

COMMUNICATION PROTOCOL

1. GPRS setting

RO GPRS FUNCTION,.

1.1 APN

APN (Access Point Name), it's decided by the provider of communication network.

Set APN

apn+password+space+ APN content

example apn123456 internet

If there is user name and password for the APN, they have to be set up also

Apnuser+password+space+ APN USER NAME

Example apnuser123456 internet

Apnpasswd+password+space+APN PASSWORD

Example apnpasswd123456 internet

2 IP and port setting

Every gprs server has a Ip and port, IP can be in numbers such as 191.62.35.2..3

P.S IP can be DNS for ARM CPU products.

Adminip+password+IP adress+port

Example adminip123456 191.62.35.2..3 9001

3 GPRS format

The following is the gprs data for STC products(TK102,TK103)

GPRS SETTING

Our GPS tracker supports TCP protocol, so please confirm whether your server supports TCP protocol also. If your server supports UDP protocol, please tell us in advance so that we can do some change in our tracker's software to make it UDP protocol.

It is GPRMC format for our GPRS data, the following is some data from our tracker
0711011831,+8613145826126,GPRMC,103148.000,A,2234.0239,N,11403.0765,E,0.00,,011107,,A*75,F,imei:352022008228783,101\x8D
0711011832,+8613145826126,GPRMC,103226.000,A,2234.0239,N,11403.0765,E,0.00,,011107,,A*7E,F,imei:352022008228783,101j
0711011833,+8613145826126,GPRMC,103307.000,A,2234.0239,N,11403.0765,E,0.00,,011107,,A*7C,F,imei:352022008228783,101\xC1

GPRMC data

the following example:

```
$GPRMC,053740.000,A,2503.6319,N,12136.0099,E,2.69,79.65,100106,,A*53
```

Name	Example	Units	Description
Message ID	\$GPRMC		RMC protocol header
UTC Time	053740.000		hhmmss.sss
Status	A		A=data valid or V=data not valid
Latitude	2503.6319		ddmm.mmmm
N/S Indicator	N		N=north or S=south
Longitude	12136.0099		dddmm.mmmm
E/W Indicator	E		E=east or W=west
Speed over ground	2.69	knots	True
Course over ground	79.65	degrees	
Date	100106		ddmmyy
Magnetic variation		degrees	
Variation sense			E=east or W=west (Not shown)
Mode	A		A=autonomous, D=DGPS, E=DR
Checksum	*53		
<CR> <LF>			End of message termination

The following is the gprs data for ARM CPU products(tk102-2,tk103-2, tk202 , tk201-2,xt007,xt008) etc)

```
090805215127,+22663173122,GPRMC,215127.083,A,4717.3044,N,01135.0005,E,0.39,217.95,050809,,A*6D,F,, imei:354776030393299,05,552.4,F:4.06V,0,141,54982,232,01,1A30,0949
```

090805215127==2009, 5th, Aug. 21:51:27

+22663173122= admin number, it is the mobile number which you use to set up apn,ip,port

215127.083 = time(21:51:27:083) the time in your place

A ==GPS module can get gps signal before, has no meaning in this gprs data, it will be always

A ,never change

4717.3044,N, 01135.0005,E== coordinate , the coordinate is got from GMS module directly

Such as the following is the gprs data you got from the tracker

0711151725,07740700975,GPRMC,172553.807,A,5320.6735,N,00129.0141,W,0.00,,151107,,A*
64,F,imei:352022008205401,98

It is counted like this: the last 6 digitals divided by 60,then plus the first two digitals.

5320.6735,N-----20.6735/60+53=0.3445583+53=53.344558N

00129.0141,W-----29.014/60+001=0.4835683+001=001.4835683W

When you get the SMS,the last 6 digitals has been divided by 60 and plus the first two digitals.

0.39 ==speed it is NAUTICAL MILES

217.95 ==angle it is direction of travel, but not accurate, so please ignore this part

050809 ==date it is from GSM module directly, we can not change it

A*6D ==CRC16 correction for GPRMC it is standard GPRS format, hexadecimal number, it is the correction for the GPRMC format

F == valid GPS signal

05 == can get signal from 5 satellites the tracker can get satellites for this data

552.4 ===== the height it is horizen level, not accurate

F:4.06V == power left in the battery , it is 4.2V-3.7V

0 === no charging state if the usb connector on the tracker is connected with power , it is 1, otherwise 0

141= the byte in this data it is the total bytes before 141, count them and will be 141

54982 ==== CRC16 correction for the whote gprs data, decimal system

232===== MCC Mobile Country Code

01===== MNC Mobile Network Code

1A30= LAC Location area code

0949 == cell ID

232,01,1A30,0949 is GSM ID, pls ask your GSM network for this information. Generally speaking ,the gsm operator will not give this information to others. When the tracker is lost, you can offer this data to the police and they can ask GSM operator to help by this data.

The following is the CRC caculation

```
unsigned int CRC_16(unsigned char *buf, unsigned int datalen)
{
    unsigned int i;
    unsigned char j;
    unsigned char c, treat, bcrc;
    unsigned int crc = 0;

    for (i = 0; i < datalen; i++)
    {
        c = buf[i];
        for (j = 0; j < 8; j++)
        {
            treat = c & 0x80;
            c <<= 1;
            bcrc = (crc >> 8);
            bcrc &= 0x80;
            crc <<= 1;
            if (treat != bcrc)
                crc ^= 0x1021;
        }
    }
    return crc&0xffff;
}
```