

Ulbotech Tracking Device Communication Protocol

Version: V1.020

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2. Preface

2.1 Update Remarks

This document was made based on the product model T363, If there is any change on the product, such as command increase/reduce/ modification etc., the document would be Revised with the version remarks upgraded.

Date	Version	Modification	Basic Version
2013.03.03	V1.0	First Published	V1.0
2014.06.13	V1.1	Add WIFI Functions. ADD command: WFS,GES,WFE,WAI,WFL	V1.1
2014.10.20	V1.2	Add CANBUS J1939 Function Add command: VIN,CAN,SOP Modify OBP command descriptions.	V1.2
2015.01.05	V1.3	Add G-force recorder function Add Towing, Accident alarm Add dual SIM card function Add command: HVD,OID,SIM,DSS,GRC,ADT	V1.3
2015.02.06	V1.4	Add multi functions input Add T356 WIFI OBD GPS tracker Add command: GMM,IMD,ILV Add WIFI SSID list file import Add socket Acknowledgement function Modify GIP command, add ACK option	V1.4
2015.04.14	V1.5	Add VIN data in upload frame	V1.5
2015.05.05	V1.6	Add RFID data in upload frame. Add RFID command: IDL, IDA, IDD	V1.6
2015.05.26	V1.7	Add J1708 data in upload frame Add J1708 command: HVP, HVD	V1.7
2015.09.24	V1.8	Add LBS to location function Add LBS to location enable command: LLE Add event code data in upload frame	V1.8
2015.11.05	V1.9	Add BLE parameters configuration(BTC) Add BLE parameters query(BTI) Add description of "6.5 Serial port data from peripheral equipment"	V1.9
2015.12.05	V1.010	Changed version format Vx.y to Vx.yyy	V1.010

		Add commands to support WIFI hotspot devices Add commands: SIV,NUM,GDC,WCC,GDR Modify command: WFS	
2016.04.16	V1.011	Add WIFI power save setting(WPS). Add engine run time data. Add 2 nd fuel consumption algorithm. Add USB authority setting(UAE). Modify LBS data define. Modify some bugs.	V1.011
2016.04.28	V1.012	Add SMS forward function Add SMS forward command(MFW)	V1.012
2016.05.11	V1.013	Add trace to flash function Add trace to flash enable command(FTR) Add trip report data Add trip report setting command(TRS) T38x add LTE module command(LTC)	V1.013
2017.03.28	V1.014	Change alarm event code from 0xE0 to 0xF8 Update OBS command	V1.014
2017.10.14	V1.015	Add commands: DBS, EOL, DDF, RME, IUM, IBT, IDM, GFL, OSC, PTL, BZE, PIN, OMD, RFP, NSM, WEB, IGV, WMF, WMW, WMB, MSN, MRG, OTA, AOE, RTO, CRD, BCM, DSK, BCS, EGT, ADS, AGO	V1.015
2018.01.12	V1.016	Change G-force data frame id. Add Ultrasonic fuel sensor data to ADC value. Add command FSS for query status of fuel sensor Add Communication encryption Modify GIP command, add encryption options	V1.016
2017.03.29	V1.017	Add device remote diagnosis function Add command: RDS	V1.017
2018.10.15	V1.018	Add OBD request delay setting command ODL	V1.018
2019.03.14	V1.019	Add rollover alarm. Add command GSN	V1.019
2019.05.20	V1.020	Modify commands: GIP, OAS Add commands: FIN, DLF	V1.020

2.2 General Notes

Ulbotech provides this document to describe the communication protocol format between Ulbotech vehicle terminal, mobile terminal (Cell phone), and communication control center, with the aim of providing a basis for engineers to design a uniform control commands for specific products. The Intended audiences of this document are the development engineers for Ulbotech product.

In this document, vehicle terminal control and connection structure is described. Data packet and command packet formats between vehicle terminal, mobile terminal, communication commands and their scopes are clearly defined. Privilege of different connection approaches (SMS, Cable, and GPRS/Bluetooth) and their functions are clearly defined.

2.3 Copyright

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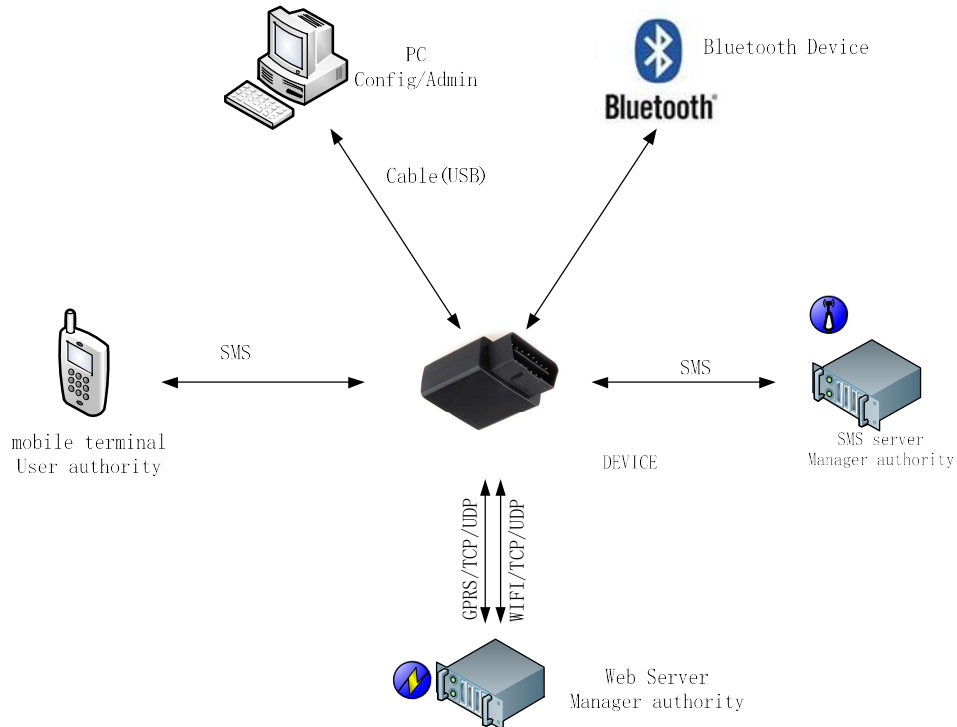
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3. Overview

3.1 Schematic diagram



3.2 Command Authority

NO.	Communication hardware	Command authority for	Communication method		Format
1	PC	Admin/Manager	USB Cable (or Bluetooth)		TXT
2	Mobile phone	user	SMS		TXT
			Bluetooth to Mobile APP		TXT
3	SMS server	Admin/Manager	SMS		TXT
4	Web server	Manager	Commands (including sending commands to device and device replying to server)	GPRS/WIFI (TCP/UDP)	TXT
			Auto upload data to server	GPRS/WIFI (TCP/UDP)	TXT/ binary

NOTE:

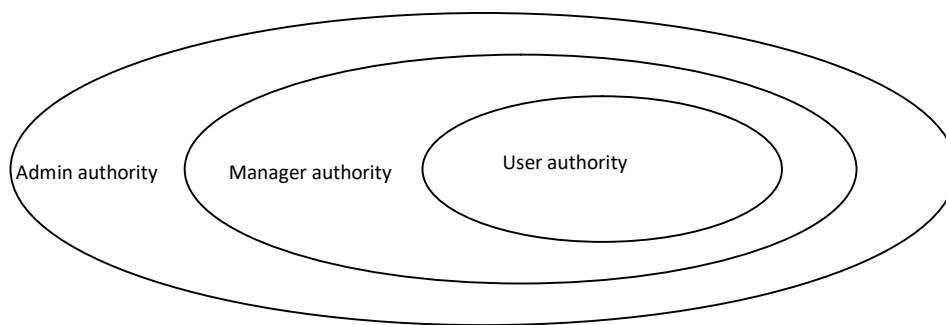
1. Command authority is divided into three levels: admin, manager and user.

Admin level: for agent/distributor. All commands authorized. Admin can communicate with device via pc or Bluetooth.

Manager level: for dealer /reseller. "Manager Command" and "common command" authorized by admin are available. Maximum command authority equals to admin authority. Manager can communicate with device via SMS/Web server or pc/mobile.

User level: for end user. "User command" and "common command" authorized by Manager are available. Maximum user command authority equals to manager authority. User can communicate with device via pc/mobile.

2. Command authority rank for the three levels: Admin > manager > user:



4. Configuration via PC

After connect the device to the PC via USB cable, device parameters configuration can be done by our setting software or third-party hyper-terminal software

4.1 By Ulbotech setting software

For detailed instructions, please refer to the “User manual of Configuration Software “

4.2 By third-party hyper-terminal software

Lots of hyper-terminal or COM Port Reader or Serial Port Read software is available on internet, which can be found and downloaded easily to local disk, also user can use their own hyper-terminal or COM Port Reader or Serial Port Read software for configuration if available.

4.2.1 Configuration with Admin authority

Connect the device to PC and Open hyper-terminal software.

1. Enter configuration interface:

Step 1: input ^a (Ctrl + a)[0x01] for three times , software reply message “Please Input Password:[CR][LF]”. If no response, please triple press “Esc”[0x1b] on keyboard to try again.

Step 2: Input the Admin configuration default password:0123456789, and press ENTER, if the Password is correct, then software will be at the status for configuration by reply “[LF]Cable Port In Admin Mode[CR][LF]”,otherwise reply “Password error. Please input again”. If input the password with error for three times, software will be back to the initial status automatically, and user need repeat step 1 again for entering.

2. Configuration: user can input the related commands for setting/changing parameters for the device on the configuration interface. For the detailed commands info ,please refer to (7.2 Admin command list)
3. Exit configuration interface: please triple press”Esc”[0x1b], then software reply “ [LF] Cable Port In Normal Operation Mode [CR] [LF]”. The configuration interface exit

4.2.2 Configuration with Manager Authority

Connect the device to PC and Open hyper-terminal software.

1. Enter configuration interface:

Step 1: input ^n (Ctrl + n)[0x0e] for three times, software reply message "Please Input Password:[CR][LF]". If no response, please triple press"Esc"[0x1b] on keyboard to try again.

Step 2: Input the Manager configuration default password:123456, and press ENTER, if the Password is correct, then software will be at the status for configuration by reply "[LF]Cable Port In Manager Mode[CR][LF]",otherwise reply "Password error. Please input again". If input the password with error for three times, software will be back to the initial status automatically, and user need repeat step 1 again for entering.

2. Configuration: user can input the related commands for setting/changing parameters for the device on the configuration interface. For the detailed commands info, please refer to (7.3 Manager command list)
3. Exit configuration interface: please triple press"Esc"[0x1b], then software reply " [LF] Cable Port In Normal Operation Mode [CR] [LF]". The configuration interface exit

4.2.3 Configuration with User authority

Connect the device to PC and Open hyper-terminal software.

1. Enter configuration interface:

Step 1: input ^u(Ctrl + u) [0x15]for three times .

Step 2: The device will be at the status for configuration by reply "[LF]Cable Port In User Mode[CR][LF]".

2. Configuration: user can input the related commands for setting/changing parameters for the device on the configuration interface. For the detailed commands info ,please refer to (7.4 User command list)
3. Exit configuration interface: please triple press"Esc"[0x1b], then software reply "[LF] Cable Port In Normal Operation Mode [CR] [LF]". The configuration interface exit

4.2.4 Operation under File Mode

Connect the device to PC and Open hyper-terminal software.

1. Enter File Mode interface:

Step 1: input ^f (Ctrl + f) [0x06]for three times, software reply message "Please Input Password:[CR][LF]". If no response, please triple press"Esc" [0x1b] on keyboard to try again.

Step 2: Input the Admin configuration default password:0123456789, and press ENTER, if the Password is correct, then software will be at the status for configuration by reply "[LF]Cable Port In File Mode[CR][LF]",otherwise reply "Password error. Please input again". If input the password with error for three times, software will be back to the initial status automatically, and user need repeat step 1 again for entering.

2. Operation: under the file mode, user can update the firmware, generate and export the default parameter, import and export and the APN list, configure and export the off-line data (stored in flash memory). For the detailed commands info ,please refer to (7.2 Admin command list)
3. Exit file mode interface: please triple press"Esc" [0x1b], then software reply "[LF] Cable Port in Normal Operation Mode [CR] [LF]". The configuration interface exit

5. General definition on Data format

5.1 General delimiters definition

- * Start mark for command and message
- , Separate mark for Command & information identifier
- : (1) Separate mark between information identifier and parameters when upload data,
(2) Separate mark between the command name and parameters when device reply commands;
- ; (1) Separate mark for parameters
(2) Separate mark between the command name and parameters when send commands,
- # End mark for command and message

5.2 Data conversion

There are two situations that the data in transmission need to be converted:

- (1) The binary format data with "F8" as packet header and footer
- (2) The text format

5.2.1 Binary data conversion

Binary data packet with "F8" as packet header and footer are needed to be converted if contains "F7" or "F8",

Conversion method: XOR (Exclusive-OR) the data with "F7", and generate data "XX". Then plus "F7" before "XX", namely "F7XX".

E.G.: "F8" xor "F7" is "0F",

"F8" convert to "F70F".

"F7" convert to "F700".

5.2.2 Text data conversion

The text data packet start with "*" and end with "#", which also contains the following special characters:

* , ; (#

are needed to be converted.

Convert special characters method: add "(" before those Special characters

E.G.: ", " is converted as " (,"

Then all the special characters are converted as:

character	*	,	;	(#
-----------	---	---	---	---	---

Converted	(*	(,	(;	(((#
-----------	----	----	----	----	----

5.3 CRC Verify

Verification adopts CRC16 – CCITT(XModem) standard.

Device verified the data before data conversion (not including the “packet header” and “packet footer”).

Parameters are as follows:

Generate polynomial method: $X^{16} + X^{12} + X^5 + 1$

Base type: 1021

Standard reference: ISO in HDLC, ITU x.25, v. 34 / v. 41 / v. 42, the PPP – FCS

5.4 Data packing process

Device packing data steps:

1. generate original data
2. CRC verify the original data (only Binary format data)
3. data conversion
4. packing data (plus “packet header” and “packet footer”)

so, when server got data, remove “packet header” and “packet footer”. Then convert the data back to original data and analyze the data.

5.5 Data Acknowledgement

When configured the server to answer back the acknowledgement data to the device, the device sends a Socket Packet at every time, the server is required to answer back a acknowledgement data packet with Socket Packet CRC verify code, if the device received the acknowledgement data packet but with a error CRC verify code, or the device didn't receive the data packet within the specific time, the device will resend this acknowledgement data packet and wait for response. If the device resent three times continuously but no acknowledged data packet back or acknowledgement data error, the device considers the server error and close the Socket connection. The device will try to connect continually after a interval.

There are two data formats for the acknowledgement data packet: Text and Binary formats.

5.5.1 Text Format

Format: *TS01,ACK:crc_hex#

“*TS” : the Text data frame header

“#” : the frame footer

“01” : the protocol version

“ACK”: Acknowledgement data packet Symbol

“crc_hex” : CRC verify code of the received acknowledgement Socket Packet data.

If the received CRC verify code of the Socket Packet is “0x12EF”,then the returned Text acknowledgement

Packet is “*TS01,ACK:12EF#”

5.5.2 Binary Format

Format: F8 01 FE 12 EF E7 37 F8

“F8: Frame header and frame footer

“01”:the protocol version

“FE”: Acknowledgement data packet Symbol

“12 EF: CRC verify code of the received acknowledgement Socket Packet data.

“E7 37”: CRC verify code of the acknowledgement frame

If the received CRC verify code of the Socket Packet is “0x1234”,then the returned Binary acknowledgement packet is “F8 01 FE 12 34 9D 21 F8”.

6. Auto Uploaded data to server

This format is applied when device upload data to SMS server and Web server automatically. The following situation will generate uploading:

- (1) auto upload as configuration (based on time interval/distance/ angle change)
- (2) alarm triggered
- (3) forwarding the Short message from other Mobile terminals

6.1 Types of Auto uploaded data

4 types in total:

- (1) GPRS(TCP/UDP) heart beat data (for connection status) --(text format)
- (2) Uploaded TXT format data (for device status) --(text format)
- (3) Uploaded Binary format data (for device status) --(binary format)
- (4) Serial port data from peripheral equipment

detailed usage as the following table:

Number	Communication between	Send data format	condition of send
1	From device to SMS server	Upload device information data(TXT format) (reference 6.3)	upload by interval or alarm triggered
2	From device to Web server	GPRS/WIFI hart beat data (reference 6.2)	Device sent hart beat data after establishing the GPRS/WIFI connection. Then upload this data based on time interval
		Upload device information data(TXT format) (reference 6.3)	upload based on time/distance interval with "text" format
		Upload device information data (binary format)(reference 6.4)	upload based on time/distance interval with "binary" format
3	From peripheral equipment to Web server	Serial port data from peripheral equipment(reference 6.5)	Device receive data from peripheral equipment. Then pack this data and upload to Web server

6.2 GPRS/WIFI heart beat data

The purpose of this data is to keep connection for communication, so it would be uploaded based on the specific time interval

Format is text. format as shown in the following table.

*TS	01	,	357852034572894	#
Packet header	Protocol version	Command separator	device ID (15 digits)	Packet footer

6.3 Uploaded TXT format data (packet) to Web server

1. Format for full data(packet) string

*TS	01	,	357852034 572894	,	140742 160713	,	LBS:460;0;2855;34BA;78;28 55;3AB1;76;2855;BC9C;89;2 855;BC9D;92;2855;3AB2;95; 2855;4458;98;2855;6467;98 ,STT:0;0,MGR:1903,ADC:0;1 2.22;1;44.32;2;4.13;3;0.00	#
Packet header	Protocol version	Command separator	device ID 15 characters	Command separator	location mark and packet time	Command separator	Device data domain	Packet footer

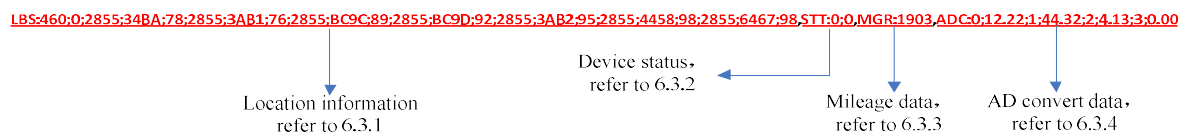
2. Locating mark and packet time

Example : 140742160713

Definition:

data	definition	details
140742160713	Locating mark and packet time	data length: 12 characters. Order by Hour Min, Sec; Day Mon Year Each for two characters. This data will be "000000" when there is no time data "140742160713" means time is 14:07:42 ,date is Jul,16 2013

3. Remarks for Device data domain:



The device data domain information can be extended or deleted according to the request/configuration. Different type of devices can support to read and upload to server different information data. Please refer to <appendix 3> to check Supported Data Types by devices. The data format is "information identifier + corresponding information". Here is the list of all the information identifier.

- GPS: GPS data ID---(refer to 6.3.1)
- LBS: LBS data ID--(refer to 6.3.1)
- STT: device status ID--(refer to 6.3.2)
- MGR: mileage ID --(refer to 6.3.3)
- ADC: device AD(Analog device) data ID---(refer to 6.3.4)
- GFS: geo-fence data ID --- (refer to 6.3.5)
- OBD: OBDII data ID----(refer to 6.3.6)
- FUL: Fuel consumption data ID---(refer to 6.3.7)
- OAL: OBDII alarm data ID---(refer to 6.3.8)
- HDB: Harsh driver behavior data ID---(refer to 6.3.9)
- CAN: CANBUS SAEJ1939 data ID---(refer to 6.3.10)
- HVD: J1708 data ID---(refer to 6.3.11)
- VIN: Vehicle identification number(VIN) data ID---(refer to 6.3.12)
- RFI: RFID data ID---(refer to 6.3.13)
- EGT: Engine run time data ID---(refer to 6.3.14)
- EVT: Event code data ID---(refer to 6.3.15)

TRP: Trip report data ID---(refer to 6.3.16)

6.3.1 Location information

Location information includes LBS data and GPS data. Only one data will be sent, LBS or GPS.

1. LBS data

Example : LBS:460;0;2855;34BA;78

Definition:

Identifier +info	definition	details
LBS	data ID (identifier)	"LBS" is the LBS data identifier followed by the corresponding information
460	MCC	Shown with 3 or 5 digits in decimal format. Range: 0~999 or 65535. The data will be "65535" if no location information.
0	MNC	Shown with 1-2 or 5 digits in decimal format. Range: 0~999 or 65535. The data will be "65535" if no location information.
2855	LAC	Shown in decimal number. Range: 0~65535 The data will be "65535" if no location information.
34BA	CID	shown in decimal number. range:0~65535(2G), 0~4294967295(3G/4G) The data will be "65535/4294967295" if no location information.
78	-dbm	Shown in decimal number. Stand for the signal strength Range: 0~120 The data will be "120" if no location information.

Note: when MCC、MNC are 65535 , This is means there is no base station information.

For 2G device which can provide up to 7 base stations data, but for 3G/4G device, it only offer once base station data.

e.g.:

LBS:053638161112;460;0;2731;40F4;82;2731;BB41;97;2731;40F3;98;2503;962C;98;2731;366D;102;2731;B5E7;103;2503;BFDE;105

Explanation:

LBS: Identifier of LBS data.

460; MCC

0; MNC
 2731; LAC, Registered station LAC.
 40F4; CID, Registered station CID
 82; -dbm, Registered station signal strength
 2731;BB41;97; Station 2, LAC;CID;-dbm
 2731;40F3;98; Station 3, LAC;CID;-dbm
 2503;962C;98; Station 4, LAC;CID;-dbm
 2731;366D;102; Station 5, LAC;CID;-dbm
 2731;B5E7;103; Station 6, LAC;CID;-dbm
 2503;BFDE;105 Station 7, LAC;CID;-dbm

Note: 7 Stations info in total

2. GPS data

Example: GPS: 3; N23.164865; E113.428970; 0; 0; 1.23

Definition:

Identifier +info	definition	details
GPS	data ID (identifier)	"GPS" is the GPS data identifier followed by the corresponding information
3	GPS status mark	Can be: 1: no signal ; 2: with 2D signal 3: with 3D signal
N23.164865	latitude	decimal degree format. First character should be "N"/"S". Means north/south Range: 0.000000~90.000000
E113.428970	Longitude	decimal degree format. First character can be "E"/"W". Means east/west Range:0.000000~180.000000
0	speed	Target moving speed from GPS. Unit: km/h range:0~500 decimal number
0	angle	Target moving angle from GPS. Unit: degree range:0~360 decimal number
1.23	HDOP	When it is 99.99, means HDOP value is unknow

e.g.:

GPS: 2;N23.164396;E113.428541;0;0;1.10

GPS: Identifier of GPS data

2: GPS positioning status, value “2” means 2D, value “3” means 3D

N23.164396: Latitude

E113.428541: Longitude

0: Speed

0: Direction

1.10: HDOP

6.3.2 Device status and Alarms triggered

Example: STT:2;0

Definition:

Identifier +info	definition	details
STT	data ID (identifier)	“STT” is the device status data identifier followed by the corresponding information
2	device status	shown in hexadecimal format. Range:0~FFFF hexadecimal number. Each bit relate to one status of the device. Please refer to the following table <device status list> for each bit definition
0	Alarm triggered	shown in hexadecimal format. Range: 0~FFFF hexadecimal number. Each bit relate to one alarm status of the device. Please refer to the following table < alarm triggered list> for each bit definition

1. Device Status list

Not all bits are available for any model. In the following table, “v” means available and “x” means unavailable.

Bit	definition	When	When	T301	T303	T360/	T36X/
-----	------------	------	------	------	------	-------	-------

		bit="0"	bit="1"			T370	T37X
Bit0	Powered with external/internal	With external power	with internal power(back up battery)	√	√	√	√
Bit1	Move/stop	stop	move	√	√	√	√
Bit2	Over speed status	Not over speed	Over speed	√	√	√	√
Bit3	Jamming status	No jamming	jamming	√	√	√	√
Bit4	Geo-fence alarm status	No alarm	alarm	√	√	√	√
Bit5	Immobilize status	off	on	√	√	√	√
Bit6	ACC status	off	on	√	√	√	√
Bit7	Input Level Low/High	Low level	High level	×	×	√	√
Bit8	Input Level Middle	Not in middle level	Middle level	×	×	√	√
Bit9	Engine status	off	on	√	√	√	√
Bit10	Panic button status	off	On (pressed)	√	√	×	×
Bit11	OBDII alarm status	No alarm	alarm	×	×	×	√
Bit12	Angle rapid changed alert	No alert	alert	√	√	√	√
Bit13	Speed rapid changed alert	No alert	alert	√	√	√	√
Bit14	Domestic roaming (judged by MNC)	Not roaming	roaming	√	√	√	√
Bit15	international roaming (judge by MCC)	Not roaming	roaming	√	√	√	√

2. Alarm triggered list

Not all bits are available for any model. In the following table, “√” means available and “×” means unavailable.

Bit	definition	When bit="0"	When bit="1"	T300	T303	T360	T363
Bit0	External Power off alarm	Not triggered	Alarm triggered	√	√	√	√
Bit1	Motion alarm	Not triggered	Alarm triggered	√	√	√	√
Bit2	Over speed alarm	Not triggered	Alarm triggered	√	√	√	√
Bit3	Jamming alarm	Not triggered	Alarm triggered	√	√	√	√
Bit4	Geo-fence alarm	Not triggered	Alarm triggered	√	√	√	√
Bit5	Towing alarm	Not triggered	Alarm triggered	√	√	√	√
Bit6	Not defined (default: bit=0)	Not triggered	Alarm triggered	-	-	-	-
Bit7	Input low alarm	Not triggered	Alarm triggered	×	×	√	√
Bit8	Input high alarm	Not triggered	Alarm triggered	×	×	√	√
Bit9	Not defined (default: bit=0)						
Bit10	Panic button alarm(SOS)	Not triggered	Alarm triggered	√	√	×	×
Bit11	OBD alarm	Not triggered	Alarm triggered	×	×	×	√
Bit12	Not defined (default: bit=0)						
Bit13	Rollover alarm	Not triggered	Alarm triggered	√	√	√	√

Bit14	Accident alarm	Not triggered	Alarm triggered	√	√	√	√
Bit15	Power low Alarm	Not triggered	Alarm triggered	√	√	√	√

6.3.3 Mileage data

Example: MGR:1000

Definition:

Identifier +info	definition	details
MGR	data ID (identifier)	"MGR" is the mileage data identifier followed by the corresponding information
1000	value	shown in decimal format. Range: 0-4294967295 unit: meter

6.3.4 AD data

1. AD data format is: data ID; *para_id*; *para_val*; *para_id*; *para_val*;.....

Data length is not fixed. definition as follow:

2. definition

< *para_id* >: parameter ID in AD data string , range: 0~15, this ID decide what kind of AD data is following. It can be:

para_id=0: external power supply voltage

para_id=1: device temperature

para_id =2: device backup battery voltage

para_id =3: analog input voltage (connect to device IO port)

para_id=4: device backup battery percent

para_id =5-9: Ultrasonic fuel sensor height

<*para_val*>: parameter value of AD data

three types of parameter value: voltage , temperature and height.

Voltage unit is “V”

Temperature unit is “degree”

Height unit is “mm”

Example: ADC:0;12.1;1;36.2;2;4.3

ADC	:	0	;	12.1	;	1	;	36.2	;	2	;	4.3
data ID		<i>para_id</i>		<i>para_val</i>		<i>para_id</i>		<i>para_val</i>		<i>para_id</i>		<i>para_val</i>
		the ID of external power voltage value		external power is 12.1V		the ID of device temperature		device temperature is 36.2 degree		the ID of backup battery voltage		backup battery voltage is 4.3V

Note: not all types of AD data are available for any device. Please refer to <appendix 4>

6.3.5 Geo-fence data

There are 5 fences available, the Serial NO. from 0~4. When geo-fence alarm triggered, this data will be uploaded. when there is no alert, whether upload is upon to “UDM” command configuration.

Example: GFS: 0FFFFFFF; 0FFFFFFF

Identifier +info	definition	details
GFS	data ID (identifier)	“GFS” is the geo-fence data identifier followed by the corresponding information
0FFFFFFF	geo-fence in/out status	shown in hexadecimal . Ranges: 0~FFFFFFF Each bit represents one geo-fence,bit0 represents“geo-fence1”,bit4 represents” geo-fence5”. Bit definition: ”0”: device out the fence or no fence is set in this bit ”1”: device is inside of the fence
0FFFFFFF	geo-fence alarm status	shown in hexadecimal . Ranges: 0~FFFFFFF Each bit represents one geo-fence, bit0 represents“geo-fence1”,bit4 represents” geo-fence5”. Bit definition: ”0”: no alarm triggered in this fence ”1”: alarm triggered in this fence

6.3.6 OBDII data

Example: OBD: 31077E410C0000310D00

Device can Use “OBP” command to configure the OBDII parameter going to be uploaded . whether upload is upon to “UDM” command configuration.

Identifier +info	definition	details
OBD	data ID (identifier)	“OBD” is the OBDII data identifier followed by the corresponding information
31077E410C0000310D00	OBD data	<p>shown in hexadecimal.</p> <p>According to the selected data (OBP command), device will upload the data read from the vehicle OBDII port. please refer to the document of 《sae j1979》 to understand the format of the data.</p> <p>E.g. "31077E410C0000310D00"</p> <p>It includes 3 parts of OBD data: (31077E/410C0000/310D00).</p> <p>here is the explanation of "31077E":</p> <p>"31":this is the feedback mark of 01 server, data length is 3</p> <p>"07": this is the parameter ID of 01 server</p> <p>"7E": this is the value of PID07 of 01 server</p>

6.3.7 Fuel consumption data

Exp. FUL1:47226696

Identifier + info	definition	details
FUL	data ID (identifier)	“FUL” is the fuel consumption data identifier followed by the corresponding information
1	Fuel consumption algorithm ID	Identifier the fuel consumption ID, For now, the device supports two fuel consumption algorithms, corresponding to 0 and 1 respectively, to ensure compatibility, by using algorithm 0, will not have the ID information.
47226696	fuel consumption value	<p>Range: 0~4294967296 decimal number</p> <p>the real fuel consumption need to be calculated by the following formula:</p> <p>Algorithm 0:</p> <p>Real fuel consumption(unit: liter)=Value/10/AFR/Density(g/L)</p>

		<p>Algorithm 1:</p> <p>Real fuel consumption(unit: liter)=Value*VE*ED/10/AFR/Density(g/L)</p> <p>AFR: Air fuel rate of fuel</p> <p>Density: Density of fuel(g/L)</p> <p>VE: Volumetric efficiency, range 0~1</p> <p>ED: Engine displacement(liter)</p>
--	--	--

6.3.8 OBDII alarm data

Example: OAL: 31077E410C0000310D0073010002000300

Device can Use "OBA" command to configure the OBDII alarm parameter going to be uploaded. whether upload is upon to "UDM" command configuration.

Identifier +info	definition	details
OAL	data ID (identifier)	<p>"OAL" is the OBDII data identifier followed by the corresponding information</p> <p>shown in hexadecimal.</p> <p>According to the selected data (OBA command), device will upload the data read from the vehicle OBDII port . please refer to the document of 《sae j1979》to understand the format of the data.</p> <p>E.g. "31077E410C0000310D0073010002000300"</p> <p>It includes 4 parts of OBD alarm data: (31077E/410C0000/310D00/73010002000300).</p> <p>here is the explanation of "31077E":</p> <p>"31":this is the feedback mark of 01 server, data length is 3</p> <p>"07": this is the parameter ID of 01 server</p> <p>"7E": this is the value of PID07 of 01 server</p> <p>"73010002000300 " is OBD error code which can be explained as below :</p> <p>"73":error code mark, 03 server, 7 bytes length</p> <p>"0100": DTC#1 data, error code is P0100</p> <p>"0200": DTC#2 data, error code is P0200</p> <p>"0300": DTC#3 data, error code is P0300</p>
31077E410C0000310D0073010002000300	OBD data	

6.3.9 Harsh driver behavior data

Example: HDB:1

Definition:

Identifier +info	definition	details
HDB	data ID (identifier)	"HDB" is the driver behavior status data identifier followed by the corresponding information
1	Harsh driver behavior status	shown in hexadecimal format. Range: 0~FF hexadecimal number. Each bit relate to one status of the hash driver behavior. Bit0: Rapid Acceleration Bit1: Rough Braking Bit2: Harsh course Bit3: No warm up Bit4: Long idle Bit5: Fatigue driving Bit6: Rough terrain Bit7: High RPM

6.3.10 CANBUS J1939 data

Example:

CAN:0B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF

Identifier +info	definition	details
CAN	data ID (identifier)	"CAN" is the CANBUS SAEJ1939 data identifier followed by the corresponding information
0B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF	OBD data	show in hexadecimal. According to the selected data (OBP command), device will upload the data read from the vehicle OBDII port. please refer to the document of 《sae j1939-71》 to understand the format of the data. E.g. "0B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF " It includes 3 parts of J1939 PGNs data: 0B 00FEE5 2100000091010000 0B 00FEF5 7DFFFF40254BFFFF 0B 00FECA 43FFB804038AFFFF here is the explanation of "0B 00FEE5 2100000091010000": "0B":PGN data length(bytes), include 3 bytes PGN number "00FEE5": PGN number, always 3 bytes length "2100000091010000": PGN data

6.3.11 J1708 data

Example:

HVD:8254D182607A826EE083BE554385F500192ACC

Identifier +info	definition	details
HVD	data ID (identifier)	"HVD" is the J1708 data identification followed by the corresponding information
8254D182607A826EE083BE554385F500192ACC	J1708 data	<p>shown in hexadecimal.</p> <p>According to the selected data (HVP command), device will upload the data what retrieve from the vehicle J1708 port. please refer to the document of 《sae j1708》 to understand the format of the data.</p> <p>E.g. "8254D182607A826EE083BE554385F500192ACC "</p> <p>It includes 5 parts of J1708 data: (8254D1/82607A/826EE0/83BE5543/85F500192ACC).</p> <p>here is the explanation of "83BE5543":</p> <p>"83":this is the feedback mark of parameter type and data length, Bit[7:6]—parameter type, 0:undefined, 1:J1708 MID data, 2:J1587 PID1~PID254 data, 3: J1587 PID257~PID510 data. Bit[5:0]—data length.</p> <p>" BE": this is the parameter J1708 MID or J1587PID, when the parameter type is 3, the PID must add 256.</p> <p>"5543": this is the value of J1708 MID or J1587PID</p>

6.3.12 Vehicle identification number(VIN) data

Example:

VIN:1G1JC5444R7252367

Identifier +info	definition	details
VIN	data ID (identifier)	"VIN" is the VIN data identifier followed by the Vehicle identification number(VIN). When the OBDII connected the vehicle, this data will upload to the server automatically by one time.
1G1JC5444R7252367	VIN	VIN string

6.3.13 RFID data

Example:

RFI:0006548516;0

Identifier +info	definition	details
RFI	data ID (identifier)	“RFI” is the RFID data identifier followed by the RFID string and authorization status. When swipe the card on the RFID reader, this data will upload to the server automatically by one time.
0006548516	Card ID	ID string
0	Auth. status	0--Unauthorized 1--Authorized

6.3.14 Engine run time data

Example: EGT:384691

Definition:

Identifier +info	definition	details
EGT	data ID (identifier)	“EGT” is the engine run data identifier followed by the corresponding information
384691	value	shown in decimal format. Range: 0-4294967295 unit: second

6.3.15 Event code data

Example:

EVT:F0;202

Identifier +info	definition	details
EVT	data ID (identifier)	“EVT” is the event code data identifier followed by the event code information.
F0	Event code	shown in hexadecimal.range:0~FF
202	Event code mask	shown in hexadecimal.range:0~FFFFFFFF. when Event code less than 0x80, it's without this message. When Even code equal or more than 0x80, it's with this message to further recognize the detailed information of the event. Event code mask total is 32bits, when a bit is 1, it's meaning the event is triggered by the corresponding bit of the corresponding event codes.

		For example: "F0;202" meaning triggered by the device state change, the detailed triggered state bits are Bit9(engine) and Bit1(moving), i.e. the change of two state bits triggered the device to upload data. When less than 32 bits of the corresponding stats, the remaining bits are ignored.
--	--	--

Event code define:

Code value(Hex)	definition	details
00	Not event triggered	Non event triggered
01	Interval triggered	Time uploading event trigger uploads
02	Angle triggered	Angle change reaches the set value trigger uploads
03	Distance triggered	Distance change reaches the set value trigger uploads
04	Request triggered	Command requests trigger uploads
10	RFID reader triggered	RFID card swiping trigger uploads
11	iBeacon triggered	Find or lose iBeacon device trigger uploads
20	Firmware upgraded	Firmware upgraded trigger uploads
28	OBDII scanner detected	OBDII scanner detected trigger uploads
80	Geo-fence triggered	Geo-fence state change trigger uploads
90	driver behavior triggered	Detected bad driver behavior trigger uploads.
F0	Status changed triggered	Device state change trigger uploads
F8	Alarm triggered	Alarm trigger uploads
Others	Non-definition	

Note :Event code information in order to try to make more states or events to trigger the device to upload the data, we increased mask information for the event code value equal or more than 0x80. The mask information are used to describe the various changes of the similar events. On the other side, when triggered by the different events at the same time, according to the event codes small to large priority record events. i.e. the lowest priority is 01, F0 is highest priority. For example, when 01 and F0 events are triggered at the same time, the device will record only F0 event information.

6.3.16 Trip report data

Example:

TRP:09:13:12-11.05.16;09:13:57-11.05.16;22.995545;113.107956;22.995760;113.107970;26196;28910;0;1172654;1290397;37;192;4052

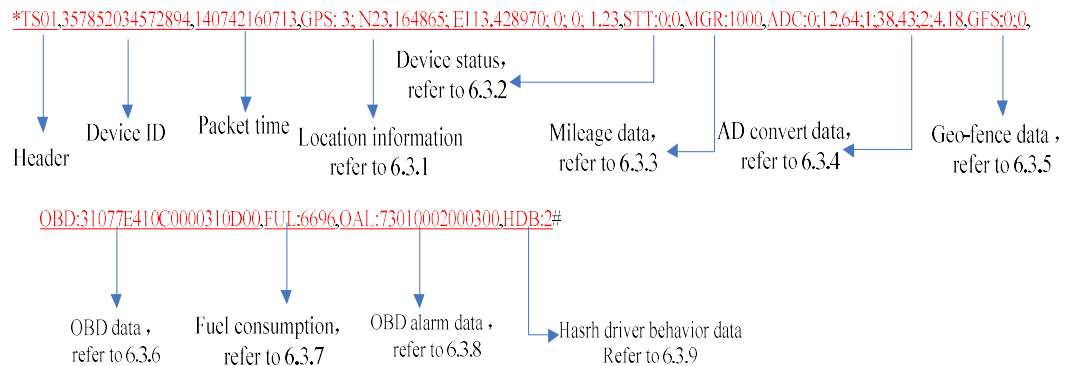
Definition:

Identifier +info	definition	details
TRP	data ID (identifier)	“TRP” is the trip report data identifier followed by the corresponding information
09:13:12-11.0 5.16	Start time	Trip start time, format: HH:mm:ss-dd-MM-yy
09:13:57-11.0 5.16	End time	Trip end time, format: HH:mm:ss-dd-MM-yy
22.995545	Start latitude	Trip start latitude, unit: degree. Range:-90.000000~90.000000
113.107956	Start longitude	Trip start longitude, unit: degree. Range:-180.000000~180.000000
22.995760	End latitude	Trip end latitude, unit: degree. Range:-90.000000~90.000000
113.107970	End longitude	Trip end longitude, unit: degree. Range:-180.000000~180.000000
26196	Start mileage	Trip start mileage, unit: meter
28910	End mileage	Trip end mileage, unit: meter
0	Fuel algorithm ID	Fuel algorithm ID, see 6.3.7 Fuel consumption data
1172654	Start fuel consumption	Trip start fuel consumption, see 6.3.7 Fuel consumption data
1290397	End fuel consumption	Trip end fuel consumption, see 6.3.7 Fuel consumption data
37	Idle seconds	Trip idle seconds, unit: second
192	Maxim speed	Trip maxim speed, unit: km/h
4052	Maxim RPM	Trip maxim RPM, unit: r/min

Remark: Due to the independence of the data of the trip report, so the trip report data is used a separate data frame to package. For example, the example data as above ,after packaged as below:

*TS01,096703072712752,091408110516,TRP:09:13:12-11.05.16;09:13:57-11.05.16;22.995545;113.107956;22.995760;113.107970;26196;28910;0;1172654;1290397;37;192;4052#

6.3.17 Example of the complete Uploaded TXT format data(packet) string:



6.4 Uploaded Binary format data (packet) to Web server

Format for full data(packet) string

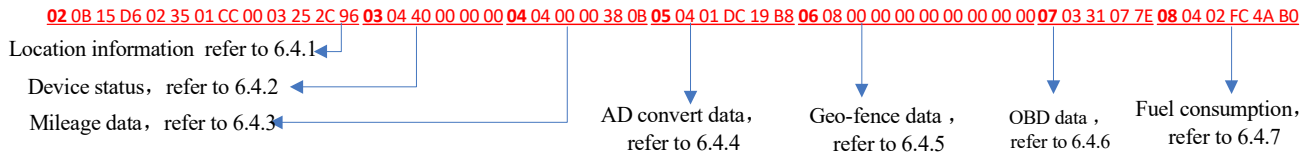
F8	01	01	08 63 07 00 18 98 72	98 72 96 19	02 27 01 CC 00 00 28 55 34 BA 4F 28 55 3A B1 4C 28 55 BC 9C 57 28 55 BC 9D 5B 28 55 3A B2 5C 28 55 44 58 61 28 55 44 58 63 03 04 00 00 00 00 04 04 00 00 07 6F 05 08 03 3A 18 CF 22 0D 3D E6	A6 38	F8
1 byte Packet header	1 byte Protocol version	1 byte Data packet type ID .which can be: 01 (device information data.) and 02 (forwarded	8 bytes, decimal number Device ID Ignore highest bit ("0").The rest of 15 bits are device ID	3D locating mark and packet time	Length not fixed Device data domain	2 bytes CRC Verify Refer to "5.3 CRC verify"	1 byte Packet footer

Locating mark and packet time

Example : 98 72 96 19

<i>data</i>	<i>length (bytes)</i>	<i>definition</i>	<i>details</i>
98 72 96 19	4	2D/3D symbol &time	<p>hexadecimal number</p> <p>highest bit is 2D/3D locating mark. definition is: "1":the GPS data is 3D location data "0":the GPS data is 2D location data</p> <p>the rest 31bits are used as time counter adding by second. Start counting from 0:00 AM on first Jan, 2000 to the time now. exp: 0x153AA8A6 convert to decimal is 356165798. means 356165798 seconds were passed, which indicates time now is on 2011-04-15 06:56:38</p>

Remarks for Device data domain:



The device data domain information can be added or delete according to the specific request/configuration.

Different type of devices can support to read and upload to server different information data. Please refer to <appendix 3> to check Supported Data Types by devices. The data format is “ information identifier + data length +corresponding information”. Here is the list of all the information identifier.

- 01: GPS data ID---(refer to 6.4.1)
- 02: LBS data ID---(refer to 6.4.1)
- 03: device status ID---(refer to 6.4.2)
- 04: mileage ID---(refer to 6.4.3)
- 05: device AD data ID---(refer to 6.4.4)
- 06: geo-fence data ID---(refer to 6.4.5)
- 07: OBDII data ID---(refer to 6.4.6)
- 08: Fuel consumption data ID---(refer to 6.4.7)
- 09: OBDII alarm data ID---(refer to 6.4.8)
- 0A: Harsh driver behavior data ID---(refer to 6.4.9)
- 0B: CANBUS SAEJ1939 data ID---(refer to 6.4.10)
- 0C: J1708 data ID---(refer to 6.4.11)
- 0D: Vehicle identification number(VIN) data ID---(refer to 6.4.12)
- 0E: RFID data ID---(refer to 6.4.13)
- 0F:Engine run time data ID---(refer to 6.4.14)
- 10: Event code data ID---(refer to 6.4.15)
- 20: Trip report data ID---(refer to 6.4.16)

6.4.1 Location information

Location information includes LBS data and GPS data. Only one data will be sent, LBS or GPS.

1. GPS location data format:

Example : 01 0E 016175A5 06C2C838 0000 0000 0064

Identifier +info	length (bytes)	definition	details
---------------------	-------------------	------------	---------

01	1	data ID	"01" is the GPS location data identifier followed by the corresponding information
0E	1	data length	Hexadecimal number. this data shows how many bytes are followed
016175A 5	4	latitude	signed hexadecimal number. higher bit followed by the lower bit, north latitude is represented by positive and latitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x016177B9, which is 23164857 in decimal, represent 23.164857 degree of north latitude.
06C2C83 8	4	longitude	signed hexadecimal number. higher bit followed by the lower bit, east longitude is represented by positive and west longitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x06C2C9D9, which is 113428953 in decimal. represent 113.428953 degree of east longitude.
0000	2	speed	unsigned hexadecimal number moving speed value, unit is km/hour
0000	2	direction	Unsigned hexadecimal number
0064	2	GPS HDOP	

e.g.:

01 0E 016175A5 06C2C838 0000 0000 0064

Explanation:

01: Identifier of GPS data

0E: GPS data length

016175A5: GPS latitude *1000000

06C2C838: GPS longitude *1000000

0000: GPS speed

0000: GPS direction

0064: GPS HDOP*100

2. LBS location data format:

Example: 02 18 01CC 0000 2503 962C 3A 2731 436E 4A 2731 40F4 4F 2731 436D 5B

Identifier +info	length (bytes)	definition	details
02	1	data ID	"02" is the LBS location data identifier followed by the corresponding information
18	1	data length	hexadecimal number. this data shows how many bytes followed are related.
01CC	2	MCC	hexadecimal number. It will be "FFFF" if no location information. E.G."01CC" convert to decimal is "460". Means MCC is "460"
0000	2	MNC	hexadecimal number. It will be "FF" if no location information. E.G."00" convert to decimal is "00". Means MNC is "00"
2503	2	LAC	hexadecimal number. It will be "FFFF" if no location information. E.G."3127" convert to decimal is "12583". Means LAC is "12583".
962C	2/4	CID	hexadecimal number. For 2G device, the CID length is 2 bytes. For 3G/4G is 4 bytes. It will be "FFFF/FFFFFFFF" if no location information. E.G."6D43" convert to decimal is "27971". Means CID is "27971".
3A	1	-dbm	Signal strength

Note: when MCC、MNC bits are all "1", This is means there is no base station information.

For 2G device which can provide up to 7 base stations data, but for 3G/4G device ,it only offer once base station data.

e.g.:

02 18 01CC 0000 2503 962C 3A 2731 436E 4A 2731 40F4 4F 2731 436D 5B

Explanation:

02: Identifier of LBS data

18: Length of LBS data= 2 bytes MCC + 2 bytes MNC + 5 bytes information of main station + N*5 bytes information of substation (N is smaller than 6)

01CC: MCC

0000: MNC

2503 962C 3A: Information of main station (LAC CID -dbm)

2731 436E 4A: Information of substation (LAC CID -dbm)

6.4.2 Device status and alarm triggered

Example: 030400000000

Identifier +info	length (bytes)	definition	details
03	1	data ID	"03" is the device status data identifier followed by the corresponding information.
04	1	data length	hexadecimal number. this data shows how many bytes are followed
0000	2	device status	Range:0~FFFF hexadecimal number. Each bit relate to one status of the device. Please refer to 6.3.2 <device status list> for each bit definition
0000	2	device alarm	Range:0~FFFF hexadecimal number. Each bit relate to one alarm status of the device. Please refer to 6.3.2 table < alarm triggered list> for each bit definition

6.4.3 Mileage data

Example: 0404000003E8

Identifier +info	length (bytes)	definition	details
04	1	data ID	"04" is the mileage data identifier followed by the corresponding information
04	1	data length	hexadecimal number. this data shows how many bytes are followed
000003E8	4	value	hexadecimal number. Unit: meter E.G."000003E8" convert to decimal is "1000".means the mileage is "1000 meters".

6.4.4 AD conversion data

1. Data format is: <data ID> <data length> < AD para > < AD para >.....

The data length is not fixed .but MAX. 16 kinds of AD data can be uploaded

Example: 0506032017A52226

Identifier +info	length (bytes)	definition	details
05	1	data ID	"05" is the AD data identifier followed by the corresponding information
06	1	data length	hexadecimal number. this data shows how many bytes are followed
0320	2	AD para	hexadecimal number.
17A5	2	AD para	hexadecimal number.
2226	2	AD para	hexadecimal number.

2. Definition:

<AD para> format is "*para_id*(higher 4 bits)+ *para_val*(lower 12 bits)"

< *para_id* >:

range: 0~F hexadecimal number. this ID decide what kind of AD data is following.

it can be:

para_id=0: external power supply voltage

para_id=1: device temperature

para_id =2: device backup battery voltage

para_id =3: analog input voltage (connect to device IO port)

para_id=4: device backup battery percent

para_id =5-9: Ultrasonic fuel sensor height

<*para_val*>:

Hexadecimal number. The calculation formula of the data is:

$$AD_VAL = \text{DEXIMAL}(para_val) * (AD_MAX - AD_MIN) / 4096 + AD_MIN$$

Note: DEXIMAL(*para_val*) means convert "*para_val*" to decimal number.

When AD data is related to voltage, the definition of AD_MAX & AD_MIN are:

AD_MIN: -10, AD_MAX: 100, unit: V

When AD data is related to temperature, the definition of AD_MAX & AD_MIN are:

AD_MIN: -55, AD_MAX: 125, unit: degree

When AD data is related to fuel height, the definition of AD_MAX & AD_MIN are:

AD_MIN: 0, AD_MAX: 2000, unit: mm

When AD data is related to percent, the definition of AD_MAX & AD_MIN are:

AD_MIN: -100, AD_MAX: 200

E.G. If the AD para is "0320", the higher 4 bits is "0000". That means the AD data is "external power voltage" and the voltage calculation is shown in the following formula:

$$\text{DEXIMAL}(320) * (100 - (-10)) / 4096 + (-10) = 800 * 110 / 4096 - 10 = 11.48$$

Note: not all types of AD data are available for any device. Please refer to <appendix 4>.

6.4.5 Geo-fence data

There are 5 fences available, the Serial NO. from 0~4. When geo-fence alarm triggered, this data will be uploaded. when there is no alert, whether upload is upon to user' configuration

Example:06080FFFFFFF0FFFFFFF

Identifier +info	length (bytes)	definition	details
06	1	data ID	"06" is the geo-fence data identifier followed by the corresponding information
08	1	data length	hexadecimal number. this data shows how many bytes are followed
0FFFFFFF	4	geo-fence	shown in hexadecimal .

		in/out status	<p>Ranges: 0~FFFFFFFF</p> <p>Each bit represents one geo-fence, bit0 represents "geo-fence1", bit4 represents "geo-fence5".</p> <p>Bit definition:</p> <p>"0": device out the fence or no fence is set in this bit</p> <p>"1": device is inside of the fence</p>
0FFFFFFF	4	geo-fence alarm status	<p>shown in hexadecimal .</p> <p>Ranges: 0~FFFFFFFF</p> <p>Each bit represents one geo-fence, bit0 represents "geo-fence1", bit4 represents "geo-fence5".</p> <p>Bit definition:</p> <p>"0": no alarm triggered in this fence</p> <p>"1": alarm triggered in this fence</p>

6.4.6 OBDII data

User can Use "OBP" command to configure the OBDII parameter going to be uploaded .the Upload for the whole OBDII data string also upon to user' configuration.

Example: 070A31077E410C0000310D00

Identifier +info	length (bytes)	definition	details
07	1	data ID	"07" is the OBDII data identifier followed by the corresponding information
0A	1	data length	hexadecimal number. this data shows how many bytes are followed
31077E410C0000310D00	not fixed	OBD data	<p>shown in hexadecimal.</p> <p>According to the selected data (OBP command), device will upload the data read from the vehicle OBDII port .</p> <p>please refer to the document of 《sae j1979》 to understand the format of the data.</p> <p>E.g. "31077E410C0000310D00"</p> <p>It includes 3 parts of OBD data: (31077E/410C0000/310D00).</p> <p>here is the explanation of "41077E":</p>

			<p>"31":this is the feedback mark of 01 server, High 4 bits is 01 server data length.</p> <p>"07": this is the parameter ID of 01 server</p> <p>"7E": this is the value of PID07 of 01 server</p>
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6.4.7 Fuel consumption data

Example:080400059497

Identifier +info	length (bytes)	definition	details
08	1	data ID	"06" is the fuel consumption data identifier followed by the corresponding information
04	1	Algorithm and data length	<p>hexadecimal number.</p> <p>This byte high 4 bits identifier the algorithm id, and the low 4 bits identifier shows how many bytes are followed</p> <p>Currently, the device supports two fuel consumption algorithms to corresponding to id:0 and id:1 respectively.</p>
00059497	4	fuel consumption value	<p>Unsigned hexadecimal number.</p> <p>the real fuel consumption need to be calculated by the following formula:</p> <p>Algorithm 0:</p> $\text{Real fuel consumption (unit: liter)} = \text{Value} / 10 / \text{AFR} / \text{Density (g/L)}$ <p>Algorithm 1:</p> $\text{Real fuel consumption (unit: liter)} = \text{Value} * \text{VE} * \text{ED} / 10 / \text{AFR} / \text{Density (g/L)}$ <p>AFR: Air fuel rate of fuel</p> <p>Density: Density of fuel(g/L)</p> <p>VE: Volumetric efficiency, range 0~1</p> <p>ED: Engine displacement(liter)</p>

6.4.8 OBDII alarm data

User can Use "OBA" command to configure the OBDII alarm parameter going to be uploaded .the Upload for the whole OBDII alarm data string also upon to user' configuration.

Example: 090773010002000300

Identifier +info	length (bytes)	definition	details
09	1	data ID	"09" is the OBDII alarm data identifier followed by the

			corresponding information
07	1	data length	hexadecimal number. this data shows how many bytes are followed
73010002000300	not fixed	OBD data	shown in hexadecimal. According to the selected data (OBA command), device will upload the data read from the vehicle OBDII port . please refer to the document of 《sae j1979》 to understand the format of the data. "73010002000300 " is OBD error code which can be explained as below : "73":7 bytes data length, 03 server data. error code mark "0100": DTC#1 data, error code is P0100 "0200": DTC#2 data, error code is P0200 "0300": DTC#3 data, error code is P0300

6.4.9 Harsh driver behavior data

Example: 0A0102

Identifier +info	length (bytes)	definition	details
0A	1	data ID	"0A" is the driver behavior status data identifier followed by the corresponding information
01	1	data length	hexadecimal number. this data shows how many bytes are followed
02	1	Harsh driver behavior status	shown in hexadecimal format. Range: 0~FF hexadecimal number. Each bit relate to one status of the hash driver behavior. Bit0: Rapid Acceleration Bit1: Rough Braking Bit2: Harsh course Bit3: No warm up Bit4: Long idle Bit5: Fatigue driving Bit6: Rough terrain Bit7: High RPM

6.4.10 CANBUS SAE J1939 data

User can Use “OBP” command to configure the SAEJ1939 parameter going to be uploaded .the Upload for the whole J1939 data string also upon to user’ configuration.

Example: 0B00480B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF

0B00FEE9F2140000F21400000B00FEF30000807D0000807D0B00FEE8FFFF807DFFFF606D

Identifier +info	length (bytes)	definition	details
0B	1	data ID	“0B” is the CANBUS SAEJ1939 data identifier followed by the corresponding information
0048	2	data length	2 bytes hexadecimal number. this data shows how many bytes are followed
0B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF0B00FEE9F2140000F21400000B00FEF30000807D0000807D0B00FEE8FFFF807DFFFF606D	not fixed	J1939 data	<p>shown in hexadecimal.</p> <p>According to the selected data (OBP command), device will upload the data read from the vehicle OBDII port .</p> <p>please refer to the document of 《sae j1939-71》 to understand the format of the data.</p> <p>E.g.</p> <p>"0B00FEE521000000910100000B00FEF57DFFFF40254BFFFF0B00FECA43FFB804038AFFFF0B00FEE9F2140000F21400000B00FEF30000807D0000807D0B00FEE8FFFF807DFFFF606D "</p> <p>It includes 6 parts of CANBUS data:</p> <p>0B 00FEE5 2100000091010000</p> <p>0B 00FEF5 7DFFFF40254BFFFF</p> <p>0B 00FECA 43FFB804038AFFFF</p> <p>0B 00FEE9 F2140000F2140000</p> <p>0B 00FEF3 0000807D0000807D</p> <p>0B 00FEE8 FFFF807DFFFF606D</p> <p>here is the explanation of "0B 00FEE5 2100000091010000":</p>

			"0B": PGN data length(bytes), include 3 bytes PGN number "00FEE5": PGN number, always 3 bytes length "2100000091010000": PGN data
--	--	--	--

6.4.11 J1708 data

User can Use "HVP" command to configure the J1708 parameters going to be uploaded. the Upload for the whole J1708 data string also upon to user's configuration.

Example: 0C138254D182607A826EE083BE554385F50019423C

Identifier +info	length (bytes)	definition	details
0C	1	data ID	"0C" is the H1708 data identification followed by the corresponding information
13	1	data length	hexadecimal number. this data shows how many bytes are followed
8254D182607A826EE083	not	J1708	According to the selected data (HVP command),

BE554385F50019423C	fixed	data	<p>device will upload the data what retrieved from the vehicle J1708 port.</p> <p>please refer to the document of 《sae j1708》 to understand the format of the data.</p> <p>E.g.</p> <p>"8254D182607A826EE083BE554385F50019423C "</p> <p>It includes 5 parts of J1708 data: (8254D1/82607A/826EE0/83BE5543/85F50019423C).</p> <p>here is the explanation of "83BE5543":</p> <p>"83":this is the feedback mark of parameter type and data length, Bit[7:6]—parameter type, 0:undefined, 1:J1708 MID data, 2:J1587 PID1~PID254 data, 3: J1587 PID257~PID510 data. Bit[5:0]—data length.</p> <p>" BE": this is the parameter J1708 MID or J1587PID, when the parameter type is 3, the PID must add 256.</p> <p>"5543": this is the value of J1708 MID or J1587PID</p>
--------------------	-------	------	--

6.4.12 Vehicle identification number(VIN) data

Example:

0D113147314A43353434345237323532333637

Identifier +info	length (bytes)	definition	details
0D	1	data ID	"0D" is the VIN data identifier followed by the corresponding information. When the OBDII connected the vehicle, this data will upload to the server automatically by one time.
11	1	data length	1 byte hexadecimal number. this data shows how many bytes are followed
3147314A433534343452 37323532333637	not fixed	VIN data	VIN data: 1G1JC5444R7252367

6.4.13 RFID data

Example:

0E 0B 30 30 30 36 35 34 38 35 31 36 00

Identifier +info	length (bytes)	definition	details
0E	1	data ID	"0E" is the RFID data identifier followed by the RFID string and authorization status. When swipe the card on the RFID reader, this data will upload to the server automatically by one time.
0B	1	data length	1 byte hexadecimal number. this data shows how many bytes are followed
30 30 30 36 35 34 38 35 31 36	not fixed	RFID string	RFID data string: 0006548516 length = data length - 1
00	1	Auth. status	Zero—Unauthorized Non-zero-- Authorized

6.4.14 Engine run time data

Example: 0F04000613D4

Identifier +info	length (bytes)	definition	details
0F	1	data ID	"0F" is the engine run time data identifier followed by the corresponding information
04	1	data length	hexadecimal number. this data shows how many bytes are followed
000613D 4	4	value	hexadecimal number. Unit: second E.G." 000613D4" convert to decimal is "398292".means the engine run total time is "398292 seconds".

6.4.15 Event code data

Example:

10 05 F0 00 00 02 02

Identifier +info	length (bytes)	definition	details
10	1	data ID	"10" is the event code data identifier
05	1	data length	1 byte hexadecimal number. this data shows how many bytes are followed, in this message, the length only of 01 and 05 both cases.

F0	1	Event code	Event code value, range:00~FF Detailed description refer to 6.3.14
00 00 02 02	4	Event code mask	Event code mask, range:00000000~FFFFFFFF Detailed description refer to 6.3.14

6.4.16 Trip report data

Example: 20 31 1EC5B698 1EC5B704 015EE4B8 06BDE46F 015EE4B3 06BDE45C 000070EE 00008A0D 00
0013BB95 00183AF0 00000239 00C0 0FD4

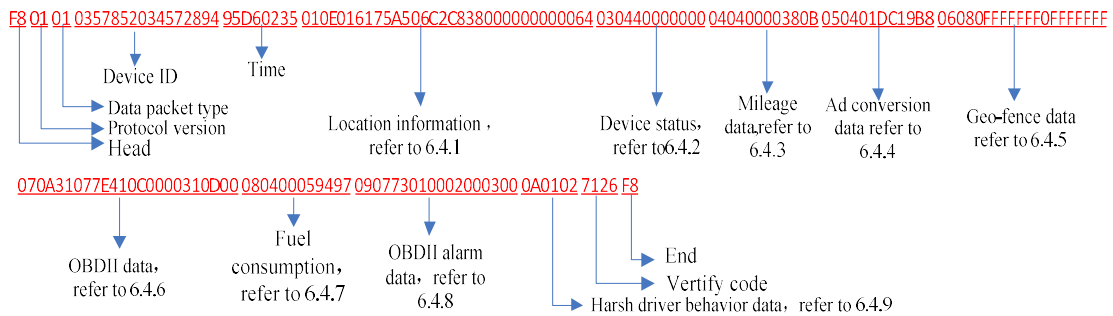
Identifier +info	length (bytes)	definition	details
20	1	data ID	“20” is the trip report data identifier followed by the corresponding information
31	1	data length	hexadecimal number. this data shows how many bytes are followed
1EC5B698	4	Trip start time	Trip start time, Used as time counter adding by second. Start counting from 0:00 AM on first Jan, 2000 to the time now. exp: 0x153AA8A6 convert to decimal is 356165798. means 356165798 seconds were passed, which indicates time now is on 2011-04-15 06:56:38
1EC5B704	4	Trip end time	Trip end time, Used as time counter adding by second. Start counting from 0:00 AM on first Jan, 2000 to the time now. exp: 0x153AA8A6 convert to decimal is 356165798. means 356165798 seconds were passed, which indicates time now is on 2011-04-15 06:56:38
015EE4B8	4	Trip start latitude	Trip start latitude, signed hexadecimal number. higher bit followed by the lower bit, north latitude is represented by positive and south latitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x016177B9, which is 23164857 in decimal, represent 23.164857 degree of north latitude.
06BDE46F	4	Trip start longitude	Trip start longitude, signed hexadecimal number. higher bit followed by the lower bit, east longitude is represented by positive and west longitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x06C2C9D9, which is 113428953 in decimal. represent 113.428953 degree of east longitude.
015EE4B3	4	Trip end latitude	Trip end latitude, signed hexadecimal number. higher bit followed by the lower bit, north latitude is represented by positive and south latitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x016177B9, which is 23164857 in decimal, represent 23.164857

			degree of north latitude.
06BDE45C	4	Trip end longitude	Trip end longitude, signed hexadecimal number. higher bit followed by the lower bit, east longitude is represented by positive and west longitude by negative Number calculation formula: degree value=convert to decimal number/1000000. E.G.: 0x06C2C9D9, which is 113428953 in decimal. represent 113.428953 degree of east longitude.
000070EE	4	Trip start mileage	Trip start mileage, hexadecimal number. Unit: meter E.G."000003E8" convert to decimal is "1000".means the mileage is "1000 meters".
00008A0D	4	Trip end mileage	Trip end mileage, hexadecimal number. Unit: meter E.G."000003E8" convert to decimal is "1000".means the mileage is "1000 meters".
00	1	Fuel algorithm ID	Fuel algorithm ID, see 6.4.7 Fuel consumption data
0013BB95	4	Trip start fuel consumption	Trip start fuel consumption, see 6.4.7 Fuel consumption data
00183AF0	4	Trip start fuel consumption	Trip end fuel consumption, see 6.4.7 Fuel consumption data
00000239	4	Trip idle seconds	Trip idle seconds, unsigned number, unit: second
00C0	2	Trip maxim speed	Trip maxim speed, unsigned number, unit: km/h
0FD4	2	Trip maxim RPM	Trip maxim RPM, unsigned number, unit: r/min

Remark: Due to the independence of the data of the trip report, so the trip report data is used a separate data frame to package. For example, the example data as above ,after packaged as below:

```
F8 01 01 00 96 70 30 72 71 27 52 1E C5 B7 0F 20 31 1E C5 B6 98 1E C5 B7 04 01 5E E4 B8 06 BD E4
6F 01 5E E4 B3 06 BD E4 5C 00 00 70 EE 00 00 8A 0D 00 00 13 BB 95 00 18 3A F0 00 00 02 39 00 C0
0F D4 6A E9 F8
```

6.4.17 Example of the complete Uploaded Binary format data(packet) string:



6.5 Serial port data from peripheral equipment

This function identify the device through serial port to connect with the extended peripheral equipment to achieve the data communication function between the serial port and the server.

6.5.1 Transmission mode (EPS:1)

When the serial port configured as transmission mode, the device will pack the data from the serial port after send to the server, the server will parse the data after the user can get the data from the serial port. User can select if need to attach the device ID, time stamp, location information etc during the device is packing the data from the serial port. At the same time, when the device received the data from the server, it'll judge whether the data to be forwarded to the serial port, if yes, the device will send the payload of the data frame decoded to the serial port.

1) Device send to server format:

F8 01 *frame_id*<*device_id* *time_stamp*<*location_info*>>*uart_data* *crc* F8

F8----Frame header and trial

01----Protocol version

frame_id----Bit[7] always "1", Uart and server communication data identification flag.

Bit[6,5] data frame with *device_id*, *time_stamp* and *location_info* flag

00: without *device_id*, *time_stamp* and *location_info*

01: with *device_id* and *time_stamp*

10: with device_id, time_stamp and location_info

11: Undefined

Bit[4-0] Uart data identify id code, use to identify uart equipment type

device_id----The device automatically insert Device ID data

time_stamp----The device automatically insert time stamp data

location_info----The device automatically insert position data

uart_data----The device received the data from uart

crc----frame crc

Noted: device_id, time_stamp and location_info are automatically inserted by the device, frame_id data is set by PKI command .

Example: The device received the data “123456789”(31 32 33 34 35 36 37 38 39)_{hex}

The configuration data of PKI is device_id,time_stamp and location_info enable, uart_data id=1. The server received the data from the device are:

F8	01	C1	03 58 69 60 40 68 14 57	1C 42 47 FA	01 0E 01 5E E1 D6 06 BD E7 97 00 03 01 37 00 81	31 32 33 34 35 36 37 38 39	D9CE	F8
Header	Protocol version	Frame ID	8 byte Device ID	Time stamp Please refer to 6.4 packet time	location When GPS is available, this data is the GPS data. Otherwise this is the LBS data. Data format is same as “6.4.1 Location information”.	Uart data	CRC	Trial

2) Server send to device format:

F8 01 *frame_id* *uart_data* *crc* F8

F8----Frame header and trial

01----Protocol version

frame_id----Bit[7] always “1”, Uart and server Communication data identification flag

Bit[6,5] always “00”

Bit[4-0] uart data identify id code, to identify the data equipment type of “uart data” .

uart_data---- the device received the data from uart

crc----frame crc

Example: The server send data “123456789”(31 32 33 34 35 36 37 38 39)hex to the extended peripheral

The configuration message of PKI is uart_data id 1, the server send data is:

F8	01	81	31 32 33 34 35 36 37 38 39	62 FB	F8
Header	Protocol version	Frame ID	Uart data	CRC	Trial

After the device received the data, it'll judge if the uart_data id value is equal as the device set value, if the values are not equal, this data frame will be discarded, if equal, the device will send the decoded Uart data to the serial port.

6.5.2 Data Frame (EPS:0)

When configured the serial port as data frame mode , the device will decode the data from the serial port as Binary frame format, if the decoded data identified need to send to the server, the device will according to the flag of the data frame to judge if need to insert device_id, time_stamp and location_info information. If need the device to insert, the device will insert the information after repack the data to send to the server. But when the device received the data from the server, the device will not process the data and send the data to the extended peripheral equipment with the original data frame.

1) Device send to server format:

Data from peripheral equipment:

F8 01 *frame_id* *uart_data* *crc* F8

F8----Frame header and trial

01----Protocol version

frame_id----Bit[7] always "1", Uart and server communication data identification flag

Bit[6,5] indicate the device to insert device_id, time_stamp and location_info flag

00: Without device_id, time_stamp and location_info

01: With device_id and time_stamp

10: With device_id, time_stamp and location_info

11: Undefined

Bit[4-0] uart data identify id code, use to identify the data equipment type of uart data.

uart_data----The device receive the data from uart

crc----frame crc

Devcie send data to server:

F8 01 *frame_id*<*device_id* *time_stamp*<*location_info*>>*uart_data* *crc* F8

F8----Frame header and trial

01----Protocol version

frame_id----Bit[7] always "1", Uart and server communication data identification flag

Bit[6,5] The data frame with device_id, time_stamp and location_info flag

00: Without device_id, time_stamp and location_info

01: With device_id and time_stamp

10: With device_id, time_stamp and location_info

11: Undefined

Bit[4-0] uart data identification id code, use to distinguish the data equipment type of uart data.

device_id---- The device automatically insert Devcie ID data

time_stamp----The device automatically insert time stamp data

location_info----The device automatically insert position data

uart_data----The device received the data from uart

crc----frame crc

Noted: device_id, time_stamp and location_info data are inserted automatically by the device, frame_id data depend on the data frame received by the device.

Example: The device received the data frame from UART:

F8	01	C1	31 32 33 34 35 36 37 38 39	10 E1	F8
Header	Protocol version	Frame ID	Uart data	CRC	Trial

The data frame of the device insert device_id, time_stamp and location_info:

F8	01	C1	03 58 69 60 40 68 14 57	1C 42 47 FA	01 0E 01 5E E1 D6 06 BD E7 97 00 03 01 37 00 81	31 32 33 34 35 36 37 38 39	D9 CE	F8
Header	Protocol version	Frame ID	8 byte Device ID	Time stamp Please refer to 6.4 packet time	location When GPS is available, this data is the GPS data. Otherwise this is the LBS	Uart data	CRC	Trial

					data. Data format is same as "6.4.1 Location information".			
--	--	--	--	--	---	--	--	--

2) Server send to device format:

F8 01 *frame_id* *uart_data* *crc* F8

F8----Frame header and trial

01----Protocol version

frame_id----Bit[7] always "1", Uart and server communication data identification flag

Bit[6,5] always "00"

Bit[4-0] uart data identify id code, use to distinguish the data equipment type of uart data.

uart_data----The device received the data from uart

crc----frame crc

Example: The server send data "123456789"(31 32 33 34 35 36 37 38 39)_{hex} to the extended peripheral equipment.

The configuration of PKI is uart_data id 1, the server send the data are:

F8	01	81	31 32 33 34 35 36 37 38 39	62 FB	F8
Header	Protocol version	Frame ID	Uart data	CRC	Trial

The device received the data, it will directly send the data frame to the serial port.

6.6 G-force data format

Example: 17 9B 01 0E 01 5E DD 9B 06 BD E2 30 00 04 00 AC 00 78 03 04 00 02 00 00 04 04 00 03 C5 AA 05
06 03 9D 17 BE 22 07 F0 64 0A 0F A0 00 02 00 01 FF FE..... 00 05 00 06 00 04 EC B8

Original data format is shown as follow.

Data length + Device data (not fixed) + G-force data ID + G-force parameters (4 bytes) + G-force data + CRC

data	bytes	details
Data length	2	data length of all the following original data including CRC
Device data	not fixed	Same as binary format data, Please refer to 6.4
G-force data ID	1	fixed to "F0". Means the following data is G-force parameters and data.
G-force parameters	4	format is : sampling rate(1 byte) + sampling seconds(1 byte) + G-force trigger threshold(2 bytes) The parameters defined by GRC command.
G-force data	Sampling rate * sampling seconds * 6	hexadecimal numbers. Every 6 bytes represent one value (X Y Z coordinate respectively). the value is expressed in two's complement. Unit: mg. Exp. When received data is "FFD0FC0400C0" means that the X-axis value is "-48mg", Y-axis value is "-1020mg" and Z-axis value is "192mg".
CRC	2	verify. Please refer to 5.3

Because the original data is too much, device will divide the data into serial package. The format of the divided package is:

Packet head + protocol version + data ID + device ID + Triggered time + total divided number + current package number + separated G-force data + CRC of current package + packet end

Exp. F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 00 17 9B 01 0E 01 5E DD 9B.....39 FD F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 01 00 00 00 00 02 00 00 00.....13 50 F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 02 E5 00 14 FF F1 FF E9 00.....0F 1B F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 03 95 FF 88 FF BA FF A3 FF.....18 0B F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 04 FB FF FE 00 00 FF FC FF.....54 C3 F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 05 05 00 00 FF FE 00 05 00.....66 B2 F8

F8 01 F0 08 65 32 80 21 20 40 10 1C 3E 29 E4 07 06 00 00 05 00 04 00 00 00.....5A E5 F8

Note: "....." is the separated G-force data. Add all this data to get the original data.

Details:

data	length (bytes)	definition	details
F8	1	Packet head	fixed to "F8"
01	1	protocol version	hexadecimal number. protocol version
E0	1	data ID	fixed to "E0". Means this data package relate to G-force data

08 65 32 80 21 20 40 10	8	Device ID	Ignore highest bit ("0").The rest of 15 bits are device ID
1C 3E 29 E4	4	Triggered time	Ignore the highest bit ("1"). Other 31bits are used as time counter adding by second. Start counting from 0:00 AM on first Jan, 2000 to the time now. exp: 0x1C3E29E4 convert to decimal is 473836004. means 473836004seconds were passed, which indicates time now is on 2015-01-06 05:06:44
07	1	total divided number	range:1~FF. this data represent the total divided number of the original data
00	1	current package number	range:0~FE.
17 9B 01 0E 01 5E DD 9B.....	not fixed	separated G-force data	separated G-force data. Add all this data to get the original data.
39 FD	2	CRC of current package	verify. Refer to 5.3
F8	1	packet end	fixed to "F8"

6.7 SMS forwarding data (packet)

This information packet used for Device received SMS from other number. Then packet the data and send GPRS server

F8	01	02	XXXXXXXXXXXXXX	9A E6	F8
1 byte Packet head	1 byte Protocol version	1 byte Data packet type ID . Fixed to "02", means the following data is SMS forwarding data(packet)	SMS data domain (*note 2)	CRC verify	Packet end

*note 2:

Please reference to PDU SMS coding way for" SMS data domain" . format is :

Pdu_type	Pdu_OA	Pdu_PID	Pdu_DCS	Pdu_UDL	Pdu_UD
1byte	2~12byte	1byte	1byte	1byte	0~140byte

Relevant details refer to PDU coding document

7. Command

For Command list and authority level, please refer to <appendix 1>.

7.1 Command format

There are three command formats for the following three Communication mode:

S.NO.	Communication mode	Reference in this document
1	server ↔ device(via GPRS)	7.1.1
2	PC ↔ device(Com port Reader)	7.1.2
3	mobile ↔ device(via SMS)	7.1.3

7.1.1 command format between Server - device

- Download command format (from server to device)

*TS	01	,	Command name;parameter;parameter	#
Packet header	Protocol version input "00" if not sure for the version	Separate mark	Command domain Separate mark with ";" The quantity of "parameter" is not fixed. depend on different command	Packet Footer

- Upload command format (from device to server --- Device reply format)

*TS	01	,	***** *	***** *****	,	Command name:parameter; parameter	#
Packet header	Protocol version	Separate mark	device ID 15 characters	time	Separate mark	Command domain ":" is the separate mark for command name and parameters ";" is the separate mark among	Packet footer

						parameters	

example:

Download command: *TS01, UNO; 13912345678#

Device reply: *TS01, 012345678912345,123648270313,UNO: 13912345678#

7.1.2 command format between PC - device

1. Download command format (from PC to device)

<i>Command name;parameter;parameter</i>
Command domain Separate mark with “;” The quantity of “parameter” is not fixed. depend on different command

2. Upload command format (from device to PC --- Device reply format)

<i>Command name;parameter;parameter</i>
Command domain “:” is the separate mark for command name and parameters “,” is the separate mark among parameters

Example:

Download command UNO; 13912345678

Device reply: UNO: 13912345678

7.1.3 command format between mobile - device

1. Download command format (from mobile to device)

****	,	<i>Command word;parameter;parameter</i>
User password. 4 decimal number	Separator	Command domain Separate mark with “;” The quantity of “parameter” is not fixed. depend on different command

2. Upload command format (device to mobile --- Device reply format)

Product name + Space + version NO.[LF]

Command name +: + parameters +; + parameters [LF]

Example:

Download command: 1234,UPW;1234

Device Reply: T303 V1.001
UPW:1234

Note:

<1>. Replied message show up by different line

<2>.product name is 1 ~ 32 characters.

<3>. [LF] means Line-feed.

7.1.4 Combined Command

This function is used to send more than one commands in one time(MAX.size of command is 256 bytes).

Combination method is as follows

1. combined command between server & device and PC &device
combine command domain. Separate different commands with", ".

For example: through Web server to set 13912345678 as the user phone number and 1234 as the

password with one combined command (combine UNO and UPW command):

Download combined command as below

* TS00, UNO; 13912345678,UPW;1234 #

Device reply to server/PC as below:

*TS01,0123456789,123648270313,UNO:13912345678,UPW: 1234#

2. Combined command between mobile & device

combine command domain when send command. Separate different command with", ".

For example: use mobile to set 13912345678 as the user phone number and 5678 as the password with one combined command (combine UNO and UPW command)

Download combined command as below:

1234, UNO; 13912345678, UPW;1234

Device reply to mobile as below:

T303 V1.001

UNO: 13912345678

UPW: 1234

Note:

<1>. Replied message show up by different line

<2>.When the all commands are wrong, device will return message "ERR" . While part of commands are wrong, device will reply correct parts.

for example, command 1, command 2, and command 3 were sent out in a combined command at the same time, if command 2 is wrong, device will only process Command 1 and command 3

7.2 Admin command list

For avoiding repeating the contents, Here only shows the command name and parameters in "command domain" and removed the rest part of the command like password or Packet header/Footer, Protocol version. For complete format , please refer to “7.1 command format”.

Table 1 Admin level command list

command ID	Command description	Command name	download (send out)	Upload (reply)	Remark
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1	Firmware update	FWU	FWU	FWU	<p>One command received, device will be going to be the firmware upgrading status, at that moment ,re-connect the USB cable device will go for upgrading.</p> <p>Note: the external power connection is needed</p> <p>Command for T303:</p> <p>FWU: X</p> <p>Parameter X can be 0/1/2</p> <p>0: auto update once detect the new firmware</p> <p>1: not update</p> <p>2: manual update</p>
2	OTA server setting	OAS	OAS;121.9.10.170;49683;0	OAS:121.9.10.170;49683;0	<p>OTA HTTP(s) sever setting</p> <p>Para1: HTTP(s) server domain</p> <p>Para2: HTTP(s) server port</p> <p>Para3: HTTPS setting. 0—HTTP, 1--HTTPS</p>
3	FOTA file path setting	OAP	OAP;/T303/T303.fmw	OAP:/T303/T303.fmw	<p>FOTA file path</p> <p>Storage path for firmware, file name must be unique.</p>
4	Admin password	APW	APW;123456	APW:123456	<p>6—10 digits</p> <p>Default APW : 0123456789</p>
5	Manager level command mask	MCM	MCM:0	MCM:0	<p>Function: with this command, the manager level commands can be authorized except command “FWU,APW,MCM”.</p> <p>range:0~FFFFFFF (in HEX format)</p> <p>Each bit of the parameter represents one command. In the “Admin command list”, each command has an ID. Bit0 represent “ID 1” (command FWU). Definition of the bit is:</p> <p>“0 ”: not authorize</p> <p>“1 ”: authorize</p> <p>E.G.: “4” and “5” is the commands ID for “UCM” and “UAM” in Admin command list, they should be” 11000” in binary format and “18” in Hex if authorize to Manager. then the command is “MCM; 18”</p>
6	User level command mask	UCM	UCM;FFFF	UCM:FFFF	<p>Function: with this command, the user level commands can be authorized</p> <p>range:0~FFFFFFF FFFFFFFF(in HEX format)</p>

					<p>Each bit of the parameter represents one command. In the “manager and user command list”, each command has an ID. Bit0 represent “ID 1” (command UNO). Definition of the bit is:</p> <p>“0 ”: not authorize</p> <p>“1 ”: authorize</p> <p>E.G.: “2” and “5” is the commands ID for “UPW” and “LCL” in manager and user command list, they should be “10010” in binary format and “12” in Hex if authorize them to user. then the command is “UCM; 12”</p> <p>(please refer to Appendix1 to check which command is authorize to user as default)</p>
7	Set user alarm mask	UAM	UAM; F;3;5;1	UAM: F;3;5;1	<p>Function: This command defines what kind of alarm can be authorized to user. When one alarm triggered, device can send SMS alarm several times as per the pre-set interval. Also the alarms can be auto cleared or by command as per configuration.</p> <p>Para1 -“F”: alarm mask ,range:0~FFFFF</p> <p>Each bit of the parameter represents one alarm. Please refer to 6.3.2” alarm triggered list” for the alarm details</p> <p>Definition of the bit :</p> <p>"0" for close; and "1" for open.</p> <p>Para2-"3" : uploading times for the alarm, range: 1 ~ 9. this parameter define how many times device will send to user for one alarm since triggered.</p> <p>Para3-"5" : uploading time interval for the alarm , range: 0 ~ 255, units: minutes</p> <p>Para4-"0": clear alarm auto or not.</p> <p>Definition as below:</p> <p>“0”: is cleared by command. when one alarm triggered, the same type alarm will not trigger. When upload another data, this alarm will also upload until send command to clear this alarm.</p>

					<p>"1": clear this type of alarm automatically after finishing the alarm sending.</p> <p>Explanation on "UAM; F;3;5;1" :</p> <p>When there is an alarm, the device will upload the alarm for "3" times with interval of "5" minutes. Then clear this alarm automatically</p>
8	set SMS server alarm mask	SAM	SAM; F;3;5;1	SAM: F;3;5;1	<p>Function: This command defines what kind of alarm can be authorized to SMS server. When one alarm triggered, device can send SMS alarm several times as per the pre-set interval. Also the alarms can be auto cleared or by command as per configuration.</p> <p>Para1 -"F": alarm mask ,range:0~FFFFF</p> <p>Each bit of the parameter represents one alarm. Please refer to 6.3.2" Device alarm list"</p> <p>Definition of the bit is:</p> <p>"0" for close; and "1" for open.</p> <p>Para2-"3" : uploading times for the alarm, range: 1 ~ 9. this parameter define how many times device will send to user for one alarm since triggered.</p> <p>Para3-"5" : uploading time interval for the alarm , range: 0 ~ 255, units: minutes</p> <p>Para4-"0": clear alarm auto or not. Definition is:</p> <p>"0": is cleared by command. when one alarm triggered, the same type alarm will not trigger. When upload another data, this alarm will also upload until send command to clear this alarm.</p> <p>"1": clear this type of alarm automatically after finishing the alarm sending.</p> <p>Explanation on "SAM; F;3;5;1" :</p> <p>When there is an alarm, the device will upload the alarm for "3" times with interval of "5" minutes. Then clear this alarm.</p>
9	Set Web server alarm mask	GAM	GAM; F;3;5;1	GAM:F;3;5;1	<p>Function: This command defines what kind of alarm can be authorized to Web server. When one alarm triggered, device can send SMS alarm several times as per the pre-set interval. Also the alarms</p>

					<p>can be auto cleared or by command as per configuration.</p> <p>Para1 -"F": alarm mask ,range:0~FFFFF</p> <p>Each bit of the parameter represents one alarm. Please refer to 6.3.2" Device alarm list"</p> <p>Definition of the bit is:</p> <p>"0" for close; and "1" for open.</p> <p>Para2-"3" : uploading times for the alarm, range: 1 ~ 9. this parameter define how many times device will send to user for one alarm since triggered.</p> <p>Para3-"5" : uploading time interval for the alarm , range: 0 ~ 255, units: Minutes</p> <p>Para4-"0": clear alarm auto or not. Definition is:</p> <p>"0": is cleared by command. when one alarm triggered, the same type alarm will not trigger. When upload another data, this alarm will also upload until send command to clear this alarm.</p> <p>"1": clear this type of alarm automatically after finishing the alarm sending.</p> <p>Explanation on "GAM; F;3;5;1":</p> <p>When there is an alarm, the device will upload the alarm for "3" times with interval of "5" minutes. Then clear this alarm.</p>
10	heartbeat data interval	HBI	HBI;50	HBI:50	<p>Unit: minute.</p> <p>Range: 1~255</p>
11	URL Setting	URL	URL0:http: maps.google .com/static map?zoom= 14&size=300 x300&markers =%n(;%e&sensor=false	URL0:http: maps.google. com/staticmap?zoom=14& size=300x300 &markers =%n(;%e&sensor=false	<p>Function: use mobile phone can access map web site to check information by hyperlink directly.</p> <p>"URL0" command is the hyperlink with GPS, while "URL1" is the hyperlink without GPS, which means connected by GSM base station information.</p> <p>The Specific format is decided by hyperlink web site.</p> <p>Parameter details:</p> <p>The information before"=" is map website path.</p> <p>Parameter after "%" is the parameters selected by user. Definition is as follow.</p>

					<p>"Y" : year "m" month "H": hour "M": minute "S": second "n": north. "e": east "a": valid bit "s": speed "r": direction angle "C":MCC "N":MNC "A":LAC "D":CID Data after "&" are Information from website</p> <p>Note: in this sample there is a character "(" . this is used for characters conversion.</p> <p>Default URL: URL0:http: URL0:http://maps.google.com/maps?q=%n,%e&t=m&z=16 URL1 is empty</p>
12	Movement sensor setting	MSS	MSS; 3;60	MSS:3;60	<p>Function: set conditions for move and stop status The range of two parameters is the same which is: 1 ~ 255</p> <p>Para1-"3": vibration time. Unit is second. parameter 1 is used to judge whether the vehicle status is shift from stop to move. If the move sensor vibrating last for the time as in "parameter1" (3 seconds), the device will be regard the vehicle is in moving status.</p> <p>Para2-"60": sustained stop time. Unit is second. This parameter is used to judge whether the vehicle status is shift from moving status to stop status. If the sensor stops vibrating, which is 0</p>

					times/second, and last for the time set in "parameter2" (60 seconds), the device will regard the vehicle is in stop status. Default MSS: MSS:3;60
13	Anti-jamming parameter setting	AJS	AJS; 30;20	AJS: 30:20	Function: set anti-jamming alarm condition. This parameter is related to the GSM modem. Para1-"30" interference channel number. range: 1 ~ 255 Para2-"20" : voltage threshold Range: 3 ~ 63
14	Reset parameters to factory default	RFD	RFD	RFD	reset Some parameters to default Settings. please refer to <appendix 1> to check which command parameter is changed. And use this command to resume them to default if need
15	baud rate of serial port	EPB	EPB;1	EPB:1	The baud rate can be 0:9600 1:115200 2:230400 Default : EPB;1(T300/303)
16	Set communication mode of serial port	EPS	EPS;1	EPS:1	Serial port communication mode can be: 0: protocol mode. When device connect to peripheral equipment, communicate each other by protocol. 1: transparent mode. When device connect to peripheral equipment, device accept all the data and send to server. 2: Garmin PND communication mode 3: reserved 4: OBD MODE 5: OBDII trace mode 6: GPS trace mode 7: GSM trace mode 8:DEVICE trace mode 9:Factory mode Default: EPS;0(for all models)
17	output data type of USB	UPS	UPS; 0	UPS: 0	Output data type can be: 0: reserved 1: reserved 2: WIFI trace mode 3: reserved 4: OBD MODE 5: OBDII trace mode

					6: GPS trace mode 7: GSM trace mode 8: DEVICE trace mode 9: Factory mode 10: WIFI upgrade mode 11: Extend RXD trace mode Default: UPS;0(for all models)
18	Immobilize output voltage setting	IML	IML;0	IML;0	Parameter can be set "0" "1" 0: immobilize relay is triggered by low level voltage. Output low voltage to immobilize the vehicle 1: immobilize relay is triggered by high level voltage. Output high voltage to immobilize the vehicle Default IML: IML;0
19	Immobilize parameter setting	IMS	IMS;0 or IMS;2;12	IMS;0 or IMS;2;12	Function: there are two methods to immobilize the vehicle: 1. static immobilization. Just output one immobilization signal to stop the vehicle directly. 2. Dynamic immobilization with pulse output. Keep output the pulse for several immobilization cycle to stop the vehicle. The time for each immobilization cycle is 10 seconds. Para1-"2": immobilize ON time in one cycle time. range: 0 ~ 9. unit is second. When the parameters set to "0", it means static immobilize. Then no need to set parameter 2. When the parameters set among "0 ~ 9", it means static Dynamic immobilization, this value represent pulse output time in one cycle time. E.G.: "2" means pulse output time is 2 seconds and OFF time is "8" seconds. Para2-"12": total pulse output number of dynamic immobilization. range: 1 ~ 18 For example: " IMS; 2; 12 "means output 12 pulse to stop vehicle. Each pulse cycle is 10 seconds. In one cycle, immobilize ON time is 2s and OFF time is 8s. Default IMS: IMS; 1; 12
20	Serial port	PKI	PKI;2;0	PKI;0:2:0	Function: set parameters of serial port

	data packet parameter setting				<p>communication. Please refer to “6.6 serial port data from peripheral equipment”.</p> <p>Para1-“1”: weather upload device information including device ID & location information when upload serial port data to server. Can set to:</p> <p>"0":without device information</p> <p>"1": with device ID</p> <p>"2":with device ID & location information</p> <p>Para2-“0”: peripheral equipment type ID. range: 0~31</p> <p>This parameter is used for server parsing.</p> <p>Example: user can set “1” as the “CARD READER” ID</p> <p>When device upload data, server can know it is the data from “CARED READER”.</p> <p>Default PKI: PKI;0;2;0</p>
21	Time stamp for debug info	TTE	TTE;1	TTE:1	<p>Function: ON/OFF time stamp for trace</p> <p>"1":Enable</p> <p>"0"Disable</p> <p>Default TTE: 0</p>
22	Device "POWER DOWN" (Power off mode)setting	PDS	PDS;60;4	PDS:60;4	<p>Function: when device reached some conditions such as “ACC off” (para2), device will power down after the delay working time (para1) is up.</p> <p>Para1-“60”: delay working time. Decimal format. Range: 0~ 3600, unit: second. When set to “0”, means disable this function which means device will only power down until battery exhausted</p> <p>Para2-“1”: power down condition. Hexadecimal format. Convert the hex. to binary and get bit0~bit15. Each bit relate to one condition. Bit definition as below:</p> <p>Bit0: Power broken</p> <p>Bit1: Device stop</p> <p>Bit2: ACC off</p> <p>Bit3: Engine off</p> <p>Bit4: Power Low</p> <p>bit5~bit15: reserved.</p> <p>Each bit can set to :</p> <p>“0”: disable the condition which relates to this bit.</p> <p>“1”: enable the condition which relates to this bit.</p> <p>E.G.: When set bit2 (ACC OFF) set to “0”, means</p>

					<p>disable the “ACC off” condition. Which means power down don’t relate to “ACC off”.</p> <p>Default: PDS:60;10</p>
23	WIFI power save setting	WPS	WPS;600;1	WPS:600;1	<p>Function: when WIFI reached some conditions such as “Engine off” (para2), the WIFI will power down after the delay working time (para1) is up.</p> <p>Para1-“600”: delay working time. Decimal format. Range: 0~ 65535, unit: second. When set to “0”, means disable this function.</p> <p>Para2-“1”: WIFI power save condition. Hexadecimal format. Convert the hex. to binary and get bit0~bit15. Each bit relate to one condition. Bit definition as below:</p> <p>Bit0: Engine off</p> <p>Bit1: Engine on</p> <p>bit2~bit15: reserved.</p> <p>Each bit can set to :</p> <p>“0”: disable the condition which relates to this bit.</p> <p>“1”: enable the condition which relates to this bit.</p> <p>E.G.: When set bit0 (Engine off) set to “1”, means enable the “Engine off” condition. Which means WIFI power down relate to “Engine off”.</p> <p>Default: WPS:600;1</p>
24	USB authority enable setting	UAE	UAE;1;1	UAE:1;1	<p>USB authority enable setting。</p> <p>para1-“1”: enable/disable user use the USB port:</p> <p>“0”: disable</p> <p>“1”: enable</p> <p>Para2-“1”: enable/disable manager use the USB port:</p> <p>“0”: disable</p> <p>“1”: enable</p> <p>Default: UAE;1;1</p>

25	Select OBDII protocol	SOP	SOP;0	SOP:0	<p>Function: Select using OBDII protocol.</p> <p>Para1-"0": Code of protocol. Hexadecimal format</p> <p>Range: 0~B</p> <p>Corresponding protocol:</p> <p>0 – Automatic</p> <p>1 - SAE J1850 PWM (41.6 kbaud)</p> <p>2 - SAE J1850 VPW (10.4 kbaud)</p> <p>3 - ISO 9141-2 (5 baud init, 10.4 kbaud)</p> <p>4 - ISO 14230-4 KWP (5 baud init, 10.4 kbaud)</p> <p>5 - ISO 14230-4 KWP (fast init, 10.4 kbaud)</p> <p>6 - ISO 15765-4 CAN (11 bit ID, 500 kbaud)</p> <p>7 - ISO 15765-4 CAN (29 bit ID, 500 kbaud)</p> <p>8 - ISO 15765-4 CAN (11 bit ID, 250 kbaud)</p> <p>9 - ISO 15765-4 CAN (29 bit ID, 250 kbaud)</p> <p>A - SAE J1939 CAN(29 bit ID, 250kbaud)</p> <p>B-SAE J1939 CAN(29bit ID, 500kbaud)</p>
26	Dual SIM card setting	DSS	DSS;0	DSS:0	<p>Function: Dual SIM card setting.</p> <p>Para1-"0": 1 Digit number</p> <p>Range: 0~4</p> <p>0- When cannot register, switch SIM card .</p> <p>1- Always use SIM1.</p> <p>2- Always use SIM2.</p> <p>3- Switch SIM card when detected roaming.</p> <p>4- Switch SIM card when detected international roaming.</p>
27	G-force recorder setting	GRC	GRC;0 GRC;1;1;4000 0	GRC:0 GRC:1;1;4000	<p>Function: G-force recorder setting.</p> <p>Para1-"0":G-force sampling rate.1digit number</p> <p>Range:0~3</p> <p>0- Disable G-force recorder</p> <p>1- Sampling rate 25Hz</p> <p>2- Sampling rate 50Hz</p> <p>3- Sampling rate 100Hz</p> <p>Para2-"1":G-force sampling time, recording before and after of the number of seconds when trigger.</p> <p>Range:1~5</p> <p>1- Recording G-force data of before and after one second.</p> <p>2- Recording G-force data of before and after two seconds.</p> <p>3- Recording G-force data of before and</p>

					<p>after three seconds.</p> <p>4- Recording G-force data of before and after four seconds.</p> <p>5- Recording G-force data of before and after five seconds.</p> <p>Para3-"4000":G-force trigger recording threshold, unit:mg Range:1000~16000</p>
28	Accident detection Threshold setting	ADT	ADT;4000	ADT:4000	<p>Function: Accident detection Threshold setting.</p> <p>Para: The acceleration threshold of accident detection.</p> <p>Range: 0~16000</p> <p>0- Disable</p> <p>1~16000- detected threshold.</p>
29	LBS to location enable setting	LLE	LLE;1	LLE:1	<p>Function: Enable/Disable LBS to location setting</p> <p>"1":Enable</p> <p>"0":Disable</p> <p>Default LLE: 1</p> <p>After enable, the device will through LBS data of GSM/3G/LTE to connect LBS to Location server to get the latitude and longitude information during the GPS non-positioning.</p>
30	BLE Info configuration	BTC	BTC0; 74278BDA	BTC0: 74278BDA	<p>Function: Setting BLE information</p> <p>Command id: 0~9</p> <p>Id == 0: iBeacon UUID</p>
31	Clearance device data flow statistics value	GDR	GDR	GDR	<p>Function: Clearance device data flow statistics value</p>
33	LTE module command	LTC	LTC;AT+CREG?	LTC:AT+CREG?	<p>Function: Send AT command to LTE module</p>
34	Trip report setting	TRS	TRS;1;6 TRS;0	TRS:1;6 TRS:0	<p>Function: Trip report setting</p> <p>Para1: enable/disable</p> <p>"1":Enable</p> <p>"0":Disable</p> <p>Para2: trip maxim break time, range: 0~15</p> <p>Break time = Para2 * 5minute</p>

35	Driving behavior detection parameter setting	DBS	DBSid;para1;para2	DBSid:para1;para2	<p>Function: Driving behavior detection parameter setting</p> <p>id: 8 types driving behavior parameters index</p> <p>"0":Rapid Acceleration</p> <p>"1":Rough Braking</p> <p>"2":Harsh course</p> <p>"3":No warm up</p> <p>"4":Long idle</p> <p>"5":Fatigue driving</p> <p>"6":Rough terrain</p> <p>"7":High RPM</p> <p>para1&2:</p> <p>For rapid acceleration:</p> <p>para1: Acceleration threshold, range: 0-15(0: disable), unit 0.1g</p> <p>para2: Detection time window, range: 3-15, unit 0.1sec</p> <p>For rough braking</p> <p>para1: Acceleration threshold, range: 0-15(0: disable), unit 0.1g, offset 0.1g</p> <p>para2: Detection time window, range: 3-15, unit 0.1sec</p> <p>For harsh course</p> <p>para1: Acceleration threshold, range: 0-15(0: disable), unit 0.1g, offset 0.2g</p> <p>para2: Detection time window, range: 3-15, unit 0.1sec</p> <p>For no warm up</p> <p>para1: warm up time, range: 0-15(0: disable), unit 10sec</p> <p>para2: Need warm up for engine off time, range: 1-15, unit 0.5hour</p> <p>For long idle</p> <p>para1: Idle time threshold, range: 0-15(0: disable), unit 1 minute</p> <p>para2: None</p> <p>For fatigue driving</p> <p>para1: Driving time threshold, range: 0-15(0: disable), unit 0.5hour, offset 0.5hour</p> <p>para2: brake time, range: 1-15, unit 5 minutes</p>
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					<p>For rough terrain</p> <p>para1: Acceleration threshold, range: 0-15(0: disable), unit 0.1g, offset 0.5g</p> <p>para2: Minimum speed, range: 1-15, unit 1 km/h, offset 14km/h</p> <p>For high RPM</p> <p>para1: RPM threshold, range: 0-15(0: disable), unit 200rpm, offset 2000rpm</p> <p>para2: none</p>
36	Engine detection and OBDII linkage settings	EOL	EOL; <i>enable</i>	EOL: <i>enable</i>	<p>Function: Engine detection and OBDII linkage settings</p> <p>enable:</p> <p>"1":Enable</p> <p>"0":Disable</p>
37	Delete default parameters file	DDF	DDF	DDF: <i>result</i>	<p>Function: Delete default parameters file</p> <p>result:</p> <p>"1": success</p>
37	Delete file	DLF	DLF;3	DLF;3;1	<p>Function: Delete file</p> <p>Para1: File index</p> <p>0—undefined</p> <p>1—Firmware</p> <p>2—Assist-GPS offline file</p> <p>3—Default parameters file</p> <p>4—Command list file</p> <p>5—APN list file</p> <p>6--WIFI SSID list file</p> <p>7--RFID Tag list file</p> <p>8--SSL CA certificate file</p> <p>9—SSL client certificate file</p> <p>10—SSL client private key file</p> <p>11—OBDII file</p> <p>12—Offline data</p> <p>Para2: Delete status 0—Failed, 1--Success</p>
38	Roaming enable setting	RME	RME; <i>enable</i>	RME: <i>enable</i>	<p>Function: Roaming enable setting</p> <p>enable:</p> <p>"1":Enable</p> <p>"0":Disable</p>

39	Iridium data upload mode setting	IUM			
40	Iridium heartbeat setting	IBT			
41	Iridium upload data mask setting	IDM			
42	GPS filter setting	GFL	GFL;enable	GFL:enable	Function: GPS filter setting enable: "1":Enable "0":Disable
43	OBD scanner check setting	OSC	OSC;enable	OSC:enable	Function: OBD scanner check setting enable: "1":Enable "0":Disable
44	WIFI portal setting	PTL	PTLid;para1	PTLid:para1	Function: WIFI portal setting id: parameter index 0: portal link 1: portal id para1: for portal link: portal link for portal id: portal id
45	Buzzer enable setting	BZE	BZE;para1	BZE:para1	Function: Buzzer enable mask setting para1: Buzzer enable mask, range: 0-FFFF, hex format
46	SIM PIN code setting	PIN	PIN;para1	PIN:para1	Function: SIM PIN code setting para1: SIM pin code, 4 digits
47	Output mode setting	OMD	OMD;enable	OMD:enable	Function: Output mode setting enable: "1":Enable "0":Disable
48	Reference position setting	RFP	RFP;para1;para2	RFP:1	Function: Reference position setting para1: Latitude, unit: degree para2: Longitude, unit: degree
49	Network searching mode setting	NSM			

50	WIFI web server setting	WEB	WEB;enable	WEB:enable	Function: WIFI web server setting enable: "1":Enable "0":Disable
51	Engine detect voltage setting	IGV	IGV;para1	IGV:para1;para2	Function: Engine detect voltage setting para1: Engine detect voltage threshold, Range:0-5999(0: Auto), unit: 10mv para2: Vehicle battery voltage, unit: 10mV
52	Wifi mac filter mode setting	WMF	WMF;mode	WMF:mode	Function: WIFI connection MAC filter mode setting mode: 0----Disable 1----WhiteList 2----Blacklist
53	Wifi mac white list setting	WMW	WMWid;mac WMW0;DB:83:E4:37:62:36	WMWid:mac WMW0;DB:83:E4:37:62:36	Function: WIFI MAC filter white list setting id: White list index, range: 0-9 mac: WIFI client MAC address
54	Wifi mac black list setting	WMB	WMBid;mac WMB0;DB:83:E4:37:62:36	WMBid:mac WMB0;DB:83:E4:37:62:36	Function: WIFI MAC filter blacklist setting id: Blacklist index, range: 0-9 mac: WIFI client MAC address
55	Motion detect sensitivity setting	MSN	MSN;para1;para2	MSN:para1;para2	Function: Motion detect sensitivity setting para1: Moving detect sensitivity, range 0-9, 0: highest, 9: lowest para2: Stop detect sensitivity, range 0-9, 0: highest, 9: lowest
56	Moving replace ignition setting	MRG	MRG;enable	MRG:enable	Function: Moving replace ignition setting enable: "1":Enable "0":Disable
57	OTA file download setting	OTA	OTA;para1;para2;para3	OTA:para1;para2;para3	Function: OTA file download setting para1: OTA server, IP address or domain para2: OTA server port para3: OTA file path

58	Assist-GPS offline setting	AOE	AOE;enable	AOE:enable	Function: Assist-GPS offline setting enable: "1":Enable "0":Disable
59	OBD request delay setting	ODL	ODL;para1	ODL:para1	Function: OBDII request delay setting para1: delay time, Range: 0-254, unit: 10ms
64	Remote diagnostic server setting	RDS	RDSid;para1; para2;para3	RDSid:para1;p ara2;para3	Function: Remote diagnostic server setting id: command index "0": Remote diagnosis server "1": Acknowledgment mode "2": Trace mode "3": Read device information Para1: id 0(remote server): IP address id 1(ack mode): 0—disable, 1-enable id 2(trace mode): 0—disable 1— Device trace 2— GSM trace 3— GPS trace 4— OBD trace 5— Uart trace 6— OBD command mode id 3(read info): 0—disable 1— Offline data 2— Parameters 3— WIFI Paras 4— APN list 5— SSID list 6— MAC filter 7— Default paras 8— RFID auth list 9— SSL CA file 10— SSL CC file 11— SSL CK file Para2: id 0(remote server): Port id 1(ack mode): none id 2(trace mode): none id 3(read info): none

					Para3: id 0(remote server): 0—auto disconnect 1—endless mode id 1(ack mode): none id 2(trace mode): none id 3(read info): none
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7.3 Manager command list

1. Manager can set the command authority for user, which can be set the same authority as Manager level
2. **For avoiding repeating the contents, Here only shows the command name and parameters in "command domain" and removed the rest part of the command like password or Packet header/Footer, Protocol version. For complete format , please refer to “7.1 command format”.**

Table 2 manager and user command list

com man d ID	Command description	Com mand name	download (send out)	Upload (reply)	Remark
1	Set user phone number	UNO	①UNO;1391234 5678 or ②UNO; + 8613912345678	①UNO:139 12345678 or ②UNO: + 8613912345 678	Any mobile phones can be set as the user NO. by this command. It is cannot be used in the combination command before finishing the user NO. setting. 0~20 digits, default is empty There are two formats to set. ①set national number ②set international number,“86”is country number
2	Set user password	UPW	UPW;1234	UPW:1234	Four digits,range:0000~9999 Default UPW: UPW;1234
3	User upload mode	UUM	UUM;40S;30M;G ;T	UUM: 40S;30M;G;T	Function: device can be set in two upload mode with Short Time Interval and Long Time

					<p>Interval which can be shifted as per configuration with command "DNU" under the specific condition.</p> <p>Para1-"40S" : short upload time interval, picked in (30~900S)、(15~59M)、(1~240H) "30S" means upload interval is 30 Seconds.</p> <p>Para2-"30M" : long upload time interval, picked in (15~59M)、(1~240H) "30M" means upload interval is 30min.</p> <p>Para3-"G": working mode. Can set to: "O": close unloading "G": if there is GPS data, send GPS based location. If not, send GSM base station (LBS) data. "S": Always update with GSM based location data with the LBS (Location Based Service) technology, Hexadecimal format.</p> <p>Para4-"T": message type.it Can be set to: "T": Text format (SMS) "W": Text format with hyperlink (SMS with hyperlink)</p>
4	User alarm clear	UAC	UAC	UAC	Function: send this command to clear user alarm triggered.
5	Request location information	LCL	LCL	LCL	Function : device will upload location data to user mobile after sending this command. (the real time location data also can be uploaded by calling the device -- hang-up after first ring
6	SMS center number	SCN	SCN;+8613800200500	SCN:+8613800200500	<p>Range: 1~20 digits, decimal number "86" is national code. Parameter must has national code.</p> <p>usually, no need to set SMS center number, when SIM card inserted since device will detect the SMS center number automatically ,when user changed SIM card the device would re-detect the SMS center number</p>

					default: empty
7	APN	APN	①APN; APN; user name; password ②APN;APN	①APN: APN; user name; password ②APN:APN	Function: when input the SIM card and device powered up. Send this command to set APN. Format1: APN: APN Para; user name; password Para1-"APN": APN para. Range: 1 to 30 characters. Para2-"user name": user name of APN. Range: 0 to 30 characters Para3-"password": password of APN. Range: 0 to 30 characters Format2: APN:APN para this format is used when user name and password are unavailable in some countries. Device have pre-stored many APN (Access Point Name) info for different countries' GSM service provider. So, If device automatically connects with GPRS then user no need to send above command. Otherwise , the APN info need to be configured manually via this command., NOTE: the APN info should be matched for SIM card inserted. Other ,it cannot be connected to server via GPRS. Default: empty
8	SMS server number	SNO	①SNO;1391234 5678 or ②SNO; + 8613912345678	①SNO:1391 2345678 or ②SNO: + 8613912345 678	"86" is country code 0~20 digits, default: empty
9	SMS server upload mode	SUM	SUM; 40S;30M; G;T	SUM:40S;30 M;G;T	Function: device can be set in two upload mode with Short Time Interval and Long Time Interval which can be shifted as per configuration with command "DNU" under the specific condition. Para1-"40S" : short upload time interval,

					<p>picked in (30~900S)、(15~59M)、(1~240H)</p> <p>"30S" means upload interval is 30 Seconds.</p> <p>Para2-"30M" : long upload time interval, picked in (15~59M)、(1~240H)</p> <p>"30M" means upload interval is 30min.</p> <p>Para3-"G": working mode. Can set to:</p> <p>"O": close unloading</p> <p>"G": if there is GPS data, send GPS based location. If not, send GSM base station (LBS) data.</p> <p>"S": Always update with GSM based location data with the LBS (Location Based Service) technology, Hexadecimal format.</p> <p>Para4-"T": message type.it Can be set to:</p> <p>"T": Text format (SMS)</p>
10	GPRS Serve Setting	GIP	<p>GIP;121.9.10.170;38096</p> <p>or</p> <p>GIP;121.9.10.170;38096;0</p> <p>Or</p> <p>GIP;121.9.10.170;38096;0;1</p> <p>GIP:www.obdtracking.com;38096;1;1</p>		<p>Function: This command is used to set server parameters, include IP/Domain, port, TCP/UDP and SSL encrypt options.</p> <p>Para1: server IP or domain</p> <p>Para2: server port</p> <p>Para3: TCP/UDP/SSL protocol</p> <p>0—TCP</p> <p>1—UDP</p> <p>2--SSL</p> <p>Para4: ACK option</p> <p>0—not ACK</p> <p>1—has ACK</p> <p>Para5: SSL encrypt option</p> <p>0— undefined</p> <p>1— server authentication</p> <p>2— server and client authentication</p> <p>Para6: SSL/TLS protocol version</p> <p>0— SSL v3</p> <p>1— TLS v1.0</p> <p>2— TLS v1.1</p>

					<p>3— TLS v1.2</p> <p>4— ALL</p> <p>Eg.:</p> <p>a) Set domain/IP, port and TCP/UDP GIP;121.9.10.170;38096;0 GIP;www.obdtracking.net;38096;1</p> <p>b) Set domain/IP, port, TCP/UDP and ACK GIP;121.9.10.170;38096;0;0 GIP;121.9.10.170;38096;1;1 GIP;www.obdtracking.net;38096;1;1</p> <p>c) Set all parameters GIP;121.9.10.170;38096;0;0;1;1 GIP;www.obdtracking.net;38096;0;0;1;1 GIP;121.9.10.170;38096;0;0;2;4</p>
11	Web server upload mode	GUM	GUM; 40S;30M;G;T	GUM:40S;30M;G;T	<p>Function: device can be set in two upload mode with Short Time Interval and Long Time Interval which can be shifted as per configuration with command “DNU” under the specific condition.</p> <p>Para1-“40S” : short upload time interval, picked in (1~900S)、(15~59M)、(1~240H) “30S” means upload interval is 30 Seconds.</p> <p>Para2-“30M” : long upload time interval, picked in (15~59M)、(1~240H) “30M” means upload interval is 30min.</p> <p>Para3-“G” : working mode. Can set to: “O”: close unloading “G”: if there is GPS data, send GPS based location. If not, send GSM base station (LBS) data. “S”: Always update with GSM based location data with the LBS (Location Based Service) technology, Hexadecimal format.</p> <p>Para4-“T”: data type.it Can be set to: “T”: text</p>

					"B": binary
12	manager alarm clear	MAC	MAC	MAC	Clear alarm for SMS server and Web server
13	enable/disable AGE	AGE	AGE;0	AGE:0	Parameter can be : 0: disable 1: enable Default: AGE;1
14	Over-speed alarm parameters setting	OSS	OSS; 120	OSS:120	Range:0~255,unit:KM/H "120": over-speed alarm threshold, Note: "0" is disable over speed Default OSS: OSS;120
15	Enable/ disable movement sensor	MSE	MSE;0	MSE:0	Function: when disable the movement sensor, the functions related to movement sensor is not available. Thus device status will always be moving (no stop status). Parameter can be: "0": disable "1": enable Default:MSE;1
16	Enable /disable anti- jamming	JME	JME;0	JME:0	Function: enable/disable anti-jamming. When GSM jammer detected, weather immobilize vehicle is upon user decision. Para1-"0": enable/disable anti-jamming which Can be: "0": disable "1": enable
17	Enable /disable Geo-fence	GOE	GOE;0	GOE:0	Range:0~ FFFFFFFF hexadecimal 32 fences available in total, from numbers 0 to 21.Each bit of this parameter represent one geo-fence. Bit0 represent geo-fence1 and bit1 represent geo-fence 2. definition of each bit is: "0": disable geo-fence "1": enable geo-fence
18	Geo-fence parameter setting	GOS	GOS0; 3; 1 GOS0;P; 0;29.71234; 71.0508;1;-	GOS: 3; 4001 & GOS0;P; 0;29.71234;	28 fences available in total, Please refer to 7.5.1 for geo-fence setting details Default :empty

			29.71234;- 71.0508;2;23.123 4;175.789	71.0508;1;- 29.71234;- 71.0508;2;23 .1234;175.78 9	
19	Enable/disable mileage	MGE	MGE;0	MGE:0	Parameter can be: "0": disable mileage "1": enable mileage Default MGE: MGE:1
20	Power saving mode setting	PSS	PSS;1;0	PSS:1;0	Set power saving mode para1-"1": enable/disable GPS power save function. Parameter can be: "0": disable "1": enable Para2-"0": enable/disable GSM power save function. Parameter can be: "0": disable "1": enable Please refer to 7.5.2 for more details Default PSS: PSS;0;0
21	Time zone setting	TZS	TZS;0;8:00	TZS: 0;8:00	Set local time zone para1-"0": time zone select. Parameter can be: 0: auto setting 1: manually set with Para2 Para2-"8: 00, time zone need to be set" Parameter range from -13:00 to 13:00, Negative number represents western time zone, positive number represents eastern time zone
22	Device reboot	RST	RST		Send reset command, device reboot. the device do not reply.
23	Immobilize output	IMM	IMM;0	IMM:0	"0" : immobilize output OFF "1": immobilize output ON

24	Distance and angle upload setting	DAU	DAU;1;7	DIS:1;7	<p>When travel distance or heading angle is up to the preset threshold, device will upload data to sever. device upload data when alarm occurred and re-count the distance and angle after uploading.</p> <p>Para1-"255": distance threshold range :0~255, unit: hundred meter example: "255" means uploading when the distance up to 25.5KM</p> <p>NOTE:</p> <ol style="list-style-type: none"> 1. if set it to be 0, disable distance upload. 2. This function applies to GPRS channel <p>para2-"20": angle threshold range : 0 or 3~20, unit: degree if set it to be 0, disable angle upload.</p> <p>NOTE:</p> <ol style="list-style-type: none"> 1. if set it to be 0, disable distance upload. 2. This function applies to GPRS channel 3. Remarks for the uploading based on distance/angle/time interval : device would upload once reach the interval one of them and re-count the 3 types interval for the next uploading. <p>Default DAU: DAU;0;0</p>
25	Direction angle rapid change alarm setting	ACA	ACA;16;90 Or ACA;16;90;30	ACA;16;90 Or ACA;16;90;30	<p>Function: when target's moving Direction angle rapid change in a specific period, the angle rapid change alarm would be triggered, and device upload alert data.(device compare the angle change during the period . When the change reach the threshold, device upload alert data.)</p> <p>Para1-"16": specific period Unit: second. range:0~16 "16" means specific period is 16 seconds(the sample number is can be 16 pieces if uploading</p>

					<p>interval is one second).</p> <p>NOTE: when parameter 1 is "0" or "1", it means close the angle change alarm upload</p> <p>Para2-"90": angel change threshold.</p> <p>unit: degree. range: 0~180.</p> <p>"90" means the degree change within the specific period in parameter 1 is 90° (after device get sample data, compare the them, and see if "MAX degree-MIN degree=90°")</p> <p>NOTE: when parameter is "0" it means close the angle change alarm upload</p> <p>Para3-"30": vehicle speed threshold</p> <p>unit: km/h. range:0~225.</p> <p>"30" means the angle change alarm would uploaded only when the speed is over 30km/h,</p> <p>NOTE: when this parameter 3 is "0" or "empty", it means ignore the speed, and upload alarm once meet parameter 1 and 2.</p> <p>Remarks: Only upload via GPRS channel</p> <p>Default ACA: ACA;0;0;0/ACA;0;0</p>
26	Speed rapid change alarm setting	SCA	SCA;16;255	SCA:16;255	<p>Function: when target's moving speed rapid change in a specific period, the speed rapid change alarm would be triggered, and device upload alert data.(device compare the speed change during the period . When the change reach the threshold, device upload alert data.)</p> <p>Para1-"16": specific period</p> <p>Unit: second. range:0~16</p> <p>"16" means specific period is 16 seconds(the sample number is can be 16 pieces if uploading interval is one second).</p> <p>NOTE: when parameter 1 is "0" or "1", it means close the angle change alarm upload</p> <p>Para2-"255": speed change threshold.</p> <p>unit: KM/H. range: 0~255</p>

					<p>"255" means the speed change within the specific period in parameter 1 is 255 KM/H (after device get sample data, compare the them, and see if "MAX speed –MIN speed =255 KM/H")</p> <p>NOTE: when parameter is "0" it means close the speed change alarm upload</p> <p>Remarks: Only upload via GPRS channel</p> <p>Default : SCA;0;0</p>
27	Dynamic upload setting	DNU	DNU;1	DNU:1	<p>Function: when set upload mode by time, user, GPRS and SMS server are all have two upload mode (mode0 and mode1). In normal condition, use mode0. This command defines in what condition device shift to upload mode1.</p> <p>Range: 0~FFFF(hexadecimal)</p> <p>Each bit of the parameter represents a kind of status. Shown as follow.</p> <p>Bit0: vehicle stop status(decided by motion sensor)</p> <p>Bit1:national roam status (decided by MNC)</p> <p>Bit2:international roam status(decided by MCC)</p> <p>Bit3: power off (device use battery power)</p> <p>Bit4: ACC OFF status</p> <p>Bit5: Immobilize ON status</p> <p>Bit6: Engine off status</p> <p>Bit7: Input low</p> <p>Definition of each bit is:</p> <p>"0": disable status detect</p> <p>"1": enable status detect</p> <p>Device detect all status that are enable. If one of the status is matched, device shift to mode1. when all status are not match, device shift to mode0.</p> <p>E.G.: Set "DNU;1" means only bit0 is "1".</p>

					<p>Device detect stop status. If the status is stop, device shift to mode1. otherwise shift to mode0.</p> <p>Default DNU: DNU;0</p>
28	Mileage initial value setting	MGS	MGS;1000		<p>unit: meter, range: 0-4294967294</p> <p>Default : MGS;0</p>
29	FLASH setting	EFS	EFS;0;0;30M	EFS;0;0;30M	<p>Function:</p> <p>In order to keep the data safe, device can save the data to Flash instead of RAM. Only applied for GPRS (TCP and UDP) communication</p> <p>Para1-"0": data save condition. It Can be:</p> <p>"0": save RAM (1K byte) overflow data. When there is GPRS, device upload data from RAM to server directly. When there is no GPRS and the RAM is full, overflow data will be save to flash. After GPRS is recovered, device send all RAM and flash data to server.</p> <p>"1": stored all device data. If device generate one package of data, it will shift from RAM to Flash. Refer to "GUM" command to check when device generate one package. When the stored data will be upload depend on the parameters bellow.</p> <p>Para2-"0": Flash data upload condition. Can set to:</p> <p>"0": upload automatically. When there is GPRS, upload data automatically</p> <p>"1": upload by time set. Time is set by parameter4.</p> <p>Para3-"30M" : upload interval. range:(30~900S)、(15~59M)、(1~240H)</p> <p>Default : EFS;1;0;30M</p>

30	Upload data ID mask	UDM	UDM;7	UDM;7	<p>Function : for SMS server & Web server, the auto upload information can be increase or decrease according to requirement.</p> <p>Range:0~FFFF (decimal)</p> <p>Each bit of the parameter represents one type of data. Definition as follows:</p> <p>Bit0:GPS data</p> <p>Bit1: base station data</p> <p>Bit2: device status data</p> <p>Bit3: mileage data</p> <p>Bit 4 device AD data</p> <p>Bit5:geo-fence status data</p> <p>Bit6: OBDII status data</p> <p>Bit7: tatol fuel consumption data</p> <p>Bit8: OBDII alarm data</p> <p>Bit9: Harsh driver behavior data</p> <p>Bit10:J1939 data</p> <p>Bit11:J1708 data</p> <p>When set "bit =0", it means cancel uploading this type of information. When set "bit=1", upload.</p> <p>Bit0 and bit1 is fixed to 1, it means data packet must contains GPS or LBS information, when GPS location is valid, then get GPS data, otherwise ,get LBS data. these two can be changed-over automatically</p> <p>"UDM;7" represent upload GPS data, base station data, device status data.</p>
31	Daylight-saving time setting	DST	<p>Format 1: DST;03.27;10.01; 00:00</p> <p>Format 2: DST;03.F5;10.A0; 00:00</p>	<p>Format 1: DST:03.27:10 .01:00:00</p> <p>Format 2: DST:03.F5:10 .A0:00:00</p>	<p>Function: set daylight-saving time. First parameter is start date and second parameter is finish date. Start and finish time is decided by the third parameter. This function only based on the user's cell phone.</p> <p>Format 1 "DST;03.27; 10.01; 00:00"</p> <p>Para1-"03.27": Daylight saving time start date.</p>

					<p>format is "month.day". "03.27" represents March 27.</p> <p>Para2-"10.01": Daylight saving time end date. format is "month.day". "10.01" represents October 1st.</p> <p>Para3-"00:00":start and end time (hour/min/sec), format is "hour:minute"."00:00" represents time is "00:00"</p> <p>Format 2 "DST;03.F5; 10.A0; 00:00":</p> <p>Para 1- "03.F5": Daylight saving time start date, format is "month. week of month. day of week".</p> <p>week of month can be set "A B C D F". "A" for the first week, "B" for the second week, and so on, the fifth week or last week can use the "F" to represent.</p> <p>Day of week can be set to "0 1 2.....6". Beginning on Sunday ("0" represent Sunday) to Saturday ("6" represent Saturday). "03.F5" represents Friday on the last week of march.</p> <p>Para2-"10.A0":Daylight saving time end date, format is same as para1. "10.A0" represents Sunday on the first week of October</p> <p>Parameter 3 "00.00":start and end time (hour/min/sec), format is "hour:minute"."00:00" represents time is "00:00"</p> <p>Default DST: DST;00.00;00.00;00:00</p>
32	Threshold voltage of Power off mode	PTH	PTH:90		<p>Device will go to power off mode when reaches this threshold value.</p> <p>value "0" means disabling this functionality.</p> <p>value between "90-360" is valid for threshold voltage, unit is 100 mV.</p>
33	monitor phone number list	VML	VML0; +8613912323456 or	VML0: +861391232 3456	<p>Function: define which number can use voice monitor function. The number in this list can dial to the device directly until the device</p>

			VML0; 13912323456	or VML0:13912 323456	picked up the phone, and start the voice monitor "86" in the parameter is country code . 5 numbers can be set as below: ①VML0; XX XX XX XX ②VML1; XX XX XX XX ③VML2; XX XX XX XX ④VML3; XX XX XX XX ⑤VML4; XX XX XX XX NOTE: If the parameter is set to "X", it means any phone number can use voice monitor function. Default: empty
34	hotline list	HTL	HTL0; +8613912323456 or HTL0; 13912323456	HTL0:+86139 12323456 or HTL0: 1391232345 6	Function: define which number can use dual communication function. The number in this list can dial to the device directly until the device picked up the phone, then start dual communication. "86" in the parameter is country code ., 15 hotlines NO. can be set as below : (1) HTL0: XXXXX (15) HTL14: XXXXX NOTE: 1. Device without microphone or speaker cannot use this function. 2. If the parameter is set to "X", it means any phone number can use voice monitor function. Default: empty
35	Voice monitor	MON	MON;139123456 78 or MON;+86139123 45678	MON:139123 45678 or MON:+86139 12345678	Function : send command, device will call back to the phone number "parameter 13912345678". device open microphone. user start voice monitor. Which phone number is accept by device depend on hotline list setting. (VML command). Para1-"13912345678":the number device

					<p>needed to call back, "86" is country code.</p> <p>When the device is busy, it will send back with SMS "MON: BSY". Then need to resend command</p> <p>Default: empty</p>
36	Dual communication	CAL	<p>CAL; 13912345678 or CAL; +8613912345678</p>	<p>CAL: 13912345678 or CAL: +8613912345678</p>	<p>Function : send command, device will call back to the phone number set in "parameter 13912345678". start two way communication via the MIC and earphone/speakers, Which phone number is accept by device depend on hotline list setting (HTL command). Para1-"13912345678":the number device needed to call back, "86" is country code.</p> <p>When the device is busy, it will send back with SMS "CAL: BSY". Then need to resend command in another time</p> <p>Default: empty</p>
37	Input Mode setting	IMD	IMD;1	IMD:1	<p>Function: Select multi functions input mode.</p> <p>Para:1 digit, range:0~3</p> <p>0: disable(default)</p> <p>1:Analog input(Voltage)</p> <p>2:2 states input(High/Low)</p> <p>3:3 states input(High/Middle/Low)</p>
38	Input level setting	ILV	ILV;120;3	ILV:120;3	<p>Function: Select multi functions input level and level detect percentage.</p> <p>Para1:Input voltage level,unit:10mV</p> <p>Para2:Level detect percentage,range:1~4</p> <p>Eg:ILV;120;3</p> <p>Low level voltage: less than 3.6V(120*3/100)</p> <p>High level voltage: more than 8.4V (120*(10-3)/100)</p>
39	RFID and immobilizer linkage setting	IDL	<p>IDL;0</p> <p>IDL;1;30</p> <p>IDL;2;30;60</p>	<p>IDL:0</p> <p>IDL:1;30</p> <p>IDL:2;30;60</p>	<p>Function: RFID and immobilizer linkage setting.</p> <p>Fomat:IDL;para1<;para2>;para3></p> <p>Para1—Linkage mode</p> <p>0— Not linkage</p> <p>1— Linkage engine start</p> <p>2— Linkage oil pump</p>

					<p>Para2—Delay seconds. This parameter is valid under linkage mode 1&2. This time is for ignition after swipe the card. If it's 0, meaning no time limited until the engine off. Parameter range : 0~255s</p> <p>Para3—Delay seconds. This parameter is valid only under linkage mode 2. This is the delayed time of the device cut off the oil pump after the engine off. Parameter range: 10~255s</p>
40	Add RFID to device	IDA	IDA;0006548516	IDA:0006548516	Function: Add RFID to device, Authorize set RFID. When Add failed, return "IDA:FAILED".
41	Remove RFID from device	IDD	IDD;0006548516	IDD:0006548516	Function: Remove RFID to device, Unauthorized set RFID. When remove failed, return "IDD:FAILED".
42	J1708 Read parameters setting	HVP	HVP0;0 HVP1;2;F5	HVP0:0 HVP1:2;F5	<p>This command decide what type of J1708 data will be upload. Total can upload 16 types. Command name is HVP0 -- HVP15.</p> <p>Para1—function select</p> <ul style="list-style-type: none"> 0:disable 1:J1708 MID 2:J1587 PID monitor 3:J1587 PID request <p>Para2—read MID or PID. This parameter is available when para1 not zero.</p> <p>please refer to SAE J1708 and SAE J1587 to check the MIDs and PIDs.</p>
43	Engine run time initial value setting	ETS	ETS;1000		<p>unit: second, range: 0-4294967294</p> <p>Default : ETS;0</p>
44	SMS forward setting	MFW	MFW0;12345678;0 ;12345679 MFW1;12345678;1 MFW2;12345678;2 MFW0;12345678;3	MFW0:12345678;0;12345679 MFW1:12345678;1 MFW2:12345678;2 MFW0:12345678;3	<p>Function: Forwarding SMS from the first phone no."12345678" to the setting target.</p> <p>Para1-"12345678": Forwarding this phone no. SMS.</p> <p>Para2-"1": forwarding target type:</p> <p>"0": Phone no.</p> <p>"1":User</p>

				78;3	"2": SMS server "3":Data server Para3-"12345679":Forward to phone no. only for type "0" Can set three numbers.
50	Bluetooth and Immobilizer linkage setting	BIL			
51	Extended Bluetooth device MAC address banding	BMB			
52	Erase WIFI SSID list file	ELF			
52	Query File information	FIN	FIN;1	FIN;1;1	Query File information Para1: File index 0—undefined 1—Firmware 2—Assist-GPS offline file 3—Default parameters file 4—Command list file 5—APN list file 6--WIFI SSID list file 7--RFID Tag list file 8--SSL CA certificate file 9—SSL client certificate file 10—SSL client private key file 11—OBDII file 12—Offline data Para2: File status 0---No existed 1—Existed Para3...: Extension information
53	GSM enable	GES	GES;0	GES:0	This command only support WIFI function

	setting		GES;1 GES;2	GES:1 GES:2	device. GSM function enable setting. Para:1 digit, range:0~2 0:GSM disable 1:GSM enable but GPRS disable 2: Both GSM and GPRS enable
54	WIFI enable setting	WFE	WFE;0 WFE;1 WFE;2	WFE:0 WFE:1 WFE:2	This command only support WIFI function device. WIFI function enable setting. Para:1 digit, range:0~2 0:WIFI disable 1:WIFI STA enable but AP disable 2:WIFI STA and AP enable(cannot support for now)
55	WIFI Access point ssid and password setting	WAI	WAI;Tracker_WIFI;12345678 WAI;Tracker_WIFI;12345678;1	WAI:Tracker_WIFI;12345678 WAI:Tracker_WIFI;12345678;1	This command only support WIFI function device. WIFI AP(Access Point) SSID and password setting. Para1:SSID, Max 32 characters length Para2:password, Max 64 chars length Para3:Boardcast, 0—enable , 1—Disable
56	WIFI station SSID list setting	WFL	WFL0;WIFI_station;password	WFL0;WIFI_station;password	This command only support WIFI function device. WIFI STA(Station) SSID and password setting. Support 16 SSID setting. When WIFI STA enabled, device will scan WIFI AP automatically and connect with the matched SSD ID . Para1:SSID, Max 32 chars length Para2:password, Max 64 chars length
57	Bluetooth name and password	BAU	BAU;GPS tracker;1234	BAU;GPS tracker;1234	Function: this command can set the name and password for Bluetooth channel Para1 "GPS tracker": Name displayed on Bluetooth channel Para2 "1234": password for Bluetooth channel
58	Enable/disable Bluetooth	BTE	BTE	BTE;0	Parameter can be: "0": disable Bluetooth "1": enable Bluetooth slave mode "2": enable Bluetooth master mode

59	Enable/disable OBD	OBE	OBE	OBE;0	Parameter can be: "0": disable OBD "1": enable OBD
60	initial value of fuel consumption	FCS	FCS;110250	FCS:110250	Parameter definition: If User needs to convert the liter to parameter. Formula is : Para= Liter x 10000 x oil coefficient (oil coefficient refer to 4.3.7,fuel consumption data) Example: If set the initial value is 1 Liter, oil coefficient is 11.025, should be set to: FCI; 110250 Parameter range :0-4294967294 Default FCI: FCI;0
61	OBDII data setting	OBP	OBP0;010C OBP15;010D OBP0;00FEE8	OBP0:010C OBP15:010D OBP0:00FEE8	This command decide what type of OBD/J1939 data will be upload. Total can upload 16 types. Command name is OBP0 -- OBP15. When selected OBDII protocol(SOP:0~SOP9): Para "010C": OBD service type and parameter ID. use hexadecimal format. please refer to OBD protocol to check the service type and parameter ID. E.g. "010C" means service type is "01" and ID is "0C". namely "engine RPM" in the OBD protocol. Then device will upload engine RPM data. Here are some common service type FYI "03":error code(there is no "parameter ID". device will upload automatically when received error) "010C": engine RPM data "010D": vehicle speed data When Selected SAE J1939 protocol(SOP:A/B): Para "00FEE8": Value of SAE J1939 Parameter

					Group Number(PGN), 6 hexadecimal characters length. If the length is less than 6 characters, need to insert "0" on the front. please refer to SAE J1939 to check the PGNs.
62	Read OBDII data	OBC	OBC;010C	OBC:010C OBC:R;410C1234 OBC:BYS	Function: Read OBDII data. Para "010C": OBD service type and parameter ID. use hexadecimal format. please refer to OBD protocol to check the service type and parameter ID. E.g.: "OBC;010C" . "010C" means service type is "01" and parameter ID is "0C" . That is "engine RPM" in the OBD protocol. Then device will upload engine RPM data after the command. if there is no parameter ID, just input service type. E.g.: " OBC;03" is read OBD error code. Reply format: "OBC:R;410C1234" "41":this is the mark for 01 service "0C": this is the parameter ID of 01 service "1234": this is the value of ID 0C of 01 service Note: 1234 is RPM value
63	Parameter setting of OBD alarm (only some of them listed)	OBA	OBA;0C;0;115; 30	OBA:0C;0;115; 30	Function: this command is used to set alarm parameters for some OBD alarm. pare1: PID of OBD data pare2: comparing mark, which can be: 0: > over Pare3(the threshold value) 1:< less Pare3(the threshold value) Pare3: the threshold value (range: 0~4294967295)for the alarm Para4 : the period the alarm last (range: 0~65535, unit: second). When the value is over the threshold and last for the time set, alarm will be triggered.

64	Manager password	MPW	MPW;123456	MPW:123456 6	6—10 digits Default MPW : 123456
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7.4 User command list

1. User commands are authorized by the Manager, which can be set the same authority as manager level
2. **For avoiding repeating the contents, Here only shows the command name and parameters in "command domain" and removed the rest part of the command like password. For complete format , please refer to "7.1 command format".**

Table 3 query command list

command ID	Command description	Command name	download (send out)	Upload (reply)	Remark
1	Query the product ID	DID	DID	DID:012345678912345	Reply para-"012345678912345": product ID. Default is GSM IMIE code Note: fixed ,cannot be changed by command RFD
2	Query the product name	NAM	NAM	NAM:T303	Reply parameter-"T303": 1 ~ 32 characters, default: ULBOTECH product model.
3	Query hardware and software version	VER	VER	VER:V1.013;1.050 ;12.12.11-12:04:01	Para1-"1.013" : hardware version Para2- "1.050" : software version Para3- Compile time
4	Query GSM IMEI code	MEI	MEI	MEI:123456789012345	
5	Query IMSI of the SIM card	MSI	MSI	MSI:123456789012345	IMSI is decided by SIM card of mobile phone (15 digits)
6	Query ID of SIM card	CID	CID	CID:12345678901234567890	SIM card number, 20digits
7	Query the GPS information	GPS	GPS	GPS:3;N23.164865;E113.428970;0;0;1.26	The format of respond parameters Please refer to 6.3.1

8	Query LBS information	LBS	LBS	LBS:460;0;10033;17261;68	The format of respond parameters Please refer to 6.3.1
9	Query device status	STT	STT:U	STT:2;0	function: query the device status. Device status information are different from Users, SMS servers, Web server (TCP channel), Web server (UDP channel). some alarm information can be cancelled by "UAM, SAM, GAM " command. Para1-"U": the kind of status. can be: U: users A: the SMS server S: Web server reply the parameters format Please refer to 6.3.2
10	Query AD value	ADC	ADC	ADC:0;6.2;1;36.2	The format of respond parameters Please refer to 6.3.3
11	Query mileage	MGR	MGR	MGR:1000	"1000" is mileage, unit :meter
12	User shortcut key setting	USC	USC; A; LCL	USC:A; LCL	Function: user can set shortcut to represent a specific command. After setting, Note: only applied with user mobile NO. Para1-"A": shortcut key Para2-"LCL": command to be replaced. E.g.: set command GUM's shortcut key is A. After configuration of "USC;A; GUM;30M;12H;G;T", user can send command "1234,A" to replace "1234, GUM;30M;12H;G;T". Note: 1. This feature support combined command. 2. "(" need to be added in front of the data need to be converted. E.g.: A/B are the key for command LCL/GUM, then it should be:

					<p>USC;A; LCL(;GUM(; 30M(;12H(;G(;T</p> <p>3. It is only supported by command authorized to the user (device would give the message " ERR" if none of them authorized to the user.</p> <p>Default: empty</p>
13	Query the status of geo-fence	GFS	GFS	GFS:FF;1	<p>Function: query status of device geo-fences</p> <p>range of return parameter: 0~FFFFFFF hexadecimal.</p> <p>there are 32 fences in total. Each bit of the parameter represent one geo-fence. Bit0 represent geo-fence1....bit31 represent geo-fence32.</p> <p>Para1-"FF": out/ in status. Definition of each bit</p> <p>"0": device out the fence or no fence is set in this bit</p> <p>"1": device is inside of the fence</p> <p>E.g. "FF" represent that for all geo-fence, device location is "in"</p> <p>Para2-"1": alarm status. Definition of each bit:</p> <p>"0": no alarm in this fence</p> <p>"1": alarm in this fence</p> <p>E.g.. "1" means fence 0 is in alarm status</p>
14	Query GSM signal quality	CSQ	CSQ	CSQ:5	<p>Reply para-"5": GSM signal strength level.</p> <p>range: 0-5</p>
15	Query TTFF (Time to first fix) of GPS	GFT	GFT	GFT:500	<p>Reply para-"500": TTFF. the unit is second. This parameter indicates the time to get GPS location after device powered on.</p> <p>range: 1-65535</p>

16	Setting device time clock	TIM	TIM; 09:08:00 -11.10.12	TIM:09:08:00-11.10.12	<p>Function: the product has internal clock. Upload data will have time information. When there is GPS data, device use GPS time and AUTO adjust the internal clock. When there is no GPS data, then use internal clock time. User can also set the time by this command.</p> <p>para-"09:08:00-11.10.12": internal time. format is "hh:mm:ss-dd.MM.YY" (Greenwich time).</p> <p>Eg." 09:08:00-11.10.12" represent date is 2012-10-11 and time is 09:08:00.</p>
17	Query latest error status	ERS	ERS	ERS: F1	<p>Range : 0~FFFF</p> <p>Parameter definition:</p> <p>Bit0: GSM module communication error</p> <p>Bit1: SIM card error</p> <p>Bit2: GSM not register</p> <p>Bit3: GPS communication error</p> <p>Bit4: SMS send error</p> <p>Bit5: PPP connection error</p> <p>Bit6: Server1 connection error</p> <p>Bit7: SIM card PIN error</p> <p>Bit8: Server2 connection error</p> <p>Bit9: OTA connection error</p> <p>Bit10: AGPS connection error</p> <p>Bit11: Remote diagnostic connection error</p> <p>Bit12: WIFI open error</p> <p>Bit13-14: undefined</p> <p>Bit15: unknown error</p> <p>Default: empty</p>

18	Clear error status	ERC	ERC	ERC	Clear device error status. Default: empty
19	Query GSM register status	REG	REG	REG:1 REG:1;7	Reply parameters can be: Para1:Register status "0": no registered. Mobile Equipment is not searching new telecom provider. "1":registered local telecom provider "2": not registered. Mobile Equipment is searching new telecom provider. "3": register rejected "4":not registered. Unknown reason. "5": registered roaming. Para2: Access technology selected (for 4G devices) "0": GSM(2G) "2": UTRAN(3G) "3": GSM W/EGPRS(2.5G) "4": UTRAN W/HSDPA(3.5G+) "5": UTRAN W/HSUPA(3.5G+) "6": UTRAN W/HSDPA and HSUPA(3.5G+) "7": E-UTRAN(4G)
20	Query Server connection status	GSS	GSS	GSS:1	Reply parameters can be: "0": no connection "1": connected to server via GPRS "2": connected to server via WIFI
21	Query Flash type	EFT	EFT	EFT:080	Function: query flash capacity. Replied para1-"080": flash capacity. Unit :0.1M bits. exp. "080" represent 8M Bits Default : empty
22	Query Bluetooth status	BTS	BTS	BTS;0 BTS;1;0	Function: query the Bluetooth status. Para1:bluetooth open status, "0" opened "1" closed Para2:bluetooth connect status "0" unconnected

					"1" connected
23	Query Bluetooth MAC address	BAD	BAD	BAD:01.02.03.04.05.06	Bluetooth MAC address
24	Query OBDII status	OBS	OBS	OBS;2;0;1 OBS;0 OBS;1	Replied Para1-"0":OBD working mode. Can be: "0": Power down; "1": Monitor "2": Normal Replied Para2-"0":connection status. Can be: "0": not connected; "1": connected Para3-"1": Hexadecimal value, OBD protocol type. Can be: 0 – Automatic 1 - SAE J1850 PWM (41.6 kbaud) 2 - SAE J1850 VPW (10.4 kbaud) 3 - ISO 9141-2 (5 baud init, 10.4 kbaud) 4 - ISO 14230-4 KWP (5 baud init, 10.4 kbaud) 5 - ISO 14230-4 KWP (fast init, 10.4 kbaud) 6 - ISO 15765-4 CAN (11 bit ID, 500 kbaud) 7 - ISO 15765-4 CAN (29 bit ID, 500 kbaud) 8 - ISO 15765-4 CAN (11 bit ID, 250 kbaud) 9 - ISO 15765-4 CAN (29 bit ID, 250

					kbaud) A - SAE J1939 CAN(29 bit ID, 250kbaud) B – SAE J1939 CAN(29bit ID, 500kbaud)
25	Query OBDII data	OBD	OBD	OBD:UNCONNECTED OBD:31077F410C0000310D00	Function : get all the OBD data which is selected by OBP command. Replied parameter "31077F410C0000310D00" format is same as "OBD data" of "6.4.6 OBDII data". when reply "OBD:UNCONNECTED" means no OBD is connected.
26	Query fuel consumption	FUL	FUL	FUL:123456	Function: Get fuel consumption value. please refer "6.3.7 fuel consumption data " for the reply parameter.
27	Query OBD alarm data	OAL	OAL	OAL:NOALARM OAL:31077E410C0000310D0073010002000300	Function: Query OBD alarm data If no alarm, answer back "NOALARM"; Or else answer back alarm information , the format refer to "6.3.8 OBD" alarm data format definition.
28	Query WIFI status	WFS	WFS	WFS:1;ulbotech_wifi	Function: Query WIFI status. For WIFI hotspot devices: Para1: WIFI hotspot status, 0—Hotspot OFF, 1—Hotspot ON Para2: Connected client counter For other devices: Para1: WIFI power status, 0—Power OFF, 1—Power ON Para2:Device connected WIFI AP SSID, Display only WIFI connected.
29	Query vehicle identification number (VIN)	VIN	VIN	VIN:1G1JC5444R7252367	Function: Query vehicle identification number Replied Para: String of vehicle identification number.
30	Query CANBUS(J1939) data	CAN	CAN	CAN: UNCONNECTED CAN:0B00FEE521	Function: Query CANBUS(J1939) data If CANBUS without connection, will answer back "UNCONNECT";or else,

				00000091010000	answer back CANBUS data, the format refer to “ 6.3.10 CANBUS” data format definition.
31	Query J1708 data	HVD	HVD	HVD:UNCONNECTED HVD:8254D182607A826EE083BE554385F500192ACC	Function : get all the J1708 data which is selected by HVP command. Replied parameter “8254D182607A826EE083BE554385F500192ACC” format is same as “J1708 data” of “6.4.11 J1708 data”. when reply “HVD:UNCONNECTED” means no J1708 is connected.
32	Query OBDII support parameters	OID	OID	OID:FFFFFFFF;FFF FC000	Function:
33	Query the current using SIM card	SIM	SIM	SIM:1	Function: Query the current using SIM card (Only valid for dual SIM card device) Para : Indicate the current using SIM card Range: 1~2 1- SIM card 1 2- SIM card 2
34	Query GSM/3G module name and version	GMM	GMM	GMM:Telit HE910_EUD	Function: Query GSM/3G module name and version
35	Resend all offline data	RTO	RTO	RTO	Function: Resend all offline data
36	Erase all offline data	CRD	CRD	CRD	Function: Erase all offline data
37	Query connected Bluetooth MAC	BCM	BCM	BCM	Function: Query connected Bluetooth MAC
38	Query flash storage status	DSK	DSK	DSK:para1;para2; para3	Function: Query flash storage status Para1: not upload data size Para2: total data size Para3: total storage size

39	Query beacon status	BCS	BCS		Function: Query beacon status
40	BLE information query	BTI	BTI1	BTI1:FFE0	
41	Query the number of GPS's effective satellites	SIV	SIV	SIV:8	
42	Query the native phone no.	NUM	NUM	NUM:+8613912345678	
43	Query the device data flow consumption	GDC	GDC	GDC; 7346771,46868606	
44	Query the number of clients <i>connected</i> with WIFI hotspot	WCC	WCC	WCC:4	
45	Query Engine working time	EGT	EGT	EGT;368482	Function: Query Engine working time
46	Trace to flash enable setting	FTR	FTR;1	FTR:1	Function: trace to flash enable setting Para: enable/disable '1'—Enable '0'—Disable
47	Query adapter status	ADS	ADS		Function: Query adapter status
48	Query Assist-GPS offline file status	AGO	AGO	AGO:size;timesta mp	Function: Query Assist-GPS offline file status
49	Query Fuel sensor status	FSS FSS1 FSS2	FSS FSS1 FSS2	FSS:1;1109;2;124 0 FSS1:1109;0;0;5;1	Function: Query Fuel sensor status When the command id is zero or null(FSS) Query all fuel sensor value

		FSS3 FSS4 FSS5	FSS3 FSS4 FSS5	203	When the command id not zero, query the special fuel sensor status. Para1: output value, unit: 0.1mm Para2: FW code Para3: HW code Para4: signal quality Para5: test value, unit: 0.1mm
50	Query G-sensor status	GSN	GSN	GSN:para1;para2;para3;para4;para5 GSN:0 GSN:1 GSN:41;-32;-144;-1008;1	Function: Query G sensor status Para1: G sensor status, hexadecimal number, range 0-FF. Bit0---G sensor working status, 0—Not working, 1—Working Bit6---G sensor calibrate status, 0—Not calibrate, 1—Calibrated Bit7---Rollover status, 0—Normal, 1--Rollover Para2: Calibrated G sensor x-axis value, unit: mg Para3: Calibrated G sensor y-axis value, unit: mg Para4: Calibrated G sensor z-axis value, unit: mg Para5: Roll angle, unit: degree, range 0-180

7.5 Additional remarks for commands

7.5.1Geo-fence setting

There are 5 fences available, the Serial NO. from 0~4. Circular, rectangular and polygon shape geo-fence supported (maximum number of the vertex is 32). Admin/Manager can use all the fences, they can also decide the QTY of geo-fence opened to user by command.

There are two ways to set the geo-fence. One is common method with two commands to fulfill. Another one is quick method with one command. But the second method is open only for circular and rectangular geo-fence.

5.5.1.2 common method

Two commands are needed for setting one geo-fence. The first command is for setting the basic property and the other one is for setting the parameters.

Format as below :

(1) `GOSid;vertex_cnt;flag`

(corresponding query command: `GOSid`)

(2) `GOSid;P;para_id;para_val;para_id;para_val...`

(corresponding query command : `GOSid;P;para_id;para_id...`)

Note: at each time ,Max. 4 *para_id* can be supported by command of “geo-fence property setting” and “geo-fence parameter setting”(no combined command supported for command with over 4 *para_id*). if more than 4 *para_id*, more commands need to be sent, setting and query command can be combined in one command.

Identifier +info	definition	details
<i>GOSid</i>	geo-fence ID	decimal number. Range: 0~4. each number represent one geo-fence. "0" represent "geo-fence 1" ... "4" represent "geo-fence 5"
<i>vertex_cnt</i>	vertex number	decimal number. Range:0~32 definition : '0': delete the geo-fence "1":set circular geo-fence "2":set rectangle fence "3~32":set vertex number of polygon fence

<i>flag</i>	geo-fence property	<p>hexadecimal number.</p> <p>Range:1~FFFF.</p> <p>Definition of each bit is shown as follow.</p> <p>Bit0 and bit1 is used to determine event trigger condition.</p> <p>"bit0=1" means geo-fence in trigger.</p> <p>"bit1=1" means geo-fence out trigger.</p> <p>one must be set as "1" among bit0 and bit1. if both is set to "0", device will be set "bit0=1" automatically and vice versa.</p> <p>bit2~bit14 is used to determine the trigger event.</p> <p>bit2~bit13 is reserved.</p> <p>bit14 is used for alarm. means when geo-fence triggered, device send alarm. one must be set as "1" among bit2~bit14. If all have been set as "0", device will be set "bit14=1" automatically and vice versa.</p> <p>bit15 is the validity mark for parameter. cannot set by user. if all the parameters of this geo-fence are correct, this bit will be "1". otherwise will be "0"</p>
<i>para_id</i>	parameter ID	<p>length: less than 2 characters.</p> <p>this parameter decide the property of the followed "para_val".</p> <p>For different type of geo-fence, the definition is different.</p> <p>Round geo-fence:</p> <p>para_id=0 means the following data is circle center coordinate</p> <p>para_id=1 means the following data is circle radius.</p> <p>rectangle geo-fence:</p> <p>this type of geo-fence is decide by the points of diagonal line. if these two point's coordinate is known, one can draw the rectangle.</p> <p>para_id=0 means the following data is coordinate of point1</p> <p>para_id=1 means the following data is coordinate of point2</p> <p>polygon geo-fence:</p> <p>range:0~31. each number represent one vertex. exp. if set to "0" means the following data is coordinate of vertex1.</p>

<i>para_val</i>	parameter value	<p>length: more than 3 characters.</p> <p>there are two types of this parameter. Depend on "para_id".</p> <p>(1) coordinate format:</p> <p>"Latitude (decimal degree format); longitude (decimal degree format)"</p> <p><Latitude >: range is -90~90 with maximum accuracy of 6 decimal points.</p> <p>south latitude is represent by negative data while north is positive.</p> <p><Longitude>:range is -180~180 with maximum accuracy of 6 decimal points.. west longitude is represent by negative data while east is positive.</p> <p>(3) radius</p> <p>decimal number. Range from 200 to 20000000.</p> <p>unit is meter.</p>
-----------------	-----------------	---

Exp.

Set polygon geo-fence :

Send command :

GOS0; 3; 1

GOS0;P; 0;29.71234; 71.0508;1;- 29.71234;- 71.0508;2;23.1234;175.789

Device reply :

GOS: 3; 4001

GOS0;P; 0;29.71234; 71.0508;1;- 29.71234;- 71.0508;2;23.1234;175.789

Delete geo-fence :

Send command :

GOS0; 0

Return :

GOS; 0

5.5.1.2 Quick method

Format is "GOSid;vertex_cnt;flag;para"

The definition of parameter "GOSid", "vertex_cnt", "flag", is same as common method. please refer to the table above. The definition of "para" is shown as follow:

<para>:

If setting round geo-fence, the format is "latitude coordinate of circle center; longitude coordinate of circle center; radius"

If setting rectangle geo-fence, the format is "latitude coordinate of point1 of diagonal line; longitude coordinate of point1 of d diagonal line; latitude coordinate of point2 of diagonal line; longitude coordinate of point2 of d diagonal line"

The rang of latitude, longitude and radius is same as " para_val". Please refer to the table above.

example:

Set round geo-fence:

GOS0; 1; 1; 29.71234; 71.0508; 1000

Return :

GOS: 1; C001; 29.71234; 71.0508; 1000

Set rectangle geo-fence:

GOS0; 2; 1; 29.71234; 71.0508; - 29.71234; - 71.0508

Return :

GOS: 2; C001; 29.71234; 71.0508; - 29.71234; - 71.0508

The table below for the user first time used set supplement, after setting, it can be operated according to user's requirements.

7.5.2 "Power-saving mode" Setting

1. Note: GPS module power save condition.

<1>.only if the upload intervals for user and server are lager then 15 min, power save function can be used.

<2>. Because some functions are related to GPS location data, and GPS module would keep work even PSS command sent , so , in order to fulfill GPS power save function, user need to close those function as below:
a, GPS mileage function

- b, Geo-fence function
- c, over-speed alarm function
- d, GPRS channel distance upload function
- e, Angle change (harsh turn) alarm function
- f, Speed change alarm function

2. working process

In order to save the power, device can power off GPS and GSM modem separately when device is standby.

When the upload time set is up or an alarm is triggered, modems will be wake up. The maximum wake up time is 6 minutes. If there is GSM signal, device uploads data. If there is no GSM signal, device will save the data in flash memory. When finish upload works, device will power off modems again.

8. Auto uploaded data to user mobile phone

8.1 Uploaded hyperlink type data (SMS) to mobile phone

As per the configuration, the device will upload hyperlink type short message to the user's mobile.

Meanwhile the following information will be sent together

TMP: device temperature

PWR: device voltage

For example set hyperlink as:

URL0;http: maps.google.com/staticmap?zoom=14&size=300x300&markers =%n(;%e&sensor=false

URL1; http://wap.anttna.com/cell2gps/cell2gps2(.php?lac=%A&cellid=%D&z=14&w=300&h=300&t=1";

Device upload short message format as below:

1. GPS available, based on GPS location

T303 V0.01

http://maps.google.com/staticmap?zoom=14&size=300x300&markers=23.164389,
113.428498&sensor=false

STT=1

ALM=1

TMP=-49.5C

PWR=15.3V

Parameter notes:

<http://maps.google.com/staticmap?zoom=14&size=300x300&markers=23.164389, 113.428498&sensor=false>

Super link web information

%n parameter

%e parameter

Super link web information

The link format and connection decide by website operators,

2. GPS unavailable, based on LBS location:

<http://wap.anttna.com/cell2gps/cell2gps2.php?lac=9425&cellid=42007&z=14&w=300&h=300&t=1>

STT=1

ALM=1

TMP=-49.5C

PWR=15.3V

3. Remarks on parameter :

<http://wap.anttna.com/cell2gps/cell2gps2.php?lac=9425&cellid=42007&z=14&w=300&h=300&t=1>

Super link web information

parameter%D,CID

Super link web information

Parameter %ALAC

The link format and connection mark decided by map webmaster,

8.2 Uploaded TXT type data (SMS) to mobile phone

As per the configuration, the device will upload hyperlink type short message to the user's mobile.

Meanwhile the following information will be sent together

SCA: speed information and azimuth angle if GPS available

TMP: device temperature

PWR: device voltage

Device upload short message format as below:

1. GPS available, based on GPS location

T303 V0.01	model name and version number
GPS 6/71	GPS Satellite QTY and locating time (unit: sec)
UTC 11-05-24 03:24:20	date and time
N23.164614	latitude
E113.428672	longitude
SCA: 0km/h 0	speed
TMP=-49.5C	device temperature
PWR=15.3V	device voltage

2. GPS unavailable, based on LBS location:

T303 V0.01	model name and version number
MCC=460	base station MCC (hexadecimal)
MNC=0	base station MNC (hexadecimal)
LAC=2503	base station LAC (hexadecimal)
CID=962C	base station CID (hexadecimal)
TMP=-49.5C	device temperature
PWR=15.3V	device voltage

8.3 Uploaded Alarm data (SMS) to mobile phone

When there is alarm triggered, device will upload alarm message to user's mobile with the format as below:

Location (GPS/ base station based location information +alarm information

Example:

<http://wap.anttna.com/cell2gps/cell2gps2.php?lac=9425&cellid=42007&z=14&w=300&h=300&t=1>

Alarm:

Moving

Anti-Jamming

9. Supplement

9.1 Command setting for First time use

Table 5 Command setting for First time use supplement

Mode	Command name	content	If Must	Usage
Admin	UCM	User command mask setting	no	Select which commands can be used by user mobile phone
	SNO	set SMS server number	no	If user use SMS server, need to set this number.
	APN	Set APN	yes	GPRS access points
	GIP	Setting Web servers IP address and port	yes	If one use Web server, must set IP and port.
	WFL	Setting WIFI AP list	yes	WIFI access point list(WIFI device only)
Manger /user	UNO	Setting user phone number	yes	After setting, user can use the user commands
	UPW	Setting user password	no	set password for user mobile

9.2 Supplement note for function

(1) information requirement

Users can use sending command (LCL) to acquire location information. This function can also fulfill by the following method: Users dial device phone number, hang up the phone after first ring if connected, Device sends location information to user's mobile phone.

(2) User monitor

Users can use sending command (MON) to monitor. This function can also fulfill by the following method: User dial device phone number, wait until the telephone connected. Then start monitor.

Appendix 1 Command default setting and availability

Admin level command									
ID	Com mand name	Command description	Default parameter	User	mana ger	admi n	Change to default by FDP	change back to default by Firmware	All models
1	FWU	Firmware update	FWU:0	x	x	√	x	√	All models
2	OAS	FOTA server setting	OAS:www.obdtrack ing.com;49683	x	x	√	x	√	All models
3	OAP	FOTA file path setting	OAP:/FW/T303/T30 3.fmw	x	x	√	x	√	All models
4	APW	Admin password	APW;0123456789	x	x	√	√	x	All models
5	MCM	Manager level command mask	MCM:0	x	x	√	√	x	All models
6	UCM	User command mask	UCM:C000000A2E0 600DF	x	x	√	√	x	All models
7	UAM	Set user alarm mask	UAM;17;1;5;1	x	x	√	√	x	All models
8	SAM	set SMS server alarm mask	SAM;1D;1;5;1	x	x	√	√	x	All models
9	GAM	Set Web server alarm mask	GAM;1D;1;5;1	x	x	√	√	x	All models
10	HBI	heartbeat interval	HBI;20	x	x	√	√	x	All models
11	URL	URL Setting	URL0;http://maps.g oogle.com/maps?q =%n,%e&t=m&z=16 URL1;	x	x	√	x	x	All models
12	MSS	Movement sensor setting	MSS;3;60	x	x	√	√	x	All models
13	AJS	Anti-jamming parameter setting	AJS;30;20	x	x	√	√	x	All models
14	RFD	Reset parameters to default	/	x	x	√	x	x	All models

15	EPB	baud rate of serial port	EPB;1	x	x	√	√	x	All models
16	EPS	Set communication mode of serial port	EPS;0	x	x	√	√	x	All models
17	UPS	output data type of USB	UPS;0	x	x	√	√	x	All models
18	IML	Immobilize output electrical level setting	IML;0	x	x	√	√	x	All models
19	IMS	Immobilize parameter setting	IMS;1;12	x	x	√	√	x	All models
20	PKI	Serial port data packet parameter setting	PKI;0;1;0	x	x	√	√	x	All models
21	TTE	Time stamp for debug info	TTE;0	x	x	√	√	x	All models
22	PDS	Device "POWER DOWN" setting	PDS;60;1	x	x	√	√	x	All models
25	SOP	Select OBDII protocol	SOP;0	x	x	√	√	x	T36X/T37X

Manager level command									
ID	Com mand name	Command description	Default parameter	User	mana ger	admi n	Change to default by FDP	change back to default by Firmware	Available for
1	UNO	Set user phone number	/	√	√	√	√	x	All models
2	UPW	Set user password	UPW;1234	√	√	√	√	x	All models
3	UUM	User upload mode	UUM0;30M;12H;G;W	√	√	√	√	x	All models
4	UAC	User alarm clear	/	√	√	√	x	x	All models

5	LCL	Request location information	/	√	√	√	×	×	All models
6	SCN	SMS center number	/	√	√	√	×	×	All models
7	APN	APN	/	√	√	√	×	√	All models
8	SNO	SMS server number	/	×	√	√	√	×	All models
9	SUM	SMS server upload mode	SUM;30M;12H;G;T	×	√	√	√	×	All models
10	GIP	server IP address	www.obdtracking.com;38096;0	×	√	√	√	×	All models
11	GUM	Web server upload mode	GUM;30S;30MG;B	×	√	√	√	×	All models
12	MAC	manager alarm clear	/	×	√	√	×	×	All models
13	AGE	enable/disable AGE	AGE;1	×	√	√	√	×	All models
14	OSS	Over-Speed alarm parameters setting	OSS;120	√	√	√	√	×	All models
15	MSE	Enable/disable movement sensor	MSE;1	√	√	√	√	×	All models
16	JME	Enable /disable anti-jamming	JME;0	×	√	√	√	×	All models
17	GOE	Enable /disable Geo-fence	GOE;1F	√	√	√	√	×	All models
18	GOS	Geo-fence parameter setting	null	×	√	√	×	×	All models
19	MGE	Enable/disable mileage	MGE;1	×	√	√	√	×	All models
20	PSS	Power saving mode setting	PSS;0;0	×	√	√	√	×	All models

21	TZS	Time zone setting	TZS;0;0:00	√	√	√	√	×	All models
22	RST	Device reboot	/	×	√	√	×	×	All models
23	IMM	Immobilize output	IMM;0	√	√	√	√	×	All models
24	DAU	Distance and angle upload setting	DAU;0;0	×	√	√	√	×	All models
25	ACA	Direction angle change alarm upload setting	ACA;0;0;0/ACA;0;0	×	√	√	√	×	All models
26	SCA	Speed change upload setting	SCA;0;0	×	√	√	√	×	All models
27	DNU	Dynamic upload setting	DNU;0	×	√	√	√	×	All models
28	MGS	Mileage initial value setting	MGS;0	×	√	√	×	×	All models
29	EFS	FLASH setting	EFS;1;0;30M	×	√	√	√	×	All models
30	UDM	Upload data ID mask	UDM;1F	×	√	√	√	×	All models
31	DST	Daylight-saving time setting	DST;0	√	√	√	√	×	All models
32	PTH	Threshold voltage of power off mode	PTH;110	√	√	√	√	×	All models
33	VML	monitor phone number list	/	×	√	√	×	√	T36X/T37X
34	HTL	hotline list	/	×	√	√	×	√	x

35	MON	Voice monitor	/	√	√	√	×	×	T36X
36	CAL	Dual communication	/	√	√	√	×	×	x
53	GES	GSM enable	GES;2	×	√	√	√	√	T3X6
54	WFE	WIFI enable	WFE;1	×	√	√	√	√	T3X6
55	WAI	WIFI AP setting	/	×	√	√	×	×	T3X6
56	WFL	WIFI STA AP list setting	null	×	√	√	×	×	T3X6
57	BAU	Bluetooth Name and password	BAU:GPS tracker;1234						T363X/T373X
58	BTE	Enable/disable Bluetooth	BTE;1						T363X/T373X
59	OBE	Enable/disable OBD	OBE;1						T36X/T37X
60	FCS	initial value of fuel consumption	FCS;0	√	√	√	×	×	T36X/T37X
61	OBP	OBDII data setting	/	×	√	√	×	×	T36X/T37X
62	OBC	Read OBDII data	/	×	√	√	×	×	T36X/T37X
63	OBA	Parameter setting of OBD alarm	Empty	×	√	√	×	×	T36X/T37X
64	MPW	Manager password	MPW:123456						All models

User level command									
ID	Com mand name	Command description	Default parameter	User	mana ger	admi n	Change to default by FDP	change back to default by Firmware	All models
1	DID	Query the	GSM IMEI	√	√	√	×	×	All models

		product ID							
2	NAM	Query the product name	/	√	√	√	×	×	All models
3	VER	Query hardware /software version and compile time	/	√	√	√	×	×	All models
4	MEI	Query GSM IMEI code	/	√	√	√	×	×	All models
5	MSI	Query IMSI of the SIM card	/	√	√	√	×	×	All models
6	CID	Query ID of SIM card	/	√	√	√	×	×	All models
7	GPS	Query the GPS information	/	√	√	√	×	×	All models
8	LBS	Query LBS information	/	√	√	√	×	×	All models
9	STT	Query device status	/	√	√	√	×	×	All models
10	ADC	Query AD value	/	√	√	√	×	×	All models
11	MGR	Query mileage	/	√	√	√	×	×	All models
12	USC	User shortcut key setting	/	√	√	√	√	√	All models
13	GFS	Query the status of geo-fence	/	√	√	√	×	×	All models
14	CSQ	Query GSM signal quality	/	√	√	√	×	×	All models
15	GFT	Query TTFF (Time to first fix) of GPS	/	√	√	√	×	×	All models
16	TIM	Setting device time clock	/	√	√	√	×	×	All models

17	ERS	Query error status	/	√	√	√	×	×	All models
18	ERC	Clear error status	/	√	√	√	×	×	All models
19	REG	Query GSM register status	/	√	√	√	×	×	All models
20	GSS	Query GPRS connection status	/	√	√	√	×	×	All models
21	EFT	Query Flash type	/	√	√	√	×	×	All models
22	BTS	Query Bluetooth status							T3X3X
23	BAD	Query Bluetooth MAC address							T3X3X
24	OBS	Query OBDII status	/	√	√	√	×	×	T36X/T37X
25	OBD	Query OBDII data	/	√	√	√	×	×	T36X/T37X
26	FUL	Query fuel consumption	/	√	√	√	×	×	T36X/T37X
27	OAL	Query OBDII alarm data	/	√	√	√	×	×	T36X/T37X
28	WFS	Query WIFI Status	/	√	√	√	×	×	T3X6
29	VIN	Query vehicle identification number	/	√	√	√	×	×	T36X/T37X
30	CAN	Query CANBUS J1939 data	/	√	√	√	×	×	T36X/T37X

Appendix 2 uploaded information list

data			Binary data ID	TXT information identifier	Supported by
GPS data ID			01	GPS	All models
Base status information ID			02	LBS	All models
Device status data			03	STT	All models
Mileage data			04	MGR	All models
Device AD data	Para ID in AD : 0	External power supply voltage	05	ADC	All models
	Para ID in AD : 1	Device temperature			All models
	Para ID in AD : 2	Device battery voltage			All models
	Para ID in AD : 3	analog input voltage (connect to device IO port)			T30X
Geo-fence data			06	GFS	All models
OBDII data			07	OBD	T36X/T37X
Total fuel consumption data			08	FUL	T36X/T37X
OBD alarm data			09	OBA	T36X/T37X
Harsh driver behavior data			0A	HDB	All models
CANBUS J1939 data			0B	CAN	T36X/T37X