

Mictrack Communication Protocol

(for MT821/MT825)

V2.0

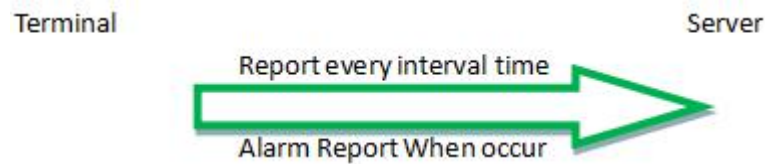
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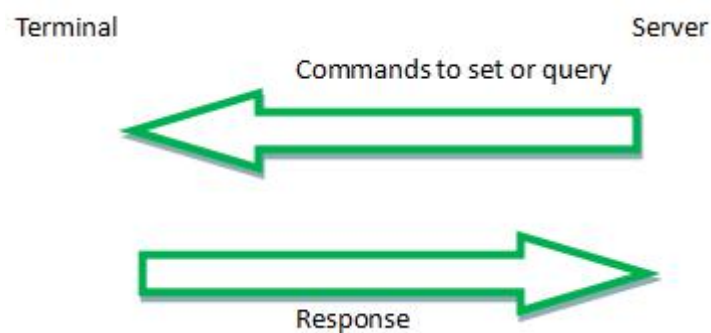
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1. Communication rules

1.1 Report--Auto Report/Alarm Report



1.2 Command-Setting/Query Parameter



2. Terminal to Server Message Format

2.1 Report Message Format

Content	Length(Byte)
Head	2
Separator	1
Mode	1
Separator	1
IMEI	15
Separator	1
Data Type	2
Separator	1
Report Data	90

- <Head> Fixed characters, which is "MT"
- <Separator>Fixed character, which is ";
- <Mode >the device working mode
- <IMEI>Device IMEI number (15 digital)
- <Data Type> check the follow table

Data type	Description
R0	GPS Data
R1 (MT825 only)	WIFI data
R12 (MT825 only)	WIFI+GSM cell
R13 (MT825 only)	WIFI +LTE cell
R2	GSM cell data
R3	LTE cell data
RH	Heart beat data
RC	Configuration inflammation data

2.2 Report GPS Data

Item	Max Length(B)
Satellite no.	2
Separator	1
Time Stamp	12
Separator	1
Latitude	9
Separator	1
Longitude	10
Separator	1
Speed	8
Separator	1
Heading	3
Separator	1
Event ID	1
Separator	1
Battery Voltage	4
Separator	1
Sequence number	3

Example:

MT;6;866425031361423;R0;10+190109091803+22.63827+114.02922+2.14+69+2+3744+113

2.2.1 Satellite No

The number of available satellites.

2.2.2 Separator

Fixed character, which is “+”

2.2.3 Time Stamp

UTC Time of last GPS location, the format is “YYMMDDhhmmss”

For example, "190109091803" means 09:18:03 on Jan, 09,2019

2.2.4 Latitude Longitude

The device latitude and longitude, the format: (-)dd.ddddd,(-)ddd.ddddd

2.2.5 Speed

Current speed , unit is km/h. For example, "2.14" means 2.14km/h

2.2.6 Heading

Track angle in degrees. From 0 to 359

2.2.7 Event ID

Event ID	Description
0	Device power on
2	GPS report
3	WIFI report
4	Cell report
5	SOS report (for MT825) Light sensor report (for MT821)
8	Low battery
11	Heart beat
12	Power off
13	Charging
14	Charging full
15	Power on under power saving mode
16	Power off under power saving mode

2.2.8 Voltage

Backup battery voltage. 3744 means 3.740V

2.2.9 Sequence number

Plus 1 when report one message from 0 to 255(255->0)

2.3 Report Cell Data

Item	Max Length(B)
UTC Time	12
Separator	1
MNC	2
Separator	1
Cell ID	9
Separator	1
LAC	5
Separator	1

MCC	3
Separator	1
PCID	3
Separator	1
Event ID	1
Separator	1
Battery Voltage	4
Separator	1
Sequence number	3

Note: Only LTE cell has PCID .

GSM Cell data:

MT;1;866425031379169;R2;181129081017+0,21681,20616,460+4+3976+0

LTE Cell data:

MT;1;866425031379169;R3;190528030445+0,167910723,14924,460,176+4+3587+11

2.3.1 UTC Time

Refer to 2.2.3

2.3.2 MNC

Mobile network code

2.3.3 CELL ID

The parameter is the 16-bit (GSM) or 28-bit (LTE) cell ID. Range: 0-0xFFFFFFFF

2.3.4 LAC

Location area code.

2.3.5 MCC

Mobile country code

2.3.6 PCID

Physical Cell ID.

2.3.7 Sequence number

Plus 1 when report one message from 0 to 255(255->0)

2.4 WIFI Data

Item	Max Length(B)
UTC Time	12
Separator	1
MAC	17
Separator	1
RSSI	3
Separator	1

MAC	17
Separator	1
RSSI	3
Separator	1
Event ID	1
Separator	1
Battery Voltage	4
Separator	1
Sequence number	3

MT;6;866425031377981;R1;190108024848+6a:db:54:5a:79:6d,-91,00:9a:cd:a2:e6:21,-94+3+3831+0

2.4.1 MAC

MAC address of AP.

2.4.2 RSSI

Received Signal Strength Indication.

2.5 WIFI+CELL Data

Item	Max Length(B)
UTC Time	12
Separator	1
MAC	17
Separator	1
RSSI	3
Separator	1
MAC	17
Separator	1
RSSI	3
Separator	1
MNC	2
Separator	1
Cell ID	9
Separator	1
LAC	5
Separator	1
MCC	3
Separator	1
PCID	3
Separator	1
Event ID	1
Separator	1
Battery Voltage	4

Separator	1
Sequence number	3

Note: Only LTE cell has PCID .

WIFI+GSM cell data:

MT;6;866425031377981;R12;190108024848+6a:db:54:5a:79:6d,-91,00:9a:cd:a2:e6:
21,-94+0,21681,20616,460+3+3831+0

WIFI+LTE cell data

MT;6;866425031377981;R13;190108024848+6a:db:54:5a:79:6d,-91,00:9a:cd:a
2:e6:21,-94+0,167910723,14924,460,176+3+3831+0

2.6 Heart beat data

Item	Max Length(B)
Satellite no.	2
Separator	1
UTC Time	12
Separator	1
Fix value	1
Separator	1
Fix value	1
Separator	1
Fix value	1
Separator	1
Fix value	1
Separator	1
Event ID	1
Separator	1
Battery Voltage	4
Separator	1
Sequence number	3

MT;4;866425031379169;RH;5+190116112648+0+0+0+0+11+3954+1

2.7 Configuration information Data

Item	Max Length(B)
Version	35
Separator	1
G-Sensor status	1
Separator	1
Interval	5
Separator	1
RTC Time	2
Separator	1

RTC Interval	5
Separator	1
Key function	1
Separator	1
Timezone	1
Separator	1
Timezone status	1
Separator	1

MT;6;862785045414383;RC;MT825_MICTRACK_B1.07V3.3_20200910+0+120+0+720+0+32+1

2.7.1 Version

Firmware version

2.7.2 G-sensor status

0: means G-Sensor is disable

1: means G-Sensor is enable

2.7.3 Interval

Interval time on Mode 6.

2.7.4 RTC Time

Wake up time on Mode 0.

2.7.5 RTC Interval

Interval time on Mode 1 or Mode 5.

2.7.6 Key function

This value is reserved and can ignore.

2.7.7 Timezone

Current Time zone of the device location.

2.7.8 Timezone status

0: means Timezone is invalid

1: means Timezone is valid

2.8 Command Response format

Content	Max Length (Byte)
Command Code	13
Separator	1
Result	7
End Sign	1

2.8.1 Command Code

Refer to 3.1 for detail.

2.8.2 Separator

Fixed character, which is “=”

2.8.3 Result

Setting result, "Success" or "Fail"

2.8.4 End Sign

Fixed character, which is "!"

3. Server/SMS to Terminal Message Format

Content	Max Length (Byte)
Command Code	13
Separator	1
Parameter1	64
Separator	1
Parameter2	20
Separator	1
Parameter3	80
Separator	1
Parameter4	10
End Sign	1

3.1 Command Code**3.1.1 Data**

Content	Description
Command Code	data
Separator	,
Parameter1	IP:Port
End Sign	#

This command is used to set the server IP and port.

For example: data,113.98.254.179:7700#

After setup the device will directly connect to 113.98.254.179:7700 , and then report to this server.

Response:

- IMEI,data=Success!
- IMEI,data=Fail!

3.1.2 APN

Content	Description
Command Code	apn

Separator	,
Parameter1	APN
Separator	,
Parameter 2	Username
Separator	,
Parameter 3	Password
End Sign	#

- If the APN include APN username and password please send the command:
apn,internet,internet,internet#
- If the sim card only have APN and APN username and password are blank,
please send the command: apn,m2m,,#

Response:

- IMEI,apn=Success!
- IMEI,apn=Fail!

3.1.3 Working Mode

Content	Description
Command Code	mode
Separator	,
Parameter1	Report mode (0-7)
Separator	,
Parameter2	Time/interval
End Sign	#

Report mode description

Parameter1	Parameter2	Description
0	Time (0-23 hour)	One report per day
1	interval:(3-1440); unit:min	GPS & TCP sleep
4	0	TCP always ON
5	Interval 3-1440); unit:min	GPS sleep
6	Interval (10-86400); unit:sec	GPS & TCP always ON
7	Interval (10-86400); unit:sec	Power Saving mode

- **One day one report mode**

The device will wake up and send data to server, then go to sleep again..

Example:

mode,0,8#

Device will work in "one day one report" mode and will report at 8 am every day.

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

- **Deep sleep interval mode**

Device will wake up and send data to server by interval time, then go to sleep.

Example:

mode,1,60#

The device will report to server every 60mins.

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

- **TCP Always on mode**

Device will keep connecting with server all the time and server can send the command to tracker at any time.

Example: Mode,4,0#

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

- **GPS sleep mode**

Device will report to server by interval time, after that the GPS will disable. When interval time is arrived, the GPS will enable and report data to server again.

Example:

Mode,5,10#

The device will report data every 10mins.

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

- **GPS always on mode**

GPS power on all the time, and report by interval.

Example:

Mode,6,10#

The device will report data every 10sec.

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

- **Power saving mode**

When device detect to vibrate it will wake up or it will power off.

Example:

Mode,7,10#

The device will report data every 10sec when vibrate.

Response:

- IMEI, mode=Success!
- IMEI, mode=Fail!

Note:

When the device keep the connection with server, if you send the command "where?" to server, the device will send the real time location to server.

3.2 Network mode

3.2.1 Setup to Cat M1 network only

SMS Command format : netlock,2,3,0#

Reply: IMEI, netlock=Success!

Note: In this mode device will only work under Cat M1 network.

3.2.2 Setup to NB-IoT network only

SMS Command format :netlock,3,3,1#

Reply: IMEI, netlock=Success!

Note: Device will only work under NB-IoT network.

3.2.3 Setup to GSM only

SMS Command format : netlock,1,1,2#

Reply: IMEI, netlock=Success!

Note: Device will only work under GSM network.

3.2.4 Protocol

Content	Description
Command Code	protocol
Separator	,
Parameter1	0/1
Separator	,
Parameter2	0/1
End Sign	#

This Command is to set TCP or UDP.

- Parameter 1: 0 means UDP, 1 means TCP.
- Parameter 2: 0 not need ACK. 1 mean need to response ACK.
- For example: protocol,1,0/1#
It means TCP protocol. The parameter2 is 0 or 1.

TCP do not support no ACK.

- For example: protocol,0,0# / protocol,0,1#

It means UDP protocol. If the parameter2 is 0 it don't need to response ACK.

If the parameter2 is 1 it need to response ACK

Response:

- IMEI, Protocol =success!
- IMEI, Protocol =Fail!

3.2.5 Light (MT821 only)

Content	Description
Command Code	light
Separator	,
Parameter	0/1
End Sign	#

This command is use to disable/enable light sensor alert.

Parameter: 0 means disable light sensor alert and 1 enable light sensor alert.

For example: light,1#

It means enable the light senor feature.

For example: light,0#

It means disable the light senor feature.

Note: If you disable/enable the light sensor then you need to reboot the device then it will work.

Response:

IMEI, light =success!

IMEI, light =Fail!

3.2.6 Rconf

Content	Description
Command Code	rconf
Separator	,
Type	1
End Sign	#

This is a command to query current device config info.

For example,

rconf,1#

Response:

867035047590649

rconf=nbio,,e.trackits.com,7700,6,30,MT825_MICTRACK_B1.08V4.1_20210519,NB-IoT

Note: According the above message and we can get the info as follow:

ID: 867035047590649

APN: nbio

IP/Port: e.trackits.com:7700

Working Mode: Mode,6,60#

Firmware version: MT825_MICTRACK_B1.08V4.1_20210519

Network Mode: NB-IoT

3.2.7 Reboot

Content	Description
Command Code	reboot
Separator	,
Type	0
End Sign	#

This is a command to let the unit software reset.

For example,

reboot,0#

The device will restart after send this command.

Response:

- IMEI, reboot=Success!
- IMEI, reboot=Fail!

3.2.8 Reset

Content	Description
Command Code	factoryreset
Separator	,
Type	1
End Sign	#

This is a command is reset the unit to default settings.

For example,

factoryreset,1#

The device will resume to factory settings after send this command.

Response:

- IMEI, Factoryreset=Success!
- IMEI, Factoryreset=Fail!

3.2.9 OTA

Content	Description
Command Code	otastart

Separator	,
Parameter1	IP:Port
Separator	,
Account name	
Separator	,
password	
Separator	,
Firmware name	
Separator	,
Parameter2	1
End Sign	#

This command is to Remote update the firmware, you can update via SMS or server.

For example:

otastart,112.74.53.63:21,ota,ota,MT825.bin,1#

Response:

- IMEI, otastart =Success! OTADONE
- IMEI, ota=Fail! OTAFAILED

After OTA progress, it will response "OTADONE" if OTA successfully or response "OTAFAILED" when OTA fail. If it has failed, you can try again.

(End of the document)

mictrack

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