

LKGPS protocol

1.The structure of commands send by terminal:

Normal information(v1):

*XX,YYYYYYYYYY,V1,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,vehicle_status#

Confirmation of information(V4):

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

In which:

* : Head of command

XX : Name of maker, Consists of two ASCII characters, such as HQ.

, : separator

YYYYYYYYYY : SN of terminal, is ten characters front of IMEI.

CMD : Command

HHMMSS : Time: hour/minute/second,device time, GMT, Beijing is 8 hours ahead GMT.

S : Effective mark of data, 'A' stand for effective, 'V' stand for invalid.

Latitude : Latitude, format : DDFF.FFFF, DD : Degree (00 ~ 90) , FF.FFFF : minute (00.0000 ~ 59.9999), keep four decimal places.

D : latitude marks (N:north, S:south)

Longitude : longitude, format : DDDFF.FFFF, DDD : Degree (000 ~ 180) , FF.FFFF : minute

(00.0000 ~ 59.9999), keep four decimal places.

G : longitude marks (E:east, W:west)

Speed: speed,range of 000.00 ~ 999.99 knots, Keep two decimal places.

Speed maybe empty, as longitude,G,,direction, speed is 0.

Direction: Azimuth, north to 0 degrees, resolution 1 degrees, clockwise direction.

Direction maybe empty, as longitude,G,speed,, MMDDYY, azimuth is zero.

DDMMYY:day/month/year

vehicle_status(V1): Vehicle state, four bytes, says the terminal parts state, vehicle parts state and alarm state, etc. Use ASCII character and hexadecimal values. Below are the meaning of each byte, use negative logic, bit=0 is effective. The table below:

Wire vehicle tracker

| Rank | Retention | | Automotive machine components status | | State vehicle parts | | Alarm status | |
|------|------------|-----------------|--------------------------------------|-----------------|---------------------|---------|--------------|-------------|
| | First Byte | | Second Byte | | Third Byte | | Fourth Byte | |
| 0 | 0 | | 0 | | 0 | | 0 | |
| 1 | 0 | | 0 | Vibration Alarm | 0 | Armed | 0 | SOS |
| 2 | 0 | | 0 | | 0 | ACC off | 0 | Speed alarm |
| 3 | 0 | | 0 | | 0 | | 0 | |
| 4 | 0 | Power cut alarm | 0 | Power cut | 1 | | 0 | |
| 5 | 0 | | 0 | | 0 | | 0 | |
| 6 | 0 | | 0 | | 0 | | 0 | |
| 7 | 0 | | 0 | | 0 | | 0 | |

Wireless vehicle tracker

| Rank | Retention | | Automotive machine components status | | State vehicle parts | | Alarm status | |
|------|------------|--|--------------------------------------|-------------------|---------------------|--|--------------|-------------|
| | First Byte | | Second Byte | | Third Byte | | Fourth Byte | |
| 0 | 0 | | 0 | | 0 | | 0 | |
| 1 | 0 | | 0 | Shock alarm | 0 | | 0 | Drop alarm |
| 2 | 0 | | 0 | | 0 | | 0 | Speed alarm |
| 3 | 0 | | 0 | | 0 | | 0 | |
| 4 | 0 | | 0 | | 1 | | 0 | |
| 5 | 0 | | 0 | | 0 | | 0 | |
| 6 | 0 | | 0 | | 0 | | 0 | |
| 7 | 0 | | 0 | Low battery alarm | 0 | | 0 | |

Pet&personal tracker

| Rank | Retention | | Automotive machine components status | | State vehicle parts | | Alarm status | |
|------|------------|--|--------------------------------------|-------------------|---------------------|--|--------------|-----|
| | First Byte | | Second Byte | | Third Byte | | Fourth Byte | |
| 0 | 0 | | 0 | | 0 | | 0 | |
| 1 | 0 | | 0 | | 0 | | 0 | SOS |
| 2 | 0 | | 0 | | 0 | | 0 | |
| 3 | 0 | | 0 | | 0 | | 0 | |
| 4 | 0 | | 0 | | 1 | | 0 | |
| 5 | 0 | | 0 | | 0 | | 0 | |
| 6 | 0 | | 0 | | 0 | | 0 | |
| 7 | 0 | | 0 | Low battery alarm | 0 | | 0 | |

2.Commands send by center

1)Clear alarm R7

*XX,YYYYYYYYY,R7,HHMMSS #

For example: *TH, 000000,R7,130305#

Terminal received the command will clear all the alarm information, but does not send back information, monitoring system can be appended to send a single monitoring command to confirm whether have clear alarm or not.

3.GPRS agreement

Standard mode(Binary V1 normal information) encoding format:

| No. | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B |
|---------|----------------|------------------------|----|----|----|----------|----|----|----------|----|----|----|
| Content | \$ | 0x1030731001 | | | | 0x050316 | | | 0x220902 | | | |
| Meaning | Recording Head | Terminal 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 | | | | Reserve | Longitude,N,E,AV | | | | Speed, direction | | | |

| No. | 19 | 1A | 1B | 1C | 1D | 1E | 1F |
|---------|----------------|----|----|----|-----------------|---------|------------------|
| Content | 0Xffffbff | | | | 0xff | 0x00 | |
| Meaning | vehicle_status | | | | User_alarm_flag | Reserve | Operators Number |

In which, "\$"(0x24): Recording Head, for the start point of center identity record;

Time: 0x050316, GMT+0 5 o'clock 3 minutes 16 seconds, same as Beijing time(GMT+8) 13 o'clock 3 minutes 16 seconds;

Date: 0x220902, 22th September,2002;

Latitude value: 0x22128745, 22° 12. 8745;

Longitude value: 0x113466574C, 113° 46. 6574, meaning of last bit(No. 0x15):

bit7654, last place of longitude;

bit3, 1: east longitude,0: west longitude;

bit2, 1: north latitude,0: south latitude;

bit1, 1: A, 0: V
bit0, not defined

Speed, direction: 0x014028:speed 014 knot, direction 028;

vehicle_status、 User_alarm_flag: Vehicle status in binary system, and user defined alarm status,same meaning as SMS(in ASCII).

Operators number:Recording numbers in binary system, add 1 every time send back record data.

Notice: No temperature data in stand mode record(same as V1 normal information).

stand mode encoding format:

| | | | | | | | | |
|--------------------|----------------|------------------------|----|----|----|---------|----------|----|
| No. | 00 | 0 1 | 02 | 03 | 04 | 05 | 10 | 15 |
| Stand mode content | \$ | 0x1030731001 | | | | 0x00 | 4C | |
| Stand mode meaning | Recording Head | Terminal Serial Number | | | | Reserve | N、 E、 AV | |

Encoding format:

| | | | | | | | | | | | | |
|---------|----------------|------------------------|----|----|----|----------|----|----------|----|----|----|----|
| No. | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B |
| Content | \$ | 0x1030731001 | | | | 0x050316 | | 0x220902 | | | | |
| Meaning | Recording Head | Terminal 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 level | Longitude value、 N、 E、 AV | | | | Speed, Direction | | | | |
| No. | 19~1C | 1D-1E | | 1F | 20 | 21~24 | 25 | 26 | 27 | | | | |
| Content | 0xffffbf f | 0xff | | | | 0x000 01234 | 0x01CC | | 0x01 | | | | |

| | | | | | | | |
|---------|----------------|-----------------|------------------|------------|-----------------------------|--------------|------------------|
| Meaning | vehicle_status | User_alarm_flag | GSM Signal(1~31) | GPS Signal | GPS Mileage Unit: Kilometer | Country Code | Operators Number |
|---------|----------------|-----------------|------------------|------------|-----------------------------|--------------|------------------|

| | | | | | |
|---------|----------------|----|---------|----|-----------------|
| No. | 28 | 29 | 2A | 2B | 2C |
| Content | 0x8763 | | 0x5B9C | | 0x00 |
| Meaning | Station number | | Cell ID | | Operator Number |

Base station information

Country code, 460 = 0x01CC

Operator number, 01 = 0x01

Station number, 34569 = 0x8763

Cell ID, 23452 = 0x5B9C

Hexadecimal data flow: 01 CC 01 87 63 5B 9C

Multi cell base station protocol

*XX, YYYYYYYYYY, NBR, HHMMSS, MCC, MNC, TA, NUM, LAC, CID, RXLEV , LAC, CID, RXLEV... , DDMMYY, vehicle_status#

XX: Manufacturer

YYYYYYYYYY: ID

HHMMSS time

MCC Country Code MCC(3 bits)

MNC Network code MNC(3 bits)

NUM Numbers of Base Station, maximum is 6.

TA GSM time delay

LAC Location Area Code LAC(5 bits)

CID Cell Tower CID(5 bits)

RXLEV Signal Strength

DDMMYY Date

vehicle_status (refer to "Common Data Definition")

E. g.

*HQ, 7893267560, NBR, 081606, 460, 0, 1, 4, 9338, 3692, 150, 9338, 3691, 145, 9338, 3690, 140, 9338, 3692, 139, 220513, FFFFFBFF#

Multi cell base station protocol, add Last field of ASCII power level information:

*HQ, 7893267560, NBR, 081606, 460, 0, 1, 4, 9338, 3692, 150, 9338, 3691, 145, 9338, 3690, 140, 9338, 3692, 139, 220513, FFFFFBFF, cell#

Cell value 1-6 (1-10%, 2-20%, 3-40%, 4-60%, 5-80%, 6-100%)

Time calibration protocol in center for long standby time terminals:

Server receive V1 and NBR command, then reply with V4, time calibration as GMT+0 time.

//*HQ, 8856000065, V4, NBR, 20150525102030#

//*HQ, 0600097800, V4, V1, 20150525102030#

20150525102030 It is GMT+0 2015-05-25 10 o' clock 20 minutes 30 seconds GMT+8 18 o' clock 20 minutes 30 seconds

Working time SMS setting(for LK330, LK330B, LK660)

DWaaa, bb, hhmm

aaa=999 means always work

bb, wake up interval, 01~240, unit is hour,

hhmm, wake up time, bb should below 24

DW0005, 12, 0830

Wake up every 12 hours, wake up time8: 30

Sever send command:

*HQ, 000, S71, 085902, 31, aaa, bb, hhmm#

Same to sms command

Sever reply:

*HQ, 0000000000, V4, S71, 085902, 31#

WIFI location:

*XX, YYYYYYYYYY, V5, HHMMSS, S, latitude, D, longitude, G, speed, direction, Wif iNum, w1MacAddr, w1RxLev, w2MacAddr, w2RxLev, w3MacAddr, w3RxLev, . . . , MCC, MNC, TA, NUM, LAC1, CID1, RXLEV1 , LAC2, CID2, RXLEV2· . . . , DDMMYY, vehicle_stat us#

GPS data, same to V1

S, latitude, D, longitude, G, speed, direction

LBS(max 5) , same to NBR
MCC, MNC, TA, NUM, LAC1, CID1, RXLEV1 , LAC2, CID2, RXLEV2...

Wifi data(max 5) ,
WifiNum, w1MacAddr, w1RxLev, w2MacAddr, w2RxLev, w3MacAddr, w3RxLev, ...

WifiNum,
w1MacAddr, the first WIFI mac address, 1c:fa:38:a1:c4: a0
w1RxLev, the first WIFI signal strength, -58

Upload SIM card iccid number:

*HQ, 6600000105, V19, 031749, V, 2236. 5079, N, 11351. 4801, E, 000. 00, 000, 170516, , , 898602
B11115C0169789, FFFFFBFF#

Same to V1:

898602B11115C0169789 is the SIM card iccid number

Note: the device upload two type data to sever, one is heartbeat package which start with *HQ end with #, another is GPS data which start with 24, the GPS data length fix.

Heartbeat package:

*HQ, 4209809058, V1, 064709, v, 2233. 9355, N, 11351. 7442, E, 000. 00, 000, 231215, FFFFFBFF,
460, 00, 0, 0, 6#

Sever reply:

*HQ, 4209809058, V4, V1, 20151223064711#

GPS data:

2442098090580647042312152233935006113517440E000000FFFFFBFFF001503000000001CC0
0000000004

LBS data:

*HQ, 4106020669, NBR, 081625, 460, 0, 0, 7, 9360, 3653, 40, 9360, 4143, 34, 9346, 3842, 32, 9360,
3651, 30, 9360, 3643, 24, 9346, 3843, 23, 9360, 4142, 23, 281215, FFFFFBFF, 5#

Sever reply:

*HQ, 4106020669, V4, NBR, 20151228081626#

WIFI data:

*HQ, 4208134453, V5, 112447, V, 2234. 0508, N, 11351. 8152, E, 000. 00, 000, 5, C4:B8:B5:E0:4E:
52, -59, 80:89:17:73:F8:76, -86, 8C:F2:28:7E:8B:5C, -80, 88:25:93:A9:53:9A, -76, C4:04:
7B:4D:3C:24, -82, 460, 0, 0, 7, 9346, 3842, 42, 9360, 3651, 43, 9360, 3653, 40, 9360, 4143, 28, 9
346, 3843, 27, 9360, 3652, 26, 9360, 4831, 24, 010616, FFFFFBFF, 6#