Universal version of JT/T808 protocol V1.1 Simplified version

serial number	version number	Update content	update date	Updated by
1	V1.0	first edition		
2	V1.1	State increase fortification And the extension bit adds WIFI definition.	2021.11.15	
3				
4				

1. Agreement basis

1.1 communication mode

The communication mode adopted by the protocol shall comply with the relevant provisions of JT/T 794. The communication protocol adopts TCP, with the platform as the server and the terminal as the client. Or the customized or extended part is marked in bold red in this agreement document.

1.2 data type

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

1 table data type

data type	Description and requirements
BYTE	Unsigned single byte integer (byte, 8 bits)
WORD	Unsigned double byte integer (word, 16 bits)
DWORD	Unsigned four-byte integer (double word, 32 bits)
BYTE[n]	N bytes
BCD[n]	821 code, n bytes
STRING	GBK encoding, using 0 terminator, if there is no data, then put a 0 terminator.

1.3 Transmission rule

The protocol uses big-endian network byte order to transfer words and double words. The agreement is as follows:

——Byte transmission Convention: according to byte stream transmission;

——Word (word) transmission Convention: first pass the high eight bits, then pass the low eight bits;

——DWORD transmission protocol: first pass the upper 24 bits, then pass the upper 16 bits, then pass the upper 8 bits, and finally pass the lower 8 bits.

1.4 The composition of the message

1.4.1 Message structure

Each message is composed of identification bit, message header, message body and check code. The message structure is shown in Figure 1

Identification bit	Message header	Message body	Check code	Identification bit

Figure 1 message structure

1.4.2 Identification bit

0x7e is used to indicate that if 0x7e appears in the check code, message header and message body, it is necessary to escape. The escape rules are defined as follows:

0x7e < - > 0x7d followed by a 0x02;

0x7d < - > 0x7d followed by a
0x01.The escape process is
as follows:
When sending a message: Message encapsulation >
calculation and filling check code > escape;When
receiving a message: Escape restore > verify check
code > parse message.
Example:
Send a packet with the content of 0x30 0x7e 0x08 0x7d 0x55, then it is encapsulated 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 message header content

Start byte	field	data type	Description and requirements
0	Message ID	WORD	
2	Message body properties	WORD	See Figure 2 for the structure of message body attribute format
4	Mobile phone number of terminal	BCD[6]	This field is the terminal device number pasted on the equipment shell, with a total of 11 Number of digits, add 0 in front of the device number to upload.For example: 138081234567, data upload 0138081234567
10	Message serial number	WORD	Cycle accumulation from 0 according to sending order
12	Message package encapsulation item		If the relevant identifier bit in the message body attribute determines the message score Package processing, the item has content, otherwise it has no item

The structure of 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
retain		to subcontract	Data encryption method			Message body length									

Figure 2 structure of message body attribute format

Data encryption method:

——Bit10-bit12 are data encryption identification bits;

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

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

——Other reservations.to subcontract:

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

See Table 3 for the contents of message package encapsulation items

Table 3 contents of message package encapsulation items

Start	field	data	Description and

byte		type	requirements
0	Total number of messages	WORD	The total number of packages after the message is subcontracted
2	Package serial number	WORD	Start with 1

1.4.4 Check code

The check code starts from the message header, XOR with the next byte, and reaches the previous byte of the check code, occupying one byte.

2. data format

2.1 Terminal general response [0001]

Message ID: 0x0001.

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

Table 4 Data Format of General Response Message Body of Terminal

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Serial number of corresponding platform message
2	Answer ID	WORD	ID of the corresponding platform message
4	result	BYTE	0: success/confirmation; 1: failed; 2: The message is incorrect; 3: Not supported

2.2 Platform universal response [8001]

Message ID:0X8001.

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

Table 5 Platform General Response Message Body Data Format

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Serial number of corresponding terminal message
2	Answer ID	WORD	ID of the corresponding terminal message
4	result	BYTE	0: success/confirmation; 1: failed; 2: The message is incorrect; 3: No 4: Alarm processing confirmation

2.3 Terminal heartbeat [0002]

Message ID:0X0002.

Terminal heartbeat data

message body is empty.

Platform reply general

reply

2.4 Terminal registration [0100]

Message ID:0X0100.

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

Table 6 Data Format of Terminal Registration Message

Body

Start byte	field	data type	Description and requirements
0	Provincial domain ID	WORD	Mark the province where the terminal installation vehicle is located, 0 reserved, 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	Mark the city and county where the terminal installation vehicle is located, 0 is reserved, and the platform takes the default value. After the county ID adopts the six-digit administrative division code specified in GB/T 2260 Four.
4	Manufacturer ID	BYTE[5]	Five bytes, encoded by the terminal manufacturer.
9	Terminal model	BYTE[8]	Eight bytes, this terminal model is defined by the manufacturer. If the digits are not eight, fill in the blanks.

17	Terminal ID	BYTE[7]	Seven bytes, consisting of capital letters and numbers, which end The ID is defined by the manufacturer.
21	License plate color	BYTE	License plate color, according to 5.4.12 of JT/T 415-2006 Rules, not on the card, the value is 0.
25	licence plate	STRING	Motor vehicle number plate issued by traffic administrative department of public security

2.5 Terminal registration response [8100]

Message ID:0x8100.

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

Table 7 Data Format of Terminal Registration Response Message Body

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Serial number of corresponding terminal registration message
2	result	BYTE	0: success; 1: The vehicle has been registered; 2: In the database Without this vehicle; 3: The terminal has been registered; 4: The terminal does not exist in the database.
3	Authentication code	STRING	This field is available only after success.

After each reset, the terminal will go through the registration process again, 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 terminal authentication message body is shown in Table 8-1.

Table 8-1 Data Format of Terminal Authentication Message Body

Start byte	field	data type	Description and requirements
0	Authentication code	STRING	The terminal reports the authentication code after reconnection.

Table 8-2 Data Format of Platform Response Terminal Authentication Message Body

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Serial number of corresponding terminal message
2	Answer ID	WORD	0x0102: terminal authentication message ID
4	result	BYTE	0: success/confirmation; 1: failed

2.8 Setting terminal parameters [8103]

Message ID:0x8103

See Table 9 for the data format of terminal parameter message body.

Table 9 Data Format of Terminal Parameter Message Body

Start byte	field	data type	Description and requirements
0	Total parameters	BYTE	
1	Parameter item list		See table 10 for the parameter format.

Table 10 Data Format of Terminal Parameter Items

field	data type	Description and requirements
Parameter ID	DWORD	The definition and description of parameter ID are shown in Table 11
Parameter length	BYTE	
Parameter value		If it is a multi valued parameter, multiple identical values are used in the message ID parameter item, such as dispatching center telephone number

Table 11 Definition and description of each parameter item of terminal parameter setting

Parameter ID	data type	Description and requirements
0x0001	DWORD	Terminal heartbeat sending interval, unit: seconds (s)
0x0010	STRING	Main server APN, wireless communication dial-up access point.
0x0013	STRING	Primary server address, IP or domain name
0x0017	STRING	Backup server address, IP or domain name
0x0018	DWORD	Server TCP port
0x0020	DWORD	Location reporting strategy, 0: regular reporting;1: Distance report;2: Timing and Interval Report
0x0027	DWORD	Report time interval when sleeping, unit: seconds (s), > 0
0x0029	DWORD	The default time reporting interval is seconds (s), > 0
0x002C	DWORD	The default distance reporting interval is meter (m), > 0
0x0030	DWORD	Angle of turning point supplement transmission, <

		180 degrees
0x0055	DWORD	Maximum speed in km / h
0x0056	DWORD	Overspeed duration in seconds (s)
0x0080	DWORD	Vehicle odometer reading, 1 / 10km
0x0081	DWORD	Province ID of the vehicle
0x0082	DWORD	City ID of the vehicle
0x0083	STRING	Motor vehicle number plate issued by traffic administrative department of public security
0x0084	BYTE	The license plate color shall be in accordance with 5.4 of JT / t415-200612

2.9 Query terminal parameters [8104]

Message ID: 0x8104

Query terminal parameter message body is empty.

2.10 Query terminal parameter response [0104]

Message ID: 0x0104.

See table 12 for data format of query terminal parameter response message body.

Table 12 data format of query terminal parameter response message body

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Serial number of the corresponding terminal parameter query message
2	Number of response parameters	BYTE	
3	Parameter item list		The format and definition of parameters are shown in table 10

2.11 Terminal control

Message ID: 0x 8105.

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

Table 13 data format of terminal control message body

Start byte	field	data type	Description and requirements
0	Command word	BYTE	The description of terminal control command word is shown in table 14
1	Command parameters	STRING	The command parameter format is described later, and the half angle is used between each fieldSeparate, each string The fields are processed according to GBK code before forming the message

Table 14 description of terminal control command word

Command word	Command parameters	Description and requirements
0x04	nothing	Terminal reset (restart)
0x05	nothing	Terminal restore factory settings
0x17	nothing	Turn on voice

		recording
0x18	2 bytes	Turn on continuous recording Recording time in minutes
0x19	nothing	Stop all recordings
0x64	nothing	Cut off oil and electricity
0x65	nothing	Restore oil and electricity
0x66	nothing	External fortification
0x67	nothing	External withdrawal

2.12 Location information report [0200]

Message ID: 0x0200.

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

Basic	List of location additional

Figure 3 location report message structure

The list of location additional information items is composed of additional information items of each location, or not. It is determined according to the length field in the message header

Yes.

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

Table 16 data format of basic position information

Start byte	field	data type	Description and requirements
0	Alarm sign	DWORD	The definition of alarm flag is shown in table 18
1	state	DWORD	The definition of status bit is shown in Table 17
8	latitude	DWORD	The latitude value in degrees times 10 to the 6th power, Accurate to one millionth of a degree
12	longitude	DWORD	The latitude value in degrees times 10 to the 6th power, Accurate to one millionth of a degree
16	altitude	WORD	Altitude in meters (m)
18	speed	WORD	1/10km/h
20	direction	WORD	0-359, due north is 0, clockwise
21	time	BCD[6]	Yy-mm-dd-hh-mm-ss (GMT + 8 time, this standard The time zone is used for all the time involved after the standard

Table 17 definition of status bits

position	state
0	0: ACC off;1: ACC on
1	0: not located;1: Positioning
2	0: north latitude;1: South latitude
3	0: east longitude;1: Western Classics
4-5	retain
6	0: withdraw 1: fortify
7-9	retain
10	Oil circuit status: 0: vehicle oil circuit is normal;1: Vehicle oil circuit disconnected

11	Power off state: 0: main power supply is normal: 1: main power circuit is disconnected
12-31	retain

Table 18 definition of alarm flag bit

position	definition	Processing instructions
0	1: Emergency alarm (SOS alarm)	Reset after receiving response
1	1: Overspeed alarm	The flag is maintained until the alarm condition is released
2	1: Fatigue driving	The flag is maintained until the alarm condition is released
3-6	retain	
7	1: Terminal main power supply under voltage	The flag is maintained until the alarm condition is released
8	1: Main power off alarm	The flag is maintained until the alarm condition is released
9-14	retain	
15	Low battery alarm (wireless device)	Reset after receiving response
16	Vibration alarm	Reset after receiving response
17-18	retain	
19	1: Overtime parking	The flag is maintained until the alarm condition is released
20-27	retain	
28	1: Illegal vehicle displacement	Reset after receiving response
29~31	retain	

The format of location additional information items is shown in Table 19.

Table 19 format of location additional information items

field	data type	Description and 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 and requirements
0x01	4	Mileage, DWORD, 1 / 10km, local accumulated mileage of terminal
0x2B	4	The second way of fuel consumption data is reported by Changrun fuel consumption Association Discussion on data
0x30	1	Network signal strength CSQ value 0-31
0x31	1	The number of GPS satellites, and the signal value is greater than 25dB
0x51	16	16 bytes, 2 bytes, a group of temperature, a total of 8 channels temperature
0x52	1	Forward and reverse (0: unknown; 1: forward (empty car) 2: reverse (heavy Vehicle);3: Stop running)
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: wifi number in the first byte, followed by n wifi data; WIFI data: 0-5 wifiMac; 6 signal strength
0x56	2	Internal battery capacity 1 byte, battery 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, in 0.01V
0xF1	20	ICCID, the terminal reports the platform authentication once every time.
0xF3	1	Fortification/withdrawal status, 0x00 for withdrawal, 0x01 for fortification.

2.13 Location information inquiry [8201]

Message ID: 0x8201.

The location information query message body is empty.

2.14 Location information query response [0201]

Message ID: 0x0201.

See Table 24 for the data format of location information query response message body.

Table 24 Data Format of Location Information Query Response Message Body

Start byte	field	data type	Description and requirements
0	Answer serial number	WORD	Corresponding location information query Serial number of the message
2	Position information report		See for location information report. 8.12

2.16 Batch upload of positioning data (supplementary data transmission) [0704]

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

Table 26 Data Format of Location Data Batch Upload Message Body

Start byte	field	data type	Description and requirements
0	Number of data items	WORD	Number of location report data items contained in, > 0
1	Location data type	BYTE	0: Batch report in normal position; 1. Blind spot compensation report
2	Location report data item		See table 27 for defining location report data items.

Table 27 Data Format of Location Report Data Item

Start byte	field	data type	Description and requirements

0	Location report data length	WORD	Length of position data body, n
2	Location report data body	BYTE[n]	Report in the same format and location, see 2.13 for the definition.

2.17 Text distribution [8300]

Message ID: 0x8300.

See Table 28 for the data format of text message body.

Table 28 Data Format of Message Body for Text Information Distribution

Start byte	field	data type	Description and requirements
0	sign	BYTE	Text information flag bit [fixed as 0x02] includes See table 29.
1	Text information	STRING	The maximum length is 1024 bytes, encoded by GBK.

Table 29 Meaning of Text Information Flag Bit

position	sign
0	1. Urgent
1	retain
2	1. Text transmission
3	1. terminal TTS broadcast reading
4	1. Advertising screen display
5-7	retain

2.18 Text information submitted [6006]

Message ID: 0x6006.

See Table 30 for the data format of text report message body. (The platform sends 8300, and the terminal replies 6006)

Table 30 Data Format of Text Information Reporting Message Body

Start byte	field	data type	Description and requirements
0	sign	BYTE	Fixed at 0x00
1	Text information	STRING	The maximum length is 1024 bytes, which is encoded by GBK. encode

2.19 Recording correlation

The recording format currently adopts AMR file format, and voice control and continuous recording control are carried out by 0x8105 instruction.

Multimedia data upload

Message ID: 0x0801.

See the table below for the data format of multimedia data upload message body.

Multimedia data upload message body data format

Start byte	field	data type	Description and requirements
0	Multimedia ID	DWORD	>0
4	Multimedia type	BYTE	0: image;1: Audio frequency;2: Video
5	Multimedia format encode	BYTE	0：JPEG；1：TIF；2：MP3；3：WAV；4：WMV;Other reservations
6	Event item code	BYTE	0: the platform issues instructions;1: Timing action;2: Robbery newspaper Alarm trigger;3: The collision rollover alarm is triggered;Other reservations
7	Channel ID	BYTE	
8	Multimedia data package		

Only the first packet contains 8 bytes of "multimedia ID channel ID". The subsequent packets are directly multimedia data. Each packet can carry up to 1000 bytes of multimedia data. The last packet is subject to the actual file.

The platform uses general response to reply each multimedia packet.

Multimedia data upload result message ID: ox8800.

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

Data format of multimedia data upload results

Start byte	field	data type	Description and requirements
0	Multimedia ID	DWORD	>0
4	Total retransmitted	BYTE	

	packets		
5	Retransmission packet ID list		No more than 125 items, if there is no such space, it means that it has been received. All data packets

After all media packets are processed by the platform, it is necessary to send this message to the terminal that has completed file reception or needs to make up the corresponding packets. If the terminal does not receive this message within 5 seconds, it will automatically exit the current file upload process.