ICS 03.220.20 ; 35.240. 60
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JT / T 1078-2016

GNSS system for operating vehicles—
Video communication protocol

2016-10-21 @ 2017-01-01 @

Order

Foreword

This standard is drafted according to the rules given in GB/T 1. 1—2009.

This standard is put forward and centralized by the Technical Committee of Transportation Information Communication and Navigation Standardization.

This standard was drafted by China Communications Information Center, Beijing Guojiao ICT Development Co., Ltd., Jiangsu Weisen Communications Technology Co., Ltd., Dalian Xinkai Digital Software Co., Ltd., Shenzhen Ruiming Video Technology Co., Ltd., Guangzhou Yicheng Communications Information Co., Ltd., Shenzhen Ruixin Video Technology Co., Ltd., Jilin Huanqi Satellite Navigation Communication Group Co., Ltd., Hangzhou Hikvision Digital Technology Co., Ltd. and Dalian Dingshi Technology Co., Ltd..

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Video communication protocol of satellite positioning system for road transport vehicles

1 range

This standard specifies the protocol foundation and communication protocol between vehicle video terminal and video platform, the code stream communication between audio and video streaming server and client playback software, and the communication protocol foundation, communication protocol flow, constant definition and protocol data body format between video platforms in road transport vehicle satellite positioning system.

This standard is applicable to the transmission of audio and video data between the vehicle-mounted video terminal of the road transport vehicle satellite positioning system and the enterprise video monitoring platform, and the exchange and sharing of audio and video resources between different video platforms.

2 Normative citation document

The following documents are essential for the application of this document. For dated reference documents, only dated version is applicable to this document. For undated reference documents, the latest version (including all amendments) is applicable to this document.

JT/T 808—2011 Terminal Communication Protocol and Data Format of Satellite Positioning System for Road Transport Vehicles

JT/T 809—2011 Data Exchange of Satellite Positioning System Platform for Road Transport Vehicles

JT/T 1076—2016 Technical Requirements for Vehicle Video Terminal of Satellite Positioning System for Road Transport Vehicles

JT/T 415—2006 Cataloging Coding Rules of Road Transport E-government Platform

IETF RFC 3550RTP Real-time Transport Protocol.

IETF RFC 2854 Multimedia Type of Text/Hypertext Markup Language (The Text/Html Media Type)

3 Terms and definitions, abbreviations

3. 1 Terms and definitions

The following terms and definitions apply to this document.

3. 1. 1

Code rate

The number of bits of data transmitted per unit time during data transmission, usually in kilobits per second (kbps).

3. 1. 2

Frame rate

It indicates the number of times that the graphics processor can update every second when processing the field. It is used to measure the number of display frames, and the measurement unit is Frame per Second (FPS).

3. 2 Abbreviations

The following abbreviations apply to this document.

AAC: Advanced Audio Coding
MPEG: Moving Pictures Experts Group)
RTP: Real-time Transport Protocol.
TCP: Transmission Control Protocol.

UDP: User Datagram Protocol) URL:
uniform resource locator utf-8: 8-bit
unicode transformation format FTP: File
Transfer Protocol.

4 Protocol Foundation between Video Terminal and Video Platform

4.1 basic agreement

The communication mode, data type, transmission rules and message composition of the protocol are in accordance with the requirements in Chapter 4 of JT/T 808—2011. The communication connection mode of signaling data messages in the protocol is in accordance with the requirements in Chapter 5 of JT/T 808—2011.
The message processing mechanism of signaling data message in the protocol is in accordance with the requirements of Chapter 6 in JT/T 808—2011. The encryption mechanism of signaling data message in the protocol is in accordance with the requirements of Chapter 7 in JT/T 808—2011.

The agreement shall meet the following requirements for all parties to the platform and terminal communication:

——Unless expressly agreed, all messages shall be answered;

——If the special reply message is not clearly specified, the general reply should be adopted;

-For subcontracted messages, the respondent shall respond to each subcontracted message packet by packet.

4.2 Real-time audio and video transmission channel agreement

One real-time audio and video transmission channel can transmit one video information or one audio information, and can also transmit one video information and one audio frequency information. There are two conventions for real-time audio and video transmission channels:

——When using TCP mode, each TCP connection can carry multiple audio and video channels. If there is no data transmission within the set timeout period, both the terminal and the monitoring center can actively close the TCP connection for audio and video data transmission.

___ When using UDP, each UDP port can carry multiple audio and video channels.

4.3 audio and video communication message classification

Audio and video data messages are divided into the following two categories:

——signaling data message: the data format shall conform to the provisions of JT/T 808—2011, and new protocol instructions and data formats shall be added on the basis of its protocol format. Message communication should use the established link between the vehicle video terminal and the enterprise video monitoring platform for transmitting positioning information, and no new links should be built.

____ Code stream data message: used for real-time audio and video transmission, network video playback, voice dialogue, voice monitoring, voice broadcasting, etc. A new link should be established for message communication, instead of using the link for transmitting positioning information.

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5 Communication protocol between video terminal and video platform

5.1 protocol instruction set

See Appendix A for the comparison table of instruction messages between video terminal and video platform.

5.2 Inheritance instruction

Inherit and use other instructions in JT/T 808—2011 except message ID 0x8804 (recording start command). In addition, in JT/T 808—2011, the multimedia type fields in five instructions, namely, 0x0800 (uploading multimedia event messages), 0x0801 (uploading multimedia data), 0x8802 (storing multimedia data retrieval responses) and 0x8803 (uploading multimedia data), should only contain picture types in this standard.

5. 3 Parameter setting instruction

5. 3. 1 Terminal audio and video parameter setting

The terminal audio and video parameter setting message adopts 0x8103 message defined in 8. 8 of JT/T 808—2011, and the following audio and video parameter settings are added, as shown in Table 1.

Table 1 Audio and video setting parameter list

Parameter ID	Data type	Description and requirements
0x0075		Audio and video parameter settings are described in Table 2.
0x0076		Audio and video channel list settings are described in Table 3.
0x0077		Parameter settings of individual video channels are described in Table 5.
0x0079		See Table 7 for the parameter settings of special alarm video recording.
0x007A	DWORD	Video-related alarm mask words, and video report in Table 13. The definition of the alarm flag bit corresponds, and if the corresponding bit is 1, the corresponding type of alarm is blocked.
0x007B		The image analysis alarm parameter settings are described in Table 8.
0x007C		The terminal sleep wake-up mode settings are described in Table 9.

Table 2 Definition and Description of Audio and Video Parameters

Beginning word section	Word segment	data type	Description and explanation
0	Real-time stream coding mode	BYTE	0: CBR (fixed code rate); 1: VBR (variable bit rate); 2: ABR (average code rate); 100 ~ 127: Custom
one	Real-time stream resolution	BYTE	0：QCIF； 1：CIF； 2：WCIF； 3：D1； 4：WD1； 5：720P； 6：1 080P； 100 ~ 127: Custom
2	Real-time stream key frame interval	WORD	Range (1 ~ 1 000) frames
four	Real-time stream target frame rate	BYTE	Range (1 ~ 120) frames/s
five	Real-time stream target code rate	DWORD	The unit is kilobits per second (kbps).
nine	Storage stream coding mode	BYTE	0: CBR (fixed code rate); 1: VBR (variable bit rate); 2: ABR (average code rate); 100 ~ 127: Custom

Table 2 (continued)

Beginning word section	Word segment	data type	Description and explanation
10	Storage stream resolution	BYTE	0：QCIF； 1：CIF； 2：WCIF； 3：D1； 4：WD1； 5：720P； 6：1 080P； 100 ~ 127: Custom
11	Key frame interval of storage stream	WORD	Range (1 ~ 1 000) frames
13	Storage stream target frame rate	BYTE	Range (1 ~ 120) frames/s
14	Storage stream target code rate	DWORD	The unit is kilobits per second (kbps).
18	OSD subtitle overlay setting	WORD	Bitwise setting: 0 means no superposition and 1 means superposition; Bit0: date and time; Bit1: license plate number; Bit2: logical channel number; Bit3: latitude and longitude; Bit4: driving record speed; Bit5: satellite positioning speed; Bit6: continuous driving time; Bit 7 ~ bit 10: reserved; Bit 11 ~ bit 15: custom
20	Is audio output enabled?	BYTE	0: Not enabled; 1: enabled

Table 3 List of Audio and Video Channels

Beginning word section	Word segment	data type	Description and explanation
0	Total number of audio and video channels	BYTE	Represented by l
one	Total number of audio channels	BYTE	Represented by m
2	Total number of video channels	BYTE	Represented by n
three	Audio and video channel comparison table	[4 × BYTE+ n)] (l + m	See table 4.

Table 4 Comparison Table of Audio and Video Channels

Beginning word section	Word segment	data type	Description and explanation
0	Physical channel number	BYTE	Starting from 1
one	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.

Table 4 (continued)

Beginning word section	Word segment	data type	Description and explanation
2	Channel type	BYTE	0: audio and video; 1: audio; 2: Video
three	Whether to connect pan/tilt	BYTE	This field is valid when the channel types are 0 and 2; 0: Not connected; 1: Connection

Table 5 Definition and Description of Single Channel Video Parameters

Beginning word section	Word segment	data type	Description and explanation
0	The number of channels that need to set video parameters separately.	BYTE	Represented by n
one	Single channel video parameter setting list	BYTE[21 × n]	See table 6.

Table 6 Video Parameter Settings for Individual Channels

Beginning word section	Word segment	data type	Description and explanation
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Real-time stream coding mode	BYTE	0: CBR (fixed code rate); 1: VBR (variable bit rate); 2: ABR (average code rate); 100 ~ 127: Custom
2	Real-time stream resolution	BYTE	0：QCIF； 1：CIF； 2：WCIF； 3：D1； 4：WD1； 5：720P； 6：1 080P； 100 ~ 127: Custom
three	Real-time stream key frame interval	WORD	Range (1 ~ 1 000) frames
five	Real-time stream target frame rate	BYTE	Range (1 ~ 120) frames/s
six	Real-time stream target code rate	DWORD	The unit is kilobits per second (kbps).
10	Storage stream coding mode	BYTE	0: CBR (fixed code rate); 1: VBR (variable bit rate); 2: ABR (average code rate); 100 ~ 127: Custom

Table 6 (continued)

Beginning word section	Word segment	data type	Description and explanation
11	Storage stream resolution	BYTE	0：QCIF； 1：CIF； 2：WCIF； 3：D1； 4：WD1； 5：720P； 6：1 080P； 100 ~ 127: Custom
12	Key frame interval of storage stream	WORD	Range (1 ~ 1 000) frames
14	Storage stream target frame rate	BYTE	Range (1 ~ 120) frames/s
15	Storage stream target code rate	DWORD	The unit is kilobits per second (kbps).
19	OSD overlay setting	WORD	Bitwise setting: 0 means no superposition and 1 means superposition; Bit0: date and time; Bit1: license plate number; Bit2: logical channel number; Bit3: latitude and longitude; Bit4: driving record speed; Bit5: satellite positioning speed; Bit6: continuous driving time; Bit 7 ~ bit 10: reserved; Bit 11 ~ bit 15: custom

Table 7 Definition and Description of Special Alarm Video Parameters

Beginning word section	Word segment	data type	Description and explanation
0	Special alarm video storage threshold	BYTE	The percentage of the storage threshold occupied by the special alarm video in the main memory is 1 ~ 99, and the default value is 20.
one	Special alarm video duration	BYTE	The longest duration of special alarm recording, in minutes (min), the default value is 5.
2	Special alarm mark start time	BYTE	Video recording time marked before special alarm occurs, in minutes (min), and the default value is 1.

Table 8 Definition and Description of Video Analysis Alarm Parameters

Start byte	Word segment	data type	Description and explanation
0	Number of people carrying vehicles	BYTE	When the number of passengers in passenger vehicles is approved, an alarm will be generated when the video analysis result exceeds it.
one	Fatigue threshold	BYTE	Video analysis fatigue driving alarm threshold, when exceeded, alarm will be generated.

Table 9 Data Format of Terminal Hibernation Wake-up Mode Settings

Beginning word section	Word segment	data type	Description and requirements
0	Sleep wake-up mode	BYTE	Bit-by-bit setting: 0 means no setting, and 1 means setting; Bit0: conditional wake-up; Bit1: wake up regularly; Bit2: manual wake-up
one	Awakening condition type	BYTE	This field is valid when bit0 is 1 in sleep wake-up mode, otherwise it is set to 0; Bit-by-bit setting: 0 means no setting, and 1 means setting; Bit0: emergency alarm; Bit1: collision rollover alarm; Bit2: the vehicle opens the door
2	Timed wake-up day setting	BYTE	Bit-by-bit setting: 0 means no setting, and 1 means setting; Bit0: Monday; Bit1: Tuesday; Bit2: Wednesday; Bit3: Thursday; Bit4: Friday; Bit5: Saturday; Bit6: Sunday
three	Daily time wake-up parameter list	BYTE[17]	As shown in Table 10, each time period should not overlap.

Table 10 Definition of Wake-up Parameters

Beginning word section	Word segment	data type	Description and requirements
0	Timing wake-up enable flag	BYTE	Bit-by-bit setting: 0 means no setting, and 1 means setting; Bit0: Wake-up time is enabled in time period 1; Bit1: Wake-up time is enabled in time period 2; Bit2: Wake-up time is enabled in time period 3; Bit3: Wake-up time is enabled for period 4.
one	Time period 1 wake-up time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
three	Time period 1 closing time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
five	Time period 2 wake-up time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
seven	Time period 2 closing time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
nine	Time period 3 wake-up time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
11	Time period 3 closing time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
13	Time period 4 wake-up time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.
15	Time period 4 closing time	BCD[2]	HHMM, the value range is 00: 00 ~ 23: 59.

5. 3. 2 Query the audio and video attributes of the terminal.

Message id: 0x9003.

The message body is empty.

5. 3. 3 Audio and video attributes uploaded by the terminal

Message id: 0x1003.

Message type: signaling data message.

The terminal uploads the audio and video attribute command to respond to the audio and video attribute message of the inquiry terminal issued by the platform, and the data format of the message body is shown in Table 11.

Table 11 Format of Audio and Video Attribute Data Uploaded by Terminal

Beginning word section	Word segment	data type	Description and requirements
0	Input audio coding mode	BYTE	See table 12.
one	Number of input audio channels	BYTE	
2	Input audio sampling rate	BYTE	0：8 kHz； 1：22. 05 kHz； 2：44. 1 kHz； 3：48 kHz
three	Input audio sampling bits	BYTE	0: 8 digits; 1: 16; 2: 32 bit
four	Audio frame length	WORD	Range 1 ~ 4 294 967 295
six	Does it support audio output?	BYTE	0: Not supported; 1: Support
seven	Video coding mode	BYTE	See table 19.
eight	Maximum number of audio physical channels supported by the terminal	BYTE	
nine	Maximum number of video physical channels supported by the terminal	BYTE	

Table 12 Definition Table of Audio and Video Coding Types

Coding	Nominal name	Reserve note
0	reserve	
one	G. 721	audio frequency
2	G. 722	audio frequency
three	G. 723	audio frequency
four	G. 728	audio frequency
five	G. 729	audio frequency

Table 12 (continued)

Coding	Nominal name	Reserve note
six	G. 711A	audio frequency
seven	G. 711U	audio frequency
eight	G. 726	audio frequency
nine	G. 729A	audio frequency
10	DVI4_3	audio frequency
11	DVI4_4	audio frequency
12	DVI4_8K	audio frequency
13	DVI4_16K	audio frequency
14	LPC	audio frequency
15	S16BE_STEREO	audio frequency
16	S16BE_MONO	audio frequency
17	MPEGAUDIO	audio frequency
18	LPCM	audio frequency
19	AAC	audio frequency
20	WMA9STD	audio frequency
21	HEAAC	audio frequency
22	PCM_VOICE	audio frequency
23	PCM_AUDIO	audio frequency
24	AACLC	audio frequency
25	MP3	audio frequency
26	ADPCMA	audio frequency
27	MP4AUDIO	audio frequency
28	AMR	audio frequency
29 ～ 90	reserve	
91	Unvarnished transmission	system
92 ～ 97	reserve	video
98	H. 264	video
99	H. 265	video
100	AVS	video
101	SVAC	video
102 ～ 110		reserve
111 ～ 127		customize

5. 4 Video alarm instruction

5. 4. 1 Video alarm reporting

The video alarm is reported at the same time as the location information. As the additional information of 0x0200 location information report, the definition table of additional information in JT/T 808—2011 is extended. See Table 13 for the extended definition of additional information.

Table 13 Additional Information Definition Table Extension

Additional information ID	Additional information length	Description and requirements
0x14	four	Video-related alarm, DWORD, set by bit, and the definition of flag bit is shown in Table 14.
0x15	four	1 video signal loss alarm status, DWORD, set by bit, bit 0 ~ bit 31 ~ 32 logical channels, and a corresponding bit of 1 indicates that the video signal of this logical channel is lost.
0x16	four	1 video signal occlusion alarm status, DWORD, set by bit, bit 0 ~ bit 31 ~ 32 logical channels, and a corresponding bit of 1 indicates that the logical channel is blocked by video signals.
0x17	2	Memory fault alarm status, WORD, set by bit, bit 0 ~ bit 11 respectively represent the 1st ~ 12th main memories, and bit 12 ~ bit 15 respectively represent the 1st ~ 4th disaster recovery storage devices, with corresponding bits. A value of 1 indicates that the memory has failed.
0x18	2	Abnormal driving behavior alarm detailed description, WORD, definition are shown in table 15.

Table 14 Definition of Video Alarm Flag Bit

place	porepressure	Be reasonable and clear
0	Video signal loss alarm	The flag is maintained until the alarm condition is released.
one	Video signal occlusion alarm	The flag is maintained until the alarm condition is released.
2	Memory cell fault alarm	The flag is maintained until the alarm condition is released.
three	Other video equipment fault alarm	The flag is maintained until the alarm condition is released.
four	Bus overcrowding alarm	The flag is maintained until the alarm condition is released.
five	Abnormal driving behavior alarm	The flag is maintained until the alarm condition is released.
six	Special alarm video reaches the storage threshold alarm.	Clear after receiving the reply
7 ～ 31	reserve	

Table 15 Definition of Abnormal Driving Behavior Markers

Beginning word section	Word segment	data type	Description and requirements
0	Abnormal driving behavior types	WORD	Bitwise setting: 0 means none, 1 means yes; Bit0: fatigue; Bit1: make a phone call; Bit2: smoking; Bit 3 ~ bit 10: reserved; Bit 11 ~ bit 15: custom
2	Fatigue degree	BYTE	Fatigue degree is expressed as 0 ~ 100, and the greater the value. Indicates that the more serious the fatigue

			is.

5. 4. 2 Terminal uploads passenger flow.

Message id: 0x1005.

Message type: signaling data message.

The terminal equipment counts the passengers getting on and off through video analysis, and sends the counting results to the platform. See Table 16 for the data format of the message body.

Table 16 Data Format of Passenger Flow Uploaded by Terminal

Beginning word section	Word segment	data type	Description and requirements
0	starting time	BCD[6]	YY-MM-DD-HH-MM-SS(GMT+8 time, Ben The time involved later in the standard adopts this time zone)
six	end time	BCD[6]	YY-MM-DD-HH-MM-SS
12	Number of boarding passengers	WORD	Number of people getting on the bus from the start time to the end time
14	Number of people getting off the bus	WORD	Number of people getting off from the start time to the end time

5. 5 Real-time audio and video transmission instructions

5. 5. 1 Real-time audio and video transmission request

Message id: 0x9101.

Message type: signaling data message.

The platform requests real-time audio and video transmission from terminal equipment, including real-time video transmission, initiating two-way voice intercom, one-way monitoring, broadcasting voice to all terminals and specific transparent transmission. See Table 17 for the data format of message body. After receiving this message, the terminal replies to the general reply of the video terminal, then establishes a transmission link through the corresponding server IP address and port number, and then transmits the corresponding audio and video streaming data according to the audio and video streaming protocol.

Table 17 Data Format of Real-time Audio and Video Transmission Request

Beginning word section	Word segment	data type	Description and requirements
0	Server IP address length	BYTE	Length n
one	Server IP address	STRING	Real-time video server IP address
1 + n	Server video channel listening port number (TCP)	WORD	TCP port number of real-time video server
3 + n	Server video channel listening port number (UDP)	WORD	UDP port number of real-time video server
5 + n	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
6 + n	data type	BYTE	4 0: audio and video, 1: video, 2: two-way intercom, 3: : central broadcasting, 5: transparent transmission
7 + n	Code stream type	BYTE	0: main code stream, 1: sub-code stream

After receiving the special alarm from the video terminal, the platform should issue this instruction on its own initiative to start real-time audio and video transmission without waiting for manual confirmation.

5. 5. 2 Audio and video real-time transmission control

Message id: 0x9102.

Message type: signaling data message.

The platform sends real-time audio and video transmission control instructions for switching code streams, suspending code stream transmission, closing audio and video transmission channels, etc. See Table 18 for the data format of message body.

Table 18 Audio and video real-time transmission control data format

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	control command	BYTE	The platform can control the real-time audio and video of the equipment through this instruction: 0: Turn off the audio and video transmission instruction; 1: Switch the code stream (add pause and continue); 2: Suspend the sending of all streams in this channel; 3. Resume the sending of the stream before suspension, which is consistent with the stream type before suspension; 4. Turn off two-way intercom
2	Turn off audio and video types	BYTE	0: Turn off the audio and video data related to this channel; 1: Only turn off the audio related to this channel and keep the video related to this channel; 2: Only close the video related to this channel and keep the audio related to this channel.
three	Switch code stream type	BYTE	Switch the previously applied code stream to the newly applied code stream, and the audio is the same as before switching. The newly applied code stream is: 0: main code stream; 1: Sub-stream

5. 5. 3 Real-time audio and video streaming and transparent data transmission

Message type: code stream data message.

The transmission of real-time audio and video stream data refers to RTP protocol and uses UDP or TCP bearer.

RTP The payload packet format is in IETF RFC 3550.

On the basis of the definition, fields such as message serial number, SIM card number, audio and video channel number are added. See Table 19 for the definition of load packet format. The bits defined in the table are filled in according to the big-endian mode.

Table 19 Definition Table of Audio and Video Streams and Transparent Data Transmission Protocol Load Packet Format

Beginning word section	Word segment	data type	Description and requirements
0	Frame header identification	DWORD	Fixed as 0x30 0x31 0x63 0x64
four	V	2 BITS	Fixed at 2
	P	1 BIT	Fixed at 0

Table 19 (continued)

Beginning word section	Word segment	data type	Description and requirements
	X	1 BIT	Whether the RTP header needs extension bits is fixed at 0.
	CC	4 BITS	Fixed at 1
five	M	1 BIT	Flag bit to determine whether it is the boundary of a complete data frame.
	PT	7 BITS	See Table 19 for load types.
six	Packet serial number	WORD	Initially 0, the sequence number is increased by 1 for each RTP packet sent.
eight	SIM card number	BCD[6]	SIM card number of terminal equipment
14	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
15	data type	4 BITS	0000: video I frame; 0001: video p frame; 0010: video frame b; 0011: audio frame; 0100: transparent transmission data
	Subcontracting mark	4 BITS	0000: atomic package, which cannot be split; 0001: the first package in subcontracting; 0010: the last package during subcontracting; 0011: Tundish during subcontracting
16	time stamp	BYTE[8]	Identify the relative time of the current frame of this RTP packet, in milliseconds (ms). When the data type is 0100, there is no such field.
24	Last I Frame Interval	WORD	Time interval between this frame and the last key frame, in milliseconds (ms). If the data type is non-video frame, this field is not available.
26	Last Frame Interval	WORD	(Time interval between this Ms), when the data type is non-video frame, there is no such. field
28	Data volume length	WORD	Subsequent data body length, excluding this field.
30	Data volume	BYTE[n]	95 audio and video data or transparent data, the 0 byte

5. 5. 4 Real-time audio and video transmission status notification

Message id: 0x9105.

Message type: signaling data message.

During the process of receiving the audio and video data uploaded by the terminal, the platform sends a notification packet to the terminal according to the set time interval. See Table 20 for the data format of the message body.

Table 20 Data Format of Real-time Audio and Video Transmission Status Notification

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Packet loss rate	BYTE	The packet loss rate of the current transmission channel, multiplied by 100, takes the integer part.

5. 6 historical audio and video query, playback and download instructions

5. 6. 1 Query resource list

Message id: 0x9205.

Message type: signaling data message.

The platform inquires the list of video files from the terminal according to the combined conditions such as audio and video type, channel number, alarm type and start-stop time. See Table 21 for the data format of message body.

Table 21 Query the data format of video file list

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2, 0 in JT/T 1076—2016, all channels are represented.
one	start time	BCD[6]	YY-MM-DD-HH-MM-SS, where all 0s mean no beginning. Time condition
seven	end time	BCD[6]	YY-MM-DD-HH-MM-SS, all 0s means no termination. Time condition
13	Alarm sign	64BITS	See table 18 of JT/T 808—2011 for the definition of bit 0 ~ bit 31 of alarm flag; See table 13 for bit 32 ~ bit 63; All 0s indicate no alarm type condition.
21	Audio and video resource types	BYTE	0: audio and video, 1: audio, 2: video, 3: video or audio and video.
22	Code stream type	BYTE	0: all codestreams, 1: main codestream, 2: sub-codestreams.
23	Memory type	BYTE	0: all memories, 1: main memory, 2: disaster recovery memory.

5. 6. 2 The terminal uploads the list of audio and video resources.

Message id: 0x1205.

Message type: signaling data message.

The terminal responds to the platform's instruction to query the audio and video resource list, and uses the terminal to upload the audio and video resource list message to reply. If the list is too large and needs to be subcontracted for transmission, the subcontracting mechanism defined in 4. 4. 3 of JT/T 808—2011 shall be adopted, and the platform shall reply to each individual subcontracting video platform in general. See Table 22 for the data format of message body.

Table 22 Data Format of Audio and Video Resource List Uploaded by Terminal

Beginning word section	Word segment	data type	Description and requirements
0	serial number	WORD	Serial number corresponding to the instruction to query audio and video resource list.
2	Total audio and video resources	DWORD	No qualified audio and video resources, set to 0.
six	Audio and video resource list		See table 23.

Table 23 Format of Audio and Video Resource List Uploaded by Terminal

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	start time	BCD[6]	YY-MM-DD-HH-MM-SS
seven	end time	BCD[6]	YY-MM-DD-HH-MM-SS
13	Alarm sign	64BITS	Bit0 ~ bit31 according to table 18 of JT/T 808—2011. Alarm flag bit definition; See table 13 for bit 32 ~ bit 63.
21	Audio and video resource types	BYTE	0: audio and video, 1: audio, 2: video.
22	Code stream type	BYTE	1: main code stream, 2: sub-code stream
23	Memory type	BYTE	1: main memory, 2: disaster recovery memory
24	filesize	DWORD	Unit BYTE (byte)

5. 6. 3 Platform issues remote video playback request.

Message id: 0x9201.

Message type: signaling data message.

The platform requests audio and video playback from the terminal equipment, and the terminal should respond with 0x1205 (list of video files uploaded by the terminal), and then transmit video data in the packet format defined in Table 18, Real-time Audio and Video Streaming Data Transmission RTP Protocol Load Packet Format. See Table 24 for the message body data format.

Table 24 Data Format of Remote Video Playback Request Issued by Platform

Beginning word section	Word segment	data type	Description and requirements
0	Server IP address length	BYTE	Length n
one	Server IP address	STRING	IP address of real-time audio and video server
1 + n	Server audio and video channel listening port number (TCP)	WORD	Port number of real-time audio and video server, set to 0 when TCP transmission is not used.
3 + n	Server audio and video channel listening port number (UDP)	WORD	Port number of real-time audio and video server, set to 0 when UDP transmission is not used.
5 + n	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.

Table 24 (continued)

Beginning word section	Word segment	data type	Description and requirements
6 + n	Audio and video types	BYTE	0: audio and video, 1: audio, 2: video, 3: video or audio and video.
7 + n	Code stream type	BYTE	0: main code stream or substream, 1: main code stream, 2: substream; If this channel only transmits audio, this field is set to 0.
8 + n	Memory type	BYTE	2 0: main memory or disaster recovery memory, 1: main : disaster recovery memory
9 + n	Playback mode	BYTE	0: normal playback; 1: Fast forward playback; 2: key frames are quickly put back; 3: key frame play; 4: Single frame upload
10 + n	Fast forward or fast backward multiple	BYTE	When the playback mode is 1 and 2, the content of this field is valid, otherwise it is set to 0. 0: Invalid; 1: 1 times; 2: 2 times
10 + n	Fast forward or fast backward multiple	BYTE	3 to 4 times; 4: 8 times; 5: 16 times
11 + n	start time	BCD[6]	YY-MM-DD-HH-MM-SS, when the playback mode is 4, this field indicates the single frame upload time.
17 + n	end time	BCD[6]	YY-MM-DD-HH-MM-SS, where 0 means straight back. When the playback mode is 4, this field is invalid.

5. 6. 4 Platform issues remote video playback control.

Message id: 0x9202.

Message type: signaling data message.

When the terminal equipment plays back audio and video recordings, the platform can issue playback control instructions to control the playback process. See Table 25 for the data format of message body.

Table 25 Data Format of Remote Video Playback Control Issued by Platform

Beginning word section	Word segment	data type	Description and requirements
0	Audio and video channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Playback control	BYTE	0: Start playback; 1: Pause playback; 2: End playback; 3: Fast forward playback; 4: key frames are quickly put back; 5: drag playback; 6: Key frame playback

Table 25 (continued)

Beginning word section	Word segment	data type	Description and requirements
2	Fast forward or fast backward multiple	BYTE	When the playback control is 3 and 4, the content of this field is valid, otherwise it is set to 0. 0: Invalid; 1: 1 times; 2: 2 times; 3 to 4 times; 4: 8 times; 5: 16 times
three	Drag the playback position	BCD[6]	YY-MM-DD-HH-MM-SS, this field is valid when the playback control is 5.

5. 6. 5 File upload instruction

Message id: 0x9206.

Message type: signaling data message.

The platform sends a file upload command to the terminal, and the terminal replies to the general reply and uploads the file to the designated path of the target FTP server by FTP. See Table 26 for the data format of message body.

Table 26 File Upload Instruction Data Format

Beginning word section	Word segment	data type	Description and requirements
0	Server address length	BYTE	Length k
one	Server address	STRING	FTP server address
1 + k	port	WORD	FTP server port number
3 + k	User name length	BYTE	Length l
4 + k	user name	STRING	FTP username
4 + k + l	Password length	BYTE	Length m
5 + k + l	password	STRING	FTP password
5 + k + l + m	File upload path length	BYTE	Length n
6 + k + l + m	File upload path	STRING	File upload path
6 + k + l + m + n	Logical channel number	BYTE	See table 2 in JT/T 1076—2016.
7 + k + l + m + n	start time	BCD[6]	YY-MM-DD-HH-MM-SS
13 + k + l + m + n	end time	BCD[6]	YY-MM-DD-HH-MM-SS
19 + k + l + m + n	Alarm sign	64BITS	See table 18 of JT/T 808—2011 for the definition of bit 0 ~ bit 31 of alarm flag; See table 12 for bit 32 ~ bit 63; All 0s indicate that whether there is an alarm or not is not specified.
27 + k + l + m + n	Audio and video resource types	BYTE	0: audio and video, 1: audio, 2: video, 3: video or audio and video.

Table 26 (continued)

Beginning word section	Word segment	data type	Description and requirements
28 + k + l + m + n	Code stream type	BYTE	0: main code stream or substream, 1: main code stream, 2: substream.
29 + k + l + m + n	storage location	BYTE	2 0: main memory or disaster recovery memory, 1: main : disaster recovery memory
30 + k + l + m + n	Task execution conditions	BYTE	Represented by bit: Bit 0: wifi, when it is 1, it means that it can be downloaded under WI-FI; Bit 1: LAN, when it is 1, it means that it can be downloaded when LAN is connected; Bit 2: 3G/ 4G, when it is 1, it means that 3G/4G connection is possible. download

5. 6. 6 File upload completion notice

Message id: 0x1206.

Message type: signaling data message.

When all files are uploaded via FTP, the terminal reports this instruction to inform the platform. See Table 27 for the data format of message body.

Table 27 File Upload Completion Notification Data Format

Beginning word section	Word segment	data type	Description and requirements
0	Response serial number	WORD	Serial number of the uploading message corresponding to the platform file.
2	result	BYTE	0: success; 1: Failure

5. 6. 7 File upload control

Message id: 0x9207.

Message type: signaling data message.

The platform informs the terminal to pause, continue or cancel all files being transmitted. See Table 28 for the data format of message body.

Table 28 File Upload Control Data Format

Beginning word section	Word segment	data type	Description and requirements
0	Response serial number	WORD	Serial number of the uploading message corresponding to the platform file.
2	Upload control	BYTE	0: Pause; 1: continue; 2: Cancel

5. 7 Yuntai Control Instruction

5. 7. 1 Yuntai Rotation

Message id:
0x9301. 18

Message type: signaling data message.

The platform requests the terminal to rotate the lens. See Table 29 for the data format of message body.

Table 29 Data Format of Pan-tilt Rotation

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	direction	BYTE	0: Stop; 1: up; 2: down; 3: left; 4: Right
2	speed	BYTE	0 ～ 255

5. 7. 2 Focus control of pan/tilt adjustment

Message id: 0x9302.

Message type: signaling data message.

The platform requests the terminal to adjust the focal length of the lens. See Table 30 for the message body data format.

Table 30 Data format of lens focal length control for gimbal adjustment

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Focus adjustment direction	BYTE	0: the focal length is increased; 1. Reduce the focal length

5. 7. 3 Yuntai adjustment aperture control

Message id: 0x9303.

Message type: signaling data message.

The platform requests the terminal to adjust the lens aperture. See Table 31 for the data format of message body.

Table 31 Data Format of Lens Aperture Control for Yuntai Adjustment

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Aperture adjustment mode	BYTE	0: turn it up; 1. Turn it down

5. 7. 4 Yuntai Wiper Control

Message id: 0x9304.

Message type: signaling data message.

The platform requests the wiper from the terminal. See Table 32 for the data format of message body.

Table 32 Data Format of Wiper Control in Yuntai

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Start-stop sign	BYTE	0: Stop; 1: Start

5. 7. 5 Infrared light supplement control

Message id: 0x9305.

Message type: signaling data message.

The platform requests infrared light compensation control from the terminal. See Table 33 for the data format of message body.

Table 33 Data format of infrared fill light control

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Start-stop sign	BYTE	0: Stop; 1: Start

5. 7. 6 Zoom control of pan/tilt

Message id: 0x9306.

Message type: signaling data message.

The platform requests zoom control from the terminal. See Table 34 for the data format of message body.

Table 34 Data Format of Zoom Control in Yuntai

Beginning word section	Word segment	data type	Description and requirements
0	Logical channel number	BYTE	According to table 2 in JT/T 1076—2016.
one	Variable magnification control	BYTE	0: turn it up; 1. Turn it down

5. 8 terminal sleep wake-up instruction

The platform sends a wake-up short message to wake up the dormant terminal and start working. The content of the short message is "WAKEUPXX", where XX represents the wake-up time in minutes, and the value range is 0 ~ 65 536. If it is 0, it means that it has been awake until the terminal ACC is on or below the rated voltage.

6 Stream communication between audio and video streaming server and client playback software

6. 1 audio and video streams and transparent data packaging format

See Table 18 for the definition of the package format of audio and video streams and transparent data between the video platform and client playback software.

6. 2 Audio and video stream request URL instruction format

After the government video monitoring platform sends a real-time preview or remote playback request instruction to the enterprise video monitoring platform and gets a successful response, it is awarded.

Get the IP address and port number of the audio-video streaming server, and the government video supervision platform client will directly send it to the enterprise audio-video streaming server.

URL instruction, after the link is established, the audio and video stream data is obtained, and the client plays it through browser plug-ins or special software. Audio and video streaming request URL should not be displayed in the interface, and the instruction format is specifically defined as follows:

Http：//[server IP address]: [port number]/[license plate number]. [license plate color]. [logical channel number]. [audio and video logo]. [aging password]

See table 35 for the definition of each data item of audio and video stream request URL instruction.

Table 35 Definition Table of Audio and Video Stream Request URL Instruction Data Item

Word segment		Description and requirements
Address attribute information	Server IP address	IP address of audio and video streaming server
	Port number	Audio and video streaming service port number
	license plate number	W should be encoded in UTF-8, and be uniformly converted
	License plate color	According to 5. 4. 12 in JT/T 415—2006.
	Logical channel number	According to table 2, 0 in JT/T 1076—2016, all channels are represented.
	Audio and video signs	0: audio and video; 1: audio; 2: Video
overhead information	Prescription password	Generated by the enterprise platform server, the aging password of the local government platform client is different from that of the cross-domain regional government platform. The prescription password should only consist of English letters (including uppercase and lowercase letters) and Arabic numerals, with a length of 64 ASCII characters and should be updated every 24 hours.
	Position identification	The satellite positioning time and latitude and longitude of the vehicle at any moment within 5 minutes are used for verification when visiting the cross-domain government platform, and can be blank when visiting the platform client of the local government. ASCII character representation, the format is: YYYYMMDD - HHMMSS - NXX. XXXXXX - EXXX. XXXXXX

7 Fundamentals of communication protocols between video platforms

The communication mode, data type, security authentication mode and protocol message format between different video platforms are in accordance with the requirements in Chapter 4 of JT/T 809—2011.

Data transmission between different video platforms does not need to be authenticated, and its transmission channel should adopt the link that has been connected between positioning platforms, and no new link will be added.

8 Communication protocol flow between video platforms

8. 1 Aging Password Reporting and Request Business Class

The aging password is automatically generated by the enterprise video monitoring platform every day and actively uploaded to the local government video monitoring platform. After receiving the aging password of the day, the local government video monitoring platform mainly uploads it to the superior government video monitoring platform. When the cross-domain government video surveillance platform needs to access the audio and video information of cross-domain vehicles, it should request the cross-domain aging password of the day from the higher-level government video surveillance platform, and the higher-level government video surveillance platform will respond accordingly according to the geographical location of the vehicle at that time after receiving the request.

8. 2 Real-time audio and video services

8. 2. 1 The enterprise video monitoring platform uploads audio and video data to the government video monitoring platform in real time.

The government video monitoring platform sends a real-time audio and video upload request to the enterprise video monitoring platform, and the enterprise video monitoring platform should reply to the government video monitoring platform after receiving the request. If the answer result is successful, the government video supervision platform requests real-time audio and video data from the video server IP and port designated by the enterprise video monitoring platform.

8. 2. 2 The enterprise video monitoring platform stops uploading audio and video data to the government video monitoring platform in real time.

The government video monitoring platform sends a request to the enterprise video monitoring platform to stop real-time audio and video uploading, and the enterprise video monitoring platform should reply to the government video monitoring platform after receiving the request. If the response result is successful, the enterprise video monitoring platform stops sending real-time audio and video data to the government video monitoring platform.

8. 3 Remote Video Retrieval Service

8. 3. 1 The government video monitoring platform obtains the catalogue of audio and video resources from the enterprise video monitoring platform.

The government video monitoring platform sends a request to the enterprise video monitoring platform for obtaining the catalogue of audio and video resources. After receiving the request, the enterprise video monitoring platform should immediately retrieve the latest catalogue of audio and video resources from the terminal, update the local catalogue, and reply to the government video monitoring platform. If the answer result is successful, the enterprise video monitoring platform sends the audio and video resource catalog data to the government video monitoring platform.

8. 3. 2 The enterprise video monitoring platform actively uploads the catalogue of audio and video resources to the government video monitoring platform.

After the enterprise video monitoring platform receives the special alarm information uploaded by the terminal and waits for the complete record of this video information, it should request the latest audio and video resource catalogue with special alarm identification from the terminal, update the local catalogue and actively upload the audio and video resource catalogue to the government video monitoring platform.

8. 4 Remote Video Download Service Class

8. 4. 1 The government video monitoring platform downloads video data from the enterprise video monitoring platform.

The government video monitoring platform sends a request for obtaining video data to the enterprise video monitoring platform, and the enterprise video monitoring platform should reply to the government video monitoring platform after receiving the request. If the answer is successful, the government video monitoring platform can request video data from the FTP server IP and port designated by the enterprise video monitoring platform.

8. 4. 2 The enterprise video monitoring platform sends a download completion notice to the government video monitoring platform.

The enterprise video monitoring platform sends a download completion notice to the government video monitoring platform. After receiving the notice, the government video monitoring platform indicates that the video data has been downloaded from the terminal, and the government video monitoring platform can request the video data from the video FTP server IP and port designated by the enterprise video monitoring platform.

8. 4. 3 The government video monitoring platform sends a download control instruction to the enterprise video monitoring platform.

The government video monitoring platform sends a download control instruction to the enterprise video monitoring platform. After receiving the instruction, the enterprise video monitoring platform should respond to the corresponding control actions in time and reply to the government video monitoring platform.

8. 5 Remote video playback business class

8. 5. 1 The government video monitoring platform requests video playback from the enterprise video monitoring platform.

The government video monitoring platform sends a video playback request to the enterprise video monitoring platform. After receiving the request, the enterprise video monitoring platform should

Respond to the government video supervision platform. If the answer result is successful, the government video supervision platform requests historical audio and video streaming data from the IP and port of the audio and video streaming server designated by the enterprise video monitoring platform.

8. 5. 2 The government video monitoring platform stops requesting video playback from the enterprise video monitoring platform.

The government video monitoring platform sends a request to the enterprise video monitoring platform to stop playing back the video. After receiving the request, the enterprise video monitoring platform should reply to the government video monitoring platform and stop sending historical audio and video streaming data to the government video monitoring platform.

9 Definition of communication protocol constants between video platforms

9. 1 business data type identification

See Table 36 for the name and identification of business data types specified in the audio-video data exchange protocol.

Table 36 Comparison Table of Business Data Type Names and Identifiers

Interest-eliminating species	Business data type name	Message link	Business data type identification	Numeric value
Expired password service class	Main link aging password interactive message	Main link	UP_AUTHORIZE_MSG	0x1700
	Slave link aging password exchange message	Slave link	DOWN_AUTHORIZE_MSG	0x9700
Real-time audio and video service class	Main link real-time audio-video interactive message	Main link	UP_REALVIDEO_MSG	0x1800
	Real-time audio-video interactive message from link	Slave link	DOWN_REALVIDEO_MSG	0x9800
Remote video retrieval	Main link remote video retrieval interactive message	Main link	UP_SEARCH_MSG	0x1900
	Retrieving interactive messages from link remote recording	Slave link	DOWN_SEARCH_MSG	0x9900
Remote video playback	Main link remote video playback interactive message	Main link	UP_PLAYBACK_MSG	0x1A00
	Play back interactive messages from link remote recording.	Slave link	DOWN_PLAYBACK_MSG	0x9A00
Remote video download	Main link remote video download interactive message	Main link	UP_DOWNLOAD_MSG	0x1B00
	Download interactive messages from link remote video recording	Slave link	DOWN_DOWNLOAD_MSG	0x9B00

9. 2 Sub-business Type Identification

See Table 37 for the name and identification of sub-service types specified in the data exchange protocol.

Table 37 Comparison Table of Sub-business Type Name and Identification

Business data type	Sub-business type name	Sub-service data type identification	Numeric value
Main link aging password service class interest elimination UP _ AUTHORIZE _MSG	Expired password reporting message	UP_AUTHORIZE_MSG_STARTUP	0x1701
	Expired password request message	UP_AUTHORIZE_MSG_STARTUP_REQ	0x1702
Slave link aging password service message DOWN_BASE_DATA _MSG	Expired password request response message	DOWN_AUTHORIZE_MSG_STARTUP_REQ_ACK	0x9702
Main link real-time audio-video interactive elimination UP _ REALVIDEO _MSG	Real-time audio and video request response Answer the message	UP_REALVIDEO_MSG_STARTUP_ACK	0x1801
	Active request to stop real-time Audio and video transmission response message	UP_REALVIDEO_MSG_END_ACK	0x1802
Slave link real-time audio-video interactive message DOWN_REALVIDEO _MSG	Real-time audio and video request news	DOWN_REALVIDEO_MSG_STARTUP	0x9801
	Active request to stop real-time Audio and video transmission message	DOWN_REALVIDEO_MSG_END	0x9802
Main link remote video retrieval interactive message UP_SEARCH_MSG	Actively upload audio and video data Source directory information message	UP_FILELIST_MSG	0x1901
	Purpose of inquire audio and video resources Record reply message	UP_REALVIDEO_FILELIST_REQ_ACK	0x1902
Retrieving interactive message DOWN _ SEARCH from link remote video recording _MSG	Actively upload audio and video data Source directory information reply message	DOWN_FILELIST_MSG_ACK	0x9901
	Purpose of inquire audio and video resources Record request message	DOWN_REALVIDEO_FILELIST_REQ	0x9902
Main link remote video playback interactive message UP _ PLAYBACK _MSG	Remote video playback request answer message	UP_PLAYBACK_MSG_STARTUP_ACK	0x1A01
	Remote video playback control answer message	UP_PLAYBACK_MSG_CONTROL_ACK	0x1A02
Interactive elimination of DOWN _ PLAY-BACK_MSG from link remote video playback	Remote video playback request news	DOWN_PLAYBACK_MSG_STARTUP	0x9A01
	Remote video playback control	DOWN_PLAYBACK_MSG_CONTROL	0x9A02

	news		
Main link remote video download interactive message UP _ DOWNLOAD _MSG	Remote video download request answer message	UP_DOWNLOAD_MSG_STARTUP_ACK	0x1B01
	Remote video download completed. Notification message	UP_DOWNLOAD_MSG_END_INFORM	0x1B02
	Remote video download control answer message	UP_DOWNLOAD_MSG_CONTROL_ACK	0x1B03
Download interactive elimination DOWN _ DOWN- LOAD_MSG from link remote video recording.	Remote video download request news	DOWN_DOWNLOAD_MSG_STARTUP	0x9B01
	Remote video download completed. Notification response message	UP_DOWNLOAD_MSG_END_INFORM_ACK	0x9B02
	Remote video download control news	DOWN_DOWNLOAD_MSG_CONTROL	0x9B03

9.3 Video alarm type coding

See Table 38 for the video alarm type codes reported through the platform.

Table 38 Vehicle Video Alarm Type Coding Table

Substitution code	Nominal name	Description and requirements
0x0101	Video signal loss alarm	—
0x0102	Video signal occlusion alarm	—
0x0103	Memory cell fault alarm	—
0x0104	Other video equipment fault alarm	—
0x0105	Bus overcrowding alarm	—
0x0106	Abnormal driving behavior alarm	—
0x0107	Special alarm video reaches the storage threshold alarm.	—

10 Data format of communication protocol between video platforms

10.1 aging password reporting and request business class

10.1.1 aging password reporting message

Link type: main link

Message direction: Lower platform to upper platform.

Sub-service type identification: UP_AUTHORIZE_MSG_STARTUP.

Description: The enterprise video surveillance platform actively reports the expiration password to the government video surveillance platform or the lower-level government video surveillance platform to the higher-level government video surveillance platform. See Table 39 for the data. This instruction does not need to be answered.

Table 39 Data Body of Expired Password Reporting Message

Segment name	Number of words	Data type	Description and requirements
DATA_TYPE	2	uint16_t	Sub-service type identification
PLATEFORM_ID	11	BYTES	The unique code of the enterprise video monitoring platform, the administrative division code of the enterprise to which the platform belongs+the platform announcement number.
AUTHORIZE_CODE_1	64	BYTES	The aging password used by the local government platform.
AUTHORIZE_CODE_2	64	BYTES	Prescription password used by cross-domain regional government platforms

10.1.2 aging password request message

Link type: main link

Message direction: The cross-domain government video surveillance platform identifies the sub-service type to the superior government video surveillance platform:
UP_AUTHORIZE_MSG_STARTUP_REQ.

Description: Cross-domain government video monitoring platform obtains the time-limited password of the video monitoring platform of the enterprise where the designated vehicle is located from the higher-level government video monitoring platform. See Table 40 for the data.

Table 40 Data Body of Expired Password Request Message

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Subsequent data length, with a value of 0x00000000.

10. 1. 3 aging password request response message

Link type: slave link

News direction: the higher-level government video supervision platform has turned to the cross-domain government video supervision platform.

Sub-service type identification: down _ authorize _ msg _ startup _ req _ ack.

Description: The superior government video surveillance platform responds to the time-limited password request message sent by the cross-domain government video surveillance platform, and the superior government video surveillance platform determines the content of the response according to the geographical location of the requested vehicle within 5min minutes. See Table 41 for the data body.

Table 41 Data Body of Expired Password Request Response Message

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields

10. 2 Real-time audio and video services

10. 2. 1 Real-time audio and video request message

Link type: slave link

Message direction: from the initiator platform to the receiver platform.

Sub-service type identification: DOWN_REALVIDEO_MSG_STARTUP.

Description: The government video monitoring platform sends this command to the enterprise video monitoring platform, the higher-level government platform to the lower-level government platform or the cross-domain regional government platform to the local government platform to request the real-time audio and video of the vehicle. See Table 42 for the data body.

Table 42 Real-time Audio and Video Request Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification

Table 42 (continued)

Segment name	Number of words	Data type	Description and requirements
DATA_LENGTH	four	uint32_t	Data length of the next four fields
CHANNEL_ID	one	BYTE	Logical channel number, according to table 2,0 in JT/T 1076—2016, indicating all channels.
AVITEM_TYPE	one	BYTE	Audio and video types are defined as follows: 0x00: audio and video; 0x01: audio; 0x02: Video
AUTHORIZE_CODE	64	BYTES	Prescription password
GNSS_DATA	36	BYTES	This field is only used for cross-domain access requests at any location within 5 minutes after the vehicle enters the cross-domain area, in accordance with the provisions of JT/T 809—2011 Agreement 4. 5. 8. 1.

10. 2. 2 Real-time audio and video request response message

Link type: main link

Message direction: from the receiver platform to the initiator platform.

Sub-service type identification: UP_REALVIDEO_MSG_STARTUP_ACK.

Description: The enterprise video monitoring platform responds to the vehicle real-time audio and video request message sent by the government video monitoring platform. See Table 43 for the data body.

Table 43 Real-time Audio and Video Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 3 fields
RESULT	one	BYTE	The response result is defined as follows; 0x00: success; 0x01: Failed; ; 0x02: Not supported. 0x03: Session ended; 0x04: Invalid aging password; 0x05: The cross-domain condition is not met.
SERVER_IP	32	Octet String	IP address of enterprise video server
SERVER_PORT	2	uint16_t	Port number of enterprise video server

10. 2. 3 Actively request to stop real-time audio and video transmission messages.

Link type: slave link

Message direction: the sub-service type identification of
the government video monitoring platform to the
enterprise video monitoring platform:
DOWN_REALVIDEO_MSG_END.

Description: The government video monitoring platform issued this command to the enterprise video monitoring platform, and actively requested to stop the real-time audio and video transmission of vehicles. See Table 44 for the data body.

Table 44 Active Request to Stop Real-time Audio and Video Message Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
CHANNEL_ID	one	BYTE	Logical channel number, according to table 2,0 in JT/T 1076—2016, indicating all channels.
AVITEM_TYPE	one	BYTE	Audio and video types are defined as follows: 0x00: audio and video; 0x01: audio; 0x02: Video

10. 2. 4 Actively request to stop real-time audio and video transmission reply message.

Link type: main link
Message direction: the sub-service type identification of
the enterprise video monitoring platform to the
government video monitoring platform:
UP_REALVIDEO_MSG_END_ACK.

Description: The enterprise video monitoring platform responded to the active request sent by the government video monitoring platform to stop real-time audio and video transmission. See Table 45 for the data.

Table 45 Active Request to Stop Real-time Audio and Video Response Message Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Subsequent 1 field data length
RESULT	one	BYTE	The response result is defined as follows: 0x00: success; 0x01: Failed; 0x02: Not supported; 0x03: Session End

10. 3 Remote Video Retrieval

10. 3. 1 Actively upload the information message of audio and video resource catalog.

Link type: main link

Message direction: Lower platform to upper platform.

Sub-service type identification: UP_FILELIST_MSG.

Description: The enterprise video monitoring platform sends the catalogue of audio and video resources with special alarm signs to the government video monitoring platform or the lower-level government platform to the higher-level government platform. See Table 46 for the data body.

Table 46 Active Uploading of Audio and Video Resource Directory Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
ITEM _NUM	four	uint32_t	Total number of resource directory entries
ITEM _LIST			See table 47 for the list of resource directory entries.

Table 47 Format of List Items of Uploading Audio and Video Resources

Segment name	Number of words	Data type	Description and requirements
CHANNEL_ID	one	BYTE	Logical channel number, according to table 2,0 in JT/T 1076—2016, indicating all channels.
START_TIME	eight	time_t	UTC time
END_TIME	eight	time_t	UTC time
ALARM_TYPE	eight	64BITS	Bit0-31 is defined according to JT/T 808—2011 Table 18 alarm flag bit; See table 10 for bits 32-63.
AVITEM_TYPE	one	BYTE	Audio and video types are defined as follows: 0x00: audio and video; 0x01: audio; 0x02: Video
STREAM_TYPE	one	BYTE	The code stream type is defined as follows: 0x01: main code stream; 0x02: Substream
MEM_TYPE	one	BYTE	Memory type, defined as follows: 0x01: main memory; 0x02: Disaster Recovery Memory
FILE_SIZE	four	uint32_t	File size, in BYTE.

10. 3. 2 Actively upload the reply message of audio-video resource directory.

Link type: slave link

Message direction: from superior platform to subordinate platform.

Sub-service type identification: DOWN_FILELIST_MSG_ACK.

Description: The government video monitoring platform responds to the request message of actively uploading the audio and video resource catalogue sent by the enterprise video monitoring platform. See Table 48 for the data body.

Table 48 Active Uploading of Audio and Video Resource Directory Request Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
RESULT	one	BYTE	The response result is defined as follows: 0x00: success; 0x01: Failed; 0x02: Not supported; 0x03: Session End
ITEM_NUMBER	one	BYTE	Total number of resource directories

10. 3. 3 Query the request message of audio and video resource directory.

Link type: slave link

Message direction: from superior platform to subordinate platform.

Sub-service type identification: DOWN_REALVIDEO_FILELIST_REQ.

Description: The government video monitoring platform sends a request message to the enterprise video monitoring platform, or the higher-level government platform sends a request message to the lower-level government platform to inquire about the audio and video resource catalogue. See Table 49 for the data body.

Table 49 Query Audio and Video Resource Directory Request Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 9 fields
CHANNEL_ID	one	BYTE	Logical channel number, which indicates all channels according to Table 2,0 in JT/T 1076—2016.

Table 49 (continued)

Segment name	Number of words	Data type	Description and requirements
START_TIME	eight	time_t	Start time, YY-MM-DD-HH-MM-SS, all zeros. Indicates that there is no start time condition
END_TIME	eight	time_t	End time, YY-MM-DD-HH-MM-SS, all zeros. Indicates that there is no termination time condition
ALARM_TYPE	eight	BYTES	Alarm type, Bit0-31 is defined in Table 18 of JT/T 808—2011. See Table 9 for bit32-63; All 0s indicate no alarm type condition.
AVITEM_TYPE	one	BYTE	Audio and video type, 0: audio and video; 1: audio; 2: video, 3: video or audio and video.
STREAM_TYPE	one	BYTE	Code stream type, 0: all code streams, 1: main code stream and 2: sub-code stream.
MEM_TYPE	one	BYTE	Memory type, 0: all memories 1: main memory, 2: disaster recovery memory.
AUTHORIZE_CODE	64	BYTES	Prescription password
GNSS_DATA	36	BYTES	This field is only used for cross-doma5min access requests at any location within 5 minutes after the vehicle enters the cross-domain area, according to the protocol 4. 5. 8. 1 in JT/T 809—2011.

10. 3. 4 Query the reply message of audio-video resource directory.

Link type: main link

Message direction: lower platform to upper platform.

Sub-service type identification: UP_REALVIDEO_FILELIST_REQ_ACK.

Description: The enterprise video monitoring platform responds to the government video monitoring platform or the lower-level government platform to the higher-level government platform. See Table 50 for the data body.

Table 50 Query Audio and Video Resource Directory Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415— The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 3 fields

Table 50 (continued)

Segment name	Number of words	Data type	Description and requirements
RESULT	one	BYTE	The response result is defined as follows; 0x00: success; 0x01: Failed; ; 0x02: Not supported. 0x03: Session ended; 0x04: Invalid aging password; 0x05: The cross-domain condition is not met.
ITEM_NUM	four	DWORD	Total number of resource directory entries
ITEM_LIST			See table 47 for the list of resource directory entries.

10. 4 Remote video playback

10. 4. 1 Remote video playback request message

Link type: slave link

Message direction: from the initiator platform to the receiver platform.

Sub-service type identification: DOWN_PLAYBACK_MSG_STARTUP.

Description: The government video monitoring platform sends this command to the enterprise video monitoring platform, the higher-level government platform to the lower-level government platform or the cross-domain regional government platform to the local government platform to request the video and audio of the vehicle. See Table 51 for the data body.

Table 51 Remote Video Playback Request Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 8 fields
CHANNEL_ID	one	BYTE	Logical channel number, according to table 2,0 in JT/T 1076—2016, indicating all channels.
AVITEM_TYPE	one	BYTE	Audio and video type, 0: audio and video; 1: audio; 2: video, 3: video or audio and video.
STREAM_TYPE	one	BYTE	Code stream type, 0: all code streams, 1: main code stream and 2: sub-code stream.
MEM_TYPE	one	BYTE	Memory type, 0: all memories 1: main memory, 2: disaster recovery memory.
PLAYBACK_STARTTIME	eight	time_t	Playback start time, UTC time

Table 51 (continued)

Segment name	Number of words	Data type	Description and requirements
PLAYBACK_ENDTIME	eight	time_t	End time of playback, UTC time
AUTHORIZE_CODE	64	BYTES	Prescription password
GNSS_DATA	36	BYTES	This field is only used for cross-doma5min access requests at any location within 5 minutes after the vehicle enters the cross-domain area, according to 4. 5. 8. 1 in JT/T 809—2011.

10. 4. 2 remote video playback request response message

Link type: main link

Message direction: from the receiver platform to the initiator platform.

Sub-service type identification: UP_PLAYBACK_MSG_STARTUP_ACK.

Description: The enterprise video monitoring platform responds to the government video monitoring platform, the lower-level government platform responds to the higher-level government platform or the local government platform responds to the video playback request message sent by the cross-domain regional government platform. See Table 52 for the data body.

Table 52 Remote Video Playback Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415— The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 3 fields
SERVER_IP	32	Octet String	IP address of enterprise video server
SERVER_PORT	2	uint16_t	Port number of enterprise video server
RESULT	one	BYTE	The response result is defined as follows: 0x00: success; 0x01: Failed; ; 0x02: Not supported. 0x03: Session ended; 0x04: Invalid aging password; 0x05: The cross-domain condition is not met.

10. 4. 3 Remote video playback control message

Link type: slave link

News direction: government video monitoring platform to enterprise video monitoring platform

Sub-service type identification: DOWN_PLAYBACK_MSG_CONTROL.

Description: The government video monitoring platform issues this command to the enterprise video monitoring platform to control the playback. See Table 53 for the data body.

Table 53 Remote Video Playback Control Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 3 fields
CONTROL_TYPE	one	BYTE	0x00: normal playback; 0x01: Pause playback; 0x02: End playback; 0x03: Fast forward playback; 0x04: key frames are quickly put back; 0x05: Drag playback; 0x06: Key Frame Playback
FAST_TIME	one	BYTE	0x Fast-forward or Fast-backward 04, the content of this field is valid, otherwise set to 0. 0x00: Invalid; 0x01: 1 times; 0x02: 2 times; 0x03: 4 times; 0x04: 8 times; 0x05: 16 times
DATE_TIME	eight	time_t	Drag position, expressed in UTC time. When the playback control is 0x05, the content of this field is valid.

10. 4. 4 remote video playback control response message

Link type: main link

News direction: enterprise video monitoring platform to government video monitoring platform

Sub-service type identification: UP_PLAYBACK_MSG_CONTROL_ACK.

Description: The enterprise video monitoring platform responds to the playback control message issued by the government video monitoring platform. See Table 54 for the data body.

Table 54 Remote Video Playback Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Subsequent 1 field data length
RESULT	one	BYTE	The response result is defined as follows: 0x00: success; 0x01: Failed; 0x02: Not supported; 0x03: Session End

10. 5 Remote Video Download

10. 5. 1 Remote Video Download Request Message

Link type: slave link

News direction: government video monitoring platform to enterprise video monitoring platform

Sub-service type identification: DOWN_DOWNLOAD_MSG_STARTUP.

Description: The government video monitoring platform issued this command to the enterprise video monitoring platform to download the video and audio of the vehicle. See Table 55 for the data body.

Table 55 Remote Video Download Request Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 10 fields
CHANNEL_ID	one	BYTE	Logical channel number, according to table 2,0 in JT/T 1076—2016, indicating all channels.
START_TIME	eight	time_t	UTC time
END_TIME	eight	time_t	UTC time
ALARM_TYPE	eight	64BITS	See table 18 in JT/T 808—2011 for bit0 ~ bit31. Alarm flag bit definition; See table 10 for bit 32 ~ bit 63.
AVITEM_TYPE	one	BYTE	Audio and video types are defined as follows: 0x00: audio and video; 0x01: audio; 0x02: Video
STREAM_TYPE	one	BYTE	The code stream type is defined as follows: 0x01: main code stream; 0x02: Substream
MEM_TYPE	one	BYTE	Memory type, defined as follows: 0x01: main memory; 0x02: Disaster Recovery Memory
FILE_SIZE	four	uint32_t	File size, in BYTE.
AUTHORIZE_CODE	64	BYTES	Prescription password
GNSS_DATA	36	BYTES	This field is only used for cross-doma5min access requests at any location within 5 minutes after the vehicle enters the cross-domain area. See Agreement 4. 5. 8. 1 in JT/T 809—2011 for details.

10. 5. 2 Remote Video Download Request Response Message

Link type: main link

News direction: enterprise video monitoring platform to government video monitoring platform

Sub-service type identification: UP_DOWNLOAD_MSG_STARTUP_ACK.

Description: The enterprise video monitoring platform responds to the request for downloading vehicle audio and video sent by the government video monitoring platform. See Table 56 for the data body.

Table 56 Remote Video Download Request Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
RESULT	one	BYTE	The response result is defined as follows; 0x00: success; 0x01: Failed; ; 0x02: Not supported. 0x03: Session ended; 0x04: Invalid aging password; 0x05: The cross-domain condition is not met.
SESSION_ID	2	uint16_t	S corresponds to the serial number of the

10. 5. 3 Remote Video Download Completion Notification Message

Link type: main link

News direction: enterprise video monitoring platform to government video monitoring platform

Sub-service type identification: UP_DOWNLOAD_MSG_END_INFORM.

Description: The enterprise video monitoring platform sends to the government video monitoring platform to inform the government that the video file has been downloaded from the terminal. See Table 57 for the data body.

Table 57 Data Body of Remote Video Download Completion Notification

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415—The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 7 fields
RESULT	one	BYTE	0x00: Success, 0x01: Failed.
SESSION_ID	2	uint16_t	S corresponds to the serial number of the
SERVER_IP	32	Octet String	Ip address of FTP server, when RESULT is 0. effective

Table 57 (continued)

Segment name	Number of words	Data type	Description and requirements
TCP_PORT	2	uint16_t	FTP port, valid when RESULT is 0.
USERNAEM	forty-nine	Octet String	FTP user name, valid when RESULT is 0.
PASSWORD	22	Octet String	FTP password, valid when the RESULT is 0.
FILE_PATH	200	Octet String	File storage path, valid when RESULT is 0.

10. 5. 4 Remote Video Download Completion Notification Response Message

Link type: slave link

News direction: government video monitoring platform to enterprise video monitoring platform

Sub-service type identification: UP_DOWNLOAD_MSG_END_INFORM_ACK.

Description: The government video monitoring platform responded to the notice of downloading completion of the enterprise video monitoring platform. See Table 58 for the data body.

Table 58 Remote Video Download Completion Notification Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415— The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
RESULT	one	BYTE	Response result: 0x00: success; 0x01: Failed; 0x02: Not supported; 0x03: Session End
SESSION_ID	2	uint16_t	S corresponds to the serial number of the

10. 5. 5 Remote Video Download Control Request Message

Link type: slave link

News direction: government video monitoring platform to enterprise video monitoring platform

Sub-service type identification: DOWN_DOWNLOAD_MSG_CONTROL.

Description: The government video monitoring platform sends a download control message to the enterprise video monitoring platform. See Table 59 for the data body.

Table 59 Remote Video Download Control Request Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415— The provisions of 4. 12

Table 59 (continued)

Segment name	Number of words	Data type	Description and requirements
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Data length of next 2 fields
SESSION_ID	2	uint16_t	Serial number of the uploading message corresponding to the platform file.
TYPE	one	BYTE	0x00: Pause; 0x01: Continue; 0x02: Cancel

10. 5. 6 Remote Video Download Control Request Response Message

Link type: main link

News direction: enterprise video monitoring platform to government video monitoring platform

Sub-service type identification: UP_DOWNLOAD_MSG_CONTROL_ACK.

Description: The enterprise video monitoring platform responds to the download control request sent by the government video monitoring platform. See Table 60 for the data body.

Table 60 Remote Video Download Control Request Response Data Body

Segment name	Number of words	Data type	Description and requirements
VEHICLE_NO	21	Octet String	vehicle license plate number
VEHICLE_COLOR	one	BYTE	5. License plate color according to JT/T 415— The provisions of 4. 12
DATA_TYPE	2	uint16_t	Sub-service type identification
DATA_LENGTH	four	uint32_t	Subsequent 1 field data length
RESULT	one	BYTE	Response result: 0x00: success; 0x01: Failed; 0x02: Not supported; 0x03: Session End

Attachment A (normative appendix)

Message comparison table between video terminal and video platform

See Table A. 1 for the message comparison table of communication protocol between video terminal and video platform.

Table A. 1 message comparison table between video terminal and video platform

serial number	Message body name	Message ID	serial number	Message body name	Message ID
one	Query terminal audio and video attributes	0x9003	12	File upload instruction	0x9206
2	Terminal uploads audio and video attributes.	0x1003	13	File upload completion notification	0x1206
three	Real-time audio and video transmission request	0x9101	14	File upload control	0x9207
four	Terminal uploads passenger traffic.	0x1005	15	Yuntai rotation	0x9301
five	Audio and video real-time transmission control	0x9102	16	Pan-tilt adjustment focal length control	0x9302
six	Real-time audio and video streaming and transparent data transmission		17	Pan-tilt adjusting aperture control	0x9303
seven	Real-time audio and video transmission status notification	0x9105	18	Yuntai wiper control	0x9304
eight	Query resource list	0x9205	19	Infrared supplementary light control	0x9305
nine	Terminal uploads audio and video resource list.	0x1205	20	Pan-tilt zoom control	0x9306
10	Platform issues remote video playback request.	0x9201	21	Platform manual wake-up request (short message)	WAKEUPXX
11	Remote video playback control issued by the platform	0x9202			