/get_syst emlog | type | eventlog errorlog | eventlog: Event log errorlog: Error log |
| | | num | Numeric value (1 to 1000) | Acquisition number |
| | | index | Numeric value (1 to 1000) | Acquisition start position |

The response data is as shown below.

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

-
-
-

* No line feed.

A "\" is entered between two parameters.

A "\$" is entered between numbers, such as between No. 1 and No. 2.

4.15. UPnP Execution Results Acquisition

Method : GET
Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------|-------------------------|----------------|-----------------|-----------------------|
| Status acquisition | /cgi-bin/get_statu s | - | - | UPnP execution result |

The response data is as shown below.

```
http_port = Numeric value  
http_status = enable/disable  
https_port = Numeric value  
https_status = enable/disable  
addr = String
```

4.16. Preset Position Information Acquisition

Method : GET
Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---|---------------------|----------------|-----------------|---|
| Preset position information acquisition | /cgi-bin/get_preset | command | list | list: Preset position registration status acquisition |

The response data is as shown below.

```

PRESET_POSITION_REGISTRATION = String
HOME = 0
POS11_ID = xxx
POS12_ID = xxx
.
.
.
POS1100ID = xxx

```

4.17. Preset Thumbnail Acquisition

Method :GET
Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|------------------------------|-------------------------------|----------------|-----------------------|--|
| Preset Thumbnail Acquisition | /cgi-bin/get_preset_thumbnail | preset_number | Numeric value (1~100) | Numeric number : Specify the preset number of the thumbnail to be acquired |

4.18. RTSP Setting Information Acquisition

Method :GET
Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------------------|-------------------|----------------|-----------------|-------------|
| RTSP Setting Information Acquisition | /cgi-bin/get_rtsp | | | |

The response data is as shown below.

```

rtsp_port=Numeric value (1~65535)
h264_rtsp_req_uri1=string
h264_rtsp_req_uri2=string
h264_rtsp_req_uri3=string

```

h264_rtsp_req_uri4=string

h265_rtsp_req_uri1=string

h265_rtsp_req_uri2=string

4.19. Other Setting Values 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 |
| | | | livesize | livesize: JPEG(1) image resolution |
| | | | livequal | livequal: JPEG(1) image quality |
| | | | livesize2 | livesize: JPEG(2) image resolution |
| | | | livequal2 | livequal: JPEG(2) image quality |
| | | | livesize3 | livesize: JPEG(3) image resolution |
| | | | livequal3 | livequal: JPEG(3) image quality |
| | | | h264 | H264(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 |
| | | | h264bwcmmin | 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 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 | | | |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|----------------|-----------------|---|
| | | | | 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 (1 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 | h.264mladd3_2: h.264 multicast address Third octet 2 |
| | | | h264mladd4_2 | h.264mladd4_2: h.264 multicast address Fourth octet 2 |
| | | | h264mlport_2 | h.264mlport_2: h.264 multicast transmission destination port number 2 |
| | | | h264mlttl_2 | h.264mlttl_2: h.264 multicast TTL2 |
| | | | h.264uniport_2 | h.264uniport_2: Unicast (for video) port number 2 |
| | | | h264uniport2_2 | h.264uniport2_2: Unicast (for audio) port number 2 |
| | | | h264profile_2 | H.264 profile 2 |
| | | | h264codind_2 | H.264 encoding system 2 |
| | | | h264_3 | h.264_2: h.264 transmission |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|----------------|-----------------|---|
| | | | | 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 (1 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 | h.264mladd3_3: h.264 multicast address Third octet 3 |
| | | | h264mladd4_3 | h.264mladd4_3: h.264 multicast address Fourth octet 3 |
| | | | h264mlport_3 | h.264mlport_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 (1 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 | h.264mladd3_4: h.264 multicast address Third octet 4 |
| | | | h264mladd4_4 | h.264mladd4_4: h.264 multicast address Fourth octet 4 |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|----------------|-----------------|---|
| | | | h264mlport_4 | h264mlport_4: h264 multicast transmission destination port number 4 |
| | | | h264mlttl_4 | h264mlttl_4: h264 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 | H264(1) multicast auto start |
| | | | h264mlauto_2 | H264(2) multicast auto start |
| | | | h264mlauto_3 | H264(3) multicast auto start |
| | | | h264mlauto_4 | H264(4) multicast auto start |
| | | | audio_level | audio_level: Audio authorization and authentication level setting |
| | | | audio_sens | audio_sens: Sound collection sensitivity |
| | | | 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_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 |
| | | | nrh264size_4 | nrh264size_4: H.264 resolution 4 at which transmission does not stop |
| | | | nrh264qual_4 | nrh264qual_4: H.264 image quality 4 at which transmission does not stop |
| | | | h264fpriority | h264fpriority: H.264(1) transmission mode |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|-----|----------------|-----------------------|---|
| | | | 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 |
| | | | h264bwcmmin_2 | H.264(2) Bit rate per client (minimum) |
| | | | h264bwcmmin_3 | H.264(3) Bit rate per client (minimum) |
| | | | h264bwcmmin_4 | H.264(4) Bit rate per client (minimum) |
| | | | livequalbase | JPEG default image quality |
| | | | liveframerate | Live screen initial frame rate (JPEG) |
| | | | plugin_half_tone_jpeg | Enabling/disabling of half-tone function for JPEG images in Active X |
| | | | plugin_half_tone_h264 | Enabling/disabling of half-tone function for H.264 movies in Active X |
| | | (None) | - | If there is no parameter specification, issue the list of setting data in a batch, as the response. |

For details, see "Acquiring the List of Setting Values".

5. CGI List for HTTPS Control

5.1. 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 confirmation delete: Delete |
| HTTPS CA certificate | https_signed | mode | get_info delete | get_info: Information confirmation delete: Delete |
| 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_mode | 0 1 | HTTPS connection mode 0: TLS1.2 1: TLS1.0/1.1/1.2/1.3 2: TLS1.3 |
| 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: 1024 bit 2048: 2048 bit |

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|---------|----------------|---|--|
| 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 |

5.2. Information Acquisition

Method : GET

Access level : Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--|-----------------------|----------------|-----------------|-------------|
| HTTPS settings information acquisition | /cgi-bin/get_https | | | |
| HTTPS CRT key information acquisition | /cgi-bin/get_cert_key | | | |

It is recommended to implement the HTTPS settings through GUI from the WEB menu.
Some models may not have the HTTPS function.

6. CGI List for TSL5.0 Control

6.1. TSL5.0 Setting

Method : GET

Access level : Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|----------------|-----------------------|----------------|-----------------|-------------|
| TSL5.0 Setting | /cgi-bin/set_ssl_info | index | Numeric value | 0 ~ 65534 |
| | | port | Numeric value | 1 ~ 65535 |

6.2. TSL5.0 Setting Aquisition

Method :GET
Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------------------|-----------------------|----------------|-----------------|-------------|
| TSL5.0 Setting Aquisition | /cgi-bin/get_tsl_info | | | |

The response data is as shown below.
index=Numeric value(0~65534)
port=Numeric value(1~65535)

7. CGI List for mDNS Control

7.1.mDNS Setting

Method :GET
Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------|------------------------|----------------|-----------------|-------------|
| mDNS Setting | /cgi-bin/set_mdns_host | host_name | String | |

7.2.mDNS Setting Aquisition

Method :GET
Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------|------------------------|----------------|-----------------|-------------|
| mDNS Setting Acquisition | /cgi-bin/get_mdns_host | | | |

The response data is as shown below.
index=string

8. CGI List for RTMP Control

8.1. RTMP Stream control

Method :GET

Access level :Live

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

8.2. RTMP Stream Status Aquisition

Method :GET

Access level :Live

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

The response data is as shown below.

status = Numeric value (0/1)

8.3. RTMP Server Setting

Method :GET

Access level :Admin

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

8.4. RTMP Server Setting Acquisition

Method :GET
Access level :Admin

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

The response data is as shown below

type = 0/1
url = String
key = String

9. CGI List for MPEG2-TS over UDP Control

9.1. MPEG2-TS over UDP Stream Control

Method :GET
Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|----------------------------------|------------------|----------------|-----------------|--|
| MPEG2-TS over UDP Stream Control | /cgi-bin/ts_ctrl | cmd | start stop | start:MPEG2-TS over UDP stream start stop:MPEG3-TS over UDP stream stop |

9.2. MPEG2-TS over UDP S Stream Status Acquisition

Method :GET
Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|---|------------------------|----------------|-----------------|---------------------------------------|
| MPEG2-TS over UDP Stream Status Acquisition | /cgi-bin/get_ts_status | | | 0:Stream suspended 1:During Stream |

The response data is as shown below.
 status=Numeric value(0/1)

9.3. MPEG2-TS over UDP Setting

Method :GET
 Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---------------------------|--------------------------|----------------|-----------------|--|
| MPEG2-TS over UDP Setting | /cgi-bin/set_ts_udp_info | transmission | 0 1 | 0:Unicast 1:Multicast |
| | | uni_addr | String | Destination Unicast Address(IPv4 Only) |
| | | uni_port | Numeric value | Destination port number |
| | | multi_addr | String | Destination Multicast Address(IPv4 Only) |
| | | multi_port | Numeric value | Destination Multicast port number |
| | | push | 0 1 | 0:Enable 1:Disable |

9.4. MPEG2-TS over UDP Setting Aquisition

Method :GET
 Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------------------------|--------------------------|----------------|-----------------|-------------|
| MPEG2-TS over UDP Setting Aquisition | /cgi-bin/get_ts_udp_info | | | |

The response data is as shown below.

transmission=0 or 1
 uni_addr=*. *.*.*
 uni_port=num
 multi_addr=*. *.*.*
 multi_port=num
 push=0 or 1

10. CGI List for SRT Control

10.1. SRT Stream Control Aquisition

Method :GET

Access level :Live

| CGI item name | URL | Parameter name | Parameter value | Description |
|--------------------|-------------------|----------------|-----------------|--|
| SRT Stream control | /cgi-bin/srt_ctrl | cmd | Start stop | start:SRT Stream start stop:SRT Stream stop |

10.2. SRT Stream Status Aquisition

Method :GET

Access level :Live

| CGI item name | URL | Parameter name | Parameter Value | Description |
|------------------------------|-------------------------|----------------|-----------------|---------------------------------------|
| SRT Stream Status Aquisition | /cgi-bin/get_srt_status | | | 0:Stream suspended 1:During Stream |

The response data is as shown below.

status=Numeric number(0/1)

10.3. SRT Streaming Settings Aquisition

Method :GET

Access level :Admin

| CGI item name | URL | Parameter name | Parameter Value | Description |
|------------------------|-----------------------|----------------|-----------------|-------------------------|
| SRT Streaming Settings | /cgi-bin/set_srt_info | mode | 0 1 | 0:Client 1:Listener |
| | | dip_addr | *.*.*.* format | Destination IP address |
| | | dport | Numeric number | Destination Port number |
| | | lport | Numeric number | Receiving Port number |
| | | ttd | Numeric number | ttd |
| | | latency | Numeric number | Latency |

| | | | | |
|--|--|------------|---------------------------------------|---|
| | | encryption | 0 : Off 1 : AES-128 2 : AES-256 | Encryption method |
| | | passphrase | string | passphrase (10 to 79 alphanumeric characters, “_”, “-”) |

10.4. SRT Streaming Setting Information Acquisition

Method :GET

Access level :Admin

| CGI item name | URL | Parameter name | Parameter value | Description |
|---|-----------------------|----------------|-----------------|-------------|
| SRT Streaming Setting Information Acquisition | /cgi-bin/get_srt_info | | | |

The response data is as shown below.

mode=0/1

dip_addr=*. *.*.*

dport=Numeric number

lport=Numeric number

ttl=Numeric number

latency=Numeric number

encrtyption=0/1/2

passphrase=string

11. 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-UE100"
IMAGESELECT,"2m"
IMAGERATIO,"16_9"
IMAGEFPS,"30"
LIVESTREAM,"h264_4"
LIVEINT,"30"
LIVEQUALBASE,"1"
LIVESIZE,"640"
LIVEQUAL,"5"
LIVESIZE2,"1280"
LIVEQUAL2,"5"
LIVESIZE3,"320"
LIVEQUAL3,"5"
STREAMMODE,"1"
H264,"1"
H264RTSPMODE,"0"
H264BWC,"8192"
NRH264BWC,"1024"
H264BWCMIN,"6144"
H264SIZE,"1280"
NRH264SIZE,"1280"
H264FPRIORITY,"2"
H264NRFRAMERATE,"30"
H264QUAL,"fine"
NRH264QUAL,"normal"
H264RINT,"1"
H264MTD,"multi"
H264MLADD1,"239"
H264MLADD2,"192"
H264MLADD3,"0"
H264MLADD4,"20"
H264MLADD,"239.192.0.20"
H264MLPORT,"37004"
H264MLTTL,"16"
H264UNIPORT,"32004"

```


H264UNIPORT2,"33004"
H264PROFILE,"0"
H264_2,"1"
H264RTSPMODE_2,"0"
H264BWC_2,"8192"
NRH264BWC_2,"1024"
H264BWCMIN_2,"4096"
H264SIZE_2,"1280"
NRH264SIZE_2,"640"
H264FPRIORITY_2,"1"
H264NRFRAMERATE_2,"30"
H264QUAL_2,"low"
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"
H264PROFILE_2,"0"
H264_3,"1"
H264RTSPMODE_3,"0"
H264BWC_3,"4096"
NRH264BWC_3,"1024"
H264BWCMIN_3,"1024"
H264SIZE_3,"640"
NRH264SIZE_3,"640"
H264FPRIORITY_3,"1"
H264NRFRAMERATE_3,"30"
H264QUAL_3,"low"
NRH264QUAL_3,"normal"
H264RINT_3,"1"
H264MTD_3,"uni"
H264MLADD1_3,"-"
H264MLADD2_3,"-"
H264MLADD3_3,"-"
H264MLADD4_3,"-"
H264MLADD_3,"ff02::1"
H264MLPORT_3,"37004"
H264MLTTL_3,"16"
H264UNIPORT_3,"32024"
H264UNIPORT2_3,"33024"
H264PROFILE_3,"0"

H264_4,"1"
 H264RTSPMODE_4,"1"
 H264BWC_4,"1536"
 NRH264BWC_4,"1024"
 H264BWCMIN_4,"512"
 H264SIZE_4,"320"
 NRH264SIZE_4,"640"
 H264FPRIORITY_4,"0"
 H264NRFRAMERATE_4,"30"
 H264QUAL_4,"low"
 NRH264QUAL_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"
 H264PROFILE_4,"0"
 RTSPPORT,"554"
 H264MLAUTO,"0"
 H264MLAUTO_2,"0"
 H264MLAUTO_3,"0"
 H264MLAUTO_4,"0"
 AUDIO,"in"
 AUDIOBITRATE,"128"
 PLUGIN_HALFTONE_JPEG,"0"
 PLUGIN_HALFTONE_H264,"0"

The description of the response data is as shown below.

| Setting name | Value | Description |
|--------------|--------|--------------------------------|
| CAMTITLE | String | Camera name |
| IMAGESELECT | 2m | Imaging mode 2m: 2 M pixel |
| IMAGERATIO | 16_9 | Image ratio 16_9: 16:9 mode |
| IMAGEFPS | 30 | Frame rate 30: 30 fps |

| Setting name | Value | Description |
|--------------|--|--|
| LIVESTREAM | h264 h264_2 h264_3 h264_4 jpeg jpeg_2 jpeg_3 | Live screen initial stream selection h264:H264(1) h264_2:H264(2) h264_3:H264(3) h264_4:H264(4) jpeg:JPEG(1) jpeg_2:JPEG(2) jpeg_3:JPEG(3) |
| LIVEINT | 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) | JPEG(1) refresh interval 1 4(*1) 5 12(*1) 15(12.5) 24(*1) 30(25) * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| LIVEQUALBASE | 1 | JPEG(1) default image quality 1: Image quality 1 |
| LIVESIZE | 320 640 1280 1920 3840 | JPEG(1) image resolution 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 3840: 3840x2160 |
| 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: Fine 5: Normal |
| LIVEQUAL2 | 1 5 | JPEG(2) image quality 1: Fine 5: Normal |
| LIVEQUAL3 | 1 5 | JPEG(3) image quality 1: Fine 5: Normal |

| Setting name | Value | Description |
|----------------|--|---|
| STREAMMODE | 1 | Movie transmission method 1: H264 |
| STREAMENCODE | 0 1 | Compression method 1: H.264 2: H.265 |
| H264 | 0 | H264 transmission ON/OFF 0: OFF 1: ON |
| H264_2 | 1 | |
| H264_3 | | |
| H264_4 | | |
| H264RTSPMODE | 0 | Internet mode ON/OFF 0: OFF 1: ON |
| H264RTSPMODE_2 | 1 | |
| H264RTSPMODE_3 | | |
| H264RTSPMODE_4 | | |
| H264BWC | 512,768,1024,1536, 2048,3072,4096,6144, | Bit rate per client 512 (kbps) ~ 24576 (kbps) ~ 76800 (kbps) |
| H264BWC_2 | 8192,10240,12288, 12800,14336,16384, | |
| H264BWC_3 | 20480,24576,25600, 51200,76800 | |
| H264BWC_4 | | |
| H264BWCMIN | 512,768,1024,1536, 2048,3072,4096,6144, | Minimum bit rate per client 512 (kbps) ~ 24576 (kbps) ~ 76800 (kbps) |
| H264BWCMIN_2 | 8192,10240,12288, 12800,14336,16384, | |
| H264BWCMIN_3 | 20480,24576,25600, 51200,76800 | |
| 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 | H264(1) resolution 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 |
| H264SIZE_2 | 320 640 1280 1920 | H264(2) resolution 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 |

| Setting name | Value | Description |
|-----------------|---|---|
| H264SIZE_3 | 320 640 | H264(3) resolution 320:320x180 640:640x360 |
| H264SIZE_4 | 320 640 | H264(4) resolution 320:320x180 640:640x360 |
| NRH264SIZE | 1280 1920 3840 | H264(1) resolution at which transmission does not stop 1280:1280x720 1920:1920x1080 3840: 3840x2160 (*1) The value acquired by setdata depends on the value of H264(1). |
| NRH264SIZE_2 | 320 640 1280 1920 | H264(2) resolution at which transmission does not stop 320:320x180 640:640x360 1280:1280x720 1920:1920x1080 The value acquired by setdata depends on the value of H264(2). |
| NRH264SIZE_3 | 320 640 | H264(3) resolution at which transmission does not stop 320:320x180 640:640x360 The value acquired by setdata depends on the value of H264(3). |
| NRH264SIZE_4 | 320 640 | H264(4) resolution at which transmission does not stop 320:320x180 640:640x360 The value acquired by setdata depends on the value of H264(4). |
| H264FPRIORITY | 0 | Transmission mode |
| H264FPRIORITY_2 | 1 | 0:Constant bit rate |
| H264FPRIORITY_3 | 2 | 1:Frame rate |
| H264FPRIORITY_4 | | 2:Best effort |
| H264NRFRAMERATE | 5 15(12.5) 24(*1) 30(25) 60(50) | H264(1) frame rate 5:5fps 15(12.5):15(12.5)fps 24:24fps 30(25):30(25)fps 60(50):60(50)fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and |

| Setting name | Value | Description |
|-------------------|---|---|
| | | 23.98Hz |
| H264NRFRAMERATE_2 | 5 15(12.5) 24(*1) 30(25) 60(50) | H264(2) frame rate 5:5fps 15(12.5):15(12.5)fps 24:24fps 30(25):30(25)fps 60(50):60(50)fps * The values within () are for the case when the system frequency is 50 Hz (*1)* : When the system frequency is 24Hz and 23.98Hz |
| 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) | H264(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 |
| H264QUAL | fine | H264 image quality fine: Image quality priority low: Motion priority |
| H264QUAL_2 | low | |
| H264QUAL_3 | | |
| H264QUAL_4 | | |
| NRH264QUAL | normal | H264 image quality at which transmission does not stop normal: Standard |
| NRH264QUAL_2 | | |
| NRH264QUAL_3 | | |
| NRH264QUAL_4 | | |
| H264RINT | 1 | Refresh cycle 1: 1 second |
| H264RINT_2 | | |
| H264RINT_3 | | |
| H264RINT_4 | | |
| H264MTD | uni | H264 transmission method uni:Unicast port(AUTO) uni_manual:Unicast port(MANUAL) multi:Multicast |
| H264MTD_2 | uni_manual | |
| H264MTD_3 | multi | |
| H264MTD_4 | | |
| H264MLADD1 | Numeric value | H264(1) multicast address First octet 224 to 239 |
| H264MLADD2 | Numeric value | H264(1) multicast address Second octet 0 to 255 |
| H264MLADD3 | Numeric value | H264(1) multicast address Third octet 0 to 255 |

| Setting name | Value | Description |
|----------------|----------------|---|
| H264MLADD4 | Numeric value | H264(1) multicast address Fourth octet 0 to 255 |
| H264MLADD1_2 | Numeric value | H264(2) multicast address First octet 224 to 239 |
| H264MLADD2_2 | Numeric value | H264(2) multicast address Second octet 0 to 255 |
| H264MLADD3_2 | Numeric value | H264(2) multicast address Third octet 0 to 255 |
| H264MLADD4_2 | Numeric value | H264(2) multicast address Fourth octet 0 to 255 |
| H264MLADD1_3 | Numeric value | H264(3) multicast address First octet 224 to 239 |
| H264MLADD2_3 | Numeric value | H264(3) multicast address Second octet 0 to 255 |
| H264MLADD3_3 | Numeric value | H264(3) multicast address Third octet 0 to 255 |
| H264MLADD4_3 | Numeric value | H264(3) multicast address Fourth octet 0 to 255 |
| H264MLADD1_4 | Numeric value | H264(4) multicast address First octet 224 to 239 |
| H264MLADD2_4 | Numeric value | H264(4) multicast address Second octet 0 to 255 |
| H264MLADD3_4 | Numeric value | H264(4) multicast address Third octet 0 to 255 |
| H264MLADD4_4 | Numeric value | H264(4) multicast address Fourth octet 0 to 255 |
| H264MLADD | (IPv4 address) | H264 multicast address |
| H264MLADD_2 | or | |
| H264MLADD_3 | (IPv6 address) | |
| H264MLADD_4 | | |
| H264MLPORT | Numeric value | H264 multicast port 1024 to 50000 |
| H264MLPORT_2 | | |
| H264MLPORT_3 | | |
| H264MLPORT_4 | | |
| H264MLTTL | Numeric value | H264 multicast TTL 1 to 254 |
| H264MLTTL_2 | | |
| H264MLTTL_3 | | |
| H264MLTTL_4 | | |
| H264UNIPORT | Numeric value | H264 unicast (for video) port number 1024 to 50000 (only even numbers) |
| H264UNIPORT_2 | | |
| H264UNIPORT_3 | | |
| H264UNIPORT_4 | | |
| H264UNIPORT2 | Numeric value | H264 unicast (for audio) port number 1024 to 50000 (only even numbers) |
| H264UNIPORT2_2 | | |
| H264UNIPORT2_3 | | |

| Setting name | Value | Description |
|----------------------|-----------------|---|
| H264UNIPORT2_4 | | |
| H264PROFILE | 0 | H264 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 |
| AUDIOBITRATE | 64 96 128 | Audio bit rate 64: 64 Kbps 96: 96 Kbps 128: 128 Kbps |
| 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 H264 in Active X 0: Disabled |

12. 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.

12.1. About the URLs for an RTSP Request

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

| Request URL | Description |
|---|--|
| <code>rtsp://<cam_ip>/mediainput/h264/stream_1</code> | Videos set in WEB menu set_h264 of the remote camera can be requested. |
| <code>rtsp://<cam_ip>/mediainput/h264/stream_2</code> | Videos set in WEB menu set_h264_2 of the remote camera can be requested. |
| <code>rtsp://<cam_ip>/mediainput/h264/stream_3</code> | Videos set in WEB menu set_h264_3 of the remote camera can be requested. |
| <code>rtsp://<cam_ip>/mediainput/h264/stream_4</code> | Videos set in WEB menu set_h264_4 of the remote camera can be requested. |
| <code>rtsp://<cam_ip>/mediainput/h265/stream_1</code> | Videos set in WEB menu set_h265 of the remote camera can be requested. |
| <code>rtsp://<cam_ip>/mediainput/h265/stream_2</code> | Videos set in WEB menu set_h265_2 of the remote camera can be requested. |

To change the URL for RTSP request, please use `cgi-bin.set_rtsp`(POST command).

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/H.265 transmission" and "Audio Transmission" in the WEB menu of the remote camera is as shown below.

| | | Audio Transmission | |
|--------------------------|-----|---|--|
| | | ON | OFF |
| H.264/H.265 transmission | ON | Both video and audio can be used. * As for DESCRIBE, the SDP information of video + audio is issued as response. | Only video can be used. * As for DESCRIBE, only the SDP information of video is issued as response. |
| | OFF | Both video and audio cannot be used. * As for SETUP, 503 is issued as response. | |

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.

12.2. 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.

13. 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.

13.1. UDP Unicast

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

- Set H264(X),H.265/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.

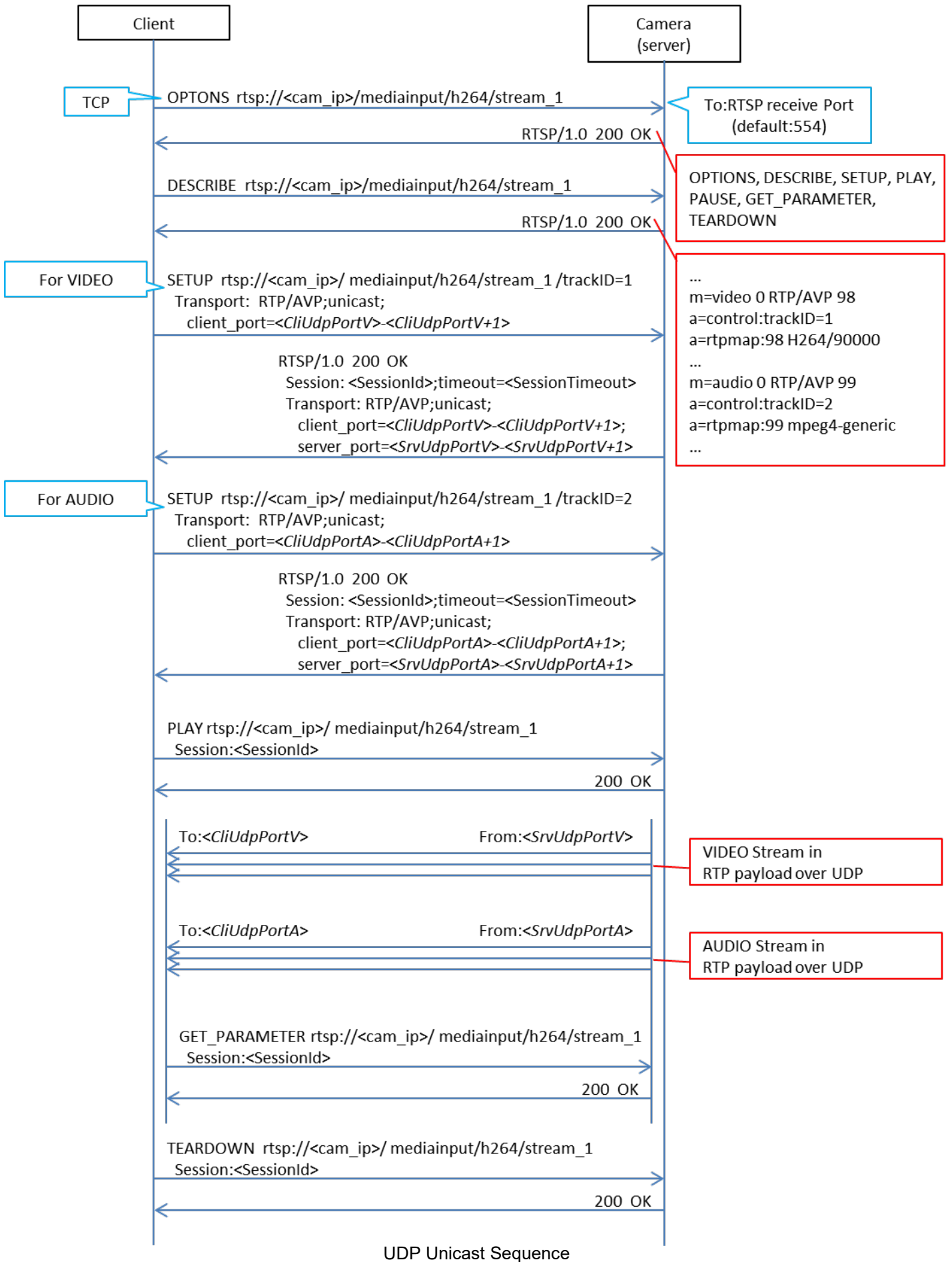
- * The port number is decided randomly.

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

- Set H264(X),H.265/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.



```

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=2; 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)

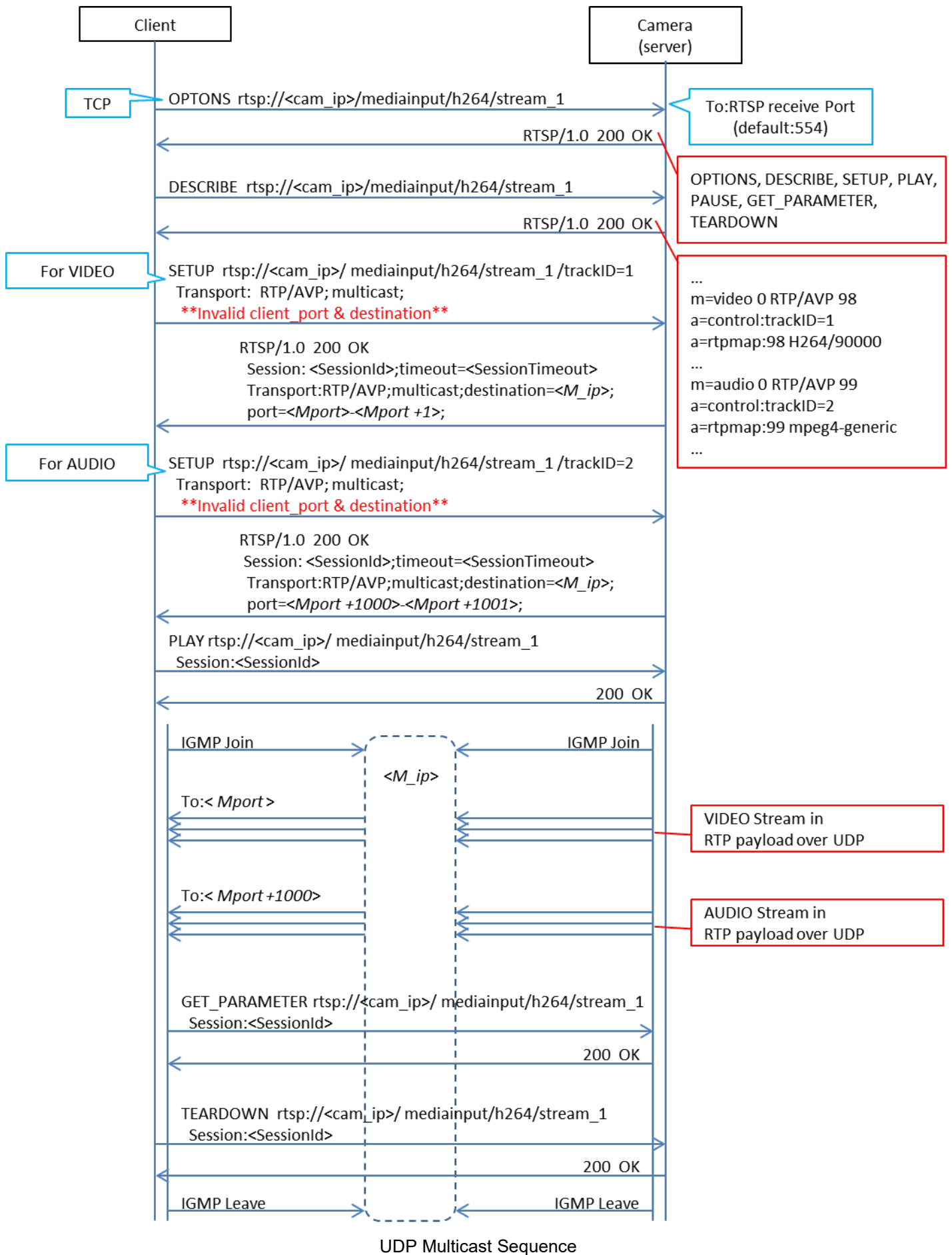
13.2. UDP Multicast

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

- Set H264(X),H.265/Transmission type to Multicast.
- Set H264(X),H.265/Multicast address (set to 239.192.0.20 for H264(1) according to factory settings)
- Set H264(X),H.265/Multicast port (set to 37004 for H264(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.




```
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=2; 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)

13.3. TCP Unicast

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

- Set H264(X),H.265/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.

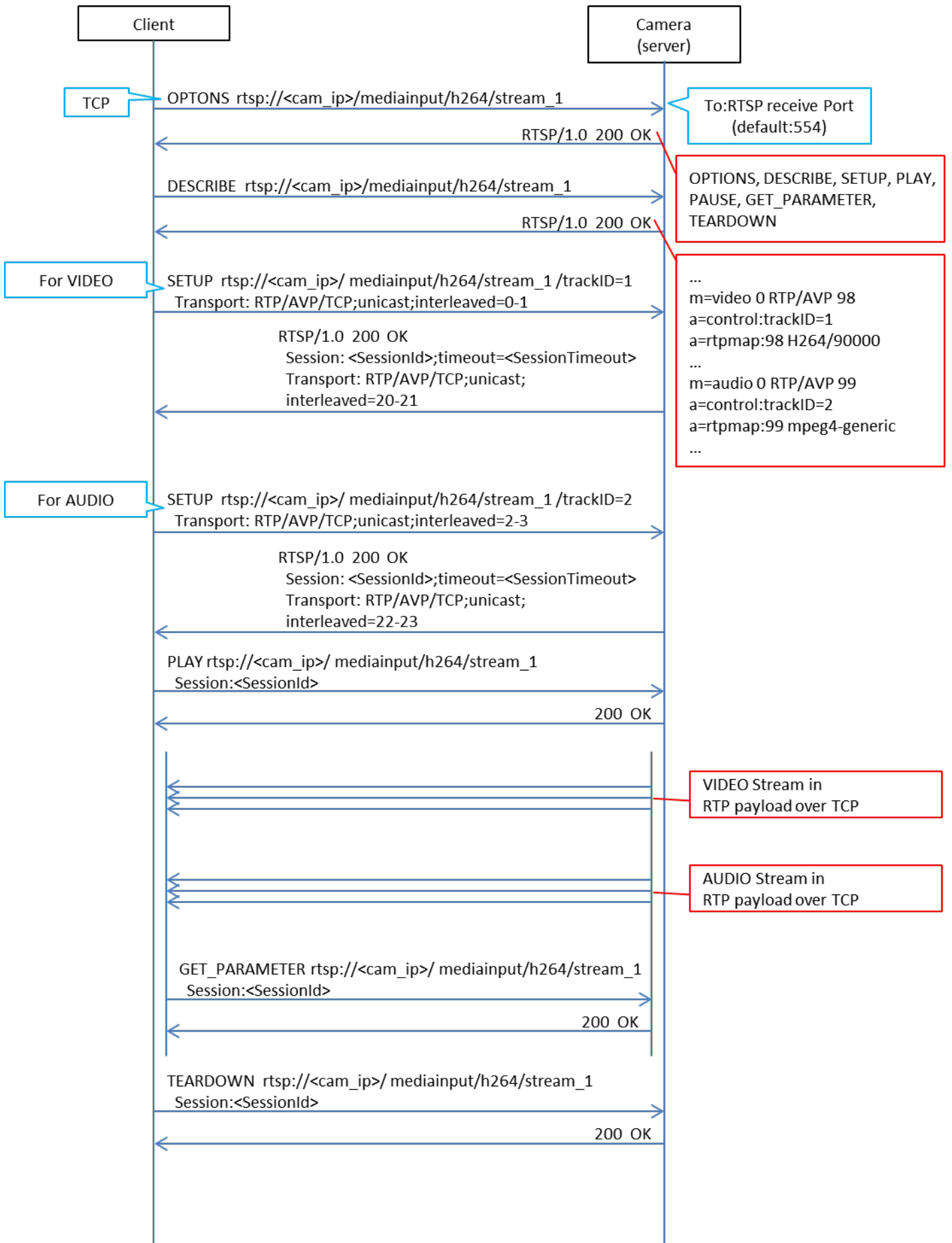
* The methods of deciding the port number differ according to the client, and include random settings and dedicated menu.

- 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=rtptime:98 H264/90000
a=fmtp:98 packetization-mode=1
a=h264-esid:201
m=audio 0 RTP/AVP 99
a=control:trackID=2
a=rtptime:99 mpeg4-generic/48000/2
a=fmtp:99 streamType=5; profile-level-id=2; 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

13.4 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 |
| H.265 | a=rtpmap:96 H265/90000 |
| AAC | a=rtpmap:99 mpeg4-generic/48000/2 |

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

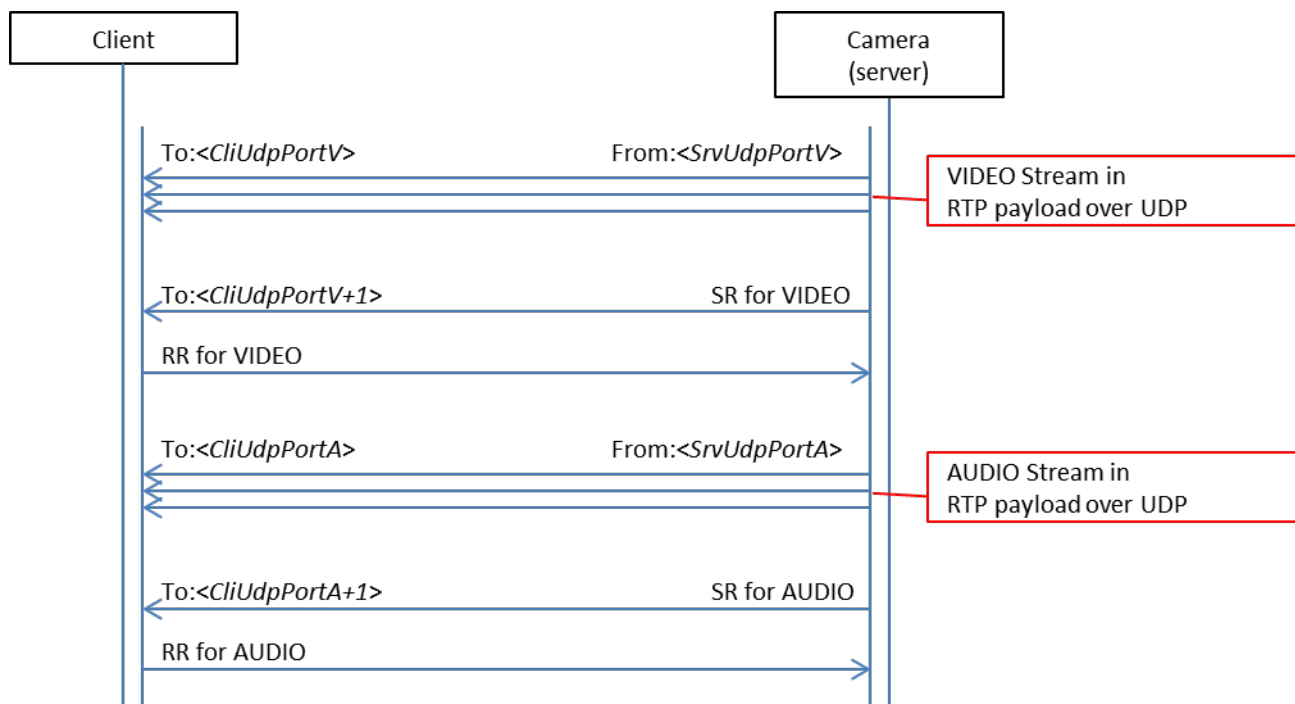
14. About Control Based on RTCP

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 H264(X),H.265/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 H264(X),H.265/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.

15. About RTP/Data Format

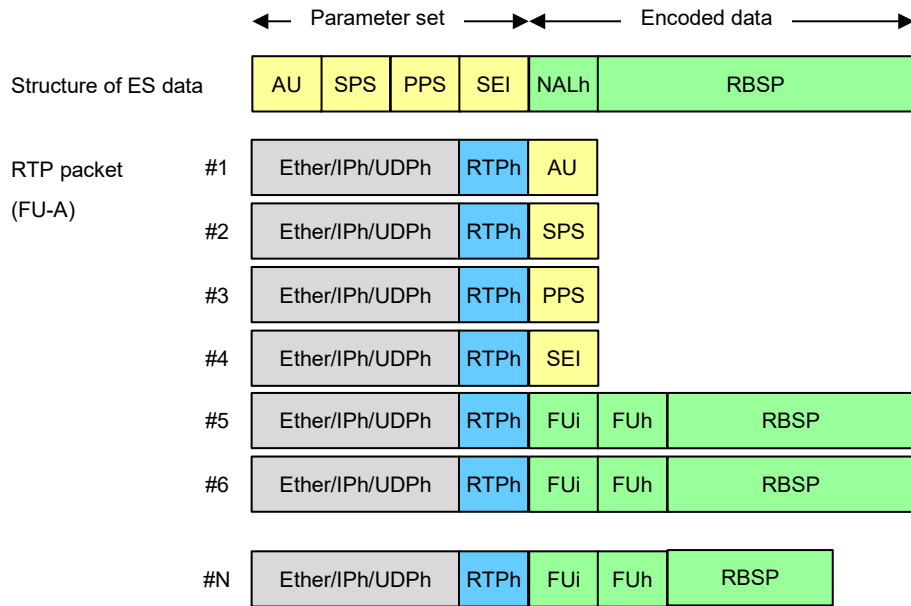
15.1. RTP Header Format

| 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) (*) | | |

15.2. 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 |
| RTP | : RTP header |

15.3. H.264 Syntax

In the remote camera, the Codec information to be used changes depending on the resolution/frame rate. The following information is used when 59.94 Hz is set.

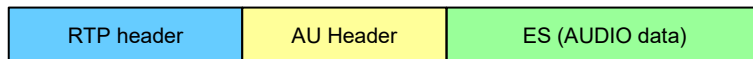
| Resolution / Frame rate | Codec Info |
|---|---|
| 320x180/5p,15p,30p 640x360/5p,15p,30p 1280x720/5p,15p,30p,60p 1920x1080/5p,15p,30p | H.264/High profile (no B frame) GOP interval approx 1 sec. |
| 1920x1080/60p | H.264/High profile (no B frame) GOP interval approx 1 sec. |
| 3840x2160/5p,15p | H.264/High profile (no B frame) GOP interval approx 0.5 sec. |
| 3840x2160/30p | H.264/High profile (no B frame) GOP interval approx 0.5 sec. |

11.4. 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:

An AU header (2 bytes) is inserted between the RTP header and audio data, and then transmitted.



Memo: