MEITRACK®MD101_GPRS_Protocol

(Same as JT/T808 and TJSATL12 Protocol)

Applicable Model： MD101

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1 Illustrate

This document refers to JTT808-2019, TJSALT12-2017 and their reference documents. If you encounter difficulties when reading this document, please refer to the JTT 808-2019, TJSALT 12-2017 documents.

TJSALT12-2017 instruction is an additional instruction that is expanded on the original basis of the JTT808-2019 instruction. Therefore, if you have a certain understanding of JTT808-2019 instruction, you can quickly understand TJSALT12-2017 instruction after reading this document.

from the 2019 version, TJSALT12-2017 will support longer device numbers.

2 Terms and Definitions

Terms and Definitions	Details
Abnormal Data Communication Link	The wireless communication link is disconnected or temporarily suspended (such as during a call).
Register	The terminal sends a message to the platform to inform it to be installed on a certain vehicle.
Unregister	The terminal sends a message to the platform to inform it to be removed from the vehicle where it is installed.
Authentication	When the terminal connects to the platform, it sends a message to the platform to allow the platform to verify its identity.
Location Reporting Strategy	Timed, interval reporting or a combination of both.
Location Reporting Program	Rules for determining periodic reporting intervals based on relevant conditions.
Additional Points Report While Turning	The terminal sends a location information report message when it determines that the vehicle is turning. The sampling frequency is not less than 1Hz, the car azimuth angle, the change rate is not less than 15°/s, and it lasts for at least 3s.
Answering Strategy	Rules for the terminal to answer incoming calls automatically or manually.
Event Item	The event items are preset by the platform to the terminal and consist of event codes and event names. When the driver encounters the corresponding event, he operates the terminal and triggers an event report to be sent to the platform.

3 Abbreviation

Abbreviation	Full Name
ADAS	Advanced Driver Assistant System
DSM	Driving State Monitoring
CAN	Controller Area Network
APN	access point name
GZIP	GNU zip
LCD	liquid crystal display
RSA	Ron Rivest, Adi Shamirh, Len Adleman
TCP	transmission control protocol
TTS	text to speech
UDP	user datagram protocol
VSS	vehicle speed sensor

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 there is no data, leave it blank

5 Transmission rules

The protocol uses big-endian network byte order to transfer words and double words.

The agreement is as follows:

Length	Illustrate
BYTE	Transmitted in the form of byte stream
WORD	Pass the high eight bits first, then the lower eight bits
DWORD	Pass the high 24 bits first, then pass the high 16 bits, then pass the high eight bits, and finally pass the low eight bits

6 Message Format

6.1 Message Format Overview

7E (flag bit)	message header	message body	Check code	7E (flag bit)

The identification bit is represented by 0x7E. If 0x7E appears in the check code, message header and message body, escaping processing is required. The escaping rules are defined as follows:

0x7e <———> 0x7d 0x02
0x7d <———> 0x7d 0x01

Escape Processing	Describe
When sending a message	Message encapsulation -> Calculate and fill the check code -> Escape
when receiving message	Escape and restore——>Verify check code——>Parse message

Example: Sending a data packet with the content of **0x30 0x7e 0x08 0x7d 0x55** is encapsulated as follows: **0x7e 0x30 7d 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 properties	WORD	Message body attribute format structure
4	Protocol version number	BYTE	Protocol version, incremented with each critical revision, initial version is 1
5	IMEI	BCD [10]	If the IMEI number is insufficient, add the number 0 in front of it.
15	Message serial number	WORD	Cyclically accumulate from 0 in order of sending
17	Message package encapsulation item	—	If the relevant flag bit in the message body attribute determines the message sub-packaging processing, then this item has content, otherwise there is no such item.

Message Body Properties															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
reserve	Version ID	Subcontract	Data encryption method			Message body length									
the version identification bit is fixed at 1															

Data should be encrypted as follows:

1. b it10 ~ b it12 are data encryption flags;
2. When these three bits are all 0, it means the message body is not encrypted;
3. When the 10th bit is 1, it means that the message body is encrypted by the RSA algorithm;
4. Other bits are reserved.

Message subcontracting should be handled according to the following requirements:

1. 13th bit in the message body attribute is 1, it means that the message body is a long message and will be sent in packets. The specific packetization information is determined by the message packet encapsulation item;
2. If bit 13 is 0, there is no message packet encapsulation field in the message header.

Message Packet Encapsulation Item Content			
Rise Beginning Character Festival	**Field**	**Number According To Kind Type**	**Description And Requirements**
0	Total number of message packets	WORD	The total number of packets after the message is sub packaged
2	Packet serial number	WORD	Start from 1

Version identification should be processed according to the following requirements:

1. When bit 14 is 0, it means that the protocol is the 2011 version, and this version does not introduce the version identification function;

2. When bit 14 is 1, it means that the protocol has introduced the version identification function, and the authentication code of the terminal authentication message is followed by the protocol version number. After the version identification function is introduced, the initial version number is 1, and every subsequent key revision The version number will be incremented.

6.3 Message Body

The format content of each different command message body is determined by each command. For specific requirements, see the command details.

6.4 Check Code

The calculation rule of the check code should start from the first byte of the message header, XOR with the next byte, until the end of the last byte of the message body, and the code length is one byte.

7 Communication Connection

7.1 Establishment Of Connection

The daily data connection between the terminal and the platform can use TCP or UDP . After the terminal is reset, it should establish a connection with the platform. After the connection is established, it will immediately send a terminal authentication

message to the platform for authentication.

7.2 Maintenance Of Connection

the connection is established and terminal authentication is successful, the terminal should periodically send terminal heartbeat messages to the platform. After receiving the messages, the platform will send platform general response messages to the terminal. The sending period is specified by the terminal parameters.

7.3 Disconnection

Both the platform and the terminal should proactively determine whether the connection is disconnected. The platform should use the following methods to determine whether the terminal connection is disconnected:

1. In TCP connection mode, the active disconnection is determined according to the TCP protocol;
2. A terminal with the same identity establishes a new connection, indicating that the original connection has been disconnected;
3. No message from the terminal was received within a certain period of time.

The terminal should use the following methods to determine whether the connection is disconnected:

1. In TCP connection mode, it is judged that the platform is actively disconnected according to the TCP protocol;
2. No response has been received after the number of retransmissions has been reached.

8 Message Processing

8.1 TCP And UDP Message Handling

8.1.1 Messages From the Platform Owner

All messages sent by the platform host should require the terminal to respond. The response is divided into two ways: general response and special response, which are determined by each specific functional protocol. After the sender times out waiting for a response, it should resend the message. The response timeout and number of retransmissions are specified by platform parameters. The response timeout after each retransmission is calculated as follows

$$T_{N+1} = T_N(N+1)$$

T_{N+1}: Response timeout after each retransmission, unit is s ;

T_N: The previous response timeout, unit is s ;

N: Number of retransmissions, unit is times.

8.1.2 Messages Sent by The Terminal Host

1. Data communication link is normal

When the data communication link is normal, all messages sent by the terminal host should require the platform to

respond. Responses should be divided into general responses and specialized responses, determined by each specific functional protocol. After the terminal times out waiting for a response, it should resend the message. The response timeout and the number of retransmissions are specified by the terminal parameters. The calculation method of the response timeout after each retransmission is shown in the formula above. For key alarm messages sent by the terminal, if no response is received after the number of retransmissions is reached, they should be saved. Saved critical alarm messages should be sent before sending other messages in the future.

2. Data communication link abnormality

When the data communication link is abnormal, the terminal should save the location information report message that needs to be sent. The saved message should be sent as soon as the data communications link returns to normal.

9 Agreement Classification And Requirements

9.1 Classification

Protocols are described according to functional categories. Unless otherwise specified, TCP communication is used by default.

9.2 Terminal Management Protocol

9.2.1 Terminal Registration And Cancellation

When the terminal is not registered, it should first register. After successful registration, the terminal obtains the authentication code and saves it. The authentication code can be used during terminal authentication. Before the vehicle removes or replaces the terminal, the terminal should perform a logout operation to cancel the corresponding relationship between the terminal and the vehicle.

If the terminal chooses to send terminal registration and terminal deregistration messages through SMS, the platform should send a terminal registration response through SMS to reply to the terminal registration .

9.2.2 Terminal Authentication

Registered terminals should be authenticated immediately after each connection is established with the platform. The terminal should not send other messages before the authentication is successful .

The terminal shall authenticate by sending a terminal authentication message, and the platform shall reply with a terminal general response message.

9.2.3 Set And Query Terminal Parameters

The platform sets terminal parameters by sending a set terminal parameter message, and the terminal replies with a terminal general response message. The platform queries the terminal parameters by sending a terminal parameter query message, and the terminal replies with a terminal parameter query response message. Terminals under different network standards should support some unique parameters of their respective networks.

9.2.4 Terminal Control

The platform controls the terminal by sending terminal control messages, and the terminal replies with a terminal general response message.

9.3 Location, Alarm Protocol

9.3.1 Location Information Reporting

The terminal periodically sends location information reporting messages according to parameter settings. According to parameter control, the terminal can send a location information report message when it determines that the vehicle is turning.

9.3.2 Location Information Query

The platform queries the current location information of the designated vehicle-mounted terminal by sending a location information query message, and the terminal replies with a location information query response message.

9.3.3 Terminal Alarm

When the terminal determines that the alarm conditions are met, it sends a location information report message and sets the corresponding alarm flag in the location report message. The platform can handle the alarm by replying to the platform general response message.

For each alarm type, see the description in the location information report message body. If the alarm flag is maintained until the alarm condition is lifted, a location information report message should be sent immediately after the alarm condition is lifted, and the corresponding alarm flag should be cleared.

10 Command List

instruction	Command description	instructi	Command description
0x0001 _	Terminal universal response	0x1211	File information upload
0x8001	Platform general response		File data upload
0x0002	Terminal heartbeat	0x1212	File upload completed
0x0100	Terminal registration	0x9212	File upload completed
0x8100	Terminal registration response		
0x0102	Terminal authentication		
0x8103	Set terminal parameters		

0x8104	Query terminal parameters		
0x8106	Query specified terminal parameters		
0x0104	Query terminal parameter response		
0x8107	Query terminal properties		
0x0107	Query terminal attribute response		
0x0200	Location information reporting		
0x8203	Manually confirm alarm message		
0x8300	Text message delivery		
0x8600	Set circular area		
0x8601	Delete circular area		
0x8602	Set rectangular area		
0x8603	Delete rectangular area		
0x8604	Set polygon area		
0x8605	Delete polygon area		
0x8606	Set route		
0x8607	Delete route		
0x0704	Positioning data batch upload		
0x0800	Multimedia event information upload		
0x0801	Multimedia data upload		
0x8800	Multimedia data upload response		
0x8801	Camera shooting command immediately		
0x0805	Camera immediately shoots command		
0x8802	Stored multimedia data retrieval		
0x0802 _ _ _	Store multimedia data retrieval		
0x8803	Store multimedia data upload		
0x8805	Single stored multimedia data retrieval and upload command		
0x9208	Alarm attachment upload command		

11 Detailed Instructions

11.1 Terminal Generic Answer – 0x0001

Table 1 : Terminal general response message body data format			
start byte	**Field**	**type of data**	**Description and instructions**

0	Response serial number	WORD	The serial number of the corresponding platform message
2	Reply ID	WORD	The ID of the corresponding platform message
4	result	BYTE	0: Success/Confirmation; 1: Failure; 2: Wrong message; 3: Not supported

11.2 Platform general response – 0x8001

Table 2: Platform general response message body data format			
start byte	**Field**	**type of data**	**Description and instructions**
0	Response serial number	WORD	The serial number of the corresponding terminal message
2	Reply ID	WORD	The ID of the corresponding terminal message
4	result	BYTE	0: Success/confirmation; 1: Failure; 2: Wrong message; 3: Not supported; 4: Alarm processing confirmation;

11.3 Terminal heartbeat – 0x0001

The terminal heartbeat data message body is empty.

11.4 Terminal Registration – 0x0101

Table 3: Terminal registration message body data format			
start byte	**Field**	**type of data**	**Description and instructions**
0	Provincial ID	WORD	Indicates the province where the vehicle where the terminal is installed is located, 0 is reserved, and the platform takes the default value. The provincial ID uses the first two digits of the six digits of the administrative division code specified in GB/T2260.
2	City and county ID	WORD	Indicates the city and county where the vehicle where the terminal is installed is reserved. 0 is reserved and the platform takes the default value. The city and county ID uses the last four digits of the six digits of the administrative division code specified in GB/T2260.
4	Manufacturer ID	BYTE[5]	5 bytes, terminal manufacturer encoding
9	Terminal model	BYTE[20]	20 bytes. This terminal model is defined by the manufacturer. The number of digits varies. When enough, add "0X00".
29	Terminal ID	Terminal ID	7 bytes, consisting of uppercase letters and numbers. This terminal ID is made by The manufacturer defines it by himself. When there are insufficient digits, "0X00" is added.
36	license plate color	BYTE	The license plate color shall be in accordance with 5.4.12 of JT/T415-2006.

			When no cards are placed, the value is 0.
37	vehicle identification	STRING	When the license plate color is 0, it indicates the vehicle VIN; Otherwise, it means the motor vehicle license plate issued by the public security and traffic management department.

11.5 Terminal Registration Response – 0x8100

Table 4: Terminal registration response message body data format			
start byte	**Field**	**type of data**	**Description and instructions**
0	Response serial number	WORD	The serial number of the corresponding terminal registration message
2	result	BYTE	0: Success; 1: The vehicle has been registered; 2: There is no such vehicle in the database; 3: The terminal has been registered; 4: The terminal does not exist in the database
3	Authentication code	STRING	This field only appears after successful registration

11.6 Terminal Authentication – 0x0102

Table 5: Terminal authentication message body data format			
start byte	**Field**	**type of data**	**Description and instructions**
3	Authentication code	STRING	the authentication code after reconnecting

11.7 Set Terminal Parameters – 0x8103

Table 6: Setting The Terminal Parameter Message Body Data Format			
start byte	**Field**	**type of data**	**Description and instructions**
0	Total number of parameters	BYTE	
1	Parameter list		See table 7

Table 7: Parameter List Format		
start byte	**type of data**	**Description and instructions**
Parameter ID	DWORD	See table 8
Parameter length	BYTE	
Parameter value		If it is a multi-valued parameter, multiple parameter items with the same ID are used in the message.

Table 8: Definition And Description Of Each Parameter Item In Terminal Parameter Setting		
Start Byte	**Type Of Data**	**Description And Instructions**
0x0001	DWORD	Terminal heartbeat sending interval, unit is seconds (s)
0x0027	DWORD	Reporting interval during sleep, unit is seconds (s), >0
0x0029	DWORD	Default time reporting interval, unit is seconds (s), >0
0x0030	DWORD	Inflection point complementary pass angle <180
0x0050	DWORD	The alarm mask word corresponds to the alarm flag in the location information report message. If the corresponding bit is 1, the corresponding alarm is masked.
0x0055	DWORD	Maximum speed in kilometers per hour (km/h)
0x0056	DWORD	Overspeed duration, unit is seconds (s)
0x0057	DWORD	Continuous driving time threshold, unit is seconds (s)
0x0058	DWORD	The cumulative driving time threshold for the day, in seconds (s)
0x0059	DWORD	Minimum rest time, unit is seconds (s)
0x005A	DWORD	Maximum parking time, unit is seconds (s)
0x005B	WORD	Speed alarm and early warning difference, unit is 1/10Km/h
0x005C	WORD	Fatigue driving warning difference, unit is second (s), >0
0xF364		See table 9
0xF365		See Table 1 0

Table 9: Advanced Driving Assistance System Parameters			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
11	Alarm enable	DWORD	Alarm enable bit 0: off 1: on bit0: Obstacle detection level one alarm bit1: Obstacle detection secondary alarm bit2: Level 1 alarm for frequent lane changes bit3: Level 2 alarm for frequent lane changes bit4: Lane departure level one alarm bit5: Lane departure level two alarm bit6: forward collision level one alarm bit7: forward collision secondary alarm bit8: Pedestrian collision level one alarm bit9: Pedestrian collision secondary alarm bit10: Level 1 alarm if the vehicle is too close. Bit11: Level 2 alarm if the vehicle is too close. bit12~bit15: user-defined bit16: road sign over-limit alarm bit17~bit29: user-defined bit30~bit31: reserved The default value is 0x00010FFF, 0xFFFFFFFF means no modification of parameters
31	Lane departure warning graded	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher

	speed thresholds		than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0 means no recording, 0xFF means no parameter modification.
36	Forward Collision Warning Graded Speed Thresholds	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.
41	Pedestrian collision alarm enable speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. An alarm occurs when the value is lower than this value, and the function is turned off when the value is higher than this value. 0xFF means do not modify the parameters
46	Vehicle distance monitoring alarm classification speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.

Table 1 0 : Driver status monitoring system parameters

start byte	Field	type of data	Description and instructions
11	Alarm enable	DWORD	Alarm enable bit 0: off 1: on
26	Fatigue driving warning classification speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.
30	Alarm classification speed threshold for receiving and receiving calls	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.
34	Smoking alarm classification speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.
38	Distracted driving warning classification speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.
42	Abnormal driving behavior classification speed threshold	BYTE	The unit is km/h, the value range is 0~220, and the default value is 50. It means that when the alarm is triggered, the vehicle speed is higher than the threshold, it is a second-level alarm, otherwise it is a first-level alarm. 0xFF means that the parameters are not modified.

Table 1 1 : Timing Photography Control Bit Definition		
Bit	**Definition**	**Description And Requirements**
0	Camera channel 1 Fixed distance camera switch sign	0: Not allowed; 1: Allowed
1	Camera channel 2 Fixed distance camera switch sign	0: Not allowed; 1: Allowed
2	Camera channel 3 Fixed distance camera switch sign	0: Not allowed; 1: Allowed
3	Camera channel 4 fixed distance camera switch sign	0: Not allowed; 1: Allowed
4	Camera channel 5 fixed distance camera switch sign	0: Not allowed; 1: Allowed
5-7	reserve	
8	Camera channel 1 Fixed distance photo storage mark	0: Storage; 1: Upload
9	Camera channel 2 Fixed distance photo storage mark	0: Storage; 1: Upload
10	Camera channel 3 fixed distance photo storage mark	0: Storage; 1: Upload
11	Camera channel 4 fixed distance photo storage mark	0: Storage; 1: Upload
12	Camera channel 5 Fixed distance photo storage mark	0: Storage; 1: Upload
13-15	reserve	
16	fixed distance unit	0: Meters, when the value is less than 100 meters, the terminal treats it as 100 meters; 1: Kilometers.
17-31	fixed distance interval	Executed after receiving parameter settings or restarting

11.8 Query terminal parameters – 0x8104

The message body for querying terminal parameters is empty.

11.9 Query The Specified Terminal Parameters – 0x8106

Table 1 2 : Query The Message Body Data Format Of Specified Terminal Parameters			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
0	Total number of parameters	BYTE	The total number of parameters is n
1	Parameter ID list	BYTE[4*n]	The parameters are arranged in order, such as "Parameter ID1 Parameter ID2...Parameter IDn ".

11.10 Query Terminal Parameter Response – 0x0104

Table 1 3 : Query Terminal Parameter Response Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
0	Response serial number	WORD	The corresponding terminal parameter queries the serial number of the message.
2	Number of response parameters	BYTE	
3	Parameter list		See table 7

11.11 Query Terminal Properties – 0x8107

The message body for querying terminal attributes is empty.

11.12 Query Terminal Attribute Response – 0x 0107

Table 1 4 : Query Terminal Attribute Response Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
0	terminal type	WORD	bit0, 0: Not applicable to passenger vehicles, 1: Applicable to passenger vehicles; bit1, 0: Not applicable to dangerous goods vehicles, 1: Suitable for dangerous goods vehicles; bit2, 0: Not applicable to ordinary freight vehicles, 1: Applicable to ordinary freight vehicles; bit3, 0: Not applicable to rental vehicles, 1: Applicable to rental vehicles; bit6, 0: Does not support hard disk video recording, 1: Supports hard disk video recording; bit7, 0: all-in-one machine, 1: split machine.
2	Manufacturer ID	BYTE[5]	5 bytes, terminal manufacturer encoding.
7	Terminal model	BYTE[3 0]	20 bytes. This terminal model is defined by the manufacturer. If there are insufficient digits, "0X00" will be added.
37	Terminal ID	BYTE[30]	7 bytes, consisting of uppercase letters and numbers. This terminal ID is defined by the manufacturer. If there are insufficient digits, "0X00" will be added.
67	Terminal SIM card ICCID	BCD[10]	Terminal SIM card ICCID number
77	Terminal hardware version number length	BYTE	n
78	Terminal hardware version number	STRING	

78 +n	Terminal firmware version number length	BYTE	m
79 +n	Terminal firmware version number	STRING	
79 +n+m	GNSS module properties	BYTE	bit0, 0: GPS positioning is not supported, 1: GPS positioning is supported; bit1, 0: Beidou positioning is not supported, 1: Beidou positioning is supported; bit2, 0: GLONASS positioning is not supported, 1: GLONASS positioning is supported; bit3, 0: Galileo positioning is not supported, 1: Galileo positioning is supported
80 +n+m	Communication module properties	BYTE	bit0, 0: GPRS communication is not supported, 1: GPRS communication is supported; bit1, 0: CDMA communication is not supported, 1: CDMA communication is supported; bit2, 0: TD-SCDMA communication is not supported, 1: TD-SCDMA communication is supported; bit3, 0: WCDMA communication is not supported, 1: WCDMA communication is supported; bit4, 0: CDMA2000 communication is not supported, 1: CDMA2000 communication is supported. bit5, 0: TD-LTE communication is not supported, 1: TD-LTE communication is supported; bit7, 0: Other communication methods are not supported, 1: Other communication methods are supported.

11.13 Location Information Reporting – 0x 0 200

Table 1 5 : Location Report Message Structure Diagram	
Basic Location Information	List Of Location Extensions (May Be None)

Table 1 6 : Basic Location Information Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Alarm sign	DWORD	See Table 1 7
4	state	DWORD	See Table 1 8
8	latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
12	longitude	DWORD	Longitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
16	elevation	WORD	Altitude above sea level in meters (m)

18	speed	WORD	1/10km/h
20	direction	WORD	0-359, true north is 0, clockwise
twenty one	time	BCD[6]	YY-MM-DD- hh -mm-ss (GMT+8 time, all subsequent times in this standard use this time zone)

Table 1 7 : Definition Of Alarm Flag Bits

Bit	Definition	Processing Instructions
0	1: Emergency alarm, triggered after touching the alarm switch	Cleared after receiving response
1	1: Speed alarm	The flag remains until the alarm condition is removed
2	1: Fatigue driving	The flag remains until the alarm condition is removed
3	1: Danger warning	Cleared after receiving response
13	1: Speed warning	The flag remains until the alarm condition is removed
14	1: Fatigue driving warning	The flag remains until the alarm condition is removed
18	1: Accumulated driving overtime on the day	The flag remains until the alarm condition is removed
19	1: Overtime parking	The flag remains until the alarm condition is removed
20	1: Entering and exiting the area	Cleared after receiving response
twenty one	1: In and out routes	Cleared after receiving response
twenty two	1: The road section travel time is insufficient/too long	Cleared after receiving response
twenty three	1: Route deviation alarm	The flag remains until the alarm condition is removed

Note: In the event of an alarm or early warning, location information must be reported immediately

Table 1 8 : Status Bit Definition

Bit	State
0	0: ACC off; 1: ACC on
1	0: Not positioned; 1: Positioned
2	0: North latitude; 1: South latitude
3	0: East longitude; 1: West longitude

Note: Location information needs to be reported immediately when the status changes. The format of additional location information items is shown in Table 26 .

Table 1 9 : Location Additional Information Item Format

Field	Type Of Data	Description And Requirements
Additional information ID	BYTE	1-255
Additional information length	BYTE	

Additional Information		See Table 2 0

Table 2 0 : Additional Information Definition		
Additional Information ID	**Additional Information Length**	**Description And Requirements**
0x01	4	Mileage, DWORD, 1/10km, corresponding to the vehicle odometer reading
0x11	1 or 5	Additional information about speed alarm is shown in Table 28
0x12	6	Additional information about entry and exit area/route alarms is shown in Table 29
0x13	7	Additional information about the insufficient/excessive road section driving time alarm is shown in Table 30.
0x25	4	Extended vehicle signal status bit, the definition is shown in Table 31
0x30	1	BYTE, wireless communication network signal strength
0x31	1	BYTE, number of GNSS positioning satellites
0x64		See Table 2 1
0x65		See Table 2 3
0x70 _		Card reader data reporting
0x71 _		Does not turn off the engine when the car is parked

Table 2 1 : Advanced Driving Assistance Alarm Information Data Format			
0	**Alarm ID**	**DWORD**	**According To The Order Of Alarms, It Starts From 0 And Accumulates Cyclically, Without Distinguishing The Alarm Type.**
4	Flag status	BYTE	0x00: Unavailable 0x01: Start flag 0x02: End flag This field is only applicable to alarms or events with start and end flag types. If the alarm type or event type does not have start and end flags, then this bit is unavailable and can be filled in with 0x00 .
5	Alarm/Event Type	BYTE	0x01: Forward collision alarm 0x02: Lane departure alarm 0x03: Alarm when the vehicle is too close 0x04: Pedestrian collision alarm 0x05: Alarm for frequent lane changes 0x06: Road sign exceeding limit alarm 0x07: Obstacle alarm 0x08~0x0F: User-defined 0x10: Road sign recognition event 0x11: Active capture event 0x12~0x1F: User-defined
6	Alarm level	BYTE	0x01: Level 1 alarm 0x02: Level 2 alarm
7	Speed of the vehicle ahead	BYTE	Unit Km/h. The range is 0~250, and it is only valid when the alarm type is 0x01 and 0x02.
8	Distance to vehicle/pedestrian ahead	BYTE	Unit 100ms, range 0~100 It is only valid when the alarm type is 0x01, 0x02 and 0x04.
9	deviation type	BYTE	0x01: Deviation on the left side 0x02: Deviation on the right side

			It is only valid when the alarm type is 0x02
10	Road sign recognition type	BYTE	0x01: Speed limit sign 0x02: Height limit sign 0x03: The weight limit flag is only valid when the alarm type is 0x06 and 0x10
11	road sign recognition data	BYTE	Data that recognizes road signs
12	speed	BYTE	Unit Km/h. Range 0~250
13	elevation	WORD	Altitude above sea level in meters (m)
15	latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
19	longitude	DWORD	Longitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
twenty three	date time	BCD[6]	YY-MM-DD - hh -mm-ss (GMT+8 time)
29	vehicle status	WORD	Bitwise represents other vehicle status: Bit0 ACC status, 0: off, 1: on Bit1 left steering status, 0: closed, 1: open Bit2 Right steering status, 0: closed, 1: open Bit3 wiper status, 0: off, 1: on Bit4 braking status, 0: not braking, 1: braking Bit5 card status, 0: no card inserted, 1: card inserted Bit6~Bit9 customized Bit10 positioning status, 0: not positioned, 1: positioned Bit11~bit15 customized
31	Alarm identification number	BYTE[16]	See Table 2 2

Table 2 2 : Alarm Identification Number Format

Start Byte	Field	Type Of Data	Description And Instructions
0	Terminal ID	BYTE[7]	7 bytes, consisting of uppercase letters and numbers
7	time	BCD[6]	YY-MM-DD - hh -mm-ss (GMT+8 time)
13	serial number	BYTE	The serial number of the alarm at the same time point is accumulated from 0.
14	Number of attachments	BYTE	Indicates the number of attachments corresponding to the alarm
15	reserved	BYTE	

Table 2 3 : Driving Status Monitoring System Alarm Information Data Format

Start Byte	Field	Type Of Data	Description And Instructions
0	Alarm ID	DWORD	According to the order of alarms, it starts from 0 and accumulates cyclically, without distinguishing the alarm type.
4	Flag status	BYTE	0x00: Not available

			0x01: start flag 0x02: end flag This field is only applicable to alarms or events with start and end flags. If the alarm type or event type does not have start and end flags, then this bit is unavailable. Just fill in 0x00 .
5	Alarm/Event Type	BYTE	0x01: Fatigue driving alarm 0x02: Answer and call the police 0x03: Smoking alarm 0x04: Distracted driving alarm 0x05: Driver abnormality alarm 0x06~0x0F: User-defined 0x10: Automatic capture event 0x11: Driver change event 0x12~0x1F: User-defined
6	Alarm level	BYTE	0x01: Level 1 alarm 0x02: Level 2 alarm
7	Fatigue level	BYTE	Range 1~10. The larger the value, the more serious the fatigue level, which is only valid when the alarm type is 0x01
8	reserved	BYTE[4]	reserved
12	speed	BYTE	Unit Km/h. Range 0~250
13	elevation	WORD	Altitude above sea level in meters (m)
15	latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
19	longitude	DWORD	Longitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
twenty three	date time	BCD[6]	YY-MM-DD - hh -mm-ss (GMT+8 time)
29	vehicle status	WORD	Bitwise represents other vehicle status: Bit0 ACC status, 0: off, 1: on Bit1 left steering status, 0: closed, 1: open Bit2 Right steering status, 0: closed, 1: open Bit3 wiper status, 0: off, 1: on Bit4 braking status, 0: not braking, 1: braking Bit5 card status, 0: no card inserted, 1: card inserted Bit6~Bit9 customized Bit10 positioning status, 0: not positioned, 1: positioned Bit11~bit15 customized
31	Alarm identification number	BYTE[16]	See Table 2 2

Table 24 : Overspeed Alarm Additional Information Message Body Data Format

Start Byte	Field	Type Of Data	Description And Requirements
0	location type	BYTE	0: No specific position; 1: Circular area; 2: Rectangular area; 3: Polygonal area; 4: road section
1	Area or segment ID	DWORD	If the location type is 0, there is no such field

Table 25 : In/Out Area/Route Alarm Additional Information Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	location type	BYTE	1: Circular area; 2: Rectangular area; 3: Polygon area; 4: Route
1	Area or line ID	DWORD	
5	direction	BYTE	0: enter; 1: out

/

Table 26 : Alarm Additional Information Message Body Data Format For Insufficient Or Too Long Route Travel Time			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Road segment ID	DWORD	
4	Road segment driving time	WORD	The unit is seconds (s)
6	result	BYTE	0: Insufficient; 1: Too long

Table 2 7 : 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	reserve

11.14 Manual Acknowledgment Of Alarm Message – 0x 8203

Table 29 : Manual Confirmation Alarm Message Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Alarm message serial number	WORD	Alarm message serial number that requires manual confirmation, 0 indicates all messages of this alarm type
1	Manual confirmation alarm type	DWORD	See Table 3 0

Table 3 0 : Manual Confirmation Alarm Type Definition	
Bit	**Definition**
0	1: Confirm emergency alarm;
1-2	reserve
3	1: Confirm the danger warning;

4-19	reserve
20	1: Confirm the alarm in and out of the area;
twenty one	1: Confirm the entry and exit routes and alarm;
twenty two	1: Confirm that the driving time of the road section is insufficient/excessive and alarm;
23-26	reserve
27	1: Confirm the illegal ignition alarm of the vehicle;
28	1: Confirm the illegal displacement of the vehicle and alarm;
29-31	reserve

11.15 Text Message Delivery – 0x8300

Table 3 1 : Text Message Delivery Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	logo	BYTE	See Table 3 2
1	text type	BYTE	1 = notification, 2 = service
2	text message	STRING	Maximum length is 1024 bytes, encoded by GBK

Table 3 2 : Meaning Of Text Information Flags	
Bit	**Definition**
0 -1	01 : Service, 1 0 : Emergency, 1 1 : Notification
2	1: Terminal monitor display
3	1: Terminal TTS reading
4	——
5	0: Center navigation information, 1: CAN fault code information
6-7	reserve

11.16 Set Circular Area – 0x8600

Note: This message protocol supports cycle time range. If you want to limit 8:30-18:00 every day, set the start/end time to: 00-00-00-08-30-00/00-00-00-18 -00-00, and so on for others.

Table 33 : Setting The Circular Area Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Set properties	BYTE	0: Update area; 1: Add area; 2: Modify area
1	Total area	BYTE	
2	area item	——	See Table 3 4

Table 34 : Area Item Content Data Format Of Circular Area			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Area ID	DWORD	
4	Area properties	WORD	See Table 3 5
6	Center point latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree

10	Center point longitude	DWORD	Longitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
14	radius	DWORD	The unit is meters (m), the road segment from this turning point to the next turning point
18	start time	BCD[6]	YY-MM-DD - hh -mm-ss, if the area attribute 0 bit is 0, there is no this field
twenty four	End Time	BCD[6]	YY-MM-DD - hh -mm-ss, if the area attribute 0 bit is 0, there is no this field
30	top speed	WORD	Km/h, if the area attribute 1 bit is 0, there is no this field
32	Speeding duration	BYTE	The unit is seconds (s) (similar expression, modified as before). If the area attribute 1 bit is 0, there is no such field.

Table 3 5 : Regional Attribute Definitions Of Regions

Bit	Definition
0	1: According to time
1	1: Speed limit
2	1: Alarm the driver when entering the area
3	1: Alarm the platform when entering the area
4	1: Alarm the driver when leaving the area
5	1: Alarm the platform when leaving the area
6	0: North latitude; 1: South latitude
7	0: East longitude; 1: West longitude
8	0: Allow opening the door; 1: Prohibit opening the door
9-13	reserve
14	0: Enter the area to turn on the communication module; 1: Enter the area to turn off the communication module
15	0: Do not collect GNSS detailed positioning data when entering the area ; 1: Collect GNSS detailed positioning data when entering the area.

11.17 Delete Circular Area – 0x 8601

Table 36 : Delete Circular Area Message Body Data Format

Start Byte	Field	Type Of Data	Illustrate
0	Number of areas	BYTE	The number of areas included in this message should not exceed 125. If it is more than 125, it is recommended to use multiple messages. 0 means to delete all circular areas.
1	Area ID1	DWORD	
5	...	DWORD	See Table 3 4
1+ (n -1) * 4	Area IDn	DWORD	

11.18 Set Rectangular Area – 0x 8602

Table 37 : Setting The Rectangular Area Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Set properties	BYTE	0: Update area; 1: Add area; 2: Modify area
1	Total area	BYTE	
2	area item		See Table 3 8

Table 38 : Area Item Data Format For Rectangular Area			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Area ID	DWORD	
4	Area properties	WORD	See Table 3 5
6	Latitude of upper left point	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
10	Upper left point longitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
14	Latitude of lower right point	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
18	Longitude of lower right point	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
twenty two	start time	BCD[6]	Time range setting in the same circular area
28	End Time	BCD[6]	Time range setting in the same circular area
34	top speed	WORD	The unit is kilometers per hour (km/h). If the 1 bit of the area attribute is 0, there is no such field.
36	Speeding duration	BYTE	The unit is seconds (s). If the area attribute 1 bit is 0, there is no such field.

11.19 Delete Rectangular Area – 0x 8603

Table 39 : Delete Rectangular Area Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Number of areas	BYTE	The number of areas included in this message shall not exceed 125 and may exceed 125 It is recommended to use multiple messages, 0 means to delete all rectangular areas
1	Area ID1	DWORD	
5	...	DWORD	
1+ (n -1) * 4	Area IDn	DWORD	

11.20 Set Polygon Area – 0x 8604

.

Table 4 0 : Setting The Polygon Area Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Area ID	DWORD	
4	Area properties	WORD	See Table 3 5
6	start time	BCD[6]	Time range setting in the same circular area
12	End Time	BCD[6]	Time range setting in the same circular area
18	top speed	WORD	The unit is kilometers per hour (km/h). If the 1 bit of the area attribute is 0, there is no such field.
20	Speeding duration	BYTE	The unit is seconds (s). If the area attribute 1 bit is 0, there is no such field.
twenty one	The total number of vertices in the region	WORD	
twenty three	vertex item	——	See Table 4 1

Table 41 : Vertex Item Data Format For Polygonal Regions			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	vertex latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
4	vertex longitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree

11.21 Delete Polygon Area – 0x8605

Table 42 : Delete Polygon Area Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Number of areas	BYTE	The number of areas included in this message shall not exceed 125 and may exceed 125 It is recommended to use multiple messages, 0 means to delete all rectangular areas
1	Area ID1	DWORD	
	...	DWORD	
	Area IDn	DWORD	

11.22 Set Route – 0x 8606

Table 43 : Setting The Route Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Route ID	DWORD	
4	route properties	WORD	See Table 4 4
6	start time	BCD[6]	Time range setting in the same circular area

12	End Time	BCD[6]	Time range setting in the same circular area
18	Total number of turning points on the route	WORD	
20	Inflection point term		See Table 4 5

Table 4 4 : Route Attribute Data Format	
Bit	**Definition**
0	1: According to time
1	reserve
2	1: Alarm the driver when entering the route
3	1: Alarm the platform when entering the route
4	1: Alarm the driver when leaving the route
5	1: Alarm the platform when leaving the route
6-15	reserve

Table 4 5 : Data Format Of Route Turning Point Items			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Inflection point ID	DWORD	
4	Road segment ID	DWORD	
8	Turning point latitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
12	Inflection point longitude	DWORD	Latitude value in degrees multiplied by 10 raised to the 6th power, to the nearest millionth of a degree
16	road section width	BYTE	The unit is meters (m), the road segment from this turning point to the next turning point
17	Road segment properties	BYTE	See Table 4 6
18	Road segment driving too long threshold	WORD	The unit is seconds (s). If the 0 bit of the road segment attribute is 0, there is no such field.
20	Road segment undertravel threshold	WORD	The unit is seconds (s). If the 0 bit of the road segment attribute is 0, there is no such field.
twenty two	road section maximum speed	WORD	The unit is kilometers per hour (km/h). If bit 1 of the road segment attribute is 0, there is no such field.
twenty four	Road section speeding duration	BYTE	The unit is seconds (s). If bit 1 of the road segment attribute is 0, there is no such field.

Table 4 6 : Road Segment Attribute Data Format	
Bit	**Definition**

0	1: Driving time
1	1: Speed limit
2	0: North latitude; 1: South latitude
3	0: East longitude; 1: West longitude
4-7	reserve

11.23 Delete Route – 0x8607

Table 47 : Delete Route Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Number of areas	BYTE	The number of areas included in this message shall not exceed 125 and may exceed 125 It is recommended to use multiple messages, 0 means to delete all rectangular areas
1	Area ID1	DWORD	
5	...	DWORD	
1+ (n - 1)* 4	Area IDn	DWORD	

11.24 Positioning Data Batch Upload – 0x 0 704

Table 48 : Positioning Data Batch Upload Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Number of data items	WORD	Number of location report data items included, >0
1	location data type	BYTE	0: Batch reporting of normal positions, 1: Supplementary reporting of blind spots
2	Location reporting data items		See Table 4 9

Table 49 : Location Report Data Item Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Location report data body length	WORD	Location report data body length, n
2	Location reporting data body	BYTE[n]	See 0x 0200 command

11.25 Multimedia Event Information Upload – 0x 0800

Table 50 : Multimedia Event Message Upload Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Multimedia data ID	DWORD	>0

4	multimedia type	BYTE	0: Image; 1: Audio; 2: Video;
5	Multimedia format encoding	BYTE	0: JPEG; 1: TIF; 2: MP3; 3: WAV; 4: WMV; others reserved
6	Event item encoding	BYTE	0: The platform issues instructions; 1: Timing action; 2: Robbery alarm triggered; 3: Collision and rollover alarm triggered; 4: Take photos with the door open; 5: Take photos with the door closed; 6: The door changes from open to closed, and the speed changes from <20 kilometers per hour to more than 20 kilometers per hour; 7: Take photos at a fixed distance; Other reservations
7	Channel ID	BYTE	

11.26 Multimedia Data Upload – 0x 0801

Table 51 : Multimedia Data Upload Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Multimedia data ID	DWORD	>0
4	multimedia type	BYTE	0: Image; 1: Audio; 2: Video;
5	Multimedia format encoding	BYTE	0: JPEG; 1: TIF; 2: MP3; 3: WAV; 4: WMV; Other reservations
6	Event item encoding	BYTE	0: The platform issues instructions; 1: Timing action; 2: Robbery alarm trigger Send; 3: Collision and rollover alarm trigger; others reserved, others reserved
7	Channel ID	BYTE	
8	Location information reporting (0x0200)Message body	BYTE[28]	Basic location information data representing multimedia data
36	multimedia packet		

11.27 Multimedia Data Upload Response – 0x 8800

Table 52 : Multimedia Data Upload Response Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Multimedia data ID	DWORD	>0, if all data packets are received, there will be no subsequent fields.
4	Total number of retransmission	BYTE	n

	packets		
5	Retransmission packet ID list	——	The retransmitted packet sequence numbers are arranged in sequence, such as "Packet ID1 Packet ID2... Package IDn ", no more than 1 25 items

Note: The response to this message should use the 0x0801 message to resend the subpackage in the retransmission packet ID list, which is exactly the same as the original subpackage message.

11.28 Camera Shooting Command Immediately – 0x8801

Table 5 3 : Camera Immediate Shooting Command Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Illustrate**
0	Channel ID	BYTE	>0
1	shooting order	WORD	0 means stop shooting; 0xFFFF means video recording; others means the number of pictures taken
3	Photo interval/recording time	WORD	Seconds, 0 means taking pictures at the minimum interval or recording continuously.
5	Save flag	BYTE	1: Save 0: real-time upload
6	resolutiona	BYTE	0x01:320*240; 0x02:640*480; 0x03:800*600; 0x04:1024*768; 0x05:176* 144;[Qcif]; 0x06:352* 288;[Cif]; 0x07:704* 288;[HALF D1]; 0x08:704* 576;[D1];
7	Image/video quality	BYTE	1-10, 1 represents the minimum quality loss, 10 represents the maximum compression ratio
8	brightness	BYTE	0-255
9	Contrast	BYTE	0-127
10	saturation	BYTE	0-127
11	Chroma	BYTE	0-255
aIf the terminal does not support the resolution required by the system, it will take the closest resolution and upload it.			

11.29 Camera Capture Command Response Immediately – 0x 0805

Table 54 : Camera Immediate Shooting Command Response Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Response serial number	WORD	Message serial number corresponding to the platform camera immediate shooting command

2	result	BYTE	0: Success; 1: Failure; 2: The channel is not supported. The following fields are valid only if result=0.
3	Number of multimedia IDs	WORD	n, the number of successfully captured multimedia pieces
4	Multimedia ID list	BYTE[4*n]	

11.30 Stored Multimedia Data Retrieval – 0x 8802

Note: If not based on time range, set the start time/end time to 00-00-00-00-00-00.

Table 55 : Storage Multimedia Data Retrieval Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	multimedia type	BYTE	0: Image; 1: Audio; 2: Video;
1	Channel ID	BYTE	0 means to retrieve all channels of this media type;
2	Event item encoding	BYTE	0: The platform issues instructions; 1: Timing action; 2: Robbery alarm trigger Send; 3: Collision rollover alarm trigger; others reserved
3	start time	BCD[6]	YY-MM-DD- hh -mm-ss
9	End Time	BCD[6]	YY-MM-DD- hh -mm-ss

11.31 Stored Multimedia Data Retrieval Response – 0x 0802

Table 56 : Storage Multimedia Data Retrieval Response Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Response serial number	WORD	The serial number of the corresponding multimedia data retrieval message
2	Total number of multimedia data items	WORD	The total number of multimedia data items that meet the search conditions
4	Search terms		See Table 5 7

Table 57 : Multimedia Search Item Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Multimedia ID	DWORD	>0
4	multimedia type	BYTE	0: Image; 1: Audio; 2: Video
5	Channel ID	BYTE	0: The platform issues instructions; 1: Timing action; 2: Robbery alarm trigger Send; 3: Collision rollover alarm trigger; others reserved
6	Event item encoding	BYTE	0: The platform issues instructions; 1: Timing action; 2: Robbery alarm trigger Send; 3: Collision rollover alarm trigger; others reserved

7	Location information reporting (0x0200)Message body	BYTE[28]	Basic location information data indicating the starting moment of shooting or recording

11.32 Store Multimedia Data Upload Commands – 0x8803

Table 58 : Storage Multimedia Data Upload Command Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	multimedia type	BYTE	0: Image; 1: Audio; 2: Video
1	Channel ID	BYTE	
3	start time	BCD[6]	YY-MM-DD- hh -mm-ss
9	End Time	BCD[6]	YY-MM-DD- hh -mm-ss
15	delete flag	BYTE	0: keep; 1: delete;

11.33 Single Stored Multimedia Data Retrieval And Upload Command – 0x 8805

Table 59 : Single Stored Multimedia Data Retrieval And Upload Command Message Body Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Requirements**
0	Multimedia ID	WORD	>0
4	delete flag	BYTE	0: keep; 1: delete;

11.34 Alarm Attachment Upload Command – 0x 9208

Message type: signaling data message.

After receiving the alarm/event information with attachments, the platform issues attachment upload instructions to the terminal.

Table 60 : File Upload Command Data Format			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
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 when using TCP transmission
3+k	Attachment server port (UDP)	WORD	Server port number when using UDP transmission
5+k	Alarm identification number	BYTE[16]	22 for the definition of alarm identification numbers.
21+k	Alarm number	BYTE[32]	The unique number assigned by the platform to the alarm

53+k	reserved	BYTE[16]	

After receiving the alarm attachment upload instruction issued by the platform, the terminal sends a general response message to the platform.

11.35 Alarm Attachment Information Message – 0x1210

Message type: signaling data message.

The terminal connects to the attachment server according to the attachment upload command and sends an alarm attachment information message to the server. The message body data format is shown in Table 4-23.

Table 61 : Alarm Attachment Information Message Data Format

Start Byte	Field	Type Of Data	Description And Instructions
0	Terminal ID	BYTE[7]	7 bytes, consisting of uppercase letters and numbers. This terminal ID is defined by the manufacturer. If there are insufficient digits, "0x00" will be added .
7	Alarm identification number	BYTE[16]	See Table 2 2
twenty three	Alarm number	BYTE[32]	The unique number assigned by the platform to the alarm
55	Information type	BYTE	0x00: Normal alarm file information 0x01: Supplementary transmission of alarm file information
56	Number of attachments	BYTE	The number of attachments associated with the alarm
57	Attachment information list		See Table 6 2

After receiving the alarm attachment information message uploaded by the terminal, the attachment server sends a general response message to the terminal. If the terminal is abnormally disconnected from the attachment server during the process of uploading alarm attachments, it will need to resend the alarm attachment information message when the link is restored. The attachment files in the message are unuploaded and unfinished attachment files before the disconnection.

Table 62 : Alarm Attachment Information Message Data Format

Start Byte	Field	Type Of Data	Description And Instructions
0	File name length	BYTE	length k
1	file name	STRING	file name string
1+k	File size	DWORD	current file size

The file name naming rules are:

<File type>_<Channel number>_<Alarm type>_<Serial number>_<Alarm number>.<Suffix name>

The fields are defined as follows:

File type: 00 - picture; 01 - audio; 02 - video; 03 - text; 04 - other.

Channel number: 0~37 represents the video channel 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 has nothing to do with the channel, fill in 0 directly.

Alarm type: A code consisting of the peripheral ID and the corresponding module alarm type. For example, forward collision alarm is represented as "6401".

Serial number: used to distinguish file numbers of the same channel and the same type.

Alarm number: The unique number assigned by the platform to the alarm.

Suffix name: image files are jpg or png, audio files are wav, video files are 264, and text files are bin.

After receiving the alarm attachment information command reported by the terminal, the attachment server sends a general response message to the terminal.

11.36 File Information Upload – 0x1211

Message type: signaling data message.

After the terminal sends an alarm attachment information command to the attachment server and receives a response, it sends an attachment file information message to the attachment server.

Table 63 : Attachment File Information Message Data Format

Start Byte	Field	Type Of Data	Description And Instructions
0	File name length	BYTE	File name length is 1
1	file name	STRING	file name
1+1	file type	BYTE	0x00: Picture 0x01: Audio 0x02: Video 0x03: Text 0x04: Other
2+1	File size	DWORD	currently uploaded file.

After receiving the attachment file information instruction reported by the terminal, the attachment server sends a general response message to the terminal.

11.37 File Data Upload

Message type: Code stream data message.

After the terminal sends the file information upload command to the attachment server and receives a response, it sends the file data to the attachment server. The payload packet format definition is shown in Table 4-26.

Table 64 : File Code Stream Payload Packet Format Definition Table

Start Byte	Field	Type Of Data	Description And Instructions
0	Frame header identifier	DWORD	Fixed to 0x30 0x31 0x63 0x64

4	file name	BYTE[50]	file name
54	data offset	DWORD	Data offset of the currently transferred file
58	Data length	DWORD	The length of the payload data
62	data body	BYTE[n]	The default length is 64K. If the file is smaller than 64K, the actual length will be used.

When the attachment server receives the file code stream reported by the terminal, it does not need to respond.

11.38 File Upload Completed Message – 0x121 2

Message type: signaling data message.

When the terminal completes sending a file data to the attachment server, it sends a file sending completion message to the attachment server.

Table 65 : File Sending Completion Message Body Data Structure			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
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: Other
2+1	File size	DWORD	currently uploaded file.

11.39 File Upload Complete Message Response – 0x 9212

Message type: signaling data message.

When the attachment server receives the file upload completion message reported by the terminal, it sends a file upload completion message response to the terminal.

Table 66 : File Upload Completion Message Response Data Structure			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**
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 results	BYTE	0x00: Completed 0x01: Supplementary transmission required
3+1	Number of supplementary data packets	BYTE	The number of data packets that need to be supplemented . If there is no supplementary transmission, the value is 0.
4+1	Retransmission data packet list		See Table 6 7

Table 67 : Data Structure Of Supplementary Data Packet Information			
Start Byte	**Field**	**Type Of Data**	**Description And Instructions**

0	data offset	DWORD	of the data that needs to be transferred in the file
1	Data length	DWORD	The length of data to be transmitted

If there is data that needs to be retransmitted, the terminal should perform retransmission of data through file data upload. After the retransmission is completed, a file upload completion message will be reported until the file data is sent.

After all files are sent, the terminal actively disconnects from the attachment server.