GPS protocol

Standard mode upload data, heartbeat package and positioning basic data are uploaded in this format

Encoding format：

No.	00	01	02	03	04	05	06	07	08	09	0A	0B
content	$	0x1030731001					0x050316			0x220902		
meaning	Record head	Device serial number					time			date		

No.	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18
content	0x22128745				0x00	0x113466574C					0x014028		
meaning	Latitude value				battery power	Longitude value、N、E、AV					Speed, direction		

No.	19~1C	1D	1E	1F	20	21~24	25	26	27
content	0Xfffffbff	0xff	0x00	0x1F	0x45	0x00001234	0x01CC		0x01
meaning	vehicle_status	Usr_alarm_flag	Reserved	GSM signal	GPS signal + Beidou signal	GPS mileage	country code		Carrier number

No.	28	29	2A	2B	2C 2D	2E 2F	30 31	32	32
content	0xFF32		0x01F4		0x0123	0x0145	0x020E	0x00	
meaning	Percentage of electricity		height		Main voltage	temperature	humidity	Record number	

Description：“$”（0x24）：Record head，Used to identify the starting position of the center；

Time: 0x050316, standard time 5:3:16, equivalent to 13:3:16 Beijing time;
Date: 0x220902, September 22, 2002;
Latitude value: 0x22128745, 22 degrees 12.8745
Longitude value: 0x113466574C, 113 degrees 46.6574, last byte (No.0x15) meaning:
Bit7654, the last longitude
Bit3, 1: East longitude, 0: West longitude
Bit2,1: north latitude, 0: south latitude
Bit1,1:A,0:V
Bit0, undefined
Speed, direction: 0x014028: speed 014 knots, direction 028
Vehicle_status, Usr_alarm_flag: Vehicle status and user-defined alarm status in binary. The meaning is the same as the text message (ASCII representation).
Record number: The record No. of the binary representation, which is automatically incremented by one for each record sent.
Percentage of electricity: the first byte is fixed at 0xff, and the second byte is corresponding to the percentage of battery
Such as: 0xFF32, indicating that the power is 50%
Height: unit meters, range 0-0xffff, such as 0x01F4=500 meters,

Temperature: unit 0.1 degrees Celsius, such as 0x0145=325, which means 32.5 degrees Celsius
The highest temperature is 1 for zero
For example, 0x8145 means minus 32.5 degrees.

Humidity, unit: 0.1% For example: 0x020E = 52.6 means 52.6%

GSM signal: GSM signal strength, range 0-31
GPS signal: GPS plus Beidou signal strength, hexadecimal ASCII
It3-bit0 corresponds to the number of gps satellites
Bit7-bit4 corresponds to Beidou or GLONASS satellite number

Example: 0x45 means gps satellite number 5, Glonass satellite number 4

Mains voltage, wired device is valid, wireless device uploads 0x000, two bytes, hexadecimal, range 0--0xFFFF, unit 0.1V, 0x123= 291, indicating 29.1V

(vehicle_status)：

Rank order	First byte		Second byte		Third byte		Fourth byte	
0	0	Temperature alarm	0	GPS receiver fault alarm	0	Car door open	0	Theft alarm
1	0	Displacement alarm	0	Vibration alarm	0	Vehicle fortification	0	Hijacking alarm (emergency alarm)
2	0	Supplementary data	0	Tilt alarm	0	ACC off	0	Speed alarm
3	0	Broken oil state	0	The host is powered by a backup battery	0	Collision alarm	0	Illegal ignition alarm
4	0	Battery removal alarm	0	The battery was removed	1	Reserved	0	No entry into the cross-border alarm
5	0	Vibration state	0		0	engine	0	
6	0	Heartbeat packet instruction	0		0	Custom alarm	0	Shield alarm
7	0	Low level sensor 1 grounding	0	Low battery voltage alarm	0	Vehicle speeding	0	Prohibit driving out of the border

The platform needs to increase the calibration time protocol:
After receiving the heartbeat packet and the V5 command, the server sends a V4 response, and the calibration time is the time in the 0 time zone.
//*HQ,8856000065,V4,NBR,20150525102030#
//*HQ,0600097800,V4,V1,20150525102030#

20150525102030 Indicates 0 time zone 2015-05-20 10:20:30 Beijing time 18:20:30

WIFI positioning protocol：

*XX,YYYYYYYYYY,V5,HHMMSS,S,latitude,D,longitude,G,speed,direction,WifiNum,w1MacAddr,w1RxLev,w2MacAddr,w2RxLev,w3MacAddr,w3RxLev,...,MCC,MNC,TA,NUM,LAC1,CID1,RXLEV1 ,LAC2,CID2,RXLEV2….,DDMMYY,vehicle_status,Electricity percentage, temperature, humidity#

GPS information, same as V1 definition
S,latitude,D,longitude,G,speed,direction

Multi-base station information (up to 5), same as NBR definition
MCC,MNC,TA,NUM,LAC1,CID1,RXLEV1 ,LAC2,CID2,RXLEV2…

Wifi information (up to 5),
WifiNum,w1MacAddr,w1RxLev,w2MacAddr,w2RxLev,w3MacAddr,w3RxLev,..
.

WifiNum，wifi number
w1MacAddr，First wifi signal MAC address， 1c:fa:38:a1:c4：a0
w1RxLev，First wifi signal strength，-58

Multi-base station protocol, with wifi upload command V5, if there is no wifi, WifiNum=0, only the base station data can be parsed

Upload SIM card CIID code V19 data:
*HQ,6600000105,V19,031749,V,2236.5079,N,11351.4801,E,000.00,000,170516,,,8986
02B11115C0169789,FFFFFBFF#

Way to the same V1 data：
898602B11115C0169789 is the code of CIID of SIM card