

General JT/T808 Protocol

V1.1

1. Protocol Basis

1.1 Communication Way

The communication method adopted by the protocol should comply with the relevant regulations in JT/T 794. The communication protocol adopts TCP, the platform serves as the server and the terminal serves as the client. **The customized or extended part of the content is marked in bold red in this agreement document.**

1.2 Data Type

The data types used in the protocol message are shown in Table 1:

Table 1 Data Type

Data Type	Description and requirements
BYTE	Unsigned single byte integer (Byte, 8 Digital)
WORD	Unsigned double byte integer(Byte, 16 Digital)
DWORD	Unsigned four-byte integer(Double Byte, 32 Digital)
BYTE[n]	n byte
BCD[n]	8421 Code, n byte
STRING	GBK encoding, using 0 terminator, if there is no data, put a 0 terminator

1.3 Transmission rules

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

The agreement is as follows:

- Byte (BYTE) transmission convention: according to byte stream transmission;
- The transmission convention of WORD: first transfer the high eight bits, and then transfer the low eight bits;
- The transmission convention of DWORD: first transfer the high 24 bits, then transfer the high 16 bits, then transfer the high eight bits, and finally transfer the low eight bits.

1.4 The composition of the message

1.4.1 Message Structure

Each message consists of identification bits, message header, message body and check code. The message structure diagram is shown in Figure 1:

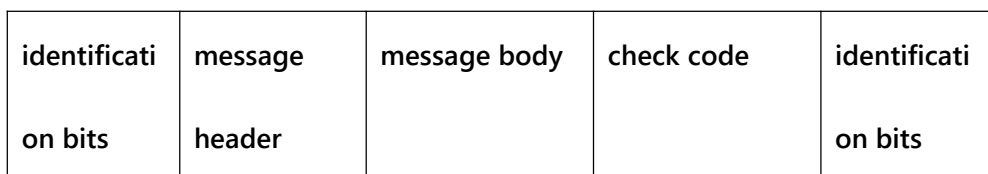


Figure 1 Message Structure

1.4.2 Identification Bits

Using 0x7e means that if 0x7e appears in the check code, message header, and message body, it must be escaped. The escape rules are defined as follows:

0x7e <—> 0x7d is followed by a 0x02;

0x7d <—> 0x7d is followed by a 0x01;

The escaping process is as follows:

When sending a message: message encapsulation -> calculate and fill in the check code -> escape;

When receiving a message: Escape and restore——>Verify check code——
 ——>Analyze the message.

Example:

Send a data packet whose content is 0x30 0x7e 0x08 0x7d 0x55, and the package is
 as follows: 0x7e 0x30 7d 0x02 0x08 0x7d 0x01 0x55 0x7e.

1.4.3 Message Header

The content of the message header is shown in Table 2:

Table 2

Start byte	Number Field	Data Type	Description & Requirements
0	Message ID	WORD	
2	Message body attributes	WORD	The structure diagram of the message body attribute format is shown in Figure 2
4	Terminal phone number	BCD[6]	This field is the terminal device number affixed to the shell of the device, a total of 11 digits, and the device number is uploaded with 0 in front of it. For example: 138081234567, data upload 0138081234567
10	Message serial number	WORD	Cyclically accumulate from 0 in the sending order
12	Message package		If the relevant flag in the message body attribute determines that the message

	encapsulation item		is subpackaged, then this item has content, otherwise there is no item
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The structure diagram of the message body attribute format is shown in Figure 2:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Reserve		Subcontract	Data encryption method			Message body length									

Data encryption method:

—— bit10-bit12 is the data encryption identification bit ;

——When these three bits are all 0, it means that the message body is not encrypted;

——When the 10th bit is 1, it means that the message body is encrypted by RSA algorithm ;

——Other reservations.

Subcontract:

When the 13th bit in the message body attribute is 1, it means that the message body is a long message, and the packet is sent. The specific subpackage information is determined by the message package encapsulation item; if the 13th bit is 0, there is no message package encapsulation in the message header Item field.

The contents of the message package encapsulation items are shown in Table 3

Table 3

Start Byte	Number Field	Data Type	Description & Requirements
0	Total number of message packs	WORD	The total number of packets after the message is subpackaged
2	Packet sequence number	WORD	Start from 1

1.4.4 Check code

The check code refers to the XOR from the beginning of the message to the next byte until the previous byte of the check code, which occupies one byte.

2. Data Format

2.1 Terminal general response【0001】

Message ID: 0x0001。

The data format of the terminal general response message body is shown in Table 4.

Start Byte	Number Field	Data Type	Description & Requirements
0	Reply 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 : Fail ; 2 : Error ; 3 : not support

2.2 Platform general response【8001】

Message ID : 0X8001。

The data format of the platform general response message body is shown in Table 5.

Start Byte	Number Field	Data Type	Description & Requirements
0	Reply 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 : Fail ; 2 : Error ; 3 : not support 4 : Alarm processing confirmation

2.3 Terminal heartbeat【0002】

Message ID : 0X0002.

The terminal heartbeat data message body is empty.

The platform replies to a general response

2.4 Terminal registration【0100】

Message ID : 0X0100。

The data format of the terminal registration message body is shown in Table 6.

Start Byte	Number Field	Data Type	Description & Requirements
0	State ID	WORD	Indicate the province where the vehicle is installed on the terminal, 0 is reserved, and the default value is taken by the platform. The provincial ID adopts the first two of the six administrative division codes specified in GB/T 2260.
2	City ID	WORD	Indicate the city and county where the vehicle is installed on the terminal, 0 is reserved, and the platform takes the default value. The city/county area ID adopts the six last four digits of the administrative division code specified in GB/T 2260.
4	Manufacturer ID	BYTE[5]	Five bytes, terminal manufacturer code.

9	Terminal Model	BYTE[8]	Eight bytes, this terminal model is defined by the manufacturer, the number of digits is not eight, and the space is filled.
17	Terminal ID	BYTE[7]	Seven bytes, composed of uppercase letters and numbers, this terminal ID is defined by the manufacturer.
21	Color of Car Plate	BYTE	The color of the license plate, in accordance with 5.4.12 of JT/T 415-2006, the value is 0 when it is not on the license plate
25	Car Plate	STRING	Motor vehicle license plate issued by the public security traffic management department

2.5 Terminal registration response【8100】

Message ID : 0x8100。

The data format of the terminal registration response message body is shown in Table 7.

Start Byte	Number Field	Data Type	Description & Requirements
0	Reply serial number	WORD	The serial number of the corresponding terminal registration message
2	Result	BYTE	0 : Success ; 1 : Vehicle has been

			registered ; 2 : No such vehicle in the database ; 3 : The terminal has been registered ; 4 : No such terminal in the database
3	Authentication code	STRING	This field is only available after success

The terminal will go through the registration process again every time it is reset, and the platform needs to respond to the registration message at any time.

2.7 Terminal authentication【0102】

Message ID : 0x0102.

The data format of the terminal authentication message body is shown in Table 8-1.

Start Byte	Number Filed	Data Type	Description & Requirements
0	Authentication code	STRING	Report the authentication code after the terminal reconnects

Table 8-2 Platform response terminal authentication message body data format

Start Byte	Number Field	Data Type	Description & Requirements
0	Reply serial number	WORD	The serial number of the corresponding terminal message
2	Reply ID	WORD	0x0102:Terminal authentication message ID

4	Result	BYTE	0 : Success/confirmation ; 1 : Fail
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2.8 Set terminal parameters【8103】

Message ID : 0x8103

The data format of the message body for setting terminal parameters is shown in Table 9.

Start Byte	Number Field	Data Type	Description & Requirements
0	Total number of parameters	BYTE	
1	List of parameter items		The parameter item format is shown in Table 10

Table 10 Data format of terminal parameter item

Number Field	Data Type	描述及要求
Parameter ID	DWORD	Parameter ID definition and description are shown in Table 11
Parameter Length	BYTE	
Parameter value		If it is a multi-value parameter, multiple parameter items with the same ID are used in the message, such

		as the telephone number of the dispatch center
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Table 11: Definition and description of each parameter item of terminal parameter setting

Parameter ID	Data Type	Description & Requirements
0x0001	DWORD	Terminal heartbeat sending interval, in seconds(s)
0x0010	STRING	Main server APN, wireless communication dial-up access point.
0x0013	STRING	Main server address, IP or domain name
0x0017	STRING	Backup server address, IP or domain name
0x0018	DWORD	Server TCP port
0x0020	DWORD	Location report strategy, 0: regular report; 1: fixed distance report; 2: regular and fixed distance report
0x0027	DWORD	Reporting time interval during sleep, in seconds (s), >0
0x0029	DWORD	The default time reporting interval, in seconds (s), >0
0x002C	DWORD	The default distance report interval, the unit is meter (m),>0
0x0030	DWORD	Inflection point supplementary transmission angle, <180°
0x0055	DWORD	Maximum speed in kilometers per hour (km/h)

0x0056	DWORD	Overspeed duration in seconds (s)
0x0080	DWORD	Vehicle odometer reading, 1/10km
0x0081	DWORD	Province ID where the vehicle is located
0x0082	DWORD	City ID where the vehicle is located
0x0083	STRING	Motor vehicle license plate issued by the public security traffic management department
0x0084	BYTE	The color of the license plate is in accordance with 5.4.12 of JT/T415-2006

2.9 Query terminal parameters【8104】

Message ID : 0x8104

The query terminal parameter message body is empty.

2.10 Query terminal parameter response 【0104】

Message ID : 0x0104。

The data format of the query terminal parameter response message body is shown in Table 12.

Start Byte	Number Filed	Data Type	Description & Requirements
0	Reply serial number	WORD	The serial number of the corresponding terminal parameter query message
2	Number of response	BYTE	

	parameters		
3	List of parameter items		The parameter format and definition are shown in Table 10

2.11 Terminal control【8105】

Message ID : 0x 8105。

The data format of the terminal control message body is shown in Table 13.

Table 13 Terminal control message body data format

Start Byte	Number Field	Data Type	Description & Requirements
0	Command word	BYTE	See Table 14 for the description of terminal control command words
1	Command parameters	STRING	The command parameter format is described later. Each field is separated by a half-width ";", and each STRING field is processed according to GBK encoding before forming a message

Table 14 Description of terminal control command words

Comm	Command	Description & Requirement
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and Byte	Parameter	
0x04	No	Terminal reset (restart)
0x05	No	Restore the factory settings of the terminal
0x17	No	Turn on voice recording
0x18	2 Bytes	Turn on continuous recording Recording time, in minutes
0x19	No	Stop all recording
0x64	No	Cut off oil and electricity
0x65	No	Restore oil and electricity
0x66	No	External fortification
0x67	No	External disarm

2.12 Location information report【0200】

Message ID : 0x0200。

The location information report message body consists of a list of location basic information and location additional information items. The message structure diagram is shown in Figure 3:

Basic location information	List of location additional information items
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The location additional information item list is composed of various location

additional information items, or not, and is determined according to the length field in the message header.

The data format of basic position information is shown in Table 16.

Start Byte	Number Field	Data Type	Description & Requirements
0	Alarm sign	DWORD	Refer to Table 18 for the definition of alarm flag bit
1	Status	DWORD	The status bit definition is shown in Table 17
8	latitude	DWORD	The latitude value in degrees is multiplied by 10 to the 6th power, accurate to one millionth of a degree
12	longitude	DWORD	The longitude value in degrees is multiplied by 10 to the 6th power, accurate to one millionth of a degree
16	Height	WORD	Altitude above sea level, in meters (m)
18	Speed	WORD	1/10km/h
20	Direction	WORD	0-359, true north is 0, clockwise
21	Time	BCD[6]	YY-MM-DD-hh-mm-ss(GMT+8 time, the time involved after this standard adopts this time zone)

Table 17 Status bit definition

Bit	Status
0	0: ACC Off ; 1:ACC On
1	0: Un-Position ; 1: Positioned
2	0: north latitude ; 1: south latitude
3	0: East longitude ; 1: West longitude
4-5	Reserve
6	0: Disarm 1 : Fortify
7-9	Reserve
10	Oil circuit status : 0: normal ; 1: Disconnected
11	Power-off state : 0: Main Power Normal:1: Main Power Disconnected
12-31	Reserve

Table 18 Definition of alarm flag bit

Bit	Definition	Processing instructions
0	1:Emergency alarm (SOS alarm)	Cleared after receiving the response
1	1 : Overspeed Alarm	The flag is maintained until the alarm condition is removed
2	1 : Fatigue driving	The flag is maintained until the alarm condition is removed
3-6	Reserve	
7	1 : Terminal main power supply undervoltage	The flag is maintained until the alarm condition is removed
8	1 : Main power disconnection alarm	The flag is maintained until the alarm condition is removed
9-14	Reserve	
15	Low battery alarm (wireless device)	Cleared after receiving the response
16	Vibration Alarm	Cleared after receiving the response
17-18	Reserve	
19	1 : Overtime parking	The flag is maintained until the alarm condition is removed
20-27	Reserve	
28	1 : Illegal vehicle displacement	Cleared after receiving the response
29~31	Reserve	

See Table 19 for the format of location additional information items.

Table 19 Location Additional Information Item Format

Number Field	Data Type	Description & Requirements
Additional Information ID	BYTE	1-255
Additional Information Length	BYTE	
Additional Information		Additional information is defined in Table 20

Table 20 Definition of additional information

Additional Information ID	Additional Information Length	Description & Requirements
0x01	4	Mileage, DWORD, 1/10km, local accumulated mileage of the terminal
0x2B	4	The two-channel fuel consumption data adopts the reported data as the Changrun fuel consumption protocol data
0x30	1	Network signal strength CSQ value 0-31
0x31	1	The number of GPS satellites, the signal value is greater than 25dB The number of

		satellites
0x51	16	16 bytes, 2 bytes for a group temperature, a total of 8 channels of temperature
0x52	1	Forward and reverse (0: unknown; 1: forward (empty) 2: reverse (heavy); 3: stop)
0x53	1+n*8	2G base station data 0x53 1+n*8 Base station data: The first byte is the number of base stations, followed by n base station data; Base station data: 0-1 MCC; 2 MNC; 3-4 LAC; 5-6 CELLID; 6 signal strength
0x54	1+n*7	Wifi data: the number of wifi in the first byte, followed by n wifi data; WIFI data: 0-5 wifiMac; 6 signal strength
0x56	2	Internal battery level Byte 1, power level 0-10 Byte 2, reserved
0x5D	1+n*10	4G base station data The first byte is the number of base stations, followed by n base station data;

		0x5D 1+n*10 Base station data: 0-1 MCC; 2 MNC; 3-4 LAC; 5-8 CELLID; 9 signal strength
0x61	2	Main power supply voltage value, unit 0.01V
0xF1	20	ICCID, the terminal will report once every time the terminal completes the platform authentication.
0xF3	1	Armed/disarmed state, 0x00 is disarmed, 0x01 is armed

2.13 Location information query【8201】

Message ID: 0x8201。

The location information query message body is empty.

2.14 Location information query response【0201】

Message ID: 0x0201。

The data format of the location information query response message body is shown in Table 24.

Table 24: Data format of location information query response message body

Start Byte	Number Field	Data Type	Description & Requirements
0	Reply serial number	WORD	The serial number

			of the corresponding location information query message
2	Location information report		For location information report, see 8.12

2.16 Bulk upload of positioning data (refill data)【0704】

See Table 26 for the data format of the message body of the positioning data bulk upload.

Table 26 The data format of the message body of the positioning data bulk upload

Start Byte	Number Field	Data Type	Description & Requirements
0	Number of data items	WORD	The number of location report data items included, >0
1	Location data type	BYTE	0: Normal position batch report; 1: Blind spot supplementary report
2	Location report data item		For definition, see Table 27 of Location Report Data Item

Table 27 Data format of location report data item

Start Byte	Number Field	Data Type	Description & Requirements
0	Location report data length	WORD	Position data body length, n
2	Location report data body	BYTE[n]	Report in the same position in format, see 2.13 for definition

2.17 Text information issuance [8300]

Message ID: 0x8300。

The data format of the message body sent by the text information is shown in

Table 28.

Table 28 Data format of the message body sent by the text information

Start Byte	Number Field	Data Type	Description & Requirements
0	Sign	BYTE	The text information flag bit [fixed to 0x02] see Table 29 for the meaning
1	Text Informat ion	STRING	The maximum length is 1024 bytes, encoded by GBK

Table 29 Meaning of text information flags

Bit	Sign
0	1 : Emergency
1	Reserve
2	1 : Transparent transmission of text
3	1 : Terminal TTS broadcast
4	1 : Advertising screen display
5-7	Reserve

2.18 Report text information【6006】

Message ID: 0x6006。

The data format of the text information report message body is shown in Table 30.

(8300 issued by the platform, 6006 answered by the terminal)

Table 30: Text information report message body data format

Start Byte	Number Field	Data Type	Description & Requirements
0	Sign	BYTE	Fixed as 0x00
1	Text Information	STRING	The maximum length is 1024 bytes, encoded by GBK

2.19 Recording related

The recording format currently uses the AMR file format, voice control and continuous recording control through the 0x8105 command.

Multimedia data upload

Message ID: 0x0801.

The data format of the multimedia data upload message body is shown in the table below.

Start Byte	Number Field	Data Type	Description & Requirements
0	Multimedia 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 reserved
6	Event item coding	BYTE	0: Command issued by the platform; 1: Timed action; 2: Robbery alarm triggered; 3: Collision rollover alarm triggered; other reserved
7	Channel ID	BYTE	

8	Multimedia data packet		
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Only the first data packet contains the 8 bytes of "Multimedia ID—Channel ID", the subsequent packets are directly multimedia data, and each packet carries a maximum of 1000 bytes of multimedia data, and the last packet is subject to the actual file.

The platform uses a general response to reply to each multimedia data packet.

Multimedia data upload result

Message ID: Ox8800。

The data format of the multimedia data upload response message body is shown in the table below.

Start Byte	Number Field	Data Type	Description & Requirements
0	Multimedia ID	DWORD	>0
4	Total number of retransmitted packets	BYTE	
5	Retransmission		No more than 125 items, no such field

	n packet ID list		means that all data packets have been received
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After the platform has processed all media packages, it needs to send this message to the terminal to report that the file has been received or the corresponding package needs to be retransmitted.

If the terminal does not receive this message within 5 seconds, it will automatically exit the current file upload process.