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GPS locator protocol

(GT06)

Important revision record

author	date	version	check	approve	describe
mingliang chen	2010-5-6	1.0			the front page
mingliang chen	2010-8-9	1_4			Modify the definition of the instruction format sent by the server to the terminal, and add Add server flag bit
mingliang chen	2010-8-30	1.5			Add appendices "CRC Check Code Example" and "Communication Protocol" Discussion on sample fragments of content "
Guo Jie	2010-9-10	one point six			Increase the instructions issued by the server to activate GPS and settings online. Familiarity Number Service
mingliang chen	2010-9-24	1.7			Increase LBS complete packet format
Ping Zeng	2011-8-31	1.74			Add GT06+ protocol
Bian Yutao	2012-3-1	1_8			Improve the documentation for GT06 products.
Bian Yutao	2012-5-22	1_8_1			Add Chinese address reply explanation for background alarm.

catalogue

One. communication protocol

introduction

This document defines the description of the application layer interface protocol by the vehicle-mounted GPS locator positioning service platform. The relevant interface protocols are only applicable to the interaction between the platform and the positioning terminal.

Two. Terms and definitions

Terminology and abbreviations	English meaning	Chinese meaning
CMPP	China Mobile Peer to Peer	china mobile peer to peer
GPS	Global Positioning System	Global satellite positioning system
GSM	Global System for Mobile Communication	Global System for Mobile Communications (GSM)
GPRS	General Packet Radio Service	general packet radio service
TCP	Transport Control Protocol	transmission control protocol (TCP)
LBS	Location Based Services	Auxiliary positioning service
IMEI	International Mobile Equipment Identity Mobile	International mobile equipment identification code mobile user's country
MCC	Country Code	
MNC	Mobile Network Code	code mobile network number
LAC	Location Area Code	Location area code
Cell ID	Cell Tower ID	Mobile base station
UDP	User Datagram Protocol	User datagram protocol
SOS	Save Our Ship/Save Our Souls	Distress signal
CRC	Cyclic Redundancy Check	crc
NITZ	Network Identity and Time Zone;	time zone
GIS	Geographic Information System	geographical information system (GIS)

Three. Basic rule

1. The GPRS connection is successfully established and the first login packet is sent to the server, and the server response packet is received within 5 seconds.

Considering that the connection is normal, start sending positioning information (GPS, LBS packets), and send status packets after 3 minutes to confirm the normal communication at regular intervals;

2. When the GPRS connection is not established successfully, the terminal cannot send the login packet. When the GPRS connection fails for three times, the terminal starts the timed restart function for 20 minutes. If the connection between the terminal and the server is successfully established within 20 minutes, and the server receives a data packet that responds to the login information packet sent by the terminal, the timed restart function will be turned off, and the terminal will not restart, otherwise the terminal will automatically restart after 20 minutes.

3. The server returns a response packet to the terminal after receiving the login message sent by the terminal. If the terminal does not receive the server's return packet for more than 5 seconds after sending the login message or status message, it is considered that the current connection is abnormal, and the GPS positioning data supplementary transmission function is started to disconnect the current GPRS connection, re-establish a new GPRS connection and send the login message packet.

4. If the connection is judged to be abnormal, and the login packet or status packet sent after three times of connection establishment can't receive the data packet responded by the server, the terminal will start the scheduled restart function for 10 minutes. If the terminal successfully establishes the connection with the server and receives the data packet responded by the server within 10 minutes, the scheduled restart function will be turned off, and the terminal will not restart, otherwise the terminal will automatically restart after 10 minutes.

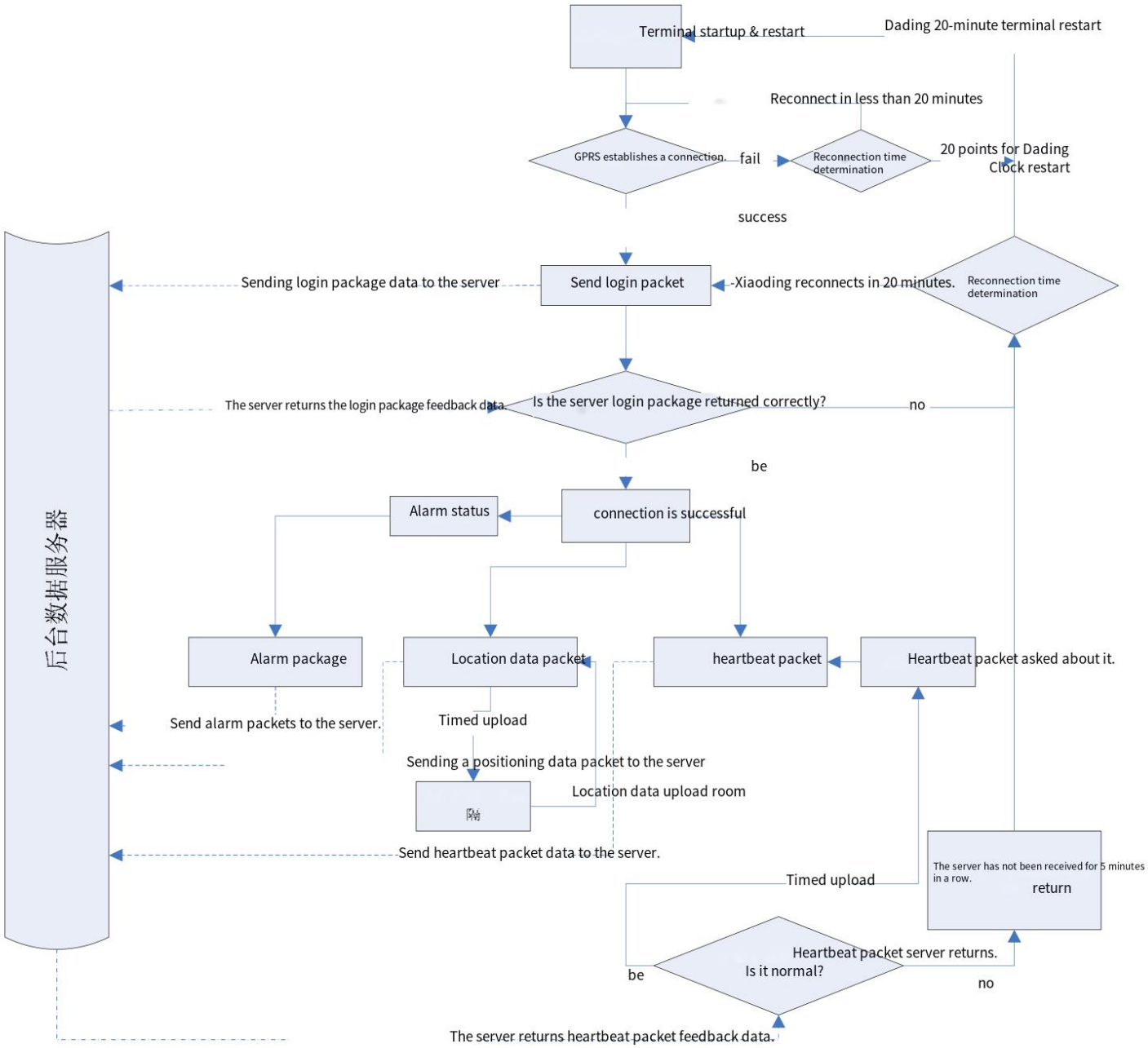
5. After the connection is established normally, the terminal sends GPS and LBS combined packets to the server regularly after the GPS information changes, and the server can set the default transmission protocol through instructions.

6. In order to ensure the validity of the connection, the status information is sent to the server at a fixed time interval, and the server returns a response packet.

7. For the terminal without registered IMEI number, please reply to the login request response and heartbeat packet response, and do not disconnect directly.

Open the connection. (If you disconnect directly or don't reply, the terminal will be reconnected continuously, and GPRS traffic consumption will be serious.)

data flowchart



Four. Packet format

Communication transmission is asynchronous and takes bytes as the unit.

Total packet length: (10+N)Byte

format	Length (Byte)
Starting position	2
Packet length	one
Agreement number	one
Information content	N
Information serial number	2
Error checking	2
Stop position	

2

4.1. Starting position

Fixed value, unified as hexadecimal 0x780x78. 4.2. Package length

Length = protocol number+information content+information serial number+error check, totaling (5+n) bytes, because the information content is an indefinite length field.

4.3. Agreement number

type	value
Landing information	0×01
locator data	0×12
status messages	0×13
String information	0×15
Alarm data	0×16
GPS, telephone number to query address information.	0×1A
The server sends instruction information to the terminal.	0×80

4.4. Information content

According to different applications, corresponding to the corresponding "protocol number", determine the specific content.

4.5. Information serial number

The serial number of the first GPRS data (including status packet, GPS, LBS and other data packets) sent after startup is' 1', which

After that, the serial number of data (including status packets, GPS and LBS packets) is automatically increased by 1.

4.6. Error checking

The terminal or server can use the check code to judge whether the received information is wrong. In order to prevent errors in data transmission, an error check is added to prevent data misoperation, which increases the security and efficiency of the system. The error check code adopts CRC-ITU check method.

The data in the protocol body from "packet length" to "message serial number" (including "packet length" and "message serial number").

的CRC-ITU值。

If there is a CRC error in the calculation of the received information, the receiver will ignore and discard the packet.

4.7. Stop position

Fixed value, unified as hexadecimal OxOD OxOA.

Five. Detailed explanation of terminal sending data packet to server

Explain the sending of common packets and server return separately.

5.1. Login information package

5.1.1. The terminal sends the data packet to the server.

The login packet is used to confirm that the connection is established normally to the server and submit the terminal ID to the server.

	explain	digit capacity	example
Landing packet (18 Byte)	Starting position	2	0×78 0×78
	Packet length	one	OxOD
	Agreement number	one	O×01
	Terminal ID	eight	0×01 0×23 0×45 0×67 0×89 0×01 0×23 0×45
	Information serial number	2	Ox00 0x01
	Error checking	2	Ox8C OxDD
	Stop position	2	OxOD OxO

5.1.1.1. Starting position

See packet format 4.1 for details.

5.1.1.2. bag length

See packet format 4.2 for details.

5.1.1.3. Agreement number

See packet format 4.3 for details.

5.1.1.4. Terminal ID

The terminal ID uses a 15-digit IMEI number.

Such as: 123456789012345,

Then the terminal ID is 0× 010× 230× 450× 670× 890× 010× 230× 45.

5.1.1.5. Information serial number.

See packet format 4.5 for details.

5_1_1_6_ Error Check

See packet format 4.6 for details.

5.1.1.7. Stop position

See packet format 4.7 for details.

5.1.2. Server Response Data Packet

	explain	digit capacity	example
Landing packet (18 Byte)	Starting position	2	0×78 0×78
	Packet length	one	0×05
	Agreement number	one	O×01
	Information serial number	2	0x00 0x01
	Error checking	2	OxD9 OxDC
	Stop position	2	OxOD OxOA

The server responds the packet to the terminal: (the protocol number in the response packet is the same as the protocol number of the data packet sent by the terminal)

5.1.2.1. Starting position

See packet format 4.1 for details.

5.1.2.2. bag length

See packet format 4.2 for details.

5_1.2.3. Protocol number

See packet format 4.3 for details.

5.1.2.4. Information serial number.

See packet format 4.5 for details.

5.1.2.5. Error checking.

See packet format 4.6 for details.

5.1.2.6. Stop position

See packet format 4.7 for details.

5.1.3. Reference to data examples

The terminal sends the login information packet and the server return packet to the server as follows (here, the terminal ID example is 123456789012345)

Terminal sending example							
78 780 0D 01 01 23 45 67 89 01 23 45 00 01 8C DD 0D 0A							
explain							
0x78 0x78	OxOD	Ox01	0×01 0×23 0×45 0×67 0×89 0×01 0×23 0×45		Ox00 0x01	Ox8C OxDD	OxOD OxOA
Starting position	length	Agreement number	Terminal ID		serial number	Error checking	Stop position

Server return example					
78 78 05 01 00 01 D9 DC 0D 0A					
explain					
0x78 0×78	0×05	0×01	0×00 0×01	O×D9 OxDC	OxOD OxOA
Starting position	length	Agreement number	serial number	Error checking	Stop position

5.2. Positioning data packet (GPS and LBS combined information packet)

5.2.1. The terminal sends the positioning data packet to the server.

format			Length (Byte)	example
Information content	Starting position		2	0×78 0×78
	Packet length		one	0×1F
	Agreement number		one	0×12
	GPS information	Date time	six	Ox0B Ox08 O×1D O×11 Ox2E O×10
		GPS information satellite count	one	OxCF
		latitude	four	Ox02 Ox7A OxC7 OxEB
		longitude	four	0×0C 0×46 0×58 0×49
		speed	one	O×00
		Course, state	2	0×14 Ox8F
	LBS information	MCC	2	Ox01 OxCC
		MNC	one	0×00
		LAC	2	O×28 O×7D
		Cell ID	three	0x00 0×1F 0×B8
	serial number		2	O×00 O×03
	Error checking		2	0×80 0×81
	End bit		2	OxOD OxOA

5.2.1.1. Starting position

See packet format 4.1 for details.

5.2.1.2. bag length

See packet format 4.2 for details.

5_2.1_3. Protocol number

See packet format 4.3 for details.

5.2.1.4. Date and time.

format	length (Byte)	example
year	one	OxOA
moon	one	0×03
sun	one	0×17
time	one	About OxOF
minute	one	0×32
second	one	0×17

For example: March 23, 2010 at 15: 50: 23.

Calculation method:	10 (decimal) = 0A (hexadecimal)
	3 (decimal) = 03 (hexadecimal)
	23 (decimal) = 17 (hexadecimal)
	15 (decimal) = 0f (hexadecimal)
	50 (decimal) = 32 (hexadecimal)

23 (decimal) = 17 (hexadecimal)

The value is: 0×0A 0×030×17 0×0F 0×32 0×17.

5.2.1.5. Length of GPS information and number of satellites participating in positioning.

1Byte has two hexadecimal characters, the first character is the length of GPS information, and the second character is the number of satellites participating in positioning.

Example: When the value is OxCB, it means that the length of GPS information is 12 and the number of satellites involved in positioning is 11.

(C=12Bit length, B=11 satellites)

5.2.1.6. Latitude

It occupies 4 bytes, indicating the latitude value of positioning data. The numerical range is 0 to 162000000, which means 0 to 90 degrees. The conversion method is as follows:

Convert the latitude and longitude values output by the GPS module into decimals in minutes; Then multiply the converted decimal by 30000 and convert the result of multiplication into hexadecimal number.

For example, 22 32.7658' = (22× 60+32.7658)× 3000 = 40582974, and then convert it into hexadecimal number.

40582974 (decimal) = 26b3b3e (hexadecimal)

The final value is 0×020×6B 0×3F 0×3E.

5.2.1.7. Longitude.

It occupies 4 bytes, indicating the longitude value of positioning data. The numerical value ranges from 0 to 324,000,000, indicating the range from 0 to 180 degrees.

The conversion method is consistent with that of latitude.

5.2.1.8. Speed.

Occupy 1 byte, indicating the running speed of GPS, and the value range is Ox00~OxFF, indicating the range of 0 ~ 255km/min.

Time.

Such as: 0x00 stands for 0 km/h.

0x10 stands for 16 km/h

0xFF stands for 255 km/h.

5.2.1.9. State heading.

Occupy 2 bytes, indicating the running direction of GPS, indicating the range of 0~360, unit: degrees, with true north as 0 degrees, clockwise.

BYTE_1	Bit7	0
	Bit6	0
	Bit5	GPS real-time/differential positioning place
	Bit4	GPS positioning has been denied.
	Bit3	East longitude and west longitude
	Bit2	South latitude and north latitude
	Bit1	heading
	Bito	
BYTE_2	Bit7	
	Bit6	
	Bit5	
	Bit4	
	Bit3	
	Bit2	
	Bit1	
	Bito	

Note: The state information in the data packet is the state at that moment recorded by the time bit in the data packet.

For example, if the value is 0×150×4C, it will be 00010101010100100 in binary.

BYTE_1 Bit7 0
BYTE_1 Bit6 0
BYTE 1 Bit5 0 (real-time GPS)
BYTE 1 Bit4 1(GPS is located)
BYTE_1 Bit3 0 (E)
BYTE_1 Bit2 one (north latitude)
BYTE_1 Bit1 0
BYTE 1 BitO one
BYTE 2 Bit7 0
BYTE_2 Bit7 one
BYTE 2 Bit7 0 → Heading 332 (0101001100 binary to decimal is 332)
BYTE 2 Bit7 0
BYTE 2 Bit7 one
BYTE 2 Bit7 one
BYTE 2 Bit7 0
BYTE_2 Bit7 0

That is to say, GPS has been positioned, and the real-time GPS, north latitude, east longitude and heading are 332.

5_2_1_10_ MCC

The country code of the mobile user is Mobile Country Code(MCC).

For example, China's mobile country number is: China's mobile country number is 460 (decimal) 0×010×CC (decimal 460 is converted into hexadecimal, and hexadecimal is less than four digits, and the left side is filled with 0).

The value range here is: 0×0000~0×03E7.

5_2_1_11_ MNC

移动网号码Mobi le Network Code(MNC)

For example, China Mobile is 0x00.

5_2_1_12_ LAC

Location Area Code(LAC) is included in LAI, which consists of two bytes and is coded in hexadecimal. Available range is Ox0001-OxFFFE, and code groups Ox0000 and OxFFFF cannot be used (see GSM specification 03.03,
04.08 and 11.11).

5_2_1_13_ Cell ID

Cell Tower ID(Cell ID) of mobile base station, ranging from OX000000 to OXFFFFFF5.2.1.14-message serial number.

See packet format 4.5 for details.

5_2_1_15_ Error Check

See packet format 4.6 for details.

5.2.1.16. Stop position

See packet format 4.7 for details.

5.2.2. Example of terminal sending to server.

Terminal sending example							
78 78 1F 12 0B 08 1D 11 2E 10 CC 02 7A C7 EB 0C 46 58 49 00 14 8F 01 CC 00 28 7D 00 1F B8 00 03 80 81 0D 0A							
explain							
0x78 0x78	O×1F	Ox12	Ox0B Ox08 Ox1D Ox11 Ox2E Ox10	OxCC	Ox02 Ox7A OxC7 OxEB		
Starting position	Packet length	Agreement number	Date time	Number of GPS information satellites	latitude		
0x0C 0×46 0×58 0x49	Ox00	O×14 Ox8F	Ox01 OxCC	0x00	O×28 O×7D	Ox00 Ox1F OxB8	O×00 O×03
longitude	speed	Heading state	MCC	MNC	LAC	Cell ID	serial number
0x80 0x81	OxOD OxOA						
Error checking	End bit						

5.3. Alarm package (GPS, LBS, status merge package)

5.3.1. The terminal sends an alarm data packet to the server.

format			Length (Byte)	
Information content	Starting position		2	
	Packet length		one	
	Agreement number		one	
	Date time		six	
	GPS information	Number of GPS information satellites	one	
		latitude	four	
		longitude	four	
		speed	one	
		Course, state	2	
	LBS information	LBS length	one	
		MCC		2
		MNC		one
		LAC	2	
		Cell ID	three	
	status messages	Terminal information content	one	
		voltage class	one	
		GSM signal strength	one	
		Alarm/language	2	
	serial number		2	
	Error checking		2	
	End bit		2	

The alarm packet is composed of state information (alarm information) added to the positioning packet, and the coding protocol format is also composed of 5.3.1.1. Start bit added to the positioning packet.

See packet format 4.1 for details.

5.3.1.2. bag length

See packet format 4.2 for details.

5_3.1_3. Protocol number

See packet format 4.3 for details.

5.3.1.4. Date and time.

See the positioning packet format 5.2.1.4 for details.

5.3 _ 1.5 _ Length of GPS information and number of satellites participating in positioning

See the positioning packet format 5.2.1.5 for details.

5.3.1.6. Latitude

For details, please refer to the positioning data packet format, 5.3.1.7, 5.2.1.6. Longitude.

See the positioning packet format 5.2.1.7 for details.

5.3.1.8. Speed.

For details, please refer to the positioning data packet format 5.2.1.8

5.3.1.9. Status heading.

See the positioning packet format 5.2.1.9 for details.

5_3_1_10_ MCC

See the positioning packet format 5.2.1.10 for details.

5_3_1_11_ MNC

See the positioning packet format 5.2.1.11 for details.

5_3_1_12_ LAC

See the positioning packet format 5.2.1.12 for details.

5_3_1_13_Cell ID

See the positioning packet format 5.2.1.13 for details.

5.3.1.14_ Terminal Information

It takes up 1 byte to represent various status information of the mobile phone.

place		Code meaning
BYTE	Bit7	1: Oil and electricity disconnected
		0: Oil and electricity are connected.
	Bit6	1: GPS is located.
		0: GPS is not located.
	Bit3~ Bit5	100： SOS for help
		011: Low battery alarm
		010: Power failure alarm
		001: Vibration alarm
		000: normal
	Bit2	1: Connected to the power supply for charging
		0: Not connected to the power supply for charging
	Bit1	1:ACC高
		0:ACC低
	Bito	1. Fortification
		0: disarming

For example: 0×44, the corresponding binary is 01000100.

It indicates that the terminal status is: oil and electricity is on, GPS has been positioned, normal alarm is not given, power supply is turned on for charging, ACC is low, and defense is removed.

5.3.1.15. Voltage class.

The range is 0~6, indicating that the voltage is from low to high.

0: No power (turned off)

1. The battery is extremely low (not enough to call and send text messages, etc.)

2: Very low lighting (low electricity alarm)

3: Low power (normal use)

4: In the battery

5: High power

6: The battery is extremely high

Such as: 0x02, low battery, sending location alarm.

5.3.1.16.GSM signal strength grade

0x00: No signal;

0×01: Very weak signal.

0×02: weak signal.

0×03: Good signal.

0×04: Strong signal

For example: Ox03GSM signal is good

5.3.1.17. Alarm/Language

0x00 (front bit) 0x01 (rear bit)

Front position: terminal alarm status (applicable to alarm package and items requiring electronic fence function)

Last bit: the current language bit of the terminal

anteposition	0×00: Normal
	0x01： SOS for help
	0×02: Power failure alarm
	0×03: Vibration alarm
	0×04: alarm when entering the fence.
	0×05: alarm when going out of the fence
posterior	0×01: Chinese
	0×02: English

Such as:

No alarm Chinese: 0×000×01

No alarm English: 0x000x02

In order to increase the reliability of alarm information, the alarm information is marked repeatedly. In most cases, this alarm information is consistent with the upper terminal information, and the inconsistency is as follows

A. There is a low-voltage alarm in the terminal information.

B. Alarm/language information entering and leaving the fence alarm

5.3.1.18- Message Serial Number

See packet format 4.5 for details.

5_3_1_19_ Error Check

See packet format 4.6 for details.

5.3.1.20. Stop position

See packet format 4.7 for details.

5.3.1.21. Reference to data examples

Terminal sending example
78 78 25 16 0B 0B 0F 0E 24 1D CF 02 7A C8 87 0C 46 57 E6 00 14 02 09 01 CC 00 28 7D
00 1F 72 65 06 04 01 01 00 36 56 A4 0D 0A

explain								
0x78 0x78	0×25	0×16	O×OB O×OF O×OE O×24×01D		OxCF		Ox02 Ox7A OxC8 Ox87	
Starting position	length	Agreement number	Time date		Number of GPS information satellites		latitude	
0×0C 0×46 0×57 0×E6	0×00	0×14 0×02	0x09	Ox01 OxCC	0x00	0×28 0×7D	0x00 0x1F 0x72	
longitude	speed	Heading state	LBS length	MCC	MNC	LAC	Cell ID	
0×65	0×06	0×04	0x01 0x01	0×00 0×36	0x56 0xA4		OxOD OxOA	
Terminal information content	voltage class	GSM signal strength	Alarm/language	serial number	Error checking		End bit	

Note: The state information in the data packet is the state at that moment recorded by the time bit in the data packet.

5.3.2. The server sends an alarm packet reply to the terminal (the terminal is not forced to check).

format		Length (Byte)
Information content	Starting position	2
	Packet length	one
	Agreement number	one
	serial number	2
	Error checking	2
	End bit	2

The alarm packet is composed of state information (alarm information) added to the positioning packet, and the coding protocol format is also composed of 5.3.2.1. Start bit added to the positioning packet.

See packet format 4.1 for details.

5.3.2.2. bag length

See packet format 4.2 for details.

5.3_2.3. Agreement number

See packet format 4.3 for details.

5.3_2.4. Information serial number

See packet format 4.5 for details.

5_3_2_5. Error checking

See packet format 4.6 for details.

5.3.2.6. Stop position

See packet format 4.7 for details.

5.3.2.7. Reference to data examples

Terminal sending example
78 78 05 16 00 36 95 70 0D 0A

5.3.3. The server sends an alarm data geological package reply to the terminal.

5.3.3.1. Chinese reply
Chinese reply data packet
is as follows:

Server termination End-sent finger Lingbao (15+M+N Byte)	Starting position			2
	Data bit length		one	
	Agreement number		one	
	Within the information allow	Instruction length	one	
		Server flag bit	four	
		Instruction content: ALARMSMS		eight
		&&		2
		Address content	M	
		&&	2	
		telephone number		21
		##		2
	Information serial number		2	
	Check Digit		2	
	Stop position		2	

Request Chinese address reply protocol number: 0X17.

Instruction content: ADDRESS&& address content & & phone number (all O)##(ADDRESS,&&,# # are fixed strings).

Chinese address content is issued in UNICODE code.

Example of replying to Chinese address information:

7878	// starting position
eighty-five	// data length
17	//Reply to the protocol number
7E	// The instruction length is the length of the transmitted content information // The server flag bit.
00000001	
414C41524D534D53	// ALARMSMS
2626	//&& separator
624059044F4D7F6E0028	//Chinese location is sent in UNICODE.
004C004200530029003A	
5E7F4E1C77015E7F5DDE	
5E0282B190FD533AFF17	
FF15FF144E6190530028	
004E00320033002E0033	
00390035002C00450031	
00310032002E00390038	
0038002996448FD1	
2626	/ // && separator
0000000000)000000000000	000000000000000000 // /phone number
2323	// # # Content information terminator // /serial number
0106	
3825	Check bit

ODOA // Stop position

5.3.3.2. English reply.

Considering the long English or other foreign addresses, one data bit is not enough, and it is increased to 2 bytes. Note: The length of data bits corresponding to the protocol number of the return address information is changed to 2.

Server termination End-sent finger Lingbao (15+M+N Byte)	Starting position			2	
	Data bit length			2	
	Agreement number				one
	Within the information allow	Instruction length		2	
		Server flag bit		four	
		Instruction content	ALARMSMS		eight
			&&		2
			Address content	M	
			&&	2	
			telephone number		21
			##		2
	Information serial number			2	
	Check Digit			2	
	Stop position			2	

Request English address reply protocol number: 0X97

Instruction content: ADDRESS&& address content & & phone number (all O)##(ADDRESS,&&,# # are fixed strings).

Example reply English address information example:

7878 // starting position

00D2 // data length

97 //Reply to the protocol number

OOCA // The instruction length is the length of the transmitted content information //

00000001 The server flag bit.

414C41524D534D53 // ALARMSMS

2626 //&& separator

0053004F00530028004C //English locations are sent in UNICODE.

0029003A005300680069

006D0069006E00200046

00610069007200790060

0061006E006400200057

0065007300740020052

0064002C004800750069

006300680065006E0067

002C004800750069007A

0068006F0075002C0047

00750061006E00670064

006F006E00670028004E

00320033002E00310031

0031002C004500310031

0034002E003400310031

0029004E006500610072

00620079

2626 //&& separator

00000000000000000000000000000000000000000000 //phone number

2323 // # # Content information terminator // /serial number

0007

72b5 Check bit

ODOA /Stop bit

5.4. heartbeat packet (status packet)

Heartbeat packet is a data packet that maintains the connection between the terminal and the server.

5.4.1. The terminal sends heartbeat packet to the server.

format			Length (Byte)
Information content	Starting position		2
	Packet length		one
	Agreement number		one
	status messages	Terminal information content	one
		voltage class	one
		GSM signal strength	one
		Alarm/language	2
	serial number		2
	Error checking		2
	End bit		2

5.4.1.1. Starting position

See packet format 4.1 for details.

5.4.1.2. bag length

See packet format 4.2 for details.

5_4_1_3. Protocol number

See packet format 4.3 for details.

5_4_1_4_ Terminal Information

It takes up 1 byte to represent various status information of the mobile phone.

place		Code meaning
BYTE	Bit7	1: Oil and electricity disconnected
		0: Oil and electricity are connected.
	Bit6	1: GPS is located.
		O: GPS is not located.
	Bit3~ Bit5	100：SOS for help
		011: Low battery alarm
		010: Power failure alarm
		001: Vibration alarm
		000: normal
	Bit2	1: Connected to the power supply for charging
		0: Not connected to the power supply for charging
	Bit1	1：ACC高
		0:ACC低
	Bito	1. Fortification
		0: disarming

For example: 0×44, the corresponding binary is 01000100.

It indicates that the terminal status is: oil and electricity is on, GPS has been positioned, normal alarm is not given, power supply is turned on for charging, ACC is low, and defense is removed.

5.4.1.5. Voltage class.

The range is 0~6, indicating that the voltage is from low to high. 0: No power (turned off)

1. The battery is extremely low (not enough to call and send text messages, etc.)

2: Very low lighting (low electricity alarm)

3: Low power (normal use)

4: In the battery

5: High power

6: The battery is extremely high

Such as: 0x02, low battery, sending location alarm.

5.4.1.6.GSM signal strength grade

0×00: No signal;

0×01: Very weak signal.

0x02: Weak signal

0x03: Good signal.

0×04: Strong signal

Such as: Ox03GSM signal is good, 5.4.1.7. Alarm/language.

0×00 (front bit) 0x01 (back bit)

Front position: terminal alarm status (applicable to alarm package and items requiring electronic fence function)

Last bit: the current language bit of the terminal

anteposition	0×00: Normal
	0x01： SOS for help
	0×02: Power failure alarm
	0x03: Vibration alarm
	0×04: alarm when entering the fence.
	0×05: alarm when going out of the fence
posterior	0×01: Chinese
	0×02: English

Such as:

No alarm Chinese: 0×000×01

No alarm English: 0x000x02

5.4.1.8. Information serial number.

See packet format 4.5 for details.

5.4.1.9. Error checking.

See packet format 4.6 for details.

5_4_1.10_ Stop bit

See packet format 4.7 for details.

5.4.2. Server Response Data Packet

	explain	digit capacity	example
Landing packet (18 Byte)	Starting position	2	0×78 0×78
	Packet length	one	0×05
	Agreement number	one	0×01
	Information serial number	2	Ox00 0x01
	Error checking	2	OxD9 OxDC
	Stop position	2	OxOD OxOA

The server responds the packet to the terminal: (the protocol number in the response packet is the same as the protocol number of the data packet sent by the terminal)

5.4.2.1. Starting position

See packet format 4.1 for details.

5.4.2.2. bag length

See packet format 4.2 for details.

5_4.2.3. Protocol number

See packet format 4.3 for details.

5.4.2.4. Information serial number.

See packet format 4.5 for details.

5_4_2_5. Error checking

See packet format 4.6 for details.

5.4.2.6. Stop position

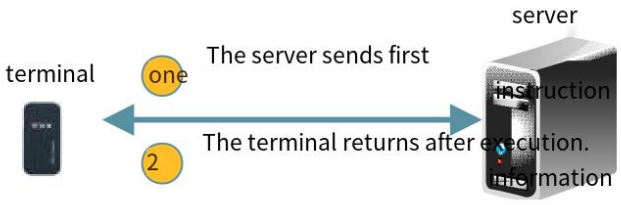
See packet format 4.7 for details.

5.4.3. Data examples

Terminal sending example							
78 78 08 13 4B 04 03 00 01 00 11 06 1F 0D 0A							
explain							
0×78 0×78	0×08	O×13	O×4B O×04 Ox03	Ox00 Ox01	0x00 0x11	0×06 0×1F	OxOD OxOA
Starting position	length	Agreement number	Information content	Reservation (Language)	serial number	Error checking	Stop position

Server reply example					
78 78 05 13 00 11 F9 70 0D 0A					
explain					
0×78 0×78	0×05	O×13	0×00 0×11	0xF9 0x70	OxOD OxOA
Starting position	length	Agreement number	serial number	Error checking	Stop position

Six. The server sends a data packet to the terminal.



6.1. Server sends

format		length (Byte)
Starting position		2
Packet length		one
Agreement number		one
Information content	Instruction length	one
	Server flag bit	four
	Instruction content	M
	language	2
Information serial number		2
Error checking		2
Stop position		2

6.1.1. Starting position

See packet format 4.1 for details.

6.1.2. Package length

See packet format 4.2 for details.

6_1_3. Protocol number

Terminal sending protocol number: 0x80 6.1.4. Instruction length

Server flag bit+instruction content length

For example, in byte length, 0x0A means that the instruction content occupies 10 bytes. 6.1.5. Server flag bit.

It is reserved for server identification, and the terminal returns the received data as it is in the return packet.

6.1.6. Instruction content

It is represented by ASC II of the string, and the instruction content is compatible with the SMS instruction.

6.1.7 Language

Current language bit of terminal.

English: 0×000×01

English: 0×00 0×02

6.1.8. Information serial number

See packet format 4.5 for details.

6_1_9_ Error Check

See packet format 4.6 for details.

6.1.10. Stop position

See packet format 4.7 for details.

6.2. Terminal Return

format		length (Byte)
Starting position		2
Packet length		one
Agreement number		one
Information content	Instruction length	one
	Server flag bit	four
	Instruction content	M
	language	2
Information serial number		2
Error checking		2
Stop position		2

6.2.1. Starting position

See packet format 4.1 for details.

6.2.2. Package length

See packet format 4.2 for details.

6_2_3_ Protocol number

The terminal responds to the instruction sent by the server. The format of the data packet is the same as that of the "instruction sent by the server to the terminal", but the negotiation number is different, and 0x15 is used. 6.2.4. Instruction length

Server flag bit+instruction content length

For example, in byte length, 0x0A means that the instruction content occupies 10 bytes. 6.2.5. Server flag bit.

It is reserved for server identification, and the terminal returns the received data as it is in the return packet.

6.2.6. Instruction content

It is represented by ASC II I of the string, and the instruction content is compatible with the SMS instruction.

6.2.7 Language

Current language bit of terminal.

English: 0×00 0×01

English: 0×000×02

6.2.8. Information serial number

See packet format 4.5 for details.

6_2_9_ Error Check

See packet format 4.6 for details.

6.2.10. Stop position

See packet format 4.7 for details.

6.3. View location information

Function Description: Instructions for obtaining positioning information. Both the mobile phone user and the short message server can obtain the positioning information through this instruction.

Instance will send and return the contents of string conversion ASCII generation instruction.

Server send
DWXX#
Terminal return
Return successfully
DWXX=Lat: < south/north latitude >, Lon: < east/west longitude >, Course: < angle >, Speed: < speed >, DateTime: < time >.
Failure return
DWXX=Command Error!
Location did not return successfully.
DWXX=Lat:,Lon:, Course:,Speed:,Date Time:-:
Return to example
DWXX=Lat:N23d5.1708m,Lon: E114d23.6212m,Course:120,Speed:53.02;Date Time:08-09-12 14:52:36
Explanation: Meaning: 23 degrees 5.1708 minutes north latitude, 114 degrees 23.6212 minutes east longitude, angle: 120 degrees, speed: 53.02 km/h, date: September 2008.
14: 52: 36 on the 12th.

6.4. Cut off oil and electricity

Function description: cut off the oil and electricity control circuit of the vehicle

Instance will send and return the contents of string conversion ASCII generation instruction.

Server send
DYD#
Terminal return
Return successfully
DYD=Success!
Failure return
DYD=Unvalued Fix 或 DYD=Speed Limit, Speed 40km/h
Explanation: When the GPS is not positioned or the driving speed is higher than 20 km/h, it is not allowed to cut off the oil and electricity.

6.5. Restore oil and electricity

Function Description: Connect the vehicle oil and electricity control circuit.

Instance will send and return the contents of string conversion ASCII generation instruction.

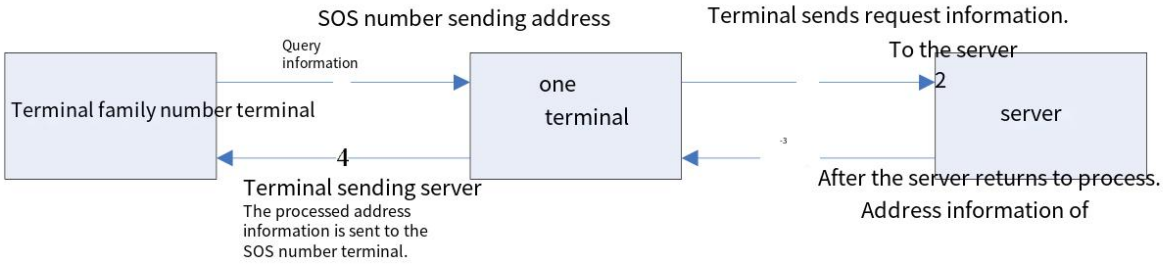
Server send
HFYD#
Terminal return
Return successfully
HFYD=Success!
Failure return
HFYD=Fail!

6.6. The server sends the inquiry address information.

Instance will send and return the contents of string conversion ASCII generation instruction.

Server send
ADDRESS, address content, telephone number
Note: Chinese address content is issued in UNICODE code.

6.7.GPS, telephone number inquiry address information package (OX1A)



6.7.1. Terminal sends server information.

Terminal received

The format is basically the same as that mentioned in the previous GPS information content, and a telephone number of the inquiry address is added.

format			Length (Byte)
Starting position			2
Packet length			one
Agreement number			one
Information content	Date time		six
	GPS information	Length of GPS information and number of satellites participating in positioning	one
		latitude	four
		longitude	four
		speed	one
		Course, state	2
	telephone number		21
	language		2
Information serial number			2
Error checking			2
Stop position			2

6.7.1.1. Starting position

See packet format 4.1 for details.

6.7.1.2. bag length

See packet format 4.2 for details.

For example, in byte length, 0x2E means that the instruction content occupies 46 bytes of 6.7.1.3. Protocol number.

Use 0x1A. 6.7.1.4. Date and time.

See the positioning packet format 5.2.1.4 for details.

6.7.1.5. For the length of GPS information and the number of satellites participating in positioning, please refer to the positioning data packet format 5.2.1.5.

6-7.1-6. Latitude

For details, please refer to the positioning data packet format, 6.7.1.7, 5.2.1.6. Longitude.

See the positioning packet format 5.2.1.7 for details.

6.7.1.8. Speed.

See the positioning packet format 5.2.1.8 for details.

6.7.1.9. Course.

For details, please refer to the location data packet format, 6.7.1.10, 5.2.1.9. Phone number.

SOS telephone number requesting address inquiry, converted by ASCII, less than 21 digits, supplemented by 0 6.7.1.11. Language.

Current language bit of terminal.

English: 0×00 0×01

English: 0×000×02

6.7.1.12. Information serial number.

See packet format 4.5 for details.

6.7.1.13. Error checking.

See packet format 4.6 for details.

6.7.1.14. Stop position

See packet format 4.7 for details.

6.7.2. Server response

According to the extension instruction, the Chinese address or English address is requested to be replied, and the reply packets are inconsistent. 6.7.2.1. Chinese reply Chinese reply data packet is as follows:

Server termination End-sent finger Lingbao (15+M+N Byte)	Starting position				2
	Data bit length			one	
	Agreement number			one	
	Within the information allow	Instruction length		one	
		Server flag bit		four	
		Instruction content	ADDRESS	seven	
			&&		2
			Address content	M	
			&&		2
			telephone number		21
			##		2
	Information serial number			2	
	Check Digit			2	
	Stop position			2	

Request Chinese address reply protocol number: 0X17.

Instruction content: ADDRESS&& address content & & phone number ##(ADDRESS,&&,# # are fixed strings).

Chinese address content is issued in UNICODE code.

Example of replying to Chinese address information:

7878 // starting position

84	// data length
17	//Reply protocol number
7E	// The instruction length is the length of the transmitted content information // The server flag bit.
00000001	
41444452455353	//ADDRESS
2626	//&& separator
624059044F4D7F6E0028	//Chinese location is sent in UNICODE.
004C004200530029003A	
5E7F4E1C77015E7F5DDE	
5E0282B190FD533AFF17	
FF15FF144E6190530028	
004E00320033002E0033	
00390035002C00450031	
00310032002E00390038	
0038002996448FD1	
2626	//&& separator
3133373130383139313335000000000000000000000	//phone number
2323	// # # Content information terminator // /serial number
0106	
3825	Check bit
ODOA	/Stop bit

6.7.2.2. English reply.

Considering the long English or other foreign addresses, one data bit is not enough, and it is increased to 2 bytes. Note: The length of data bits corresponding to the protocol number of the return address information is changed to 2.

Server termination End-sent finger Lingbao (15+M+N Byte)	Starting position			2
	Data bit length			2
	Agreement number			one
	Within the information allow	Instruction length		2
		Server flag bit		four
		Instruction content	ADDRESS	seven
			&&	2
			Address content	M
			&&	2
			telephone number	21
			##	2
	Information serial number			2
	Check Digit			2
	Stop position			2

Request English address reply protocol number: 0X97

Instruction content: ADDRESS&& address content & & phone number ##(ADDRESS,&&,# # are fixed strings).

Example reply English address information example:

7878	// starting position
00D1	// data length
97	//Reply to the protocol number
OOCA	// /instruction length is the length of the transmitted content information // server flag bit.
00000001	
41444452455353	//ADDRESS
2626	//&& Separator
0053004F00530028004C	//English locations are sent in UNICODE.
0029003A005300680069	
006D0069006E00200046	
0061006900720079006C	
0061006E006400200057	
0065007300740020052	
0064002C004800750069	
006300680065006E0067	
002C004800750069007A	
0068006F0075002C0047	
00750061006E00670064	
006F006E00670028004E	
00320033002E00310031	
0031002C004500310031	
0034002E003400310031	
0029004E006500610072	
00620079	
2626	//&& separator
313235323031333739303737343035310000000000	//phone number
2323	// /# # Content information terminator // /serial number
0007	
72b5	Check bit
ODOA	// Stop position

Seven. C code fragment with ACRC-ITU table lookup algorithm

C code fragment of CRC-ITU table lookup algorithm

```
static const U16 crctab16[] =
{
    0X0000, 0X1189, 0X2312, 0X329B, OX4624, 0X57AD, OX6536, 0X74BF,
    0X8C48, 0X9DC1, 0XAF5A, 0XBED3, OXCA6C, 0XDBE5, OXE97E, 0XF8F7,
    0X1081, 0X0108, 0X3393, 0X221A, 0X56A5, 0X472C, 0X75B7, 0X643E,
    0X9CC9, OX8D40, OXBFDB, OXAE52, OXDAED, OXCB64, OXF9FF, OXE876,
    0X2102, OX308B, OX0210, 0X1399, OX6726, OX76AF, OX4434, OX55BD,
    0XAD4A, OXBCC3, OX8E58, OX9FD1, OXEB6E, OXFAE7, OXC87C, OXD9F5,
    0X3183, 0X200A, 0X1291, 0X0318, 0X77A7, 0X662E, 0X54B5, 0X453C,
    OXBDCB, OXAC42, OX9ED9, OX8F50, OXFBEF, OXEA66, OXD8FD, OXC974,
    0X4204, 0X538D, OX6116, 0X709F, 0X0420, 0X15A9, OX2732, 0X36BB,
    0XCE4C, 0XDFC5, OXED5E, OXFCD7, OX8868, 0X99E1, OXAB7A, 0XBAF3,
    0X5285, 0X430C, 0X7197, 0X601E, 0X14A1, 0X0528, 0X37B3, 0X263A,
    0XDECD, OXCF44, OXFDDF, OXEC56, OX98E9, OX8960, OXBBFB, OXAA72,
    0X6306, 0X728F, OX4014, 0X519D, OX2522, 0X34AB, OX0630, 0X17B9,
    0XEF4E, OXFEC7, OXCC5C, OXDDD5, OXA96A, OXB8E3, OX8A78, 0X9BF1,
    0X7387, 0X620E, 0X5095, 0X411C, 0X35A3, 0X242A, 0X16B1, 0X0738,
    0XFFCF, 0XEE46, OXDCDD, 0XCD54, OXB9EB, 0XA862, OX9AF9, 0X8B70,
    0X8408, 0X9581, 0XA71A, 0XB693, 0XC22C, 0XD3A5, 0XE13E, 0XF0B7,

    0X0840, 0X19C9, 0X2B52, 0X3ADB, 0X4E64, 0X5FED, 0X6D76, 0X7CFF,
    OX9489, 0X8500, OXB79B, 0XA612, OXD2AD, 0XC324, OXF1BF, 0XE036,
    0X18C1, 0X0948, 0X3BD3, 0X2A5A, 0X5EE5, 0X4F6C, 0X7DF7, 0X6C7E,
    0XA50A, OXB483, OX8618, OX9791, OXE32E, OXF2A7, OXC03C, OXD1B5,
    0X2942, OX38CB, OXOA50, 0X1BD9, OX6F66, OX7EEF, OX4C74, OX5DFD,
    OXB58B, OXA402, OX9699, OX8710, OXF3AF, OXE226, OXD0BD, OXC134,
    0X39C3, 0X284A, 0X1AD1, 0X0B58, 0X7FE7, 0X6E6E, 0X5CF5, 0X4D7C,
    0XC60C, 0XD785, 0XE51E, 0XF497, 0X8028, 0X91A1, 0XA33A, 0XB2B3,
    OX4A44, OX5BCD, OX6956, OX78DF, OXOC60, OX1DE9, OX2F72, OX3EFB,
    OXD68D, OXC704, OXF59F, OXE416, OX90A9, OX8120, OXB3BB, OXA232,
    0X5AC5, 0X4B4C, 0X79D7, 0X685E, 0X1CE1, 0XOD68, OX3FF3, 0X2E7A,
    0XE70E, OXF687, OXC41C, OXD595, OXA12A, OXBOA3, OX8238, OX93B1,
    OX6B46, OX7ACF, OX4854, OX59DD, OX2D62, OX3CEB, OXOE70, OX1FF9,
    0XF78F, OXE606, OXD49D, OXC514, OXB1AB, OXA022, OX92B9, OX8330,
    0X7BC7, 0X6A4E, 0X58D5, 0X495C, 0X3DE3, 0X2C6A, 0X1EF1, 0XOF78, };


//Calculate the 16-bit CRC of the given length data.
U16 GetCrc16(const U8* pData, int nLength)
Liao 1
    U16 fcs = Oxffff;                    // /initialization
    while(nLength>0){
        fcs = (fcs >> 8) ^ crctab16[(fcs A *pData) & Oxff]; nLength--;
        pData++;

    one
    return ~fcs;                //take the opposite
one
```

Eight. Attached is an example of B communication protocol data packet fragment.

The following data is intercepted from the communication between the terminal and the server, and displayed in hexadecimal. Sending indicates that the terminal sends out and receiving indicates that the server returns:

Landing package:
Issue: 78 780d0103 5341353215 03 62 0002 2D 060d0a
Received: 787805010002EB 47 0D0A
GPS data packet (06 adopts GPSLBS combined information packet):
发出：78 78 1F 12 0B 08 1D 11 2E10 CF 02 7A C7 EB 0C 46 58 4900 14 8F 01 CC 00 287D
00 1F B8 00 03 80 81 0D
0A status package:
Issue: 78780A13440104000010005084 50D0A
Receiving: 7878 05 13 00 05 AF D5 0D 0A
Disconnect oil and electricity online:
Receiving: 787815800f0001a 9584459442c 30303030302300a 0
DC F1 OD OA
Issue: 78781815100001A 9584459443D 5375665772100
02 00 18 91 77 0D 0A
The server sends DYD,000000#
回复：DYD=Success!
Issue instructions when oil and electricity have been cut off:
Receiving: 787815800f0001a9614459442c30303030302300a0
3E 10 0D 0A
Issue: 787853154b001a961416c 726561647920696e 207468
65 20 73 74 61 74 65 20 6F 66 20 66 75 65 6C 20 73 75 70 70 6C 79 20 63
75 74 20 6F 66 66 2C 74 68 65 20 63 6F 6D 6D 61 6E 64 20 69 73 20 6E 6F
74 20 72 75 6E 6E 69 6E 67 21 00 02 00 1C F3 0D 0D 0A
The server sends DYD,000000#
回复:Already in the state of fuel supply cut off,the command is not running!
On-line recovery of oil and electricity:
Receiving: 78781680100001A 963484659442C 3030303030302300
AO 7B DC OD OA
Issue: 78781915110001A 963484659443D 537563657
00 02 00 1E F8 93 0D 0A
Issued by the server: HFYD,000000#
回复：HFYD=Success!
Issue instructions when oil and electricity have been restored:
Receiving: 78781680100001A 964484659442C 3030303030302300
A0 8B 1B 0D 0A
Issued by: 787855154d001a964416c 726561647920696e 207468
65 20 73 74 61 74 65 20 6F 66 20 66 75 65 6C 20 73 75 70 70 6C 79 20 74
6F 20 72 65 73 75 6D 65 2C 74 68 65 20 63 6F 6D 6D 61 6E 64 20 69 73 20
6E 6F 74 20 72 75 6E 6E 69 6E 67 21 00 02 00 1F DB BF 0D 0A
Issued by the server: HFYD,000000#
回复:Already in the state of fuel supply to resume,the command is not running!

Online query location information:

Receiving: 78781680100001A 967445758582C 3030303030302300

A0 06 2D 0D 0A

Issue: 787864155c0001a 967445758583d4c61743a4e32332e

31 31 31 36 38 32 2C 4C 6F 6E 3A 45 31 31 34 2E 34 30 39 32 31 37 2C 43

6F 75 72 73 65 3A 30 2E 30 30 2C 53 70 65 65 64 3A 30 2E 33 35 31 38 2C

44 61 74 65 54 69 6D 65 3A 31 31 2D 31 31 2D 31 35 20 20 31 31 3A 35 33

3A 34 33 00 02 00 23 07 AE 0D 0A

Contents uploaded by the terminal: dwxx = lat: n23.111682, lon: e114.409217, course: 0.00, speed: 0.3518, datetime: 11-11-15.

11:53:43

The terminal obtains the address information from the server in Chinese:

发出：78782E1A0B0B0F0E2117CF027AC8870C4657E3001402

36 36 33 36 3600 03 0004 00 0000 00 00 00 00 0000 00 00 00 00 01 00

34 AD E9 OD OA

Receiving: 787894178E000000141444525532626 4F4 D7 F6 E.

00 3A 5E 7F 4E 1C 77 01 60 E0 5D DE 5E 02 4E 91 5C 71 89 7F 8D EF 00 2E

65 87 53 4E 4E 00 8D EF 00 2E 79 BB 60 E0 5D DE 5B 89 4F 17 4F 1A 8B A1

5E 08 4E 8B 52 A1 62 40 7E A6 00 33 00 32 7C 73 00 2E 79 BB 60 E0 5D DE

5E 02 59 16 55 46 62 95 8D 44 67 0D 52 A1 4E 2D 5F C3 7E A6 00 33 00 32

7C 73 00 2E 26 26 36 36 33 36 36 00 03 00 04 00 00 00 00 00 00 00 00 00

00 00 23 23 00 01 e4 2a Starting from 0A

Content issued by the server: Location: Wenhua 1st Road, Yunshan West Road, Huizhou City, Guangdong Province. It is about 32 meters away from Huizhou Anzhong Certified Public Accountants and 32 meters away from Huizhou Foreign Investment Service Center. The mobile phone number is 66366.

English:

发出：78782E1A0B 0B0F0E1E08CF 027A C8 A20C4657D7001402

36 36 33 36 36 0003 000400 0000 0000 0000 0000 00 0000 0002 00

32 04 3A 0D 0A

Received: 787800e 99700e 20000000144555353262 6055

00 72 00 65 00 63 00 G 69007300 65 00 6C 00 79 00 20 00 4C 00 6F 00 63

00 61 00 74 00 69 00 6E 00 67 00 3A 00 31 00 30 53 F7 00 20 00 59 00 75

00 6E 00 73 00 68 00 6100 6E 00 20 00 57 0065 00 73 00 74 00 20 00 52

00 6400 2C00 4800 75 00 sixty-nine 00 63 00 sixty-eight 00 65 00 6E 00 67 002C0048

00 75 00 69 00 7A 00 sixty-eight 00 6F 00 75 00 2C 00 47 00 75 00 61 00 6E 00 67

00 64 00 6F 00 6E 00 67 002C00 350031 00360030 00 3000 33 00 28

00 4E 00 32 00 33 00 2E 00 31 00 31 00 31 00 37 00 37 00 2C 00 45 00 31

00 31 00 34 00 2E 00 34 00 30 00 39 00 32 00 32 00 29 26 26 36 36 33 36

360003000400000000000000000 00 00 00 00 23:00 Season 4 Episode 1

OA

Content distributed by the server: Precisely Locating:10 number Yunshan West Rd,Huicheng,Huizhou,Guangdong,516003(N23.11177,E114.40922)

Mobile phone number: 66366

Alarm package process:

Chinese SMS:

发出：787825160B0B0F0E241DCF027AC8870C4657E6001402

09 01 CC 00 28 7D 00 1F 72 65 06 04 01 01 00 36 56 A4 0D 0A

Receiving: 78780516003695700D0A

接收：7878BE17B800000001414C41524D534D5326267D2760

25 54 7C 53 EB 00 3A 5E 7F 4E 1C 77 01 60 E0 5D DE 5E 02 4E 91 5C 71 89

7F 8D EF 00 2E 65 87 53 4E 4E 00 8D EF 00 2E 79 BB 4E 2D 88 4C004100

54 00 4D 7E A6 00 33 00 31 7C 73 00 2E 79 BB 4E 2D 88 4C 6C 5F 53 17 65

2F 88 4C 7E A6 00 33 00 31 7C 73 00 2E 00 2C 00 31 00 31 00 2D 00 31 00

31 00 2D 00 31 00 35 00 20 0031003400 3A 00 3300 36 00 0 3A 00 32 00

392626303030303030303030303030 3030 3030 3030 30303030

303030303030303030303030303030303030303030303030232300

01 B6 D8 0D 0A

Content of short message: Emergency call: No.1 Wenhua Road, Yunshan West Road, Huizhou City, Guangdong Province, about 31 meters away from Bank of China ATM and Jiangbei Branch of Bank of China.

About 31 meters. 11-11-1514:36:29

The specific meaning of the above instructions can be found in the protocol description document.

Nine. Complete format of attached C packet

A. The data packet sent by the terminal to the server

Login packet (18 Byte)						
Starting position	Packet length	Agreement number	Terminal ID	Information serial number	Check Digit	Stop position
2	one	one	eight	2	2	2

GPS packet (26+N Byte)													
rise beginning place	Bag length degree	cooperate discuss number	Information content: Date time	GPS information: Length of GPS information, participation Number of satellites located	latitude degree	classics degree	speed degree	Course and shape form	Reservation expansion exhibition unit	Information order Column number	verify place	stop place
2	one	one	six	one	four	four	one	2	N	2	2	2

LBS packet (23+N Byte)											
rise beginning place	bag long degree	cooperate discuss number	Information content: sun period time between/separate/space in between/room	LBS information: MCC	MNC	LAC	Cell ID	in adv anc stay expand exhibition place	believe have a rest order row number	school check place	stop stop place
2	one	one	six	2	one	2	three	N	2	2	2

LBS complete packet (42+N Byte)																								
rise beginning place	bag long degree	cooperate discuss number	Information content: sun period time between/separate/space in between/ro	LBS information: MCC	MNC	LAC	MCone	MCone SS	MCone one	MCone SS one	MCone 2	MCone six S 2	MCone three	MCone SS three	MCone four	MCone SS four	MCone five	MCone SS five	MCone six	MCone SS six	in adv stay expand exhibition place	believe have a rest order row number	school check place	stop stop place
2	one	one	six	2	one	2	2	one	2	one	2	one	2	one	2	one	2	one	2	one	N	2	2	2

GPS、LBS信息包（34+M+N Byte）																
rise beginning place	bag long degree	cooperate discuss number	Information content: sun period time between/separate/space in between/ro	GPS information: GPS information Length, parameter With positioning Satellite number	latitude degree	classics degree	speed degree	Course, condition	in adv stay expand exhibition place	LBS information: MCC	MNC	LAC	Cell ID	in advance stay expand exhibition	believe have a rest order row number	school check place	stop stop place
2	one	one	six	one	four	four	one	2	M	2	one	2	three	M	2	2	2

Status package (13+N Byte)									
rise beginning place	Packet length	protocol number	Information content: Terminal information content	Voltage, etc level	GSM signal strength, etc. level	Reservation extension Bit (language)	Information sequence number	verify place	stop place
2	one	one	one	one	one	2	2	2	2

Satellite signal-to-noise ratio information (11+M+N Byte)								
Starting position	Packet length	Agreement number	Information content: Number of satellites participating in positioning	Satellite signal-to-noise ratio 1 2 3 ····· 0	Reserved extension bit	Information serial number	Check Digit	Stop position
2	one	one	one	M	N	2	2	2

The terminal responds to the instruction (15+M+N Byte) sent by the server.									
originate place	Bag length degree	protocol number	String content: Commander degree	Server logo place	Within the instruction allow	Reserved extension bit (language) Words)	Information sequence number	verify place	stop place
2	one	one	one	four	M	2	2	2	2

GPS, LBS, status packet (40+M+N+L Byte)																							
Information content																							
originate place	bag long degree	cooperate discuss number	sun time between/separate/	GPS information						LBS information						status messages			in advance stay expand exhibition place (10 Words)	believe have a rest order row number	school check place	stop stop place
				GPS information Length, parameter With positioning Satellite number	latitude degree	classics degree	speed degree	sail To, shape form	reserve expand place	LBS long degree	MCC	MNC	LAC	Cell ID	in advanc stay expand exhibition place	end erect believe have a rest inside allow	electricity press wait for level	GSM signal intensity grade				
2	one	one	six	one	four	four	one	2	M	one	2	one	2	three	N	one	one	one	2	2	2	2

B. The data packet sent by the server to the terminal

Response of the server after receiving the status packet sent by the terminal (10 Byte)					
Starting position	Packet length	Agreement number	Information serial number	Check Digit	Stop position
2	one	one	2	2	2

The instruction packet sent by the server to the terminal (15+M+N Byte)									
Starting position	Packet length	Agreement number	Information content				Information serial number	Check Digit	Stop position
			Instruction length	Server flag bit	Instruction content	Reserved extension bit			
2	one	one	one	four	M	N	2	2	2

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