JT/T808

Communication Protocol

Mode: LCP04/LCV05/LCV06/LCV07

Catalog

1 RANGE

This protocol formulates the communication and data format between terminal (device) and monitoring center (platform), including protocol basis, communication connection, message handling, protocol classification and explanation and data format.

This protocol is applied for the communication between terminal device and platform.

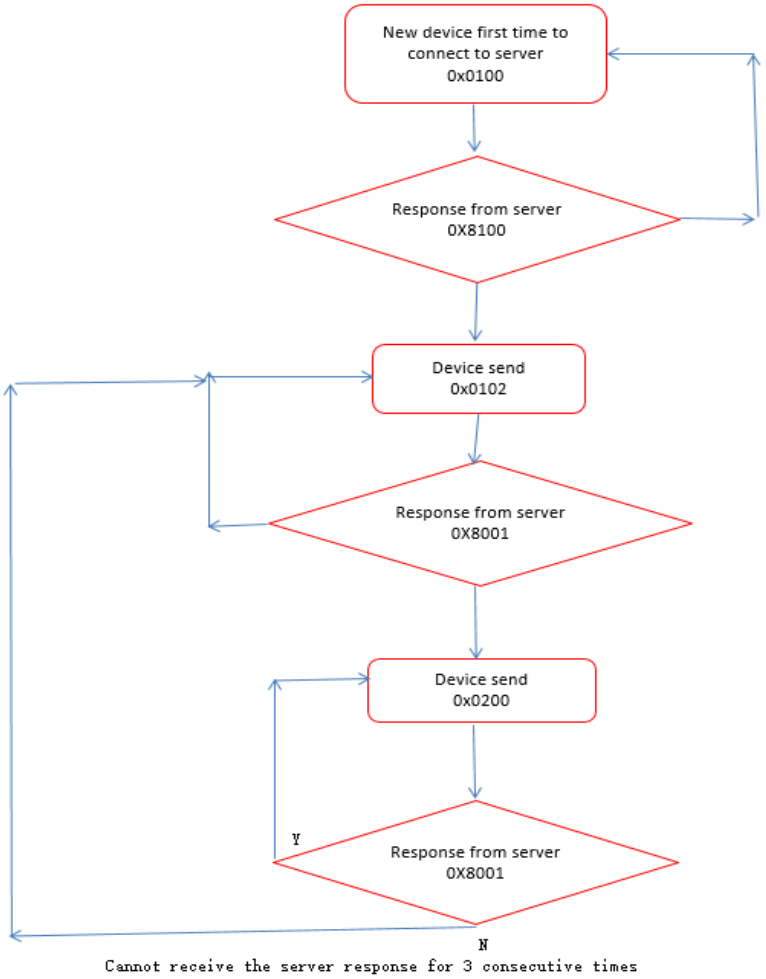
2 Standard Ability

GB/T 2260 CODE of Administration division of PRC

GB/T 19056 Digital Tachograph

JT/T 415-2006 e-government affairs catalog and code rules JT/T 794 Terminal requirements and technical request.

3 Data Flow Diagram



4 Terms & Definitions, Abb.

4.1 Terms & Definitions

4.1.1 Abnormal data communication link

Wireless communication link disconnection, or temporarily hand off (for example, on the phone)

4.1.2 Register

The terminal send message to platform to inform installation on which vehicle

4.1.3 Unregister

The terminal will send message to platform to notify the device was took away from the vehicle.

4.1.4 Authentication

The devices connect to the platform and send to message to platform for identification confirmation.

4.1.5 Location reporting strategy

Timing, distance reporting or combination

4.1.6 Location reporting program

To state rules for certain period report interval time

4.1.7 Additional points report while turning

The device will send location message to report when vehicles turn round. The sampling frequency is no less than 1Hz, the rate of change of vehicle angle direction is no less than 15 °/s, and at least last for 3 seconds above.

4.1.8 Answering strategy

The rules for automatically or hand receive calls of terminal.

4.1.9 SMS text alarm

Send SMS text to the phone when emergency.

4.1.10 Event item

Preset event items to the terminal, which is compose of event code and event name. If the drivers occurred any events and then operate the terminal, trigger event report and send to platform.

4.2 Abb.

APN——access point name
GZIP——GNUzip
LCD——liquid crystal display
RSA——Ron Rivest,Adi Shamirh, Len Adleman

SMS——short message service) TCP—— (transmission control protocol) TTS——
text to speech
UDP——user datagram protocol VSS—
—vehicle speed sensor

5 Protocol basis

5.1 communication means

This communication means of this protocol should be accord with the relative stipulation, by using TCP/UDP , the platform as server side, the terminal as customer side. When the data communication link is abnormal, the terminal will use SMS message to communicate.

5.2 Data types

Table 1: data type

Data types	Description
BYTE	unsigned integer single bytes (byte, 8 bit)
WORD	unsigned integer single bytes (character, 16 bit)
DWORD	unsigned integer single bytes (double word, 32 bit)
BYTE[n]	n bytes
BCD[n]	8421 code, n byte
STRING	GBK coding, if no data, then empty

5.3 Transmission Rules

Protocol adopts big-endian of network byte sequence to send character and double character. Formulate as following:

——transmission of BYTE: transmit as byte stream

——transmission of WORD: send high 8 bit first, then send low 8 bit.

——transmission DWORD: Send high 24 bit first, then send high 16 bit, and last send high 8 bit.

5.4 Message composition

5.4.1 Message Structure

Each message is compose from characteristic byte, message head, and message form and check code. See the below graph:

characteristic byte	message head	message form	check code	characteristic byte

5.4.2 Characteristic byte

Adopt 0x7e to indicate, if check code, message head and message body appear 0x7e then need to proceed transferred meaning handle. The rules as following:

0x7e <————> 0x7d after following 0x02;
0x7d <————> 0x7d after follow 0x01. Transferred meaning handle procedure as following: When sending message; message packaging——>calculate and fill check code——> transferred meaning;
When receiving message: transferred meaning restore——>verify check code——>analyzing message.
For example:
Sending 0x30 0x7e 0x08 0x7d 0x55 data package, then restore as:0x7e 0x30 7d 0x02 0x08 0x7d 0x01 0x55 0x7e.0x7e 0x08 0x7d

5.4.3 Message head

Message head content

Start byte	Field	Data type	Description
0	Message ID	WORD	
2	Message body nature	WORD	2 please see below table 2
4	Telephone no. of device	BCD[6]	Switch on the telephone number of terminal installation. If the number is less than 12, then add numbers before. China mobile add 0, HK or Taiwan add area code.
10	message serial number	WORD	From 0 to start reply accumulation accordance with sending sequence.
12	Message packaging		if the relative identification of message body makes sure to message subpackage, then this item has content. Otherwise no content.

Table 2: Message body property form structure

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
retain				Sub-package				Data encryption means				message body length			

Table 2 Message body property form structure Data encryption means:
——bit10~bit12 is for data encryption identification byte
——when the three byte is 0, which indicate message body no encryption
——when the 10th byte is 0, which indicate message body go through RSA arithmetic encryption
——Others retain Subpackage:
When the 13th byte of message body property is 1, which indicate message body is long message, then precede subpackage to send. The detailed subpackage is decided by message package. If the 13rd byte is 0, then message head has no message package field. Table 3 Message package packaging content

Start Byte	Filed	Data type	Descriptions
0	Message total package sum.	WORD	the total package after subpackage
2	package serial number	WORD	started from 1

5.4.4 Check code

The check code is started from message head; same as behind byte XOR, till the check code previous one byte, occupy one byte.

6 Communication connection

6.1 Connection establishment

The daily connection between terminal and platform apply for TCP/UDP. The terminal should establish connection with platform after reset. After connection, then the terminal will send authorization message to authorize to platform immediately.

6.2 Connection maintenance

The terminal will send heart message to platform in periodic after connection and authorization succeed, when there is no other messages transmission; The platform will send response message to terminal when get it. The sending periodic is appointed by terminal parameters.

6.3 Cut-off the link

Both platform and terminal can cut off the link based on TCP treaty, Both sides should actively judge whether the TCP link is disconnected.

The platform:

——When the terminal has cut off based on TCP treaty;

——The original link is deemed to be cut off when a new link is set up by the identical terminal;

——No message feedback from the terminal during a period, i.e. Terminal pulse.

The terminal:

——When the platform has cut off based on TCP treaty;

——The data communication link is cut off.

——The data communication link is still working, but no response after it reaches the resend limit.

7 Message Process

7.1 TCP and UDP

7.1.1 Commands by The Platform

All commands sent by the platform will request reply from the terminal, there are general reply and special reply, depends on each function protocol. The platform will resend the command when the answering time is overdue.

The answering overdue time and resend times will be defined by the platform parameters, the formula for the answering overdue time after each resend is as below:

$TN+1=TN \times (N+1)$

TN+1——The answering overdue time after each resend; TN——
The former answering overdue time; N——Resend times

7.1.2 Commands by The Terminal

7.1.2.1 Normal Data Communication Link

All commands sent by the terminal will request reply from the platform, there are general reply and special reply, depends on each function protocol. The terminal will resend the command when the answering time is overdue.

The answering overdue time and resend times will be defined by the terminal parameters, the formula for the answering overdue time after each resend is as above.

For the important alarm messages from the terminal, If no reply after it reaches the resend limit, the terminal will store the messages and send out again prior to other messages.

7.1.2.2 Abnormal Data Communication Link

When the data communication link is abnormal, the terminal will store all the location information and messages and send immediately after the link resumes normal.

7.2 SMS Process

When the terminal changes its communication mode to SMS under GSM network, It will use PDU 8-digit code, and process in separate package as per SMS regulation GSM 03.40 for messages over than 140 bytes.

SMS reply, resend and storage same as clause 6.1, but the answering time limit and resend times should be in accordance with Table 10 (Parameter ID 0x0006 and 0x0007).

8 Protocol Classification

8.1 Summary

Here are the protocol descriptions based on functions, the default communication mode is TCP if no otherwise specify. Vehicle terminal and accessories protocol please refer to Appendix A, the commands and abbreviated ID in the protocol please refer to Appendix B.

8.2 Terminal Management Protocol

8.2.1 Terminal Register/Unregister

The terminal should be registered before use, and get an authentication code for verification when login.

The terminal should be unregistered to disconnect with the vehicle when the terminal must be removed or replaced.

If the terminal uses SMS to send register or unregister command, the platform will also terminal reply in

SMS.

8.2.2 Terminal Authentication

Terminal authentication is required each time when it's connected to the platform after register, without which it cannot send messages.

The terminal sends authentication command to the platform and the platform will confirm with return message.

8.2.3 Set and Inquire Terminal Parameter

The platform sends parameter setting or inquire command to the terminal, the terminal will feedback via message. Terminals of different mobile systems will support different parameters.

8.2.4 Terminal Control

The platform sends terminal control command to the terminal, and the terminal will reply a formatted message in return.

8.3 Location and Alarm Protocol

8.3.1 Location Report

The terminal will upload location report periodically based on the set parameters, and send location report when it detects each vehicle turning.

8.3.2 Location Track

The platform sends location command to the terminal to track the real-time location of the target unit, the terminal will feedback a location message in detail.

8.3.3 Temporary Location Track Control

The platform sends temporary location tracing command to the terminal to activate or stop location track, the terminal will confirm via message and report the location at the preset time interval.

8.3.4 Terminal Alarm

The terminal sends location report with alarm sign to the platform when the alarm is triggered, the platform will confirm via message and set alarm on.

There are description for different alarm types in the report message, the alarm will be on until it's removed, and the terminal will send location report again to remove the alarm sign.

8.4 Information Protocol

8.4.1 Text Message Service

The platform sends text message service command for the driver to the terminal, the terminal will

confirm via message.

8.4.2 Accident Set-up and Report

The platform sends accident set-up command to the terminal, the accident list will be stored in the terminal by message feedback, the driver can choose from the list and the terminal will report to the platform accordingly. The platform will confirm via message.

8.4.3 Question

The platform sends question command to the terminal, with answer options displayed in the terminal after message feedback, the driver can choose the right answer and the terminal will report to the platform.

8.4.4 Information Request

The platform sends information request menu set-up command to the terminal, the menu list will be stored in the terminal and the driver can choose or delete the information service, then the terminal will confirm the option to the platform via message.

Once the service is chosen, the terminal will receive the messages like news and weather forecast from the platform periodically, the platform will confirm via message for register or unregister of the requested information service.

8.5 Mobile Protocol

8.5.1 Call-back

The platform sends call-back command for target mobile numbers to the terminal, listen-in mode optional (No loudspeaker),The terminal will confirm via message.

8.5.2 Phonebook Set-up

The platform sends phonebook set-up command to the terminal and the terminal will feedback via message.

8.6 Vehicle Control

The platform sends vehicle control command to the terminal, the terminal will confirm via message and operate immediately, It will also report the results to the platform.

8.7 Vehicle Management

The platform sends G-fence command (round, rectangle, polygon and route) to the terminal, the terminal will detect if the set fence or route will trigger alarm, including overspeed, in and out of fence or route, insufficient or over driving time etc.

The value range for fence or route: 1~0XFFFFFFFF, if the ID is doubled with the existing one in the terminal, the existing one will be updated.

The platform can also send deletion command to the terminal to delete the existing fence or route (round, rectangle, polygon).

The terminal will feedback via message for both set-up and deletion of G-fence or route.

8.8 Information Collection Protocol

8.8.1 Collection of Driver's ID data

The terminal collects driver's ID data and uploads to the platform for verification, the platform will reply success/failure message.

8.8.2 Collect Electronic Waybill Data

The terminal will collect electronic waybill data and upload to the platform.

8.8.3 Collect Driving Record Data

The platform sends collection command for driving record data to the terminal, the terminal will confirm via message and upload the requested data.

8.8.4 Download Driving record parameters

The platform sends download command for driving record parameters to the terminal, the terminal will confirm via message.

8.9 Multi-media Protocol

8.9.1 Multi-media Accident Upload

The terminal will record audio and video data for unexpected accidents, and send multi-media upload command to the platform, the platform will confirm via message.

8.9.2 Multi-media Data Upload

The terminal sends multi-media upload command, each multi-media data will be accompanied with the recording location report, which is called location multi-media data. The platform will determine the receiving time limit based on the package size, when the whole package is sent or the time limit is reached, the platform will acknowledge receipt or request for resend via message to the terminal.

8.9.3 Camera Instant Shot

The platform sends camera shot command to the terminal, and the terminal will feedback via message. If real-time upload is required, the terminal will upload pictures or video after shot, otherwise, it will store the video data.

8.9.4 Audio Record

The platform sends audio record command to the terminal, which will be confirmed by a general response from the terminal. If real-time upload is chosen, the terminal will upload audio data after recording, otherwise, it will store the data.

8.9.5 Search and Extraction of Multi-media Data Stored in the Terminal

The platform sends search command for multi-media data to the terminal, and the terminal will feedback an answering message.
According to the feedback, the platform will send upload command for specific data, which shall be confirmed by the terminal via message.

8.10 General Data Transfer

Those messages which are not defined in the protocol but often used in practice can be exchanged via data upgoing/downloading upload command.
The terminal can compress long messages via GZIP and upload through data compression command.

8.11 Encrypted Protocol

If encrypted communication is required between the platform and terminal, RSA public key PIN system can be used. The platform sends RSA public key command to the terminal, and the terminal will feedback terminal RSA public key, vice versa.

- # Data format

  - ## Terminal general response 0x0001

Message ID: 0x0001
Terminal general response message data format as chart 4.

Chart 4: terminal general response message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
	Message packet encapsulation	xx	?	**Field not used. Only Used for the GPS Recorder Product** Optional parameter that is not used in the A5 & A6. Place holder for future development If the relative identification of message body make sure to message subpackage, then this item has

				content. Otherwise no content. The field is usually only for photo data.
GGGG	Received sequence number	13	WORD	Reply to Message sequence number xxx.
HHHH	Received Message ID	15	WORD	Message ID of the received Message Sequence number
II	Result	17	BYTE	0 : Success / Confirmation; 1 : Failed; 2 : Message in error; 3 : non supported
YY	Check Sum	18	BYTE	
ZZ	Identifier	19	BYTE	End of Message, 7E

- **Platform general response 0x8001**

Message ID: 0x8001

Platform general response message data format as chart 5.

Chart 5: platform general response message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message, 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDDDDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
	Message packet encapsulation	xx		if the relative identification of message body make sure to message subpackage, then this item has content. Otherwise no content.
FFFF	Received sequence number	13	WORD	Reply to Message sequence number xxx.
GGGG	Received Message ID	15	WORD	Message ID of the received Message Sequence number
HH	Result	17	BYTE	0: Success / Confirmation; 1: Failed; 2: Message in error; 3: non supported
YY	Check Sum	18	BYTE	

ZZ	Identifier	19	BYTE	End of Message. 7E

- **Terminal heartbeat 0x0002**

Message ID: 0x0002

Terminal heartbeat data message is empty.

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message	3	WORD	See to Table 2
	body nature			
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
YY	Check Sum	18	BYTE	
ZZ	Identifier	19	BYTE	End of Message. 7E

- **Terminal register 0x0100**

Message ID: 0x0100

Terminal register message data format as chart 6.

Chart 6: Terminal register message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
FFFF	Provincial domain ID	13	WORD	GB/T2260standard. Ignore
GGGG	City, County ID	15	WORD	GB/T2260standard. Ignore
HHHHHH HHHH	Manufacturer ID	17	BYTE[5]	Five bytes, encoding terminal manufacturers. Ignore
IIIIIIII IIIIIIII	Terminal type	22	BYTE[20]	Eight bytes, this Terminal model defined by the manufacturer. Ignore it

JJJJJJJJ JJJJJJ	Terminal ID	30	BYTE[7]	Seven bytes, uppercase letters and numbers, Terminal ID Defined by the manufacturer itself. Ignore
KK	The color of the plate	37	BYTE	The color of the plate, in accordance with the JT/T 415-20065.4.12 standard. Ignore
aaaa....	License plate		STRING Max:32 byte	Optional: Motor vehicle license plate. Ignore
YY	Check Sum	38	BYTE	
ZZ	Identifier	39	BYTE	End of Message. 7E

Examples: 7E 01 00 00 19 09 40 27 58 33 22 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0000 00 00 00 00 00 00 09 40 27 58 33 22 00 19 7E

Description:

Identifier	7E	
Message header	01 00	Message ID
	00 19	Message body nature
	09 40 27 58 33 22	Terminal ID
	00 01	Message serial number
Message body	00 00	Provincial domain ID
	00 00	City, County ID
	00 0000 00 00	Manufacturer ID
	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Terminal type
	00 09 40 27 58 33 22	Terminal ID (mobile phone number in front of the Terminal to add 1 0x00)
	00	color
Check code	45	
Identifier	7E	

- **Terminal register response0x8100**

Message ID: 0x8100

Terminal register response message data format as chart 7.

Chart 7: Terminal register response message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2

DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial	11	WORD	Increment by 1.
	number			After a unit reset, the sequence counter defaults to 0
FFFF	Answering serial number	13	WORD	Corresponds to the registered message serial number
GG	Results	15	BYTE	0: Success; 1: Vehicle has been registered; 2: No vehicle in the database; 3: The Terminal has been registered; 4: Without the Terminal database
HHHH...	Authentication code		STRING Length: Variable Max: 18 Bytes	Only populated if unit is successfully registered on the platform.
YY	Check Sum	16	BYTE	
ZZ	Identifier	17	BYTE	End of Message. 7E

- ## Terminal unregister 0x0003

Message ID: 0x0003

Terminal unregister message is empty.

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
YY	Check Sum	18	BYTE	
ZZ	Identifier	19	BYTE	End of Message. 7E

- ## Terminal authentication

Message ID: 0x0102

Terminal authentication message data format as chart 8.

Chart 8: Terminal authentication message data format

Begin byte	Field	Data type	Description and requirements

0	Authentication key	STRING	Upload Authentication key when terminal connects to server again.

Examples: 7E 00 03 00 00 09 40 27 58 33 27 00 65 45 7E

Description:

Identifier	7E	
Message header	00 03	Message ID
	00 00	Message body nature
	09 40 27 58 33 27	Terminal ID
	00 65	Message serial number
Message body		
Check code	45	
Identifier	7E	

- **Set terminal parameter 0x8103**

Message ID: 0x8103

Set terminal parameter message data format as chart 9.

Chart 9: Set terminal parameter message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
FF	Total number of parameter	13	BYTE	
	Parameter list	14		Parameter format is shown in Chart10
YY	Check Sum		BYTE	
ZZ	Identifier		BYTE	End of Message. 7E

Chart 10: Terminal parameter message data format

Begin byte	Data type	Description and requirements
Parameter ID	DWORD	Parameter ID definition and introductions refer to chart 11
Parameter length	BYTE	
Parameter values		If it's multiple-valued, then the message use several same ID parameters, such as telephone number in monitoring center.

Chart 11: terminal parameter definition and introductions

Begin byte	Data type	Description and requirements
0x0001	DWORD	Terminal heartbeat sending interval, unit: second
0x0002	DWORD	The timeout time of TCP message response, unit: second
0x0003	DWORD	The times of TCP message uploading again
0x0004	DWORD	The timeout time of UDP message response, unit: second
0x0005	DWORD	The times of UDP message uploading again
0x0006	DWORD	The timeout time of SMS message response, unit: second
0x0007	DWORD	The times of SMS message uploading again
0x0008~0x000F		TBD
0x0010	STRING	Main server APN, wireless communication dialing access point. If the Network type is CDMA, then it's PPP dialing number.
0x0011	STRING	Main server wireless communication dialing user
0x0012	STRING	Main server wireless communication dialing password
0x0013	STRING	Main server address, IP or DNS
0x0014	STRING	Backup server APN, Wireless communication dialing access point
0x0015	STRING	Backup server wireless communication dialing user
0x0016	STRING	Backup server wireless communication dialing password
0x0017	STRING	Backup server address, IP or DNS
0x0018	DWORD	Server TCP port
0x0019	DWORD	Server UDP port
0x001A~0x001F		TBD
0x0020	DWORD	Location reporting strategy: 0: timing report 1: fixed distance report 2: timing and fixed report
0x0021	DWORD	Location reporting program: 0: according to ACC state 1: according to ACC state and login state First judge login state, if it has login in, then refer to ACC state.
0x0022	DWORD	Report time interval without driver's identity, unit: second, >0
0x0023~0x0026	DWORD	TBD
0x0027	DWORD	Report time interval in the dormancy, unit: second >0
0x0028	DWORD	Report time interval in the emergency, unit: second >0
0x0029	DWORD	Default time report interval, unit: second >0
0x002A~0x002B	DWORD	TBD
0x002C	DWORD	Default distance report interval, unit: second >0
0x002D	DWORD	Report distance interval without driver identity, unit: second >0
0x002E	DWORD	Report distance interval in the dormancy, unit: second >0
0x002F	DWORD	Report distance interval in the emergency, unit: second >0
0x0030	DWORD	The angle of additional points report while turn <180
0x0031~0x003F		TBD
0x0040	STRING	Monitoring platform telephone number

0x0041	STRING	Reset telephone number, dial telephone number in the terminal by this number to reset the terminal
0x0042	STRING	Recovery default telephone number, dial telephone number in the terminal by this number to recovery the default
0x0043	STRING	Monitoring platform SMS telephone number
0x0044	STRING	Receiving terminal SMS text alarm number
0x0045	DWORD	Answering strategy 0: automatic answering 1:automatic answering in ACC ON, manual answer in OFF
0x0046	DWORD	The longest conversation time in every time, unit: second 0: non conversation, 0xFFFFFFFF is no limit
0x0047	DWORD	The longest conversation time in every month, unit: second 0: non conversation, 0xFFFFFFFF is no limit
0x0048	STRING	Monitoring telephone number
0x0049	STRING	Monitoring platform privilege message number
0x004A~0x004F		TBD
0x0050	DWORD	Alarm switch, corresponding with alarm flag in location report message, if the flag is 1, then corresponding alarm is turn off.
0x0051	DWORD	Sending SMS alarm switch, corresponding with alarm flag in location report message, if the flag is 1, then send SMS in corresponding alarm.
0x0052	DWORD	Taking photos alarm switch, corresponding with alarm flag in location report message, if the flag is 1, then take photo in corresponding alarm.
0x0053	DWORD	Uploading photos alarm switch, corresponding with alarm flag in location report message, if the flag is 1, then save photo in corresponding alarm, otherwise real time upload.
0x0054	DWORD	Key sign, corresponding with alarm flag in location report message, if the flag is 1, then it's the key alarm in corresponding alarm, otherwise real time upload.
0x0055	DWORD	Maximum speed, unit: km/h
0x0056	DWORD	Over-speed duration time, unit: second
0x0057	DWORD	Maximum fatigue driving time, unit: second
0x0058	DWORD	Maximum fatigue driving time in the day, unit: second
0x0059	DWORD	Minimum break time, unit: second
0x005A	DWORD	Maximum parking time, unit: second
0x005B~0x006F		TBD
0x0070	DWORD	Image/video quality, 1～10, 1best
0x0071	DWORD	Brightness, 0~255
0x0072	DWORD	Contrast, 0~127
0x0073	DWORD	Saturation, 0~127
0x0074	DWORD	Chroma, 0~255
0x0075~0x007F		
0x0080	DWORD	Vehicle odometer1/10km
0x0081	WORD	Province ID

0x0082	WORD	City ID
0x0083	STRING	Motor vehicle plate No. issued by public security traffic management department
0x0084	BYTE	Plate color, refer to JT/T415-2006 5.4.12

- ## Query terminal parameter 0x8104

Message ID: 0x8104

Query terminal parameter message is empty.

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
YY	Check Sum	18	BYTE	
ZZ	Identifier	19	BYTE	End of Message. 7E

- ## Query terminal parameter response 0x0104

Message ID: 0x0104

Query terminal parameter response message data format as chart 12.

Chart 12: Query terminal parameter response message data format

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCONF IDENTI ALCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
FFFF	Reply serial number	13	WORD	Terminal parameters that corresponds to the query message serial number
GG	Response	15	BYTE	

	parameters			
	Parameter list	16		Parameter format and definition chart10
YY	Check Sum		BYTE	
ZZ	Identifier		BYTE	End of Message. 7E

- **Terminal control 0x8105**

Message ID: 0x8105

Terminal control message data format as chart 13.

Chart 13: Terminal control message body data format

Begin byte	Field	Data type	Description and requirements
0	Command word	BYTE	Terminal control command word instruction refer to chart 14
1	Command parameter	STRING	Command parameter format: Every field adopts half-angle";" to separate. Every string constitutes message by GBK coding.

Chart 14: Terminal control message data format

Begin byte	Data type	Description and requirements
1	Command parameter format refer to 15	Wireless update. Parameters adopt half-angle to separate. Command: URL address; dial name; dial user; dial password; address; TCP port; UDP port; manufacturer ID; hardware version; firmware version; the limit time of linking to server. If the certain parameter is non-value, then it's null.
2	Command parameter format refer to 15	Control terminal links to server. Parameters adopt half-angle to separate. Control Command: connection control; Monitoring platform Authentication; dial name; dial user; dial password; address; TCP port; UDP port; the limit time of linking to server. If the certain parameter is non-value, then it's null, else if connection control value is 1, then there isn't any other parameters.
3	null	Terminal power off
4	null	Terminal reset
5	null	Terminal recovery default
6	null	Turn off data communication
7	null	Turn off all the data communication

Chart 15: Command parameter format

Begin byte	Data type	Description and requirements
Connection control	BYTE	0: Switch to the specified monitoring platform server, enter into emergency state after connecting to this server, only the

		monitoring platform can send controlling command including SMS 1: Switch to default monitoring platform server, and recovery normal state.
Dialing point name	STRING	Generally it's the server APN, wireless communication dialing point, if the network type is CDMA, then the value is PPP connection dialing number.
Dialing user name	STRING	Server wireless communication dialing user name
Dialing password	STRING	Server wireless communication dialing password
Address	STRING	Server address, IP or DNS
TCP port	WORD	Server TCP port
UDP port	WORD	Server UDP port
Manufacturer ID	BYTE[5]	Terminal manufacturer code
Monitoring platform authentication	STRING	Authentication which was sent from platform uses for connecting the terminal to the monitoring platform, terminal still uses the original authentication to connect to the original platform.
Hardware version	STRING	Terminal hardware version, is designed by manufacturer.
Firmware version	STRING	Terminal firmware version, is designed by manufacturer.
URL address	STRING	Complete URL address
Limit time of connecting to server	WORD	Unit: minutes, terminal connects to the original server address before valid deadline which is marked by the terminal received a command of upgrading or connecting to referred server, if this value is not zero. If this value is zero, the terminal is always connecting to referred server.

- ## Location information report 0x0200

Message ID: 0x0200

Location information report is made up with location basic information and location additional information item list, message structure:

Location basic information	location additional information item list

Location additional information item list is consist with the location additional information items, which also cannot have, according to the length of the message header field.

Location basic information data format as chart 16.

Chart 16: Location basic information data format

Begin byte	Field	Data type	Description and requirements
0	Alarm	DWORD	Alarm flag definition refer to chart 18
4	State	DWORD	State flag definition refer to chart 17
8	Latitude	DWORD	latitude value (unit: degree) * 1000000 accuracy: one in a million
12	Longitude	DWORD	Longitude value(unit: degree)* 1000000

			accuracy: one in a million
16	Altitude	WORD	Altitude unit: meter
18	Speed	WORD	1/10km/h
20	Direction	WORD	0~359, north is 0, clockwise
21	Time	BCD[6]	YY-MM-DD-hh-mm-ss (GMT+8 time)

Chart 17: State flag definition

Bit	State
0	0: ACC turn off 1: ACC turn on
1	0: without positioning 1: positioning
2	0: northern latitude 1: southern latitude
3	0: east longitude 1: west longitude
4	0: operation state 1: stop operation state
5	0: Latitude and longitude without security card encryption 1: Latitude and longitude have security card encryption
6~7	TBD
8~9	00: empty; 01: half, 10: retention; 11: full (can be used for bus air, car and truck load, which is usually crowded with a large number of state, said manual input or sensor get)
10	0: Vehicle fuel circuit normal 1: Vehicle fuel circuit abnormal
11	0: Vehicle circuit normal 1: Vehicle circuit abnormal
12	0: door unlock 1: door lock
13	0: First door close 1: First door open
14	0: Second door close 1: Second door open
15	0: Third door close 1: Third door open
16	0: Fourth door close 1: Fourth door open
17	0: Fifth door close 1: Fifth door open
18	0: Not using GPS satellite for positioning; 1: use GPS satellite positioning
19	0: Not using Beidou satellite for positioning; 1: use Beidou satellite positioning
20	0: Not using GLONASS satellite for positioning; 1: use GLONASS satellite positioning
21	0: Not using Galileo satellite for positioning; 1: use Galileo satellite positioning
22~31	TBD

Chart 18: alarm flag definition

Bits	Definition	Introduction
0	1: SOS alarm, trigger alarm switch	Clear after receiving the response
1	1: over-speed alarm	Clear flag until the alarm being removed
2	1: fatigue driving	Clear flag until the alarm being removed
3	1: pre-warning	Clear after receiving the response
4	1: GNSS module break down	Clear flag until the alarm being removed
5	1:GNSS antenna unconnected or be cut off	Clear flag until the alarm being removed
6	1: GNSS antenna short circuit	Clear flag until the alarm being removed
7	1: Power Supply power under	Clear flag until the alarm being removed

8	1: Cut Off Power Supply	Clear flag until the alarm being removed
9	1: Terminal LCD or display break down	Clear flag until the alarm being removed
10	1: TTS module break down	Clear flag until the alarm being removed
11	1: camera module break down	Clear flag until the alarm being removed
12~17	TBD	
18	1: The accumulative total driving timeout	Clear flag until the alarm being removed
19	1: parking timeout	Clear flag until the alarm being removed
20	1: exit and entrance region	Clear after receiving the response
21	1: exit and entrance route	Clear after receiving the response
22	1: driving time shortage/ too long	Clear after receiving the response
23	1: Route deviation alarm	Clear flag until the alarm being removed
24	1: Vehicle VSS fault	Clear flag until the alarm being removed
25	1: Vehicle fuel anomaly	Clear flag until the alarm being removed
26	1: vehicle anti-theft(by vehicle anti-theft device)	Clear flag until the alarm being removed
27	1: Vehicle illegal ignition	Clear after receiving the response
28	1: Vehicle illegal displacement	Clear after receiving the response
29	1: Collision alarm	Clear flag until the alarm being removed
30~31	Keep	

Location additional information item format refer to chart 19.

Chart 19: location additional information item format

Begin byte	Data type	Description and requirements
Additional information ID	BYTE	1~255
Additional information length	BYTE	
Additional information		Additional information definition refer to chart 20

Chart 20: additional information definition

Begin byte	Additional data length	Description and requirements
0x01	4	Mileage, DWORD, 1/10km, corresponding with odometer
0x02	2	Fuel capacity, WORD, corresponding with fuel gauge
0x03	2	The speed of driving record function, WORD,1/10km/h
0x04	2	Need to manually confirm alarm event ID, WORD, from the beginning of 1 count
0x05～0x10		TBD
0x11	1or5	Over speed alarm additional information refer to chart 21
0x12	6	In and out of region/route alarm additional information refer to chart A5
0x13	7	Driving time shortage/ too long alarm additional information refer to chart 22

0x14~0x24		TBD
0x25	4	Extended vehicle signal status refer to chart A6
0x2A	2	IO status refer to chart A7
0x2B	4	Analog quantity, bit0-15, AD0;bit16-31,AD1
0x30	1	BYTE, wireless communication network signal strength
0x31	1	BYTE, GNSS positioning satellite
0xE0	Follow-up information	Subsequent custom message length
0xE1~0xFF		TBD
A7	4	AD Value, DWORD, First WORD: ADC1, 0-1023 , Second WORD: ADC2, 0-1023

Chart 21: Over-speed alarm additional information message data format

Begin byte	Field	Data type	Description and requirements
0	Location type	BYTE	0: No specific location 1: Circular region 2: Rectangle region 3:Polygon region; 4: Route
1	Region/route ID	DWORD	If the location type is 0, without this field

Chart 22: in and out of region/route alarm additional information message data format

Begin byte	Field	Data type	Description and requirements
0	Route ID	DWORD	
4	Driving time	WORD	Unit: second
6	Result	BYTE	0: shortage 1: too long

Chart A5: Route travel time insufficient / long alarm information

Begin byte	Field	Data type	Description and requirements
0	Fence Type	BYTE	1: Circular area; 2: rectangular area; 3: polygon region; 4: route
1	Region/Route ID	DWOR D	
5	Direction	BYTE	0: In 1: out

Chart A6: Extended vehicle signal status

Bit	State
0	1: The near beam light signal
1	1: The high beam light signal
2	1: Right turn signal
3	1: Left turn signal
4	1: Brake signal
5	1: Reverse signal

6	1: Fog signal
7	1: Profile light signal
8	1: Horn signal
9	1: Air conditioning state
10	1: Neutral signal
11	1: Retarder working state
12	1: ABS working state
13	1: Heater working state
14	1: Clutch working state
15 -3	TBD

Chart A7: IO Status

Bit	State
0	1: Deep dormancy
1	1: Dormant state
2-15	TBD

- ## Query location information 0x8201

Message ID: 0x8201 Location
message is empty

	Field	Start byte	Data type	Description
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device ID or Telephone No.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message serial number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
YY	Check Sum	18	BYTE	
ZZ	Identifier	19	BYTE	End of Message. 7E

- ## Query location information response 0x0201

Message ID: 0x0201
Location information query response message data format refer to chart 24.

Chart 24: Location information query response message data format

	Field	Start	Data	Description

		byte	type	
AA	Identifier	0	BYTE	Start of Message. 7E
BBBB	Message ID	1	WORD	
CCCC	Message body nature	3	WORD	See to Table 2
DDDDDD DDDDDD	Device or phone no.	5	BCD[6]	If the number is less than 12, then pad the start with zero's until length = 12.
EEEE	Message sequence number	11	WORD	Increment by 1. After a unit reset, the sequence counter defaults to 0
FFFF	Query serial no.	13	WORD	Sequence number of the original Query message from the Platform.
GGGGGGGG	Alert Flags	15	DWORD	Alert flags defined in 4.11 table0-7
HHHHHHHH	State	19	DWORD	State as defined in 4.11 table0-6
IIIIIIII	Latitude	23	DWORD	Latitude value (unit: degree) * 1000000 accuracy: one in a million
JJJJJJJJ	Longitude	27	DWORD	Longitude value (unit: degree) * 1000000 accuracy: one in a million
KKKK	Altitude	31	WORD	Altitude in units of meters (m)
LLLL	Speed	33	WORD	1/10km/h
MMMM	Directions	35	WORD	0-359 , North 0 Clockwise
NNNNNN NNNNNN	Date/Time	41	BCD[6]	YYMMDDHHMMSS
[aabb..]	Additional Data Info	47	Variable	**Optional** Additional Data information, as defined in 4.11 tables0-2 -> 0-5
YY	Check Sum		BYTE	
ZZ	Identifier		BYTE	End of Message. 7E

- ## Temporary location tracking control 0x8202

Message ID: 0x8202

Temporary location tracking control message data format refer to chart 25.

Chart 25: Temporary location tracking control message body data format

Begin byte	Field	Data type	Description and requirements
0	Time interval	WORD	unit: second (s), 0: stop tracking. Stop the tracking without subsequent field
2	location tracking valid time	DWORD	unit: second (s), terminal sends location report according to message time interval before valid deadline that the terminal received location tracking controlling message.

- ## Text message issued 0x8300

Message ID: 0x8300. This message usually use for online downloading transmission SMS

command.

Text message issued message data format refer to chart 26.

Chart 26: Text message issued message body data format

Begin byte	Field	Data type	Description and requirements
0	Flag	BYTE	Text message flag definition refer to chart 27
1	Text message	STRING	The longest is 1024 KB, by GBK code

Chart 27: text message flag definition

Bit	Flag
0	1: emergency
1	TBD
2	1: Terminal LED display
3	1: Terminal TTS broadcast
4	1: Advertising screen display
5~7	TBD

- **Event setting 0x8301**

Message ID: 0x8301

Event setting message format refer to chart 28.

Chart 28: Event setting message body format

Begin byte	Field	Data type	Description and requirements
0	Setting type	BYTE	0: delete all the event in the terminal, this command without subsequent byte 1: update event 2: additional event 3: modify event
1	Total number of settings	BYTE	
2	Event item list		Event item data format refer to chart 29

chart 29: Event item data format

Begin byte	Field	Data type	Description and requirements
0	Event ID	BYTE	If the terminal with same ID event, it will be covered
1	Event content length	BYTE	Subsequent events content field byte length
2	Event content	STRING	Event content, by GBK code

- **Event report 0x0301**

Message ID: 0x0301

Event report message data format refer to chart 30.

Chart 30: Event report message data format

Begin byte	Field	Data type	Description and requirements
0	Event ID	BYTE	

- **Questions issued 0x8302**

Message ID: 0x8302

Event issued message data format refer to chart 31.

Chart 31: Event issued message body data format

Begin byte	Field	Data type	Description and requirements
0	Flag	BYTE	Question issued flag definition refer to chart 32
1	Question content length	BYTE	Problem field byte length
2	Question	STRING	Problem text, by GBK code, length is N
2+N	Candidate answer list		Candidate answer composition refer to chart 33

Chart 32 question issued flag definition

Bit	Flag
0	1: emergency
1	TBD
2	TBD
3	1: terminal TTS broadcast
4	1: Advertising screen display
5~7	TBD

Chart 33: candidate answer of questions issued message composition

Begin byte	Field	Data type	Description and requirements
0	Answer ID	BYTE	
1	Answer content length	WORD	answer content field byte length
3	Answer content	STRING	answer content, by GBK code

- **Question answering 0x0302**

Message ID: 0x0302

Question answering message data format refer to chart 34.

Chart 34: Question answering message body data format

Begin byte	Field	Data type	Description and requirements
0	Response serial number	WORD	The corresponding questions issued message serial number
2	Answer ID	BYTE	The answer of questions issued with ID

• Information on demand menu Settings 0x8303

Message ID: 0x8303

Question answering message data format refer to chart 34.

Information on demand menu Settings message data format refer to chart 35.

Chart 35: Information on demand menu Settings message body data format

Begin byte	Field	Data type	Description and requirements
0	Setting type	BYTE	0: delete all information items in the terminal 1: update the menu 2: additional menu 3: modify menu
1	Total number of information items	BYTE	
2	Information item list		Information on demand information item composition data format refer to chart 36

Chart 36: Information on demand information item composition data format

Begin byte	Field	Data type	Description and requirements
0	information type	BYTE	If the terminal has same type of information item, it will be covered
1	Information name length	WORD	Information name field byte length
3	Information name	STRING	By GBK code

• Information on demand/cancellation 0x0303

Message ID: 0x0303

Information on demand/cancellation message data format refer to chart 37.

Chart 37: Information on demand/cancellation message body data format

Begin byte	Field	Data type	Description and requirements
0	information type	BYTE	
1	On demand /cancellation flag	BYTE	0: cancellation 1: on demand

• information service 0x8304

Message ID: 0x8304

Information service message data format refer to chart 38.

Chart 38: Information service message body data format

Begin byte	Field	Data type	Description and requirements
0	information type	BYTE	

1	information length	WORD	
3	Information content	STRING	By GBK code

- **Telephone call back 0x8400**

Message ID: 0x8400

Telephone call back message data format refer to chart 39.

Chart 39: Telephone call back message body data format

Begin byte	Field	Data type	Description and requirements
0	Flag	BYTE	0: command conversation 1: monitoring
1	Telephone number	STRING	The longest is twenty byte

- **Setting phone book 0x8401**

Message ID: 0x8401

Setting phone book message data format refer to chart 40.

Chart 40: Setting telephone book message body data format

Begin byte	Field	Data type	Description and requirements
0	Set type	BYTE	0: delete all storage contacts in the terminal 1: update the phone book (delete all the contacts which have existed in the terminal and add information of the contact) 2: additional phone book 3: modify the phone book (contacts index)
1	Contact count	BYTE	
2	Contact item		The telephone contact item data format refer to chart 41

Chart 41: telephone contact item data format

Begin byte	Field	Data type	Description and requirements
0	Flag	BYTE	1: incoming call 2: outcoming call 3: incoming/outcoming call
1	Number length	BYTE	
2	telephone number	STRING	Length is n
2+n	Contact length	BYTE	
3+n	Contact	STRING	By GBK code

- **vehicle control 0x8500**

Message ID: 0x8500

Vehicle control message data format refer to chart 42.

Chart 42: Vehicle control message body data format

Begin byte	Field	Data type	Description and requirements
0	Control flag	BYTE	Control instruction mark a data format refer to chart 43

Chart 43: Control instruction flag data format

Bit	Flag
0	0: door unlock 1: the door lock
1~7	TBD

- **vehicle control response 0x0500**

Message ID: 0x0500

Vehicle control response message data format refer to chart 44.

Chart 44: Vehicle control response message body data format

Begin byte	Field	Data type	Description and requirements
0	Response serial number	WORD	corresponding vehicle control message serial number
2	Location information reporting message		According to the corresponding state to judge whether control is success

- **Setting circular region 0x8600**

Message ID: 0x8600

Setting circular region message data format refer to chart 45

Remark: The message protocol support cycle time range, such as limit daily 8:30~18:00 (start/end time) as 00-00-00-08-30-00/00-00-00-18-00-00

Chart 45: setting circular region message body data format

Begin byte	Field	Data type	Description and requirements
0	Set Property	BYTE	0: update region 1: additional region 2: modify region
1	Total number of regions	BYTE	
2	Region item		Circular area content data format refer to chart 46

Chart 46: Circular area content data format

Begin byte	Field	Data type	Description and requirements
0	Region ID	DWORD	0
4	Area attribute	WORD	Regional attribute definition refer to chart 47
6	Center latitude	DWORD	latitude value*1000000 unit: degree precisely to one in a million
10	Center longitude	DWORD	longitude value*1000000 unit:

			degree precisely to one in a million
14	radius	DWORD	Unit: meters (m), sections for the inflection point to the next inflection point
18	starting time	BCD[6]	YY - MM - DD - hh - mm - ss, if the regional attribute byte 0 is 0, do not have this field.
24	end time	BCD[6]	YY - MM - DD - hh - mm - ss, if the regional attribute byte 0 is 0, do not have this field.
30	maximum speed	WORD	Km/h, if the regional attribute byte 1 is 0do not have this field.
32	Over-speed duration	BYTE	Unit: seconds (s) (similar expression, like the previous modification), if the regional attribute byte 1 is 0, do not have this field.

Chart 47 Regional areas attribute definition

Bit	Flag
0	1: According to the time
1	1: limit speed
2	1: Into the area alarm to the driver
3	1: Into the area alarm to the platform
4	1:out of the area alarm to the driver
5	1: out of the area alarm to the platform
6	0: north latitude 1: south latitude
7	0: east longitude1: west longitude
8~15	TBD

- ## delete circular region 0x8601

Message ID: 0x8601

Delete circular region message data format refer to chart 48.

Chart 48: Delete circular region message body data format

Begin byte	Field	Data type	Description and requirements
0	Region number	BYTE	This message contains region number, not more than 125, if it's more than 125 suggest using multiple news, 0 to delete all the circular area
1	Region ID1	DWORD	
	……	DWORD	
	Region IDn	DWORD	

- ## Setting rectangle region 0x8602

Message ID: 0x8602

Setting rectangle region message data format refer to chart 49.

Chart 49: Setting rectangle region message body data format

Begin byte	Field	Data type	Description and requirements
0	Set Property	BYTE	0: update region 1: additional region 2: modify region
1	Total number of regions	BYTE	
2	Regional item		Rectangular region data format refer to chart 50

Chart 50: Rectangular region data format

Begin byte	Field	Data type	Description and requirements
0	Region ID	DWORD	
4	Region property	WORD	Regional attribute definition refer to chart 47
6	Left point latitude	DWORD	latitude value*1000000 unit: degree precisely to one in a million
10	Left point longitude	DWORD	longitude value*1000000 unit: degree precisely to one in a million
14	Right point latitude	DWORD	latitude value*1000000 unit: degree precisely to one in a million
18	Right point longitude	DWORD	longitude value*1000000 unit: degree precisely to one in a million
22	Start time	BCD[6]	Same as setting circular region time range
28	End time	BCD[6]	Same as setting circular region time range
34	Maximum Speed	WORD	Unit: km/h if the regional attribute byte 1 is 0, do not have this field.
36	Over-speed duration	BYTE	Unit: second, if the regional attribute byte 1 is 0, do not have this field.

- **delete rectangle region 0x8603**

Message ID: 0x8603

Delete rectangle region message data format refer to chart 51.

Chart 51: Delete rectangle region message body data format

Begin byte	Field	Data type	Description and requirements
0	Region number	BYTE	This message contains region number, not more than 125, if it's more than 125 suggest using multiple news, 0 to delete all the rectangle area.
1	Region ID1	DWORD	

	……	DWORD	
	Region IDn	DWORD	

- **Setting polygon region 0x8604**

Message ID: 0x8604

Setting polygon region message data format refer to chart 52.

Chart 52: Setting polygon region message body data format

Begin byte	Field	Data type	Description and requirements
0	Region ID	DWORD	
4	Region property	WORD	Regional property definition refer to chart 47
6	Start time	BCD[6]	Same as setting circular region time range
12	End time	BCD[6]	Same as setting circular region time range
18	Maximum speed	WORD	Unit: km/h if the regional attribute byte 1 is 0, do not have this field.
20	Over-speed duration	BYTE	Unit: second, if the regional attribute byte 1 is 0, do not have this field.
21	Regional total vertices	WORD	
23	Vertices item		Polygon region Vertices data format refer to chart 53

Chart: 53 Polygon region Vertices data format

Begin byte	Field	Data type	Description and requirements
0	Vertices latitude	DWORD	latitude value*1000000 unit: degree precisely to one in a million
4	Vertices longitude	DWORD	longitude value*1000000 unit: degree precisely to one in a million

- **delete polygon region 0x8605**

Message ID: 0x8605

Delete polygon region message data format refer to chart 54.

Chart 54: Delete polygon region message body data format

Begin byte	Field	Data type	Description and requirements
0	Region number	BYTE	This message contains region number, not more than 125, if it's more than 125 suggest using multiple news, 0 to delete all the polygon area.
1	Region ID1	DWORD	
	……	DWORD	
	Region IDn	DWORD	

- **Setting route 0x8606**

Message ID: 0x8606

Setting route message data format refer to chart 55.

Chart 55: Setting route message body data format

Begin byte	Field	Data type	Description and requirements
0	Route ID	DWORD	
4	Route property	WORD	Route property data format refer to chart 56
6	Start time	BCD[6]	Same as setting circular region time range
12	End time	BCD[6]	Same as setting circular region time range
18	Total number of inflection point	WORD	
20	Inflection point		Route inflection point item data format refer to chart 57

Chart 56: route property data format

Bit	Flag
0	1:According to the time
1	TBD
2	1: Into the area alarm to the driver
3	1: Into the area alarm to the platform
4	1:out of the area alarm to the driver
5	1:out of the area alarm to the platform
6~15	TBD

Chart 57: Route inflection point item data format

Begin byte	Field	Data type	Description and requirements
0	inflection point ID	DWORD	
4	Route ID	DWORD	
8	inflection point latitude	DWORD	latitude value*1000000 unit: degree precisely to one in a million
12	Inflection point longitude	DWORD	longitude value*1000000 unit: degree precisely to one in a million
16	Route width	BYTE	The unit is meters (m), sections for the inflection point to the next inflection point
17	Route property	BYTE	Route property data format refer to chart 58
18	longest driving threshold value	WORD	Unit: second, if the regional attribute byte 0 is 0, do not have this field.
20	Shortage driving threshold value	WORD	Unit: second, if the regional attribute byte 0 is 0, do not have this field.
22	Maximum route speed	WORD	Unit: Km/h, if the regional attribute byte 1 is 0, do not have this field.
24	Over-speed	BYTE	Unit: second, if the regional attribute byte 1 is 0, do not

	duration		have this field.

Chart 58 route property data format

Bit	Flag
0	1: driving time
1	1: limit speed
2	0: north latitude1: south latitude
3	0: east longitude1: west longitude
4～7	TBD

- **delete route 0x8607**

Message ID: 0x8607

Delete route message data format refer to chart 59.

Chart 59: Delete route message body data format

Begin byte	Field	Data type	Description and requirements
0	Total number of route	BYTE	This message contains region number, not more than 125, if it's more than 125 suggest using multiple news, 0 to delete all the polygon area.
1	RouteID1	DWORD	
	……	DWORD	
	RouteIDn	DWORD	

- **driving record data acquisition command 0x8700**

Message ID: 0x8700

Driving record data acquisition command message data format refer to chart 60.

Chart 60: driving record data acquisition command message body data format

Begin byte	Field	Data type	Description and requirements
0	Command word	BYTE	Command word list refer to GB/T19056 related requirements
3	Data block		Data black content format refer to GB/T19056 related requirements. Can be empty

9.37 driving record data uploading 0x0700

Message ID: 0x0700

Driving record data uploading message data format refer to chart 61.

Chart 61: Driving record data uploading message body data format

Begin byte	Field	Data type	Description and requirements
0	Response serial No.	WORD	The corresponding driving record data acquisition command message serial number
2	Command word	BYTE	command word from corresponding platform
3	Data block		Data black content format refer to GB/T19056 related

			requirements

9.38 Driving record parameter downloading command 0x8701

Message ID: 0x8701

Driving record parameter downloading command refer to chart 62.

Chart 62: Driving record parameter downloading command message body format

Begin byte	Field	Data type	Description and requirements
0	Command word	BYTE	Command word list refer to GB/T19056 related requirements
1	Data block		Data black content format refer to GB/T19056 related requirements

9.39 electronic waybill report 0x0701

Message ID: 0x0701

Electronic waybill report message data format refer to chart 63.

Chart 63: Electronic waybill report message body data format

Begin byte	Field	Data type	Description and requirements
0	electronic way bill length	DWORD	
4	electronic way bill content		electronic waybill data block

9.40 The driver identity information acquisition report 0x0702

Message ID: 0x0702.

The driver identity information acquisition report message data format refer to chart 64.

Chart 64: The driver identity information acquisition report message body data format

Begin byte	Field	Data type	Description and requirements
0	Status	BYTE	0x01 Insert the IC card(Driver working) 0x02 Remove the IC card(Driver get off work)
1	Date Time	BCD{6}	Plug/remove IC card date time YY-MM-DD-hh-mm-ss (UTC + Setting)
7	Read IC card result	BYTE	0x00 Read IC card successfully 0x01 Read IC card failed, because of IC card secret key authentication failed 0x02 Read IC card failed, because of IC card has been locked 0x03 Read IC card failed, because of IC card has been pulled out 0x04 Read IC card failed, because of data validation error

			The following fields in IC read results of 00
8	Driver name length	BYTE	n
9	Driver name	STRING	the driver name
9+n	driver identity code	STRING	Length: twenty byte
29+n	The length of government agency name	BYTE	m
30+n	Name of government agency	STRING	
30+n+m	Valid of license	BCD{4}	YYYYMMDD

9.41 Batch location data send0x0704

Message ID: 0x0704

Batch location data sending Format (see Table 1)

Table 1: Batch location data sending Format

Start byte	Filed	Data type	Explanation
0	The number of data item	WORD	The numbers of included location report data items >0
1	Location data type	BYTE	0: normal location data report in batch; 1: Blinding area resending when no GPS/GSM signal
2	Location report data item		See table 2

Table 2: Data format for Location report data items

Start byte	Field	Data Type	Explanation
0	Location report data length	WORD	Location report data length. n
2	Location report data	BYTE【n】	Detailed see 8.12 location message report

9.42 CAN-BUS data sending 0x0705

Message ID: 0x0705

Format of CAN-BUS data sending, see table 3。

Table 3: Format of CAN-BUS data sending

Start byte	Field	Data type	Explanation
0	Number of data item	WORD	Included CAN-BUS data item numbers. >0
2	CAN-BUS data received time	BCD【5】	The 1st CAN-BUS data received time, hh-mm-ss-msms
8	CAN-BUS data item		See table 3

Table 3: CAN-BUS data item

Start byte	Field	Data type	Explanation
0	CAN ID	BYTE【4】	Bit31 means CAN channel no., 0: CAN 1; 1: CAN 2 Bit30 means frame type. 0: standard, Frame 1: extended frame Bit29 means collection method 0: original data, 1: averagevalue of collected data period Bit28-bit0 means CAN ID
4	CAN DATA	BYTE【8】	CAN DATA

9.43 multi-media event information uploading 0x0800

Message ID: 0x0800

Multi-media event information uploading data format refer to chart 65.

Chart 65: Multi-media event information uploading message body data format

Begin byte	Field	Data type	Description and requirements
0	Multi-media data ID	DWORD	>0
4	Multi-media type	BYTE	0: image 1: audio 2: video
5	Multimedia format code	BYTE	0: JPEG1: TIF2: MP33: WAV4: WMV Others: TBD
6	event item code	BYTE	0: platform issued instructions 1: timing action 2: robbery alarm trigger 3: collision alarm trigger Others: TBD
7	Channel ID	BYTE	

9.44 multi-media data uploading 0x0801

Message ID: 0x0801

Multi-media data uploading message data format refer to chart 66.

Chart 66: Multi-media data uploading message body data format

Begin byte	Field	Data type	Description and requirements
0	Multi-media ID	DWORD	>0
4	Multi-media type	BYTE	0: image
5	Multimedia format code	BYTE	0: JPEG 1: TIF 2: MP3 3: WAV 4: WMV Others: TBD
6	event item code	BYTE	0: platform issued instructions 1: timing action
7	Channel ID	BYTE	
8	Multimedia packet		

9.45 multi-media data uploading response 0x8800

Message ID: 0x8800

Multi-media data uploading response message data format refer to chart 67.

Chart 67: Multi-media data uploading response message body data format

Begin byte	Field	Data type	Description and requirements
0	multi-media ID	DWORD	>0
4	Retransmission packet count	BYTE	
5	Retransmission packet ID list		No more than 125 items, without this field, indicates that have received all the data packet

9.46 camera shooting immediately command 0x8801

Message ID: 0x8801

Camera shooting immediately command message data format refer to chart 67.

Chart 67: Camera shooting immediately command message body data format

Begin byte	Field	Data type	Description and requirements
0	Channel ID	BYTE	>0
1	Shooting command	WORD	0: stop shooting 0xFFFF: video Other: the number of photos
3	Photos interval/video time	WORD	Seconds, 0: according to the minimum interval for photograph or been video
5	Save flag	BYTE	1: save; 0: real-time upload
6	Resolution	BYTE	0x01:320*240; 0x02:640*480; 0x03:800*600; 0x04:1024*768; 0x05:176*144; [Qcif]; 0x06:352*288; [Cif]; 0x07:704*288; [HALFD1]; 0x08:704*576; [D1];
7	Image/video quality	BYTE	1-10,1: the minimum mass loss, 10: a compression ratio maximum
8	luminance	BYTE	0~255
9	contrast	BYTE	0~127
10	saturation	BYTE	0~127
11	chroma	BYTE	0~255
If terminal do not support the resolution of the system requirements, then take the most close resolution of the image and upload			

9.47 Storing multi-media data retrieval 0x8802

Message ID: 0x8802

Storing multimedia data retrieval message data format refer to chart 69.

Remark: Time range will be the start time / end time are set to 00-00-00-00-00-00.

Chart 69: Storing multimedia data retrieval message body data format

Begin byte	Field	Data type	Description and requirements
0	multi-media type	BYTE	0: image1: audio2: video
1	Channel ID	BYTE	0: retrieval all channels of media type
2	Event item code	BYTE	0: platform issued instructions 1: timing action 2: robbery alarm trigger 3: collision alarm trigger Others: TBD
3	starting time	BCD[6]	YY-MM-DD-hh-mm-ss
9	end time	BCD[6]	YY-MM-DD-hh-mm-ss

9.48 Storing multi-media data retrieval response 0x8802

Message ID: 0x0802

Storing multimedia data retrieval response message data format refer to chart 70.

Chart 70: Storing multimedia data retrieval response message data format

Begin byte	Field	Data type	Description and requirements
0	Response serial number	WORD	The corresponding multimedia data retrieval news serial number.
2	The total Number of multi-media data	WORD	accord with the retrieval conditions of the total number of multi-media data
4	Retrieval item		Multi-media retrieval data format refer to chart 71

Chart 71: multimedia retrieval message data format

Begin byte	Field	Data type	Description and requirements
0	multi-media type	BYTE	0: image 1: audio 2: video
1	Channel ID	BYTE	
2	Event item code	BYTE	0: platform issued instructions 1: timing action 2: robbery alarm trigger 3: collision alarm trigger Others: TBD
3	Location information report(0x0200) message		shooting or record starting time of message report

9.49 Storage multimedia data upload command 0x8803

Message ID: 0x8803

Storage multimedia data upload command message data format refer to chart 72.

Chart 72: Storage multimedia data upload command message body data format

Begin byte	Field	Data type	Description and requirements
0	multi-media type	BYTE	0: image 1: audio 2: video
1	Channel ID	BYTE	
2	Event item code	BYTE	0: platform issued instructions 1: timing action 2: robbery alarm trigger 3:collision alarm trigger Others TBD
3	starting 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: TBD 1: delete

9.50 Recording command 0x8804

Message ID: 0x8804

Recording command message data format refer to chart 73.

Chart 73: Recording command message body data format

Begin byte	Field	Data type	Description and requirements
0	recording command	BYTE	0: stop the recording 0x0 1: start recording
1	recording time	WORD	The unit is seconds (s) 0: have been recording
3	Save flag	BYTE	0: real-time upload1: save
4	Audio sample rate	BYTE	0:8K 1: 11K 2: 23K 3:33k Others: TBD

External accessories types number Table

External accessories	Numbers
Information terminal device	0x01
LCD displayer for dispatch	0x02
Navigation LCD displayer	0x03
Fuel detector /sensor	0x04
Accelerated speed detector/ sensor	0X05
Anti-theft alarmer	0x06
Port/connector extended accessory	0x07
Detector for loading capacity	0x08

Detector for computing how many passengers	0x09
Common sensors	0x0A
IC card reader	0x0B
Defined by self	0xF0-0xFF

9.51 Data downlink transmission 0x8900

Message ID: 0x8900

Data downlink transmission message data format refer to chart 74.

Chart 74: data downlink transmission message body data format

Begin byte	Field	Data type	Description and requirements
0	Transmission message type	BYTE	
1	Transmission message content		

9.52 Data uplink transmission 0x0900

Message ID: 0x0900

Data uplink transmission message data format refer to chart 75.

Chart 75: data uplink transmission message body data format

Begin byte	Field	Data type	Description and requirements
0	Transmission message type	BYTE	
1	Transmission message content		

9.53 Data compression report 0x0901

Message ID: 0x0901

Data compression report message data format refer to chart 76.

Chart 76: Data compression report message data format

Begin byte	Field	Data type	Description and requirements
0	Compression message length	DWORD	
4	Compression message		The compressed message is required to compress the message by GZIP compression algorithm

9.54 Platform RSA public key 0x8A00

Message ID: 0x8A00

Platform RSA public key message data format refer to chart 77.

Chart 77: Platform RSA public key message body data format

Begin byte	Field	Data type	Description and requirements
0	e	DWORD	Platform RSA public key {e,n} of thee
4	n	BYTE[128]	Platform RSA public key {e,n} of then

9.55 Terminal RSA public key 0x0A00

Message ID: 0x0A00

Terminal RSA public key message data format refer to chart 78.

Chart 78: Terminal RSA public key message body data format

Begin byte	Field	Data type	Description and requirements
0	e	DWORD	Terminal RSA public key {e,n} of thee
4	n	BYTE[128]	Terminal RSA public key {e,n} of then

10 Extension Protocol

10.1 Remote controlling the fuel 0xA006

Chart 79: Remote controlling the fuel message body format

Begin Byte	Field	Data type	Description
0	Control parameters	BYTE	0x00: Recover fuel 0x01: Cut off fuel, this operation is performed when location is valid and the speed less than 20KM/H
1	Aging parameters	BCD[6]	YYMMDDHHMMSS, Execution of an instruction before the time specified by the aging parameter is valid, and if the time is invalid, no instruction is executed.

Example:

[Send from server]7E A0 06 00 07 00 16 01 28 52 16 F1 F5 01 20 30 50 F0 70 10 0F 7E

[Reply from device]7E 00 01 00 05 00 16 01 28 52 16 00 18 F1 F5 A0 06 00 C5 7E

Terminal response: general response

After the terminal receives the command, it respond immediately to the general response message; then the terminal will cut off the fuel, and then returns the result of this command.

10.2 Response of remote controlling the fuel 0x2006

Chart 80: Response of remote controlling the fuel message body format

Begin byte	Field	Data type	Description
0	Response serial No.	WORD	The corresponding remote control Message serial number of the controlling fuel message
2	Position message		Judging whether the control is successful or not

	report message body		according to the corresponding state position

Appendix B

chart/table B.1: Device communication protocol message

No.	Message body name	Message ID	No.	Message body name	Message ID
1	Device common response	0x0001	24	accident setting	0x8301
2	platform common	0x8001	25	accident/event report	0x0301
3	device heartbeat	0x0002	26	question dispatch	0x8302
4	Supplementary data package request	0x8003	27	question response	0x0302
5	device registration	0x0100	28	information broadcasting menu setting	0x8303
6	device registration response	0x8100	29	information broadcasting/cancel	0x0303
7	device log-off	0x0003	30	Information service	0x8304
8	Device authentication	0x0102	31	Call dial back	0x8400
9	set device parameters	0x8103	32	set telephone list	0x8401
10	Inquiry device parameters	0x8104	33	vehicle control	0x8500
11	Inquiry device parameter response	0x0104	34	vehicle control response	0x0500
12	device control	0x8105	35	set circular geofence	0x8600
13	Inquiry designated device parameter	0x8106	36	delete circular geofence	0x8601
14	Inquiry device property	0x8107	37	set square geofence	0x8602
15	Inquiry device property response	0x0107	38	delete square geofence	0x8603
16	dispatch device updating firmware package	0x8108	39	set polygon geofence	0x8604
17	device updating result	0x0108	40	delete polygon geofence	0x8605
18	Location information report	0x0200	41	set routing	0x8606
19	location information	0x8201	42	delete routing	0x8607
20	Location information inquiry	0x0201	43	black box data collection command	0x8700

	response				
21	temporary location control	0x8202	44	black box data uploading	0x0700
22	Manual confirm alarm information	0x8203	45	black box parameters dispatch command	0x8701
23	text message dispatch	0x8300	46	electronic bill report	0x0701
No.	Message body name	Message ID	No.	Message body name	Message ID
47	Drivers ID information collection report	0x0702	58	Saved Multi-media data sending	0x8803
48	Send driver ID request	0x8702	59	Recording start command	0x8804
49	Location data sending in batch	0x0704	60	Individual saved multi-media data retrieval sending command	0x8805
50	CAN-BUS data sending	0x0705	61	data sending down transparent	0x8900
51	Multi-media event info sending	0x0800	62	data sending up transparent	0x0900
52	Multi-media data sending	0x0801	63	data compress report to	0x0901
53	Multi-media data sending response	0x8800	64	platform RSA key	0x8A00
54	camera instant take photo command	0x8801	65	device SA key	0x0A00
55	camera instant take photo command response	0x0805	66	platform down message keep back	0x8F00~0x8FFF
56	Saved Multi-media data retrieval	0x8802	67	device up message keep back	0x0F00~0x0FF
57	Saved Multi-media data retrieval response	0x0802			