MEITRACK® JTT808_JTT 1078_protocol

Models: MD600/MD833H/MD300

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1 Explain

This document references JTT 808-2019 (Chinese National Transportation Ministry Standard 2019), TJSALT 12-2017 (Jiangsu Provincial Transportation Department Standard 2017), JTT 1078-2016 (Road Transport Vehicle Satellite Positioning System Video Communication Protocol), and related reference documents. Should any difficulties arise during review, please consult the Jiangsu Provincial Transportation Department Standard and the Chinese National Transportation Ministry Standard documents.

The Jiangsu Provincial Department of Transportation standard commands are supplementary commands developed based on the original standard commands of the Chinese National Ministry of Transportation. Therefore, if you have a certain understanding of the Chinese National Ministry of Transportation standard commands, you will be able to quickly understand the Jiangsu Provincial Department of Transportation standard commands after reading this document.

Starting from the 2019 edition, the Jiangsu Provincial Department of Transportation standards will support device numbers with extended digit lengths.

2 Terms and Definitions

Chinese Name	English Translation	Description
Data Communication Link Abnormality	abnormal data communication link	Wireless communication link disconnected or temporarily suspended (e.g., during a call).
Registration	register	The tracker sends a message to the platform indicating that it is installed on a specific vehicle.
Logout	unregister	The tracker sends a message to the platform indicating it has been removed from the installed vehicle.
Authentication	authentication	When the tracker connects to the platform, it sends a message to authenticate its identity.
Location Reporting Strategy	location reporting strategy	Periodic reporting, distance-based reporting, or a combination of both.
Location Reporting Scheme	location reporting program	Rules for determining the interval of periodic reporting based on relevant conditions.
Corner Point Retransmission	additional points report while turning	The tracker sends a location information report when detecting a vehicle turn. Sampling frequency not less than 1 Hz, vehicle azimuth change rate not less than 15°/s, sustained for at least 3 seconds.
Call Answering Strategy	answering strategy	Rules governing the tracker’ s automatic or manual answering of incoming calls.
Event Item	event item	Event items are preset by the platform to the tracker and consist of an event code and event title. When the driver encounters the corresponding event, they operate the tracker to trigger the event report, which is sent to the

		platform.
Bit Rate	Code rate	The number of data bits transmitted per unit time during data transmission, commonly expressed in kilobits per second (kbps).
Frame Rate	Frame rate	Represents the number of times per second the graphics processor can update frames, used to measure the display frame count, with the unit frames per second (FPS).

3 Abbreviation

Abbreviation	Chinese Full Name	English Full Name
ADAS	Advanced Driver Assistance System	Advanced Driver Assistant System
DSM	Driver Status Monitoring	Driving State Monitoring
CAN	Controller Area Network	Controller Area Network
APN	Access Point Name	access point name
GZIP	A GNU free software file compression program	GNUzip
LCD	Liquid Crystal Display	liquid crystal display
RSA	An asymmetric cryptographic algorithm	Ron Rivest、Adi Shamirh、Len Adleman
TCP	Transmission Control Protocol	transmission control protocol
TTS	Text-to-Speech	text to speech
UDP	User Datagram Protocol	user datagram protocol
VSS	Vehicle Speed Sensor	vehicle speed sensor
AAC	Advanced Audio Coding	Advanced Audio Coding
MPEG	Moving Picture Experts Group	Moving Pictures Experts Group
RTP	Real-time Transport Protocol	Real-time Transport Protocol
FTP	File Transfer Protocol	File Transfer Protocol
UTF-8	Universal Code	8-bit Unicode Transformation Format

4 Data Type

Data Type	Description and Requirements
BYTE	Unsigned single-byte integer (byte, 8 bits)
WORD	Unsigned double-byte integer (word, 16 bits)
DWORD	Unsigned four-byte integer (double word, 32 bits)
BYTE[n]	n bytes
BCD[n]	8421 code, n bytes
STRING	GBK encoding; if no data is present, leave blank

5 Transmission Rules

The protocol employs big-endian network byte order for transmitting words and double words.

The conventions are defined as follows:

Length	Explain
Byte (BYTE)	Transmitted as a byte stream
Word (WORD)	Transmit the high eight bits first, followed by the low eight bits
Double Word (DWORD)	Transmit the highest 24 bits first, then the highest 16 bits, followed by the highest eight bits, and finally the lowest eight bits

6 Message Format

6.1 Message Format Overview

7E (Flag Byte)	Message Header	Message Body	Checksum	7E (Flag Byte)

The flag byte is represented by 0x7E. If 0x7E appears in the checksum, message header, or message body, it must be escaped. The escape rules are defined as follows:

0x7e <————> 0x7d 0x02

0x7d <————> 0x7d 0x01

Escape processing procedure	Describe
When sending a message	Calculate and fill checksum
When receiving a message	Verify checksum

Example: Sending a packet with content **0x30 0x7e 0x08 0x7d 0x55** results in the following encapsulated packet: **0x7e 0x30 0x7d 0x02 0x08 0x7d 0x01 0x55 0x7e**

6.2 Message Header

Start byte	Field	Data Type	Description and Requirements
0	Message ID	WORD	—
2	Message body property	WORD	Message body property format structure
4	Protocol version number	BYTE	Protocol version, incremented with each major revision; initial version is 1
5	IMEI	BCD[N]	Default N=10; if the IMEI number is shorter, pad with digit 0 at the front
15	Message Serial Number	WORD	Accumulate cyclically starting from 0 in the order of transmission

17	Message Packet Encapsulation Item	—	If the relevant flag bit in the Message Body Property indicates message segmentation processing, this field contains content; otherwise, this field is omitted

Message body property															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Retain	Version Identifier	Segmentation	Data Encryption Method			Message Body Length									
The Version Identifier bit value is fixed at 1															

Data shall be encrypted as follows:

1. Bits 10 to 12 are data encryption flag bits;
2. When all three bits are 0, the message body is not encrypted;
3. When bit 10 is set to 1, the message body is encrypted using the RSA algorithm;
4. Other bits are reserved.

Message segmentation shall be processed according to the following requirements:

1. When bit 13 in the Message Body Property is set to 1, it indicates the message body is a long message and shall be segmented for transmission; specific segmentation details are determined by the Message Packet Encapsulation Item;
2. If the 13th bit is 0, the message header does not contain the Message Packet Encapsulation Item field.

Message Packet Encapsulation Item Content			
Start Byte	**Field**	**Data Type**	**Description and Requirements**
0	Total Number of Message Packets	WORD	Total number of packets after message segmentation
2	Packet Sequence Number	WORD	Starting from 1

The version identifier shall be processed according to the following requirements:

1. When the 14th bit is 0, it indicates that the protocol version is from the year 2011, which does not include the version identification feature.

2. When the 14th bit is 1, it indicates that the protocol has introduced the version identification feature. The protocol version number follows the authentication code in the tracker authentication message. The initial version number after introducing this feature is 1, and each subsequent critical revision will increment the version number.

6.3 Message Body

The format content of each distinct command message body is defined by the respective command; detailed requirements are provided inCommand Details

6.4 Checksum

The checksum calculation rule begins from the first byte of the message header, performing XOR with each subsequent byte up to the last byte of the message body; the checksum length is one byte.

7 Command List

8 Command Details

8.1 Tracker General Response – 0 x0001

Table 1: Tracker General Response Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Response Serial Number	WORD	Serial number of the corresponding platform message
2	Response ID	WORD	ID of the corresponding platform message
4	Result	BYTE	0: Success/Confirm; 1: Failure; 2: Message Error; 3: Not Supported

8.2 Platform General Response – 0x8001

Table 2: Platform General Response Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Response Serial Number	WORD	Serial number of the corresponding tracker message
2	Response ID	WORD	Corresponding Tracker Message ID
4	Result	BYTE	0: Success/Confirmation; 1: Failure; 2: Message Error; 3: Not Supported; 4: Alarm Processing Confirmation;

8.3 Tracker Registration – 0x0100

Table 3: Tracker Registration Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Province ID	WORD	Indicates the province where the tracker-installed vehicle is located; 0 is reserved and the platform assigns the default value. Province ID uses the first two digits of the six-digit administrative division code as specified in GB/T2260.
2	City and County ID	WORD	Indicates the city and county where the tracker-installed vehicle is located; 0 is reserved and the platform assigns the default value. City

			and County ID uses the last four digits of the six-digit administrative division code as specified in GB/T2260.
4	Manufacturer ID	BYTE[5]	5 bytes, terminal manufacturer code
9	Terminal Model	BYTE[20]	20 bytes, this terminal model is defined by the manufacturer; if the length is insufficient, it shall be padded with '0X00'.
29	Terminal Model ID	BYTE[7]	7 bytes, consisting of uppercase letters and digits; this terminal ID is defined by the manufacturer, and if the length is insufficient, it shall be padded with '0X00'.
36	License plate color	BYTE	License plate color, in accordance with JT/T415-2006, section 5.4.12. If unregistered, the value is 0.
37	Vehicle identification	STRING	A license plate color value of 0 indicates the vehicle VIN; otherwise, it indicates the motor vehicle license plate issued by the public security traffic management department.

8.4 Tracker Registration Response – 0x8100

Table 4: Tracker Registration Response Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Response Serial Number	WORD	Serial number corresponding to the tracker registration message
2	Result	BYTE	0: Success; 1: Vehicle already registered; 2: Vehicle not found in database; 3: Tracker already registered; 4: Tracker not found in database
3	Authentication Code	STRING	This field is present only if registration is successful

8.5 Tracker Authentication – 0x0102

Table 5: Tracker Authentication Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Authentication Code Length	BYTE	-
1	Authentication Code	STRING	Length set to n
1+n	Tracker IMEI	BYTE[15]	IMEI Number
16+n	Software Version Number	BYTE[20]	Manufacturer-defined version number, zero-padded if length is insufficient

8.6 Set Tracker Parameter – 0x8103

Table 6: Set Tracker Parameter Message Body Data Format

Start byte	Field	Data Type	Description and Explanation
0	Total Number of Parameters	BYTE	
1	Parameter Item List		See Table 7

Table 7: Parameter Item List Format		
Start byte	**Data Type**	**Description and Explanation**
Parameter ID	DWORD	See Table 8
Parameter Length	BYTE	
Parameter Value		For multi-value parameters, multiple parameter items with the same ID are included in the message

Table 8: Definitions and Descriptions of Tracker Parameter Settings Items		
Start byte	**Data Type**	**Description and Explanation**
0x0029	DWORD	Default Time Reporting Interval, Unit: Seconds (s), >0
0x0030	DWORD	Turning Point Retransmission Angle, <180
0x0055	DWORD	Maximum Speed, Unit: Kilometers per Hour (km/h)
0x0056	DWORD	Overspeed Duration, Unit: Seconds (s)

8.7 Query Tracker Parameters – 0x8104

The message body for querying tracker parameters is empty.

8.8 Query Specified Tracker Parameters – 0x8106

Table 12: Message Body Data Format for Querying Specified Tracker Parameters			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Total Number of Parameters	BYTE	Total number of parameters: n
1	Parameter ID List	BYTE[4*n]	Parameters are arranged sequentially, for example, "ParameterID1 ParameterID2 ..... ParameterIDn".

8.9 Query Tracker Parameters Response – 0x0104

Table 1 3: Query Tracker Parameters Response Message Body Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Response Serial Number	WORD	Serial number corresponding to the tracker parameter query message
2	Number of	BYTE	

	response parameters		
3	Parameter Item List		See Table 7

8.10 Location Information Report – 0x0200

Table 1 5: Location Report Message Structure Diagram	
Basic Location Information	List of Additional Location Information (may be absent)

Table 1 6: Basic Location Information Data Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Alarm Flag	DWORD	Refer to Table 1 7
4	Status	DWORD	Refer to Table 1 8
8	Latitude	DWORD	Latitude value in degrees multiplied by 10^6, accurate to one millionth of a degree
12	Longitude	DWORD	Longitude value in degrees multiplied by 10 to the power of 6, precise to one-millionth of a degree
16	Elevation	WORD	Altitude, unit: meters (m)
18	Speed	WORD	1/10km/h
20	Direction	WORD	0-359, with 0 representing true north, clockwise direction
21	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 Time; all times referenced in this standard hereafter use this time zone)

Table 1 7: Alarm Flag Bit Definitions		
Bit	**Definition**	**Processing Instructions**
0	1: Emergency alarm, triggered upon activation of the alarm switch	Cleared upon receipt of acknowledgment
1	1: Overspeed alarm	Flag remains set until the alarm condition is cleared
2	1: Fatigue driving	Flag remains set until the alarm condition is cleared
3	1: Danger Warning	Cleared upon receipt of acknowledgment
13	1: Overspeed Warning	Flag remains set until the alarm condition is cleared
14	1: Fatigue Driving Warning	Flag remains set until the alarm condition is cleared
18	1: Day Driving Overtime	Flag remains set until the alarm condition is cleared
19	1: Parking Timeout	Flag remains set until the alarm condition is cleared
20	1: Area Entry/Exit	Cleared upon receipt of acknowledgment
21	1: Route Entry/Exit	Cleared upon receipt of acknowledgment
22	1: Insufficient or Excessive Section Driving Time	Cleared upon receipt of acknowledgment
23	1: Route Deviation Alarm	Flag remains set until the alarm condition is cleared

Note: Location information must be reported immediately upon alarm or warning

Table 18: Status Bit Definitions	
Bit	**Status**
0	0: ACC Off 1: ACC On
1	0: Online Not Located 1: Located
2	0: North Latitude 1: South Latitude
3	0: East Longitude 1: West Longitude
4	0: Operating Status 1: Out-of-Service Status
5	0: Latitude and Longitude Not Encrypted by Security Plugin 1: Latitude and Longitude Encrypted by Security Plugin
6-9	Retain
10	0: Vehicle fuel circuit normal; 1: Vehicle fuel circuit disconnected
11	0: Vehicle electrical circuit normal; 1: Vehicle electrical circuit disconnected
12	0: Vehicle door unlocked; 1: Vehicle door locked
13-31	Retain

Note: Upon status change, location information must be reported immediately. The format of location additional information items is specified inTable26。

Table 1 9: Location Additional Information Item Format		
Field	**Data Type**	**Description and Requirements**
Additional Information ID	BYTE	1-255
Additional Information Length	BYTE	
Additional Information		Refer to Table 2 0

Table 2 0: Additional Information Definition		
Additional Information ID	**Additional Information Length**	**Description and Requirements**
0x64		Advanced Driver Assistance Alarm Information Data Format; see Table 2 1
0x65		Driver Status Monitoring System Alarm Information Data Format; see Table 2 3

Table 2 1: Advanced Driver Assistance Alarm Information Data Format			
0	**Alarm ID**	**DWORD**	**Sequentially incremented starting from 0 according to the order of alarms, regardless of alarm type.**
4	Flag Status	BYTE	0x00: Unavailable 0x01: Start Flag 0x02: End Flag This field applies only to alarms or events that include start and end flags. If the alarm or event type does not have start and end flags,

			this field is not applicable and should be set to 0x00.
5	Alarm/Event Type	BYTE	0x01: Forward Collision Alarm 0x02: Lane Departure Alarm 0x03: Vehicle Proximity Alarm 0x04: Pedestrian Collision Alarm 0x05: Frequent Lane Change Alarm 0x06: Road Sign Speeding Alarm 0x07: Obstacle Alarm 0x08~0x0F: User Defined 0x10: Road Sign Recognition Events; 0x11: Active Capture Events 0x12~0x1F: User Defined
6	Alarm Level	BYTE	0x01: Level 1 Alarm; 0x02: Level 2 Alarm
7	Preceding Vehicle Speed	BYTE	Unit: Km/h. Range: 0~250, valid only when the alarm type is 0x01 or 0x02.
8	Distance to Preceding Vehicle/Pedestrian	BYTE	Unit: 100 ms, range: 0~100 Valid only when the alarm type is 0x01, 0x02, or 0x04.
9	Deviation Type	BYTE	0x01: Left Deviation; 0x02: Right Deviation Valid only when the alarm type is 0x02.
10	Road Sign Recognition Type	BYTE	0x01: Speed Limit Sign; 0x02: Height Limit Sign 0x03: Weight Limit Sign. Valid only when the alarm type is 0x06 or 0x10.
11	Road Sign Recognition Data	BYTE	Data of recognized road signs.
12	Vehicle Speed	BYTE	Unit: Km/h. Range: 0 to 250.
13	Elevation	WORD	Altitude, unit: meters (m)
15	Latitude	DWORD	Latitude value in degrees multiplied by 10^6, precise to one-millionth of a degree.
19	Longitude	DWORD	Longitude value in degrees multiplied by 10^6, precise to one-millionth of a degree.
23	Date and Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 Time)
29	Vehicle Status	WORD	Other vehicle statuses represented by bit flags: Bit0 ACC Status, 0: Turn Off, 1: Turn On Bit1 Left Turn Signal Status, 0: Turn Off, 1: Turn On Bit2 Right Turn Signal Status, 0: Turn Off, 1: Turn On Bit3 Wiper Status, 0: Turn Off, 1: Turn On Bit4 Brake Status, 0: Not Braking, 1: Braking Bit5 Card Insertion Status, 0: No Card Inserted, 1: Card Inserted Bit6~Bit9 Other Bit10 Location Status, 0: Online Not Located, 1: Located Bit11~Bit15 Other
31	Alarm Identification Number	BYTE[16]	See Table 2 2

Table 2 2: Alarm Identification Number Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Terminal Model ID	BYTE[7]	7 bytes, consisting of uppercase letters and digits
7	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 Time)
13	Index	BYTE	Index of alarms occurring at the same time, incrementing cyclically from 0
14	Attachment Count	BYTE	Indicates the number of attachments associated with the alarm
15	Reserved	BYTE	

Table 2 3: Driver Status Monitoring System Alarm Information Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Alarm ID	DWORD	Sequentially incremented starting from 0 according to the order of alarms, regardless of alarm type.
4	Flag Status	BYTE	0x00: Unavailable 0x01: Start Flag 0x02: End Flag This field applies only to alarms or events with start and end flags. If the alarm or event type does not have start and end flags, this field is not applicable and should be set to 0x00.
5	Alarm/Event Type	BYTE	0x01: Fatigue Driving Alarm 0x02: Phone Call Alarm 0x03: Smoking Alarm 0x04: Distracted Driving Alarm 0x05: Driver Abnormal Alarm 0x06~0x0F: User Defined 0x10: Automated Capture Event 0x11: Driver Change Event 0x12~0x1F: User Defined
6	Alarm Level	BYTE	0x01: Level 1 Alarm 0x02: Level 2 Alarm
7	Drowsiness Level	BYTE	Range: 1 to 10. A higher value indicates a more severe drowsiness level; applicable only when the alarm type is 0x01.
8	Reserved	BYTE[4]	Reserved
12	Vehicle Speed	BYTE	Unit: Km/h. Range: 0 to 250.
13	Elevation	WORD	Altitude, unit: meters (m)
15	Latitude	DWORD	Latitude value in degrees multiplied by 10^6, precise to one-millionth of a degree.
19	Longitude	DWORD	Longitude value in degrees multiplied by 10^6, precise to one-millionth of a degree.
23	Date and Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 Time)
29	Vehicle Status	WORD	Other vehicle statuses represented by bit flags: Bit0 ACC Status, 0: Turn Off, 1: Turn On Bit1 Left Turn Signal Status, 0: Turn Off, 1: Turn On Bit2 Right Turn Signal Status, 0: Turn Off, 1: Turn On Bit3 Wiper Status, 0: Turn Off, 1: Turn On Bit4 Brake Status, 0: Not Braking, 1: Braking

			Bit5 Card Insertion Status, 0: No Card Inserted, 1: Card Inserted Bit6~Bit9 Other Bit10 Location Status, 0: Online Not Located, 1: Located Bit11~Bit15 Other
31	Alarm Identification Number	BYTE[16]	See Table 2 2

Table 27: Extended Vehicle Signal Status Bits	
Bit	**Definition**
2	1: Right Turn Signal
3	1: Left Turn Signal

Table 28: IO Status Bits	
Bit	**Definition**
0	1: Deep Sleep State
1	1: Sleep State
2-15	Retain

8.11 Alarm Attachments Upload Command – 0x9208

Message Type: Signaling Data Packet.

Upon receiving alarm/event information with attachments, the platform issues an attachment upload command to the tracker.

Table 60: Alarm Attachments Upload Command Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Attachment Server IP Address Length	BYTE	Length k
1	Attachment Server IP Address	STRING	Server IP Address
1+k	Attachment Server Port (TCP)	WORD	Server port number used for TCP transmission
3+k	Attachment Server Port (UDP)	WORD	Server port number used for UDP transmission
5+k	Alarm Identification Number	BYTE[16]	Alarm Identification Number definition, see Table 22
21+k	Alarm No.	BYTE[32]	Unique number assigned by the platform to the alarm
53+k	Reserved	BYTE[16]	

Upon receiving the alarm attachments upload command from the platform, the tracker sends a General Response Message to the platform.

8.12 Alarm Attachments Information Message – 0x1210

Message Type: Signaling Data Packet.

The tracker connects to the attachment server according to the upload command and sends the Alarm Attachments Information Message to the server. The message body data format is specified in Table 61.

Table 61: Alarm Attachments Information Message Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Terminal Model ID	BYTE[7]	7 bytes, consisting of uppercase letters and digits. This Terminal Model ID is defined by the manufacturer. If the length is insufficient, it shall be padded with “0x00”.
7	Alarm Identification Number	BYTE[16]	See Table 2 2
23	Alarm No.	BYTE[32]	Unique number assigned by the platform to the alarm
55	Information Type	BYTE	0x00: Normal Alarm File Information 0x01: Re-uploaded Alarm File Information
56	Attachment Count	BYTE	Number of Attachments Associated with the Alarm
57	Attachment Information List		Refer to Table 6 2

Upon receiving the Alarm Attachments Information Message uploaded by the tracker, the Attachment Server shall send a General Response Message to the tracker. If the connection between the tracker and the Attachment Server is abnormally disconnected during the upload of alarm attachments, the Alarm Attachments Information Message must be resent upon reconnection. The attachments included are those files that were not uploaded and incomplete prior to disconnection.

Table 62: Alarm Attachments Information List			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	File Name Length	BYTE	Length k
1	File Name	STRING	File Name String
1+k	File Size	DWORD	Current File Size

The file naming convention is as follows:

<File Type>_<Channel Number>_<Alarm Type>_<Index>_<Alarm No.>.<Extension>

The field definitions are as follows:

File Type: 00—Picture; 01—Audio; 02—Video; 03—Text; 04—Other.

Channel Number: 0 to 37 represent video channels as defined in Table 2 of the JT/T 1076 standard.

64 represents the ADAS module video channel.

65 represents the DSM module video channel.

If the attachment is unrelated to any channel, enter 0.

Alarm Type: a code composed of the peripheral ID and the corresponding module alarm type; for example, Forward Collision Alarm is represented as “6401”.

Index: Used to differentiate file numbers of the same channel and type.

Alarm No.: Unique number assigned by the platform for the alarm.

File Extension: Picture files are jpg or png, audio files are wav, video files are 264, and text files are bin.

Upon receiving the alarm attachment information command reported by the tracker, the Attachment Server sends a General Response Message to the tracker.

8.13 File Information Upload – 0x1211

Message Type: Signaling Data Packet.

After the tracker sends the alarm attachment information command to the Attachment Server and receives a response, it transmits the attachment file information message to the Attachment Server.

Table 63: Attachment File Information Message Data Format			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	File Name Length	BYTE	File name length: 1
1	File Name	STRING	File Name
1+1	File Type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Others
2+1	File Size	DWORD	Current size of the uploaded file.

Upon receiving the file information upload command from the tracker, the Attachment Server sends a General Response Message to the tracker.

8.14 File Data Upload

Message Type: Stream Data Message.

After the tracker sends the File Information Upload command to the Attachment Server and receives a response, it transmits the file data to the Attachment Server. The payload packet format is defined in Table 64.

Table 64: File Stream Payload Packet Format Definition			
Start byte	**Field**	**Data Type**	**Description and Explanation**
0	Frame Header Identifier	DWORD	Fixed value: 0x30 0x31 0x63 0x64
4	File Name	BYTE[50]	File Name
54	Data Offset	DWORD	Current data offset of the transmitted file
58	Data Length	DWORD	Length of the payload data
62	Data Body	BYTE[n]	Default length is 64K; if the file is smaller than 64K, the actual length is used

The Attachment Server does not require a response upon receiving the file stream from the tracker.

8.15 File Upload Completed Message – 0x1212

Message Type: Signaling Data Packet.

When the tracker completes sending a file to the Attachment Server, it transmits a File Upload Completed Message to the Attachment Server.

Table 65: File Upload Completed Message Body Data Structure			
Start byte	**Field**	**Data Type**	**Description and Explanation**

0	File Name Length	BYTE	1
l	File Name	STRING	File Name
1+1	File Type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Others
2+1	File Size	DWORD	Current size of the uploaded file.

8.16 File Upload Completed Message Response – 0x9212

Message Type: Signaling Data Packet.

Upon receiving the File Upload Completed Message from the tracker, the Attachment Server sends a File Upload Completed Message Response to the tracker.

Table 66: File Upload Completed Message Response Data Structure

Start byte	Field	Data Type	Description and Explanation
0	File Name Length	BYTE	1
1	File Name	STRING	File Name
1+1	File Type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Others
2+1	Upload Result	BYTE	0x00: Done 0x01: Retransmission Required
3+1	Retransmission Packet Count	BYTE	Number of packets requiring retransmission; this value is 0 if no retransmission is necessary.
4+1	List of Data Packets for Retransmission		Refer to Table 6 7

Table 67: Data Structure of Retransmission Data Packet Information

Start byte	Field	Data Type	Description and Explanation
0	Data Offset	DWORD	Offset of Data to be Retransmitted within the File
1	Data Length	DWORD	Length of Data to be Retransmitted

If data requires retransmission, the tracker shall perform retransmission via file data upload and, upon completion, report the file upload completed message until the entire file data transmission is finalized.

Once all files have been transmitted, the tracker shall proactively disconnect from the attachment server.

8.17 Real-time Audio and Video Transmission Request – 0x9101

Message Type: Signaling Data Packet.

The platform requests real-time audio and video transmission from the tracker device, including real-time video transmission, actively initiated two-way voice intercom, one-way monitoring, broadcasting voice to all trackers, and specific transparent transmission. The message body data format is detailed in Table 68. Upon receiving this message, the tracker responds with a General Response for the video terminal, then establishes a transmission link via the specified Server IP Address and Port, and thereafter transmits the corresponding audio and video stream data in accordance with the audio and video stream transmission protocol.

Table 6-8: Real-time Audio and Video Transmission Request Data Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Server IP Address Length	BYTE	Length n
1	Server IP Address	STRING	Real-time Video Server IP Address
1 + n	Server Video Channel Listening Port Number (TCP)	WORD	Real-time Video Server TCP Port Number
3 + n	Server Video Channel Listening Port Number (UDP)	WORD	Real-time Video Server UDP Port Number
5 + n	Logical Channel Number	BYTE	Refer to Table 69
6 + n	Data Type	BYTE	0: Audio and Video, 1: Video, 2: Two-way Intercom, 3: Monitor, 4: Center Broadcast, 5: Transparent Transmission
7 + n	Stream type	BYTE	0: Main stream, 1: Sub stream

Table 6 9: Definition Table of Audio and Video Channels for Operational Vehicle Onboard Video Terminals			
Channel Number	**Channel Name**	**Channel Type**	**Monitoring Area**
1	Channel 1	Audio and Video / Video	Driver
2	Channel 2	Audio and Video / Video	Vehicle Front
3	Channel 3	Audio and Video / Video	Front Door
4	Channel 4	Audio and Video / Video	Front Compartment

Upon receiving a special alarm from the video terminal, the platform shall proactively issue this command without awaiting manual confirmation to initiate real-time audio and video transmission.

8.18 Real-time Audio and Video Transmission Control – 0x9102

Message Type: Signaling Data Packet.

Message Type: Signaling Data Packet.

The platform sends the real-time audio and video transmission control command to switch bitstreams, pause bitstream transmission, turn off audio and video transmission channels, etc. The message body data format is detailed in Table 70.

Table 70: Real-time Audio and Video Transmission Control Data Format			
Start	**Field**	**Data Type**	**Description and Requirements**

byte			
0	Logical Channel Number	BYTE	Refer to Table 69
1	Control Command	BYTE	The platform can control the device's real-time audio and video using this command: 0: Turn Off Audio and Video Transmission command; 1: Switch Bitstream (including pause and resume); 2: Pause sending all streams on this channel; 3: Resume sending streams as before the pause, consistent with the stream types prior to the pause; 4: Turn Off Two-way Intercom
2	Turn Off Audio and Video Type	BYTE	0: Turn Off audio and video data related to this channel; 1: Turn Off only the audio related to this channel, retaining the video related to this channel; 2: Turn Off only the video related to this channel, retaining the audio related to this channel.
3	Switch Stream Type	BYTE	Switch the previously requested stream to the newly requested stream, ensuring the audio remains consistent with the stream prior to switching. The newly requested stream is: 0: Main stream; 1: Sub stream

8.19 Real-time Audio and Video Stream and Transparent Transmission Data

Message Type: Stream Data Message.

The transmission of real-time audio and video stream data follows the RTP protocol, carried over UDP or TCP. The payload packet format extends the IETF RFC 3550 RTP definition by adding fields such as message sequence number, SIM card number, and audio and video channel number. The payload packet format is detailed in Table 72. The bits defined in the table are filled according to Big-endian Mode.

Table 71: Definition of Payload Packet Format for Audio and Video Stream and Transparent Transmission Data Transmission Protocol

Start byte	Field	Data Type	Description and Requirements
0	Frame Header Identifier	DWORD	Fixed value: 0x30 0x31 0x63 0x64
4	V	2 BITS	Fixed value: 2
	P	1 BIT	Fixed value: 0
	X	1 BIT	RTP header extension bit, fixed value: 0
	CC	4 BITS	Fixed value: 1
5	M	1 BIT	Flag bit indicating whether this is the boundary of a

			complete data frame
	PT	7 BITS	Payload type, refer to Table 72
6	Packet Sequence Number	WORD	Initially 0; sequence number increments by 1 with each RTP data packet sent
8	SIM card number	BCD[10]	Tracker Device SIM card number
14	Logical Channel Number	BYTE	Refer to Table 69
15	Data Type	4 BITS	0000: Video I-frame; 0001: Video P-frame; 0010: Video B-frame; 0011: Audio frame; 0100: Transparent Transmission Data
	Fragmentation processing flag	4 BITS	0000: Atomic packet, not fragmentable; 0001: First packet in fragmentation processing; 0010: The last packet in sub-packet processing. 0011: An intermediate packet in sub-packet processing.
16	Timestamp	BYTE[8]	Indicates the relative time of the current frame in this RTP data packet, in milliseconds (ms). This field is omitted when the data type is 0100.
24	Last I Frame Interval	WORD	The interval between this frame and the previous key frame, in milliseconds (ms). This field is omitted when the data type is a non-video frame.
26	Last Frame Interval	WORD	(The interval between this frame and the previous frame, in milliseconds ms). This field is omitted when the data type is a non-video frame. Field
28	Data body length	WORD	Length of the subsequent data body, excluding this field.
30	Data Body	BYTE[n]	Audio and Video Data or Transparent Transmission Data, length not exceeding 950 bytes.

Table 72: Audio and Video Encoding Type Definition Table

Encoding	Name	Remark
0	Retain	
1	G.721	Audio
2	G.722	Audio
3	G.723	Audio
4	G.728	Audio
5	G.729	Audio
6	G.711A	Audio
7	G.7I1U	Audio

8	G.726	**Audio**
9	G.729A	**Audio**
10	DVI4_ 3	**Audio**
I1	DVI4_ 4	**Audio**
12	DVI4_ _8K	**Audio**
13	DVI4_ 16K	**Audio**
I4	LPC	**Audio**
I5	S16BE_ STEREO	**Audio**
16	S16BE_ MONO	**Audio**
17	MPEGAUDIO	**Audio**
18	LPCM	**Audio**
19	AAC	**Audio**
20	WMA9STD	**Audio**
21	HEAAC	**Audio**
22	PCM_ VOICE	**Audio**
23	PCM_ AUDIO	**Audio**
24	AACLC	**Audio**
25	MP3	**Audio**
26	ADPCMA	**Audio**
27	MP4 AUDIO	**Audio**
28	AMR	**Audio**
29~90	**Retain**	
91	**Transparent Transmission**	**System**
92 ~97	**Retain**	**Video**
98	H.264	**Video**
99	H.265	**Video**
100	AVS	**Video**
101	SV AC	**Video**
102 ~110		**Retain**
111 ~127		**Other**

8.20 Query Resource List - 0x9205

Message Type: Signaling Data Packet.

The platform queries the recording file list from the tracker based on combined conditions including audio and video type, channel number, alarm type, and start and end time. The message body data format is specified in Table 73.

Table 73: Query Recording File List Data Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Logical Channel Number	BYTE	Refer to Table 69; 0 indicates all channels.
1	Start Time	BCD[6]	YY-MM-DD-HH-MM-SS; all zeros indicate no start time condition.
7	EndedTime	BCD[6]	YY-MM-DD-HH-MM-SS; all zeros indicate no end time condition.
13	Alarm Flag	64BITS	bit0 to bit31: see Table 75; bit32 to bit63: see Table 74; All zeros indicate no alarm type condition.
21	Audio and Video Resource Type	BYTE	0: Audio and Video, 1: Audio, 2: Video, 3: Video or Audio/Video
22	Stream type	BYTE	0: All Bitstreams, 1: Main Stream, 2: Sub Stream
23	Storage Device Type	BYTE	0: All Storage Devices, 1: Main Memory, 2: Disaster Recovery Memory

Table 74: Attachment Information Definition Table Extension		
Bit	**Status**	**Description and Requirements**
0x14	4	Video-Related Alarm, DWORD, Bitwise Setting; Flag Definitions Refer to Table 75
0x15	4	Video Loss Alarm Status, DWORD, Bitwise Setting; bits 0 to 31 correspond to logical channels 1 to 32 respectively; a bit set to 1 indicates video loss on the corresponding logical channel
0x16	4	Video Blind Alarm Status, DWORD, Bitwise Setting; bits 0 to 31 correspond to logical channels 1 to 32 respectively; a bit set to 1 indicates video blind on the corresponding logical channel
0x17	2	Memory fault alarm status, WORD, bitwise configuration: bits 0 to 11 correspond to main memories 1 to 12 respectively; bits 12 to 15 correspond to disaster recovery storage devices 1 to 4 respectively. A bit set to 1 indicates a fault in the corresponding memory.
0x18	2	Detailed description of abnormal driving behavior alarm, WORD, definitions in Table 76.

Table 75: Definitions of video alarm flag bits.		
Bit	**Status**	**Description and Requirements**
Bit	Definition	Process Description
0	Video signal loss alarm	Flag remains set until the alarm condition is cleared
1	Video signal obstruction alarm	Flag remains set until the alarm condition is cleared
2	Store cell fault alarm	Flag remains set until the alarm condition is cleared
3	Other video device fault alarm	Flag remains set until the alarm condition is cleared
4	Overload alarm	Flag remains set until the alarm condition is cleared
5	Abnormal driving behavior alarm	Flag remains set until the alarm condition is cleared
6	Special alarm recording storage threshold reached alarm	Cleared upon receipt of acknowledgment
7 ~ 31	Reserved	

Table 76: Definition of Abnormal Driving Behavior Flag Bits			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Abnormal Driving Behavior Types	WORD	Bitwise settings: 0 indicates None, 1 indicates Present; bit0: Drowsiness; bit1: Calling; bit2: Smoking; bit3 to bit10: Reserved; bit11 to bit15: Other
2	Drowsiness Level	BYTE	Drowsiness Level is represented by values from 0 to 100, where higher values indicate a more severe level of drowsiness.

8.21 Tracker Upload of Audio and Video Resource List - 0x1205

Message Type: Signaling Data Packet.

The tracker responds to the platform's Search command for the audio and video resource list by replying with the Tracker Upload of Audio and Video Resource List message. If the list is too large and requires segmented transmission, the segmentation mechanism defined in JT/T 808—2011 Section 4.4.3 shall be used. The platform shall respond to each individual segment with the Video Platform General Response. The Message Body Data Format is detailed in Table 77.

Table 77: Tracker Upload of Audio and Video Resource List Data Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Serial Number	WORD	Serial number corresponding to the Audio and Video Resource List Search command
2	Total Number of Audio and Video Resources	DWORD	No audio and video resources matching the criteria; set to 0
6	Audio and Video Resource List		Refer to Table 78

Table 78: Tracker Upload of Audio and Video Resource List Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Logical Channel Number	BYTE	Refer to Table 69
1	Start Time	BCD[6]	YY-MM-DD-HH-MM-SS
7	EndedTime	BCD[6]	YY-MM-DD-HH-MM-SS
13	Alarm Flag	64BITS	bit0 to bit31: see Table 75; bit32 to bit63: see Table 74; All zeros indicate no alarm type condition.
21	Audio and Video Resource Type	BYTE	0: Audio and Video, 1: Audio, 2: Video
22	Stream type	BYTE	1: Main stream, 2: Sub stream
23	Storage Device Type	BYTE	1: Main memory, 2: Disaster recovery memory
24	File Size	DWORD	Unit: Byte (BYTE)

8.22 Platform Issued Remote Recording Playback Request - 0x9201

Message Type: Signaling Data Packet.

The platform requests audio and video recording playback from the tracker device. The tracker shall respond with command 0x1205 (Tracker Upload of Recording File List), then transmit recording data using the packet format defined in Table 18: Real-time Audio and Video Stream Data Transmission RTP Protocol Payload Packet Format. The message body data format is specified in Table 79.

Table 79: Platform Issued Remote Recording Playback Request Data Format			
Start byte	**Field**	**Data Type**	**Description and Requirements**
0	Server IP Address Length	BYTE	Length n
1	Server IP Address	STRING	Real-time Audio and Video Server IP Address
1 + n	Server Audio and Video Channel Monitoring Port Number (TCP)	WORD	Real-time Audio and Video Server Port Number; set to 0 if TCP transmission is not used
3 + n	Server Audio and Video Channel Monitoring Port Number (UDP)	WORD	Real-time Audio and Video Server Port Number; set to 0 if UDP transmission is not used
5 + n	Logical Channel Number	BYTE	Refer to Table 69
6 + n	Audio and Video Type	BYTE	0: Audio and Video, 1: Audio, 2: Video, 3: Video or Audio/Video
7 + n	Stream type	BYTE	0: Main stream or sub stream; 1: Main stream; 2: Sub stream; Set this field to 0 if the channel transmits audio only
8 + n	Storage Device Type	BYTE	20: Main memory or disaster recovery memory; 1: Main memory, Disaster recovery memory
9 + n	Playback Mode	BYTE	0: Normal Playback; 1: Fast Forward Playback; 2: Key Frame Rewind Playback; 3: Key Frame Playback; 4: Single Frame Upload
10 + n	Fast Forward or Rewind Multiplier	BYTE	This field is valid when the playback mode is 1 or 2; otherwise, it shall be set to 0. 0: Invalid; 1: 1x; 2: 2x;
10 + n		BYTE	3: 4x;

	Fast Forward or Rewind Multiplier		4: 8x; 5: 16x;
11 + n	Start Time	BCD[6]	YY-MM-DD-HH-MM-SS: When playback mode is 4, this field indicates the single frame upload time.
17 + n	EndedTime	BCD[6]	YY-MM-DD-HH-MM-SS: A value of 0 indicates continuous playback. Playback: This field is invalid when playback mode is 4.

8.23 Remote Audio and Video Recording Playback Control Command Issued by Platform - 0x9202

Message Type: Signaling Data Packet.

During audio and video recording playback on the tracker device, the platform may issue playback control commands to manage the playback process. Message Body Data Format is specified in Table 80.

Table 80: Data Format for Remote Video Playback Control Commands Issued by the Platform

Start byte	Field	Data Type	Description and Requirements
0	Audio and Video Channel Number	BYTE	Refer to Table 69
1	Playback Control	BYTE	0: Start Playback; 1: Pause Playback; 2: Stop Playback; 3: Fast Forward Playback; 4: Key Frame Rewind Playback; 5: Drag Playback; 6: Key Frame Playback
2	Fast Forward or Rewind Multiplier	BYTE	This field is valid when playback control is 3 or 4; otherwise, it shall be set to 0. 0: Invalid; 1: 1x; 2: 2× speed; 3: 4x; 4: 8x;

			5: 16x;
3	Drag Playback Position	BCD[6]	YY-MM-DD-HH-MM-SS, valid when playback control is 5

8.24 File Upload Command - 0x9206

Message Type: Signaling Data Packet.

The platform issues a file upload command to the tracker. Upon receiving a General Response from the tracker, the file shall be uploaded to the specified path on the target FTP server via FTP. The message body data format is detailed in Table 81.

Table 81: File Upload Command Data Format

Start byte	Field	Data Type	Description and Requirements
0	Server Address Length	BYTE	Length k
1	Server Address	STRING	FTP Server Address
1 + k	Port	WORD	FTP Server Port
3 + k	User Name Length	BYTE	Length l
4 + k	User Name	STRING	FTP User Name
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	Refer to Table 69
7 + k + l + m + n	Start Time	BCD[6]	YY-MM-DD-HH-MM-SS
13 + k + l + m + n	EndedTime	BCD[6]	YY-MM-DD-HH-MM-SS
19 + k + l + m + n	Alarm Flag	64BITS	bit0 to bit31: see Table 75; bit32 to bit63: see Table 74; All zeros indicate no alarm type condition.
27 + k + l + m + n	Audio and Video Resource Type	BYTE	0: Audio and Video, 1: Audio, 2: Video, 3: Video or Audio/Video
28 + k + l + m + n	Stream type	BYTE	0: Main Stream or Sub Stream, 1: Main Stream, 2: Sub Stream
29 + k + l + m + n	Storage Location	BYTE	20: Main memory or disaster recovery memory; 1: Main memory,

			Disaster recovery memory
30 + k + l + m + n	Task Execution Conditions	BYTE	Represented by bit positions: bit0: WIFI; when set to 1, indicates downloads are permitted over Wi-Fi; bit1: LAN; when set to 1, indicates downloads are permitted over LAN connections; bit2: 3G/4G; when set to 1, indicates downloads are permitted over 3G/4G connections; download

8.25 File Upload Completed Notice - 0x1206

Message Type: Signaling Data Packet.

After all files have been uploaded via FTP, the tracker reports this command to notify the platform. The message body data format is specified in Table 82.

Table 82: File Upload Completed Notice Data Format

Start byte	Field	Data Type	Description and Requirements
0	Response Serial Number	WORD	Serial number corresponding to the platform file upload message
2	Result	BYTE	0: Succeed; 1: Fail

8.26 File Upload Control - 0x9207

Message ID: 0x9207.

Message Type: Signaling Data Packet. The platform instructs the tracker to pause, resume, or cancel all files currently being transferred. The message body data format is specified in Table 83.

Table 83: File Upload Control Data Format

Start byte	Field	Data Type	Description and Requirements
0	Response Serial Number	WORD	Serial number corresponding to the platform file upload message
2	Upload Control	BYTE	0: Pause; 1: Continue; 2: Cancel