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Data Packet Type

HTBT	Heartbeat packet
V1	GPS Packet
V3	LBS Packet
V4	Confirm packet

1. Command structure

1.1 Structure of Sending command from server

*XX,YYYYYYYYYYYYYY,CMD,HHMMSS,PARA1,PARA2,…#

*	command head
XX	supplier name, ASCII character
,	separator
YYYYYYYYYYYYYY	15digit IMEI number
CMD	command code
HHMMSS	time：h/m/s
PARA	parameter
#	ending character

Must use capital letter for the initial Letter of command character without any space.

1.2 Device response data structure

General information：

*XX,YYYYYYYYYYYYYY,V1,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,equ _status #

*HQ,865205030330012,V1,145452,A,2240.55181,N,11358.32389,E,0.00,0,100815,FFFFFBFF#

GPS data：

*XX,YYYYYYYYYYYYYY,V2,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,equ_status #

*HQ,865205030330012,V2,150421,A,2240.55841,N,11358.33462,E,2.06,0,100815,FFFFFBFF#

Confirm data：

*XX,YYYYYYYYYYYYYYY,V4,CMD,hhmmss,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,equ_status #

*HQ,865205030330012,V4,S2,150950,151007,A,2240.55503,N,11358.35174,E,0.85,0,100815,FFFFFBFF #

2. GPS packet - V1

*	command head
XX	Supplier name,ASCII character
,	separator
YYYYYYYYYYYYYYY	15digit IMEI number
V1/V2/V3/V4	comamnd code
CMD	to be confirmed command
hhmmss	time value of confirmed command
HHMMSS	Time
S	data valid byte （A/V/B）, A represent valid data signal, V represent invalid data signal, B represent Beidou valid data signal
Latitude	latitude， format DDMM.MMMMM
D	latitude symbol（N：north， S：south）
Longitude	Longitude， format DDDMM.MMMMM
G	Longitude symbol（E：East， W：west）
Speed	range 000.00 ~ 999.99 byte （must be 3 digits XXX, if speed is 60km/h, so it need reserve a “space” in front of 60 value）
Direction	direction,true north is 0 degree,resolution 1 dgree, clockwise
DDMMYY	date/month/year
equ_status	（refer < General data definition >）
#	ending

PS: prococol calculate method is decimal system. Calculate by knot. It require transformation when analyze speed in your platform. So can not calculate by km/h directly. For example: if it show 10 in your platform, the real speed is 10 knot/h, 10*1.852=18.52km/h.

3. LBS packet - V3

*XX,YYYYYYYYYYYYYYY,V3,HHMMSS,Base_Info,Battery_Info,Failure_Info,Cont,DDMMYY,equ_status#

*	command head
XX	Supplier name,ASCII character
,	separator
YYYYYYYYYYYYYYY	15digit IMEI number
CMD	comamnd code
HHMMSS	terminal time

Base_Info：Base station information format asbelow:

MCC,MNC,Base_Number,LAC1,Cell_ID1,RS1,dBm1, LAC2,Cell_ID2,RS2,dBm2,…

MCC	country code, china is 460
MNC	network code, china mobile 00, China Union 01
Base_Number	Cell ID quantity, 00-99
LAC	Base station area code
Cell_ID	Cell ID number
RS	signal strength, the data show empty if no signal
dBm	receiving signal strength, the data show empty if no signal
Battery_Info	battery info, 0x0000-0x0299 hexadecimal represent battery voltage
Failure_Info	reboot info, 0-9
Cont	ending of data for extend protocol "X" represent DDMMYY
equ_status	（refer<General data definition >）
#	End

*HQ,865205030330012,V3,000201,46000,07,009350,004022,132,-88,009350,004032,140,,009350,004031,139,,009350,004023,133,,009350,004033,127,,009350,004021,124,,010351,003942,118,,0256,0,X,010915,FFFFFBFF#

Explain：

1. the data represent receiving 7 Cell ID signal, battery voltage 0x256/0x400=598/1024=0.584*5.6V =3.27V, battery level is 3.27V/3.6V*100%=90.8% without reboot.

2. Battery percentage nominal voltage is 3.6V, battery percentage top and button limitation 1%-100%, if the upload voltage over than battery percentage top and button limitation, it regards to parse the data based on battery percentage top and button limitation.

V5 Data packet (WIFI data , For special GPS model support WIFI Tracking Only)
*XX,YYYYYYYYYYYYYYY,V5,HHMMSS,Wifi_Number, Wifi_Info, Battery_Info,DDMMYY,equ_status#

*	command head
XX	Supplier name,ASCII character
,	separator
YYYYYYYYYYYYYYY	IMEI number
CMD	command code
HHMMSS	device time
Wif_Number	wifi quantity, 0-8
Wifi_Info：	front 12 digits represent MAC address, the later 2 digits represent signal strength of WIFI
Battery_Info	battery info, 0x0000-0x0299 hexadecimal represent battery voltage
equ_status	（refer<General data definition >）
DDMMYY	day/month/year
#	end

*HQ, 135790246811220,V5 ,8,11223344556677,11223344556677,11223344556677, 11223344556677,11223344556677,11223344556677,11223344556677,11223344556677, 0256,010815, FFFFFBFF#

4. HeartBeat - HTBT

*HQ, YYYYYYYYYYYYYYY,HTBT,Battery percent#

For example：

Device upload：*HQ,135790246811220,HTBT,100#
Server response：
*HQ,135790246811220,HTBT,100#

If show 100 means battery level 100%
If show 90 means battery level 90%

5. ICCID of SIM card

Device upload: *HQ,865770062606670,ICCID,89860121801609042193#
Device response: *HQ.865770062606670,ICCID#

6. GPRS Command explaination -CMD

Except special declare, server need response to sender.

Format: command

Command : refer to SMS command list

Response：

*XX, YYYYYYYYYYYYYYY,V4,CMD,,command,reply#

Command : command content,reply is the replied content.

The following is only examples. For more GPRS commands, please directly send SMS commands. The GPRS sending format is exactly the same as the SMS format.

Example：

Command： check123456

Reply：

*HQ,135790246811220,V4,CMD,check,
CHECK,IMEI:861358034573915,APN:internet,IP:www.gps228.com:8989,C:,GSM:31,GPS:1,ACC:1,TZ:+8:30,ACCON/ACCOFF:5/60,SP:80,1,LMT2:40,Pw:On,12062,KC:1,OIL:90%,BAT:80%#

Example：

Command： reset123456

Reply：

*HQ,135790246811220,V4,CMD,reset,RESET OK#

Example for working mode：

Command： MD123456 1 3 8 1 （default mode 1）

Command： MD123456 2 3 1:00 2:00 （mode 2）

Command： MD123456 3 3 120 （mode 3）

7. General Data Definition：

equ_status Vehicle status: total 4 bytes, means vehicle status and alarm status etc. Use ASCII character represents Hexadecimal values, the following is the exact meaning of single bit of varite each byte, bit represents adopt negative logic, namely bit=0 is valid.
Important: Need convert to Binary format to get the Bit value; Check the converted data as arrow from end to front

as shown below table：

Bit order	1st byte		2nd byte		3rd byte		4th byte	
0	1	reserved	1	reserved	1	reserved	1	reserved
1	1	reserved	1	reserved	1	reserved	1	reserved
2	0	Removal alarm	1	reserved	1	reserved	0	Over speed alarm
3	1	reserved	1	reserved	0	Vibration alarm	1	
4	1	reserved	1	reserved	0	Low battery alarm	0	Fence-in alarm
5	1	reserved	1	reserved	1	reserved	1	reserved
6	1	reserved	1	reserved	1	reserved	1	reserved
7	1	reserved	1	reserved	1	reserved	0	Fence-out alarm

Removal alarm example

How to parse status packet “FBFF FFFF”?

