

Video&Audio Access Protocol

(B Series IPCamera)

Introduction

You need two protocols to see the video of an ipcamera: camera operation protocol and camera AV transmission protocol

User uses the camera operation protocol to turn on or off the AV function of a camera. After turning on the AV function of a camera, use the AV transmission protocol to transfer the AV data of the camera.

All protocols are based on TCP.

Data Type Definition

Data Type	Length (Byte)	Character sorting
INT8	1	
INT16	2	Low byte leads, high byte follows 在前、高位在后
INT16_R	2	Low byte follows, high byte leads
INT32	4	Low byte leads, high byte follows
INT32_R	4	Low byte follows, high byte leads
BINARY_STREAM	N	

Command Format

All protocols are combined by multiple commands. All commands follow the same format:

Combination	Type	Description
Header	BINARY_STREAM[4]	Camera operation protocol : “MO_O”
		Camera AV transmission protocol: “MO_V”

Operation Code	INT16	use to differentiate commands within a protocol
Reserved	INT8	=0
Reserved	BINARY_STREAM[8]	
Text Length	INT32	Text length in a command
Reserved	INT32	
Text	BINARY_STREAM[n]	Text of the command

Camera Operation Protocol

Login_Req (Login Request Command)

- 1) Administration user sends a login request to a camera.
- 2) Operation Code: 0
- 3) Command forth: administration user -> camera
- 4) Text field: non

Login_Resp (Response Command of Login Request)

- 1) Camera response to the login request from an administration user.
- 2) Operation Code: 1
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Result	INT16	0:ok
		2:Connection drops when maximum connection allowed is met.
Camera ID	BINARY_STREAM[13]	Only exists when result = 0
Reserved	BINARY_STREAM[4]	Only exists when result = 0
Reserved	BINARY_STREAM[4]	Only exists when result = 0
Camera Firmware Version	BINARY_STREAM[4]	Only exists when result = 0

Verify_Req (Verification Request Command)

- 1) When an administration user receives the login acknowledgement response from a camera, this command should be sent to the camera to declare his validity.
- 2) Operation Code: 2
- 3) Command forth: administraction user -> camera

4) Text field:

Field	Type	Description
User	BINARY_STREAM[13]	
Camera Operation Password	BINARY_STREAM[13]	

Verify_Resp (Response Command for Verification Request)

- 1) Camera responses to the verification request from an administration user.
- 2) Operation Code: 3
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
result	INT16	0: verification correct
		1: user error
		5:pwd err
Reserved	INT8	Only exists when result = 0

Keep_Alive (Keep Alive Command)

- 1) Keep_Alive command is used to keep the connection alive. Either side should send out this command every one minute to keep connected. Connection drops when not receiving this command for more than two minutes.
- 2) Operation Code: 255
- 3) Command forth: administration user <-> camera
- 4) Text field: none

Video_Start_Req (Video Requesting Command)

- 1) Administration user sends this command to the camera for requesting to start the video.
- 2) Operation Code: 4
- 3) Command forth: administration user -> camera
- 4) Text field:

Field	Type	Description
Reserved	INT8	=1

Video_Start_Resp (Response Command for Video Requesting)

- 1) Camera responses to the video requesting from an administration user.
- 2) Operation Code: 5
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Result	INT16	0: agree
		2: deny for exceeding the maximum connection allowed
Data Connection ID	INT32	Only exist when result = 0 and no AV data transmission started. ID used to mark the data connection

Video_End (Stop Receiving Video Command)

- 1) An administration user sends this command to the camera to stop receiving the video data.
- 2) Operation Code: 6
- 3) Command forth: administration user -> camera
- 4) Text Field: none

Video_FrameInterval (Adjust Frame Interval)

- 1) An administration user sends this command to camera to adjust the interval between two frames, for the purpose of adjusting the video speed. If there are multiple users connected, only the current user is affected.
- 2) Operation Code: 7
- 3) Command forth: administration user -> camera
- 4) Text Field:

Field	Type	Description
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Frame interval	INT32	<p>0: 0ms, default. Everytime the video starts with this setting, which is full speed.</p> <p>10: 50ms, 20fps maximum</p> <p>20: 60ms</p> <p>30: 70ms</p> <p>40: 80ms</p> <p>50: 90ms</p> <p>60: 100ms, 10fps maximum</p> <p>70: 110ms</p> <p>80: 130ms</p> <p>90: 150ms</p> <p>100: 170ms</p> <p>110: 200ms, 5fps maximum</p> <p>120: 250ms</p> <p>130: 340ms</p> <p>140: 500ms, 2fps maximum</p> <p>150: 1000ms, 1fps maximum</p> <p>160: 1500ms</p> <p>170: 2000ms, 1fp2s maximum</p> <p>180: 2500ms</p> <p>190: 3000ms, 1fp3s maximum</p> <p>200: 3500ms</p> <p>210: 4000ms, 1fp4s maximum</p> <p>220: 4500ms</p> <p>230: 5000ms, 1fp5s maximum</p>
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Audio_Start_Req (Audio Requesting Command)

- 1) An administration user sends this command to the camera to request for the audio transmission.
- 2) Operation Code: 8
- 3) Command forth: administration user -> camera
- 4) Text Field:

Field	Type	Description
Reserved	INT8	=1

Audio_Start_Resp (Response Command for Audio Requesting)

- 1) Camera responses to the audio request from an administration user.
- 2) Operation Code: 9
- 3) Command forth: camera -> administration user

4) Text Field:

Field	Type	Description
Result	INT16	0: agree
		2: deny for exceeding the maximum connection allowed
		7: camera does not support this function
Data Connection ID	INT32	Only exist when result = 0 and no audio data transmission started. ID used to mark the data connection

Audio_End (Stop Receiving Audio Command)

- 1) An administration user sends this command to the camera to stop receiving audio data.
- 2) Operation Code: 10
- 3) Command forth: administration user -> camera
- 4) Text Field: none

Talk_Start_Req (Audio Conversation Request Command)

- 1) An administration user sends this command to camera to request an audio conversation.
- 2) Operation Code: 11
- 3) Command forth: administration user -> camera
- 4) Text Field:

Field	Type	Description
Camera audio playback buffer (seconds)	INT8	>= 1

Talk_Start_Resp (Response Command for Audio Conversation Request)

- 1) Camera responses to the audio conversation request from an administration user.
- 2) Operation Code: 12
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Result	INT16	0: agree

		2: deny for exceeding the maximum connection allowed. Only one user is allowed for the audio conversation at a time.
		7: camera does not support this function
Data connection ID	INT32	Only exist when result = 0 and no AV data transmission started. ID used to mark the data connection

Talk_End (Audio Conversation Ending Command)

- 1) An administration user sends this command to the camera to stop the audio conversation.
- 2) Operation Code: 13
- 3) Command forth: administration user -> camera
- 4) Text field: none

Alarm_Notify (Alarm Notification Command)

- 1) Camera sends this command to an administration user to notify the alarm information.
- 2) Operation Code: 25
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Alarm Type	INT8	0: alarm stopped
		1: motion detection
		2: outer alarm
Reserved	Int16	
Reserved	Int16	
Reserved	Int16	
Reserved	Int16	

Camera AV Transmission Protocol

Login_Req (Login Request Command)

- 1) Administration user sends this command to camera after connected.
- 2) Operation Code: 0
- 3) Command forth: administration user -> camera

4) Text Field:

Field	Type	Description
Data connection ID	INT32	Connection drops when id incorrect

Video_Data (Video Data Command)

- 1) Video data sent by camera.
- 2) Operation Code: 1
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Time Stamp (10ms)	INT32	
Frame collection time (seconds)	INT32	Seconds count from 1970.1.1 00:00 to current time
Reserved	INT8	
Image length	INT32	
Image data	BINARY_STREAM(n)	

Audio_Data (Audio Data Command)

- 1) Audio data sent by camera.
- 2) Operation Code: 2
- 3) Command forth: camera -> administration user
- 4) Text Field:

Field	Type	Description
Time Stamp (10ms)	INT32	
Package Serial Number	INT32	Ascends from 0
Collection time (seconds)	INT32	Seconds count from 1970.1.1 00:00 to current time
Audio format	INT8	=0: adpcm
Data length	INT32	=160
Data content	BINARY_STREAM(n)	

Talk_Data (Audio Conversation Data Command)

- 1) Audio Conversation Data sent by administration user.
- 2) Operation Code: 3
- 3) Command forth: administration user -> camera
- 4) Text Field:

Field	Type	Description
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Time Stamp (1ms)	INT32	Can use GetTickCount()
Package Serial Number	INT32	Ascends from 0
Collection time (seconds)	INT32	Seconds count from 1970.1.1 00:00 to current time
Audio format	INT8	=0: adpcm
Data length	INT32	=160
Data content	BINARY_STREAM(n)	