**TR-151 Call Center Development Document
V1.**

1 Configuration

1.1 Read Configuration

1.1.1 How to send SMS and ask TR-151 for sending back its configuration by SMS?

You can send SMS to TR-151 to ask it to send SMS with its configuration setting.
The format of the SMS is "?7,IMEI,0,Return_Phone_Number!"

Format	Description
?	Start sign
7	Function code
IMEI	IMEI code of the TR-151
0	Report type of reading configuration
Return_Phone_Number	The phone number for receiving TR-151 configuration.
!	End sign

TR-151 will return 3 pieces of SMS with its configuration.
For details, please refer to TR-151 Configuration Content

1.1.2 How to send SMS and ask TR-151 for sending back its configuration by GPRS?

You can send SMS to TR-151 to ask to send message to GPRS server with its configuration setting.
The format of the SMS is "?7,IMEI,9!"

Format	Description
?	Start sign
7	Function code
IMEI	IMEI code of the TR-151
9	Report type of reading configuration
!	End sign

TR-151 will return 3 messages with its configuration.

For details, please refer to [TR-151 Configuration Content](#)

1.1.3 How to send GPRS command and ask TR-151 for sending back its configuration by SMS?

You can send command by GPRS server to TR-151 to ask it to send back SMS with its configuration setting.

The format of the SMS is "$7,IMEI,0,Return_Phone_Number!"

Format	Description
$	Start sign
7	Function code
IMEI	IMEI code of the TR-151
0	Report type of reading configuration
Return_Phone_Number	The phone number for receiving TR-151 configuration.
!	End sign

TR-151 will return 3 pieces of SMS with its configuration.

For details, please refer to [TR-151 Configuration Content](#)

1.1.4 How to send GPRS command and ask TR-151 for sending back its configuration by GPRS

You can send command by GPRS server to TR-151 to ask it to send back message with its configuration setting.

The format of the SMS is "$7,IMEI,9!"

Format	Description
$	Start sign
7	Function code
IMEI	IMEI code of the TR-151
9	Report type of reading configuration
!	End sign

TR-151 will return 3 messages with its configuration to GPRS server.

For details, please refer to [TR-151 Configuration Content](#)

1.2 Write Configuration

1.2.1 How to configure TR-151 by SMS?

You can send SMS to configure following parameters into TR-151. There are 8 settings as below.

- SMS Default Return Phone Number
- Maximum GPS Fixing Time
- Default Report Mode Setting
- SOS Numbers
- Motion setting
- Sleeping setting
- GPRS setting
- Normal Setting

Report type	Format	Return message
SMS Default Return Phone Number	?7,IMEI,1,Enable SMS Default Return Phone Number, SMS Default Return Phone Number, Return Phone Number!	?7,IMEI,OK!
Maximum GPS Fixing Time	?7,IMEI,2,Maximum_GPS_Fixing_Time,Return Phone Number!	?7,IMEI,OK!
Default Report Mode Setting	?7,IMEI,3,Default_Report_Mode,Report_Interval,Number_of_Reports,Report_Format,Return_Phone_number_For_Default_Report_Mode,Return_Phone_Number!	?7,IMEI,OK!
SOS Numbers	?7,IMEI,4,SOS1,SOS2,SOS3,Return_Phone_Number!	?7,IMEI,OK!
Motion Setting	?7,IMEI,5,Regular_Report_interval,Motion_report_Interval,Sensitivity,Motion_Return_Number,Return_Phone_Number!	?7,IMEI,OK!
Sleeping Setting	?7,IMEI,6,Regular_Report_interval,Motion_report_Interval,Number_of_Reports,Report_Format,Sensitivity,Sleep_Return_Number,Return_Phone_Number!	?7,IMEI,OK!
GPRS Setting	?7,IMEI,7,Port,APN,User_Name,User_pwd,DNS1,DNS2,Host_Name,Return_Phone_Number!	?7,IMEI,OK!
Normal setting	?7,IMEI,8,Name,Time_Zone,Report_method of SOS and battery low,Echo_EN, Return_Phone_Number!	?7,IMEI,OK!

„ SMS Default Return Phone Number: Set SMS Default Return Phone Number.

„ Maximum_GPS_Fixing_Time:

If GPS is not fixed within the time, it returns previous location and close GPS.

The unit is minute.

„ Default_Report_Mode:

Default_Report_Mode = 0 Æ SMS immediate report
Default_Report_Mode = 1 Æ SMS period report
Default_Report_Mode = 2 Æ Stop
Default_Report_Mode = 8 Æ GPRS immediate report
Default_Report_Mode = 9 Æ GPRS period

Default_Report_Mode = 10 Æ GPRS period and disconnect
Default_Report_Mode = 21 Æ SMS and GPRS immediate report
Default_Report_Mode = 22 Æ SMS and GPRS period report

,, Enable_SMS_Default_Return_Phone_Number:

Enable or disable SMS Default Return Phone Number.
Enable_SMSDefaultReturnPhoneNumber = 0   Æ Disable
Enable_SMSDefaultReturnPhoneNumber = 1   Æ Enable

,, Number_of_Reports:

Set how many report will be sent.
Number_of_Reports = 0   Æ continuous report
Number_of_Reports = X   Æ X times report

,, Report_Format: Ask TR-151 to return message by Format0 or Format1.
,, Report_Interval: Time interval of sending data report. The unit is second.
,, Return_Phone_Number: TR-151 will send confirmed message back to this Return_Phone_Number.

If you keep Return Phone Number blank, TR-151 will send report to SMS Default Return Phone Number.

If Return Phone Number and SMS Default Return Phone Number are both blank, TR-151 will send report to caller ID.

,, Return Phone Number For Default Report Mode: Return phone number for default report mode. TR-151 will send report to this number after it is turned on when Default Report Mode is set to immediate report or period report.
,, Motion Setting: If you send this command, the default report mode will turn to Motion mode
,, GPRS setting

Item	Description
GPRS Port	The communication port for connecting GPRS network
GPRS APN	The APN of GPRS network station
GPRS user name	The account for connecting GPRS network
GPRS user password	The password for connecting GPRS network
GPRS DNS 1/ DNS 2	The DNS for connecting GPRS network
GPRS Server Host Name	The fixed IP or Domain Name for the computer running the TR Management Center (It should be a physical IP or a domain name)

1. The value of GPRS port is between 1 and 65,535, and the default is 5000.

2. GPRS APN is different from each GPRS network provider. You have to get the APN from your GPRS network provider.

3. GPRS Server Host Name is the physical IP address of the PC that you installed the call center or a domain name. The IP is for connecting the GPRS network. It should be a physical IP.

4. In Taiwan, GPRS user name, GPRS user password, GPRS DNS1, and GPRS DNS2 are not necessary items. You have to consult with your GPRS network provider about those values.

,, Normal Setting:
Report Method of SOS and battery low: 1=SMS

2=GPRS

3=SMS & GPRS

6

Echo_EN: Enable TR-151 to send "Return Message"=0 Æ Enable

Enable TR-151 to send "Return Message"=1 Æ Disable

1.2.2 How to configure TR-151 by GPRS server?

You can send command by GPRS server to configure following parameters into TR-151.

There are 8 settings as below.

- SMS Default Return Phone Number
- Maximum GPS Fixing Time
- Default Report Mode Setting
- SOS Numbers
- Motion setting
- Sleeping setting
- GPRS setting
- Normal Setting

Report type	Format	Return message
SMS Default Return Phone Number	$7,IMEI,1,Enable_SMS Default Return Phone Number, SMS Default Return Phone Number!	$OK!
Maximum GPS Fixing Time	$7,IMEI,2,Maximum_GPS_Fixing_Time!	$OK!
Default Report Mode Setting	$7,IMEI,3,Default_Report_Mode,Report_Interval,Number_of_Reports,Report_Format,Return Phone Number For Default Report Mode!	$OK!
SOS Numbers	$7,IMEI,4,SOS1,SOS2,SOS3!	$OK!
Motion Setting	$7,IMEI,5,Regular Report Interval,Motion report Interval,Sensitivity,Motion_Return_Number!	$OK!
Sleeping Setting	$7,IMEI,6, Regular_Report_interval, Motion_report_Interval,Number_of_Reports,Report_Format,Sensitivity,Sleep_Return_Number!	$OK!
GPRS Setting	$7,IMEI,7,Port,APN,User_Name,User_pwd,DNS1,DNS2,Host_Name,Return_Phone_Number!	$OK!
Normal setting	$7,IMEI,8,Name,Time_Zone,Report_method,Echo_EN,Return_Phone_Number!	$OK!

„   SMS Default Return Phone Number: Set SMS Default Return Phone Number.

„   Maximum_GPS_Fixing_Time:

If GPS is not fixed within the time, it returns previous location and close GPS.

The unit is minute.

„   Default_Report_Mode:

Default_Report_Mode = 0   Æ SMS immediate report
Default_Report_Mode = 1   Æ SMS period report
Default_Report_Mode = 2   Æ Stop
Default_Report_Mode = 8   Æ GPRS immediate report
Default_Report_Mode = 9   Æ GPRS period
Default_Report_Mode = 10 Æ GPRS period and disconnect
Default_Report_Mode = 21 Æ SMS and GPRS immediate report

Default_Report_Mode = 22 Æ SMS and GPRS period report

„ Enable_SMS_Default_Return_Phone_Number:

Enable or disable SMS Default Return Phone Number.
Enable_SMSDefaultReturnPhoneNumber = 0　Æ Disable
Enable_SMSDefaultReturnPhoneNumber = 1　Æ Enable

„ Number_of_Reports:

Set how many report will be sent.
Number_of_Reports = 0　Æ continuous report
Number_of_Reports = X　Æ X times report

„ Report_Format: Ask TR-151 to return message by Format0 or Format1.

„ Report_Interval: Time interval of sending data report. The unit is second.

„ Return_Phone_Number: TR-151 will send confirmed message back to this Return_Phone_Number.

If you keep Return Phone Number blank, TR-151 will send report to SMS Default Return Phone Number.

If Return Phone Number and SMS Default Return Phone Number are both blank, TR-151 will send report to caller ID.

„ Return Phone Number For Default Report Mode: Return phone number for default report mode. TR-151 will send report to this number after it is turned on when Default Report Mode is set to immediate report or period report.

„ Motion Setting: If you send this command, the default report mode will turn to Motion mode

„ GPRS setting

Item	Description
GPRS Port	The communication port for connecting GPRS network
GPRS APN	The APN of GPRS network station
GPRS user name	The account for connecting GPRS network
GPRS user password	The password for connecting GPRS network
GPRS DNS 1/ DNS 2	The DNS for connecting GPRS network
GPRS Server Host Name	The fixed IP or Domain Name for the computer running the TR Management Center (It should be a physical IP or a domain name)

5. The value of GPRS port is between 1 and 65,535, and the default is 5000.

6. GPRS APN is different from each GPRS network provider. You have to get the APN from your GPRS network provider.

7. GPRS Server Host Name is the physical IP address of the PC that you installed the call center or a domain name. The IP is for connecting the GPRS network. It should be a physical IP.

8. In Taiwan, GPRS user name, GPRS user password, GPRS DNS1, and GPRS DNS2 are not necessary items. You have to consult with your GPRS network provider about those values.

„ Normal Setting:
Report Method of SOS and battery low: 1=SMS
2=GPRS

3=SMS & GPRS

Echo_EN: Enable TR-151 to send "Return Message"=0 Æ Enable

Enable TR-151 to send "Return Message"=1 Æ Disable

1.3 TR-151 Configuration Content

Example: **TR,IMEI,1,1,3,30,30,0,12,30,0,Tony,+8.00, 1,60,1,0,0,1,0!**

Parameters	Description
TR	Start sign
IMEI	IMEI
1	part
Enable/ Disable SMS Default Return Phone Number	0: Enable, 1:Disable
Maximum GPS Fixing Time	The maximum time for getting GPS fix
Motion Mode Regular Report Interval	The regular interval of sending location report under motion mode
Motion Mode Motion Report Interval	The interval of sending location report when TR-151 senses vibration under motion mode
x	x
Sleep Mode Regular Report Interval	The regular interval of sending location report under sleeping mode.
Sleep Mode Motion Report Interval	The interval of sending location report when TR-151 senses vibration under sleeping mode
Number of report under sleep mode	Set how many location report will be sent when TR-151 senses vibration under sleeping mode
User Name	User name
Set Time Zone	Time zone
Default Report mode	Report Mode (Please refer to **Report Type** in SMS Return format or GPRS Return Format)
Period Report interval	Interval of periodic report
SMS Report Format	0 or 1. 0 is for end user, and 1 is for call center development
Number of SMS Period report	Number of SMS Periodic report
Sensitivity	The number of vibration which activates TR-151 to send motion report. The value range is 1~255. The larger the number is, the less sensitive the device is.
Report Method	1: SMS; 2: GPRS; 3: SMS & GPRS
Echo_EN	Enable/ Disable TR-151 to send "Return Message 0: Enabled. 1: Disabled

Example: **TR,IMEI,2,0988888880,0988888881,0988888882,0988888883,0988888884,0988888885, 0988888886!**

TR	Start sign
IMEI	
2	
SOS Number 1	Set SOS Number 1
SOS Number 2	Set SOS Number 2
SOS Number 3	Set SOS Number 3
Default Return Number	Return phone number
SMS Return Number	Return phone number of SMS report
Motion Return Number	Return phone number of Motion mode reporting SMS
Sleep Return Number	Return phone number of Sleep mode reporting

Example: **TR,IMEI,3,5000, internet,,,,, 220.128.207.70!**

TR	Start sign
IMEI	
3	
GPRS Port	The communication port for connecting GPRS network
GPRS APN	The APN of GPRS network station
GPRS user name	The account for connecting GPRS network
GPRS user password	The password for connecting GPRS network
GPRS_DNS1	The DNS1 for connecting GPRS network
GPRS_DNS2	The DNS2 for connecting GPRS network
GPRS Server Host Name	The fixed IP or Domain Name for the computer running the TR Management Center

2 Commands

2.1 Immediate Report

2.1.1 Process of making TR-151 make SMS immediate report by SMS

```
┌──────────┐    ① ?0,IMEI,Report_Format,Return_Phone_Number!  ┌────────┐
│          │ ──────────────────────────────────────────────→ │ TR-151 │
│          │    ② ?0,IMEI,OK!                                 │        │
│ User/    │ ←────────────────────────────────────────────── │        │
│ Server   │    ③ Its latitude and longitude (SMS)            │        │
│          │ ←────────────────────────────────────────────── │        │
└──────────┘                                                  └────────┘
```
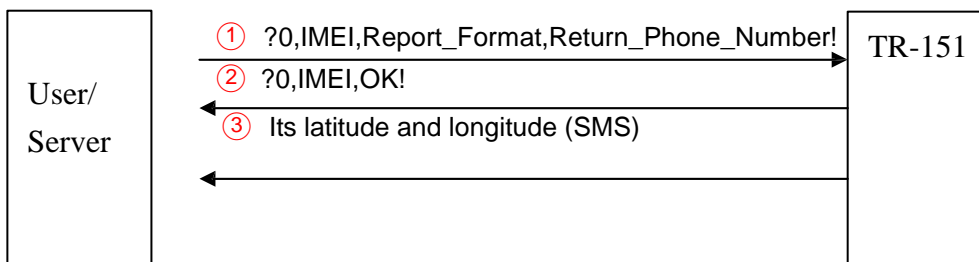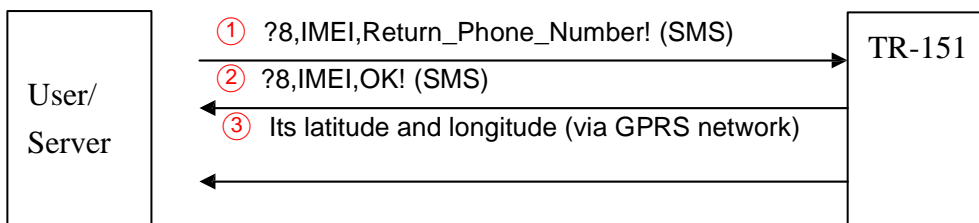
For details, please refer to "How to set TR-151 to immediately report its position by SMS?"

2.1.2 Process of making TR-151 make GPRS immediate report by SMS

```
┌──────────┐    ① ?8,IMEI,Return_Phone_Number! (SMS)       ┌────────┐
│          │ ────────────────────────────────────────────→ │ TR-151 │
│          │    ② ?8,IMEI,OK! (SMS)                         │        │
│ User/    │ ←──────────────────────────────────────────── │        │
│ Server   │    ③ Its latitude and longitude (via GPRS network)
│          │ ←──────────────────────────────────────────── │        │
└──────────┘                                                └────────┘
```
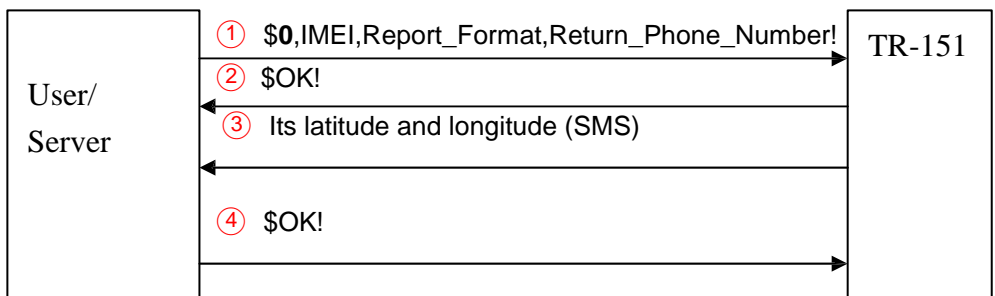
For details, please refer to "How to make TR-151 to make GPRS immediate report by SMS?"

2.1.3 Process of making TR-151 make SMS & GPRS immediate report by SMS

```
                ①  ?21,IMEI,Return_Phone_Number! (SMS)
┌──────────┐    ②  ?21,IMEI,OK! (SMS)                   ┌──────────┐
│  User/   │ ─────────────────────────────────────────►│  TR-151  │
│  Server  │    ③  Its latitude and longitude (SMS & GPRS)         │
│          │ ◄─────────────────────────────────────────│          │
│          │ ◄─────────────────────────────────────────│          │
└──────────┘                                            └──────────┘
```
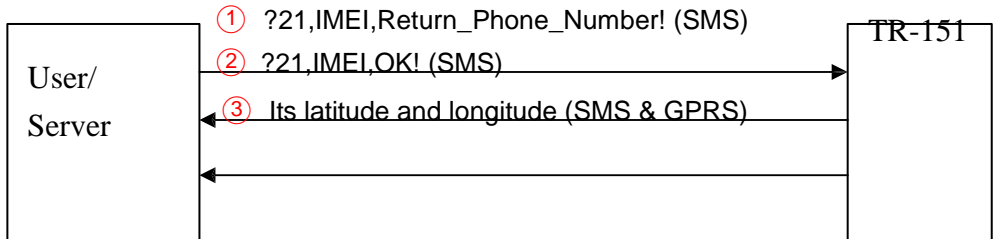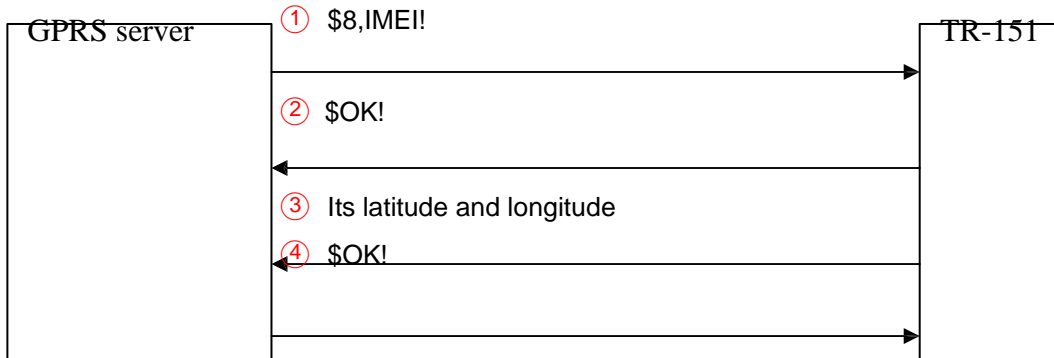
For details, please refer to "How to make TR-151 to make SMS & GPRS immediate report by SMS?"

2.1.4 Process of making TR-151 make SMS immediate report by GPRS server

```
                ①  $0,IMEI,Report_Format,Return_Phone_Number!
┌──────────┐    ②  $OK!                                 ┌──────────┐
│  User/   │ ─────────────────────────────────────────►│  TR-151  │
│  Server  │ ◄─────────────────────────────────────────│          │
│          │    ③  Its latitude and longitude (SMS)     │          │
│          │ ◄─────────────────────────────────────────│          │
│          │    ④  $OK!                                 │          │
│          │ ─────────────────────────────────────────►│          │
└──────────┘                                            └──────────┘
```

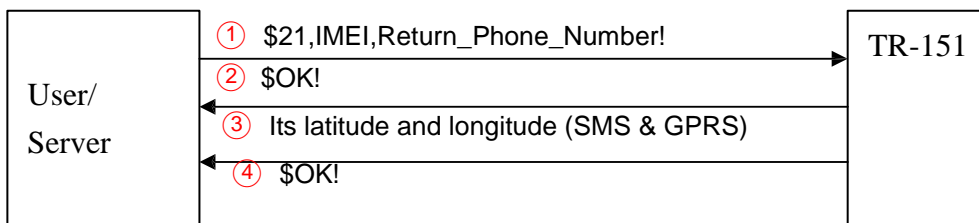For details, please refer to How to make TR-151 to make SMS immediate report by GPRS server?

2.1.5 Process of making TR-151 make GPRS immediate report by GPRS server

For details, please refer to How to make TR-151 to make GPRS immediate report by GPRS server?

2.1.6 Process of making TR-151 make SMS & GPRS immediate report by GPRS

P.S. TR-151 disconnects from GPRS server after it sends the location data.
For details, please refer to How to make TR-151 to make SMS & GPRS immediate report by GPRS server?

2.1.7 How to make TR-151 to immediately report its position by SMS?

You can send an SMS to ask TR-151 to immediately report its position.

The format of SMS is following as:

?0,IMEI,Report_Format,Return_Phone_Number!

The table below explains the content of the SMS.

Format	Description
?	Start sign
0	Function code
IMEI	IMEI code of the TR-151
Report_Format	0 or 1. 0 is for end user, and 1 is for call center development
Return_Phone_Number	The phone number for receiving the reporting SMS.
!	End sign

TR-151 will send an SMS whose format is "?0,IMEI,OK!" to the return phone number to confirm it has received the request. And then it will start to get fixed the position. After getting fixed the position, it will send SMS with its location to the return phone number.

Example: Ask TR-151 to send immediate report in format0 to 626-123456.
You have to enter **?0, 355632000166323,0,626123456!**

And then you will get **?0,355632000166323,OK!**. After TR-151 get fixed of the position, you will get the position report like Position report
Name
2008/12/15 10:20:39
24.99622,121.48992
GPS fixed

NOTE:
1. The unit of coordinates for report format 0 in the immediate report is degree. The unit of coordinates for report format 1 in the immediate report is degree and minute with a 4-digit decimal fraction
2. If TR-151 can not get fixed the position within the "Maximum GPS Fixing Time", it will return the previous location. When the GPS position is fixed, it will again return the position data.
3. Please refer "How to configure TR-151 by SMS?." to set "Maximum GPS Fixing Time"

2.1.8 How to make TR-151 to make GPRS immediate report by SMS?

You can send an SMS to ask TR-151 to immediately report its position via GPRS network to TR-151 call center or GPRS server.

The format of SMS is following as:
?**8**,IMEI,Return_Phone_Number!

The table below explains the content of the SMS.

The description of SMS

Format	Description
?8	Start sign and function code
IMEI	IMEI of TR-151
Return_Phone_Number	The phone number for receiving OK message.
!	End sign

TR-151 will send an SMS whose format is "?8,IMEI,OK!" to the return phone number to confirm it has received the request. And then it will start to get fixed the position. After getting fixed the position, it will send its location to the TR-151 call center or GPRS server.

Example: Require GPRS immediate report
You have to enter "**?8,355632000166323,626123456!**"

And then you will get "? 8,355632000166323,OK**!"**

2.1.9 How to make TR-151 to make SMS & GPRS immediate report by SMS?

You can send an SMS to ask TR-151 to immediately report its position via GPRS network to TR-151 call center or GPRS server and to SMS receiver interface like handset.

The format of SMS is as below.

?21,IMEI,Return_Phone_Number!

Format	Description
?21	Start sign and function code
IMEI	IMEI of TR-151
Return_Phone_Number	The phone number for receiving OK message.
!	End sign

TR-151 will send an SMS whose format is "?21,IMEI,OK!" to the return phone number to confirm it has received the request. And then it will start to get fixed the position. After getting fixed the position, it will send its location to the TR-151 call center or GPRS server and to SMS receiver interface like handset.

Example:　Require SMS & GPRS immediate report sent to 626-123456 and to GPRS server
You have to enter "**?21,355632000166323,626123456!"**

And then you will get "? 21,355632000166323,OK**!"**

2.1.10 How to make TR-151 to make SMS immediate report by GPRS server?

You can send a command by GPRS server to ask TR-151 to make SMS immediate report.
The format of command is following as:

$0,IMEI,Report_Format,Return_Phone_Number!

The table below explains the content of the command.

Format	Description
$	Start sign
0	Function code
IMEI	IMEI code of the TR-151
Report_Format	0 or 1. 0 is for end user, and 1 is for management center development
Return_Phone_Number	The phone number for receiving the reporting SMS.
!	End sign

TR-151 will send a message "$OK!" to the GPRS server to confirm it has received the request.
And then it will start to get fixed the position. After getting fixed the position, it will send SMS
with its location to the return phone number.

For example: If you'd like to ask TR-151 to send immediate report in format0 to 626-123456.
You have to enter **$0, 355632000166323,0,626123456!**

And then you will get **$,OK!**. After TR-151 get fixed of the position, you will get the position
report like Position report
   Name
   2008/12/15 10:20:39
   24.59891,121.29218
   GPS fixed

NOTE:
1. If TR-151 can not get fixed the position within the "Maximum GPS Fixing Time", it will
   return the previous location. When the GPS position is fixed, it will again return the
   position data.
2. Please refer to "How to configure TR-151 by GPRS server? " set Maximum GPS Fixing
   Time.
3. The unit of coordinates for report format 0 in the immediate report is degree. The unit of
   coordinates for report format 1 in the immediate report is degree and minute with a 4-digit
   decimal   fraction

2.1.11 How to make TR-151 to make GPRS immediate report by GPRS server?

You can send a command by GPRS server to ask TR-151 to immediately report its position via GPRS network to GPRS server.

The format of command is following as:
$**8**,IMEI!

The table below explains the content of the command.

Format	Description
$8	Start sign and function code
IMEI	IMEI of TR-151
!	End sign

TR-151 will send a message "$OK!" to the GPRS server to confirm it has received the request. And then it will start to get fixed the position. After getting fixed the position, it will send its location to the TR-151 call center or GPRS server.

Example: Require GPRS immediate report
You have to enter "**$8,355632000166323!**"

And then you will get "$OK**!**"

2.1.12 How to make TR-151 to make SMS & GPRS immediate report by GPRS server?

You can send a command by GPRS server to ask TR-151 to immediately report its position via GPRS network to GPRS server and to SMS receiver interface like handset.

The format of command is as below.

$21,IMEI,Return_Phone_Number!

The description of command

Format	Description
$21	Start sign and function code
IMEI	IMEI of TR-151
Return_Phone_Number	The phone number for receiving SMS report.
!	End sign

TR-151 will send a command "$OK!" to the GPRS server to confirm it has received the request. And then it will start to get fixed the position. After getting fixed the position, it will send its location to GPRS server and to SMS receiver interface like handset.
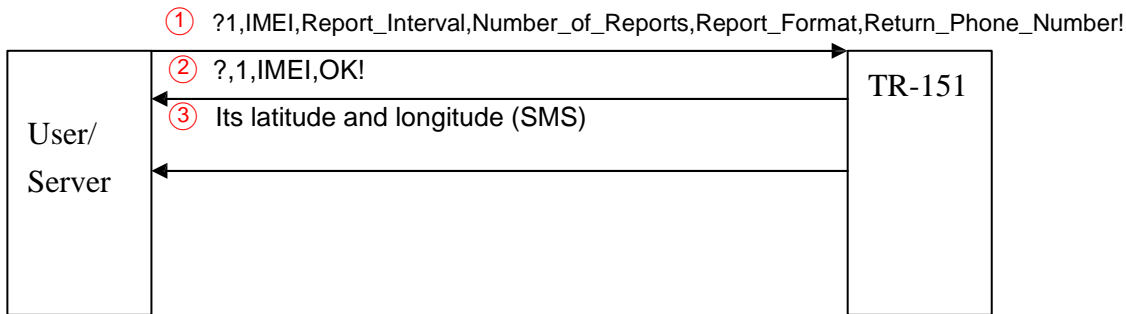
Example: Require GPRS immediate report sent to GPRS server and phone number 626-123456
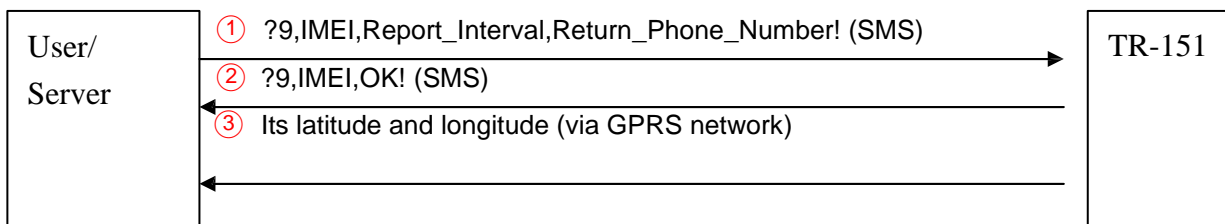You have to enter "**$21,355632000166323,626123456!"**

And then you will get "$OK**!"**

2.2 Periodic Report

2.2.1 Process of making TR-151 make SMS periodical report by SMS

① ?1,IMEI,Report_Interval,Number_of_Reports,Report_Format,Return_Phone_Number!

② ?,1,IMEI,OK!

③ Its latitude and longitude (SMS)

User/ Server   TR-151

For details, please refer to "How to set TR-151 to periodically report its position by SMS?"

2.2.2 Process of making TR-151 make GPRS periodical report by SMS

① ?9,IMEI,Report_Interval,Return_Phone_Number! (SMS)

② ?9,IMEI,OK! (SMS)

③ Its latitude and longitude (via GPRS network)

User/ Server   TR-151

P.S. TR-151 keeps connected to GPRS server after it sends the location data.
For details, please refer to "How to make TR-151 to make GPRS periodical report by SMS?"

2.2.3 Process of making TR-151 make SMS & GPRS periodical report by SMS
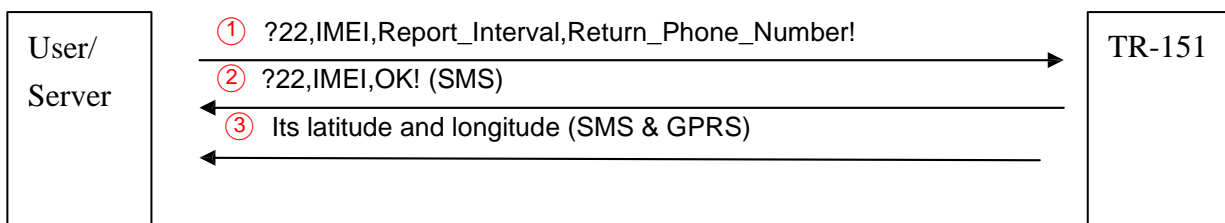
① ?22,IMEI,Report_Interval,Return_Phone_Number!

② ?22,IMEI,OK! (SMS)

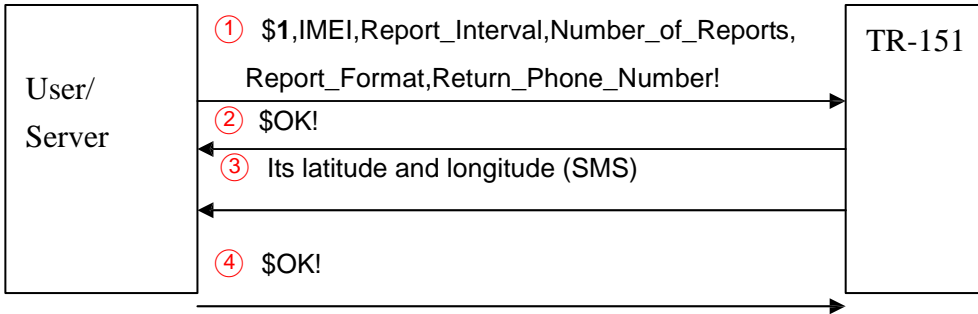③ Its latitude and longitude (SMS & GPRS)

User/ Server   TR-151

P.S. TR-151 disconnects from GPRS server after it sends the location data.
For details, please refer to "How to make TR-151 to make SMS & GPRS periodical report by

2.2.4 Process of making TR-151 make SMS periodic report by GPRS server

```
┌──────────┐   ① $1,IMEI,Report_Interval,Number_of_Reports,   ┌──────────┐
│          │      Report_Format,Return_Phone_Number!          │          │
│ User/    │  ──────────────────────────────────────────────▶ │ TR-151   │
│ Server   │   ② $OK!                                          │          │
│          │  ◀──────────────────────────────────────────────  │          │
│          │   ③ Its latitude and longitude (SMS)              │          │
│          │  ◀──────────────────────────────────────────────  │          │
│          │   ④ $OK!                                          │          │
│          │  ──────────────────────────────────────────────▶ │          │
└──────────┘                                                   └──────────┘
```
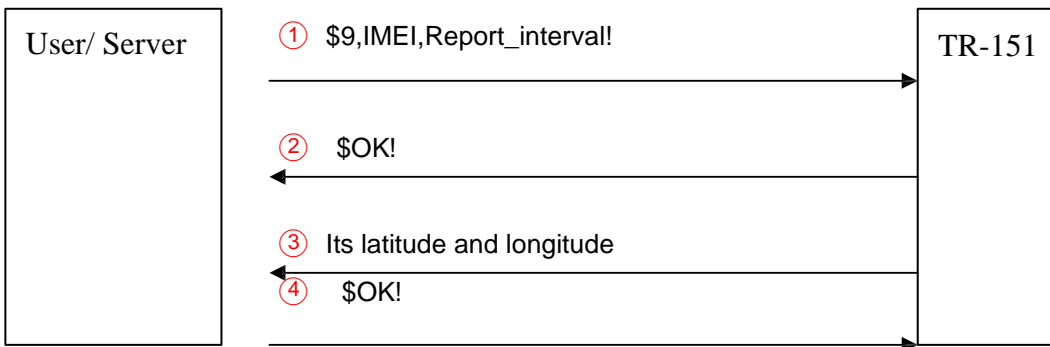
For details, please refer to How to make TR-151 to make SMS periodical report by GPRS server?

2.2.5 Process of making TR-151 make GPRS periodical report by GPRS server

```
┌──────────────┐   ① $9,IMEI,Report_interval!            ┌──────────┐
│              │  ─────────────────────────────────────▶ │          │
│ User/ Server │                                         │ TR-151   │
│              │   ② $OK!                                │          │
│              │  ◀───────────────────────────────────── │          │
│              │   ③ Its latitude and longitude          │          │
│              │   ④ $OK!                                │          │
│              │  ─────────────────────────────────────▶ │          │
└──────────────┘                                         └──────────┘
```

For details, please refer to How to make TR-151 to make GPRS periodical report by GPRS server?

2.2.6 Process of making TR-151 make SMS & GPRS periodical report by GPRS
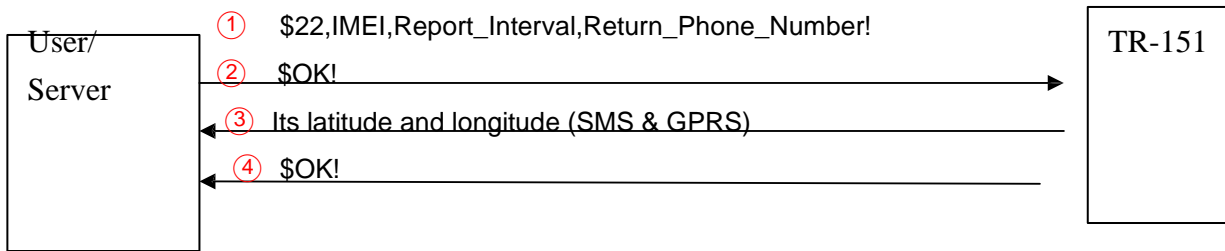
P.S. TR-151 disconnects from GPRS server after it sends the location data.

For details, please refer to How to make TR-151 to make SMS & GPRS periodical report by GPRS server?

2.2.7 How to make TR-151 to make SMS periodic report its position by SMS?

You can send an SMS to ask TR-151 to periodically report its position.

The format of SMS is as below.

?**1**,IMEI,Report_Interval,Number_of_Reports,Report_Format,Return_Phone_Number!

The table below explains the content of the SMS.

Format	Description
?	Start sign
1	Function code
IMEI	IMEI code of the TR-151
Report_Interval	Set the interval between two reporting SMS. The range is 5-86400 seconds
Number_of_Reports	Set how many reporting SMS should be sent
Report_Format	0 or 1. 0 is for end user, and 1 is for SMS management center development
Return_Phone_Number	The phone number for receiving the reporting SMS.
!	End sign

TR-151 will send an SMS whose format is "?1,IMEI,OK!" to the return phone number to confirm it has received the request. And then TR-151 will send the SMS with its location to the return phone number according to the report interval.

Example 1:   Require continuous 120-sec period report in format0 sent to 626123456

You have to enter "**? 1,355632000166323,120,0,0,626123456!"**

TR-151 will send "? 1,355632000166323,OK**!"** And then you will get the position report like

Position report
Name

2008/12/15 10:20:39
24.59891,121.29218
GPS fixed

TR-151 will send position report every 120 seconds until you stop periodical report.

Stop periodical report:

You can send an SMS to stop periodical report.

The format of SMS is following as?**2**,IMEI,Return_Phone_Number!

NOTE:

1. If you set the number of reports as 0, TR-151 will keeps sending the periodic report until you send the SMS of ?**2**,IMEI,Return_Phone_Number! to stop the periodical report.

2. The unit of coordinates for report format 0 in the periodic report is degree. The unit of coordinates for report format 1 in the periodic report is degree and minute with a 4-digit decimal fraction

2.2.8 How to make TR-151 to make GPRS periodical report by SMS?

You can send an SMS to ask TR-151 to periodically report its position via GPRS network to GPRS server (TR-151 call center).

The format of SMS is as below.

?**9**,IMEI,Report_Interval,Return_Phone_Number!

The description of SMS

Format	Description
?9	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 seconds.
Return_Phone_Number	The phone number for receiving OK message.
!	End sign

TR-151 will send an SMS whose format is"?9,IMEI,OK!" to the return phone number to confirm it has received the request. Then it will periodically send the periodical report according to the report interval. After sending the first periodic report, TR-151 will keep connected to the GPRS server.

Example 1:   Require 120-sec period report
You have to enter "**?9,355632000166323,120,626123456!**

Example 2: Require 180-sec period report

?9,355632000166323,180,626123456!

Stop GPRS periodical report:

You can send an SMS to stop periodical report.

The format of SMS is following as:

?**2**,IMEI,Return_Phone_Number!

2.2.9 How to make TR-151 to make SMS & GPRS periodical report by SMS?

You can send an SMS to ask TR-151 to periodically report its position via GPRS network to TR-151 call center or GPRS server and to SMS receiver interface like handset.

The format of SMS is as below.

?22,IMEI,Report_Interval,Return_Phone_Number!

The description of SMS

Format	Description
?22	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 seconds.
Return_Phone_Number	The phone number for receiving OK and report message.
!	End sign

TR-151 will send an SMS whose format is"?22,IMEI,OK!" to the return phone number to confirm it has received the request. Then it will periodically send the periodical report according to the report interval to the TR-151 call center or GPRS server and to SMS receiver interface like handset.

Example: Require 120-second SMS & GPRS periodic report sent to 626-123456 and to GPRS server
You have to enter "**?22,355632000166323,120,626123456!**"

And then you will get "? 22,355632000166323,OK**!**"

2.2.10 How to make TR-151 to make SMS periodical report by GPRS server?

You can send a command by GPRS server to ask TR-151 to periodically report its position.

The format of command is as below.
$**1**,IMEI,Report_Interval,Number_of_Reports,Report_Format,Return_Phone_Number!

The table below explains the content of the command.

Format	Description
$	Start sign
1	Function code
IMEI	IMEI code of the TR-151
Report_Interval	Set the interval between two reporting SMS. The range is 5-86400 second.
Number_of_Reports	Set how many reporting SMS should be sent
Report_Format	0 or 1. 0 is for end user, and 1 is for SMS management center development
Return_Phone_Number	The phone number for receiving the reporting SMS.
!	End sign

TR-151 will send a message "$OK!" to the GPRS server to confirm it has received the request. And then TR-151 will send the SMS with its location to the return phone number according to the report interval.

Example 1: Require continuous 120-sec period report in format0 sent to 626123456
You have to enter "**$ 1,355632000166323,120,0,0,626123456!**"

TR-151 will send "$OK**!**" And then you will get the position report like Position report
Name
2008/12/15 10:20:39
N2459.8915,E12129.2186
GPS fixed

TR-151 will send position report every 120 seconds until you stop periodical report.

Stop periodical report:
You can send an SMS to stop periodical report.
The format of SMS is following as?**2**,IMEI,Return_Phone_Number!
NOTE:

1. If you set the number of reports as 0, TR-151 will keeps sending the periodical report until

you send the SMS of ?**2**,IMEI,Return_Phone_Number!" or send the command of "$2,IMEI!" to stop the periodical report.

2. The unit of coordinates for report format 0 in the periodic report is degree. The unit of coordinates for report format 1 in the periodic report is degree and minute with a 4-digit decimal fraction

2.2.11 How to make TR-151 to make GPRS periodical report by GPRS server?

You can send a command by GPRS server to ask TR-151 to periodically report its position via GPRS network to GPRS server.

The format of command is as below.

$**9**,IMEI,Report_Interval!

The description of command

Format	Description
$9	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 second.
!	End sign

TR-151 will send a message "$OK!" to the GPRS server to confirm it has received the request. Then it will periodically send the periodical report according to the report interval.

Example 1:   Require 120-sec period report
You have to enter "$**9,355632000166323,120!**

Example 2:   Require 180-sec period report
     $9,355632000166323,180!

Stop GPRS periodical report:
You can send a command to stop periodical report.
The format of command is following as:
$**2**,IMEI!

2.2.12 How to make TR-151 to make SMS & GPRS periodical report by GPRS server?

You can send a command by GPRS server to ask TR-151 to periodically report its position via GPRS network to GPRS server and to SMS receiver interface like handset.

The format of command is as below.

$22,IMEI,Report_Interval,Return_Phone_Number!

The description of command

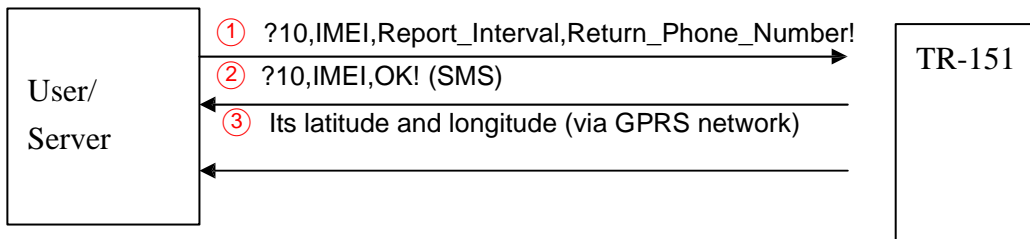| Format	Description
$22	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 second.
Return_Phone_Number	The phone number for receiving SMS report.
!	End sign

TR-151 will send a message "$OK!" to the GPRS server to confirm it has received the request. Then it will periodically send the periodical report according to the report interval to GPRS server and to SMS receiver interface like handset.

Example: Require 120-second SMS & GPRS periodic report sent to 626-123456 and to GPRS server
You have to enter "**$22,355632000166323,120,626123456!"**

And then you will get "$OK**!"**
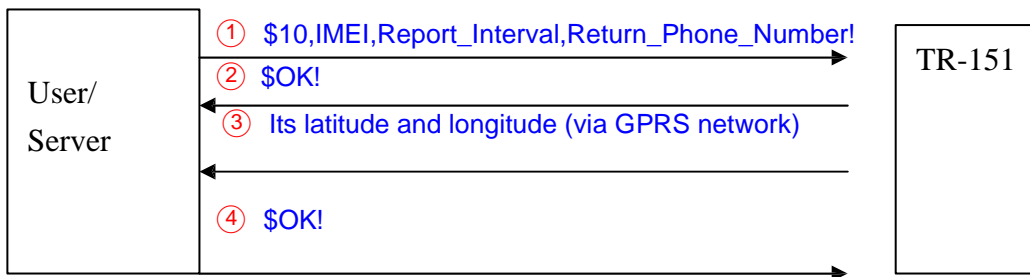
2.3 GPRS Periodic and Disconnect Report

2.3.1 Process of making TR-151 making GPRS periodic report and then disconnecting from GPRS server by SMS

User/ Server	① ?10,IMEI,Report_Interval,Return_Phone_Number!	TR-151
	② ?10,IMEI,OK! (SMS)	
	③ Its latitude and longitude (via GPRS network)	

P.S. TR-151 disconnects from GPRS server after it sends the location data.
For details, please refer to "How to make TR-151 make GPRS periodic report and then disconnect from GPRS server by SMS"

2.3.2 Process of making TR-151 making GPRS periodic report and then disconnecting from GPRS server by GPRS server

User/ Server	① $10,IMEI,Report_Interval,Return_Phone_Number!	TR-151
	② $OK!	
	③ Its latitude and longitude (via GPRS network)	
	④ $OK!	

P.S. TR-151 disconnects from GPRS server after it sends the location data.
For details please refer to How to make TR-151 make GPRS periodic report and then disconnect from GPRS server by GPRS

2.3.3 How to make TR-151 make GPRS periodic report and then disconnect from GPRS server by SMS

You can send an SMS to make TR-151 make GPRS periodic report and then disconnect from GPRS server by SMS.
The format of SMS is as below.

?**10**,IMEI,Report_Interval,Return_Phone_Number!

The description of SMS

Format	Description
?10	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 seconds.
Return_Phone_Number	The phone number for receiving OK message.
!	End sign

TR-151 will send an SMS whose format is"?10,IMEI,OK!" to the return phone number to confirm it has received the request. Then it will periodically send the periodical report according to the report interval. TR-151 will disconnect from the GPRS server after sending the periodic reports.

Example 1:   Require 120-sec period report
You have to enter "**?10,355632000166323,120,626123456!**

Example 2:   Require 180-sec period report
         ?10,355632000166323,180,626123456!

Stop GPRS periodical report:
You can send an SMS to stop periodical report.
The format of SMS is following as:
?**2**,IMEI,Return_Phone_Number!

2.3.4 How to make TR-151 make GPRS periodic report and then disconnect from GPRS server by GPRS

You can send command by GPRS server to make TR-151 make GPRS periodic report and then disconnect from GPRS server.

The format of SMS is as below.

$**10**,IMEI,Report_Interval!

The description of SMS

Format	Description
$10	Start sign and function code
IMEI	IMEI of TR-151
Report_Interval	Time interval of sending data report. The range is 5-86400 second.
!	End sign

TR-151 will send a message whose format is"$10,OK!" to the return phone number to confirm it has received the request. Then it will periodically send the periodical report according to the report interval. TR-151 will disconnect from the GPRS server after sending the periodic reports.

Example 1:   Require 120-sec period report
You have to enter "**?10,355632000166323,120!**

Example 2:   Require 180-sec period report
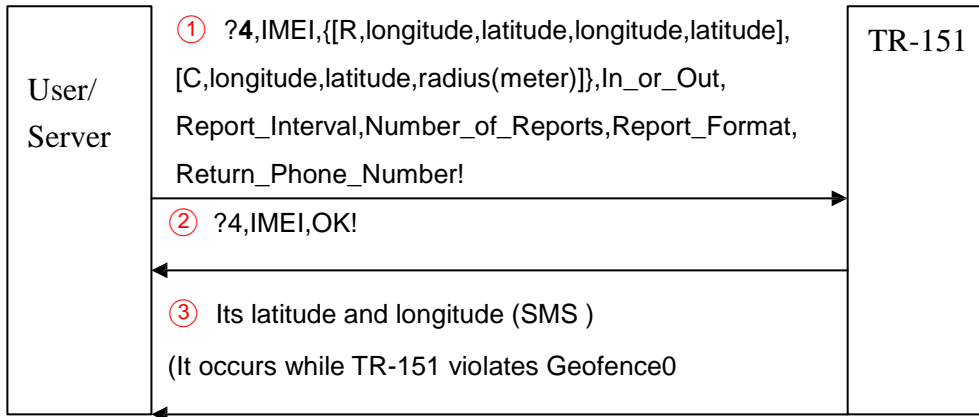   **?10,355632000166323,180!**

Stop GPRS periodic report:
You can send a command by GPRS server to stop periodic report.
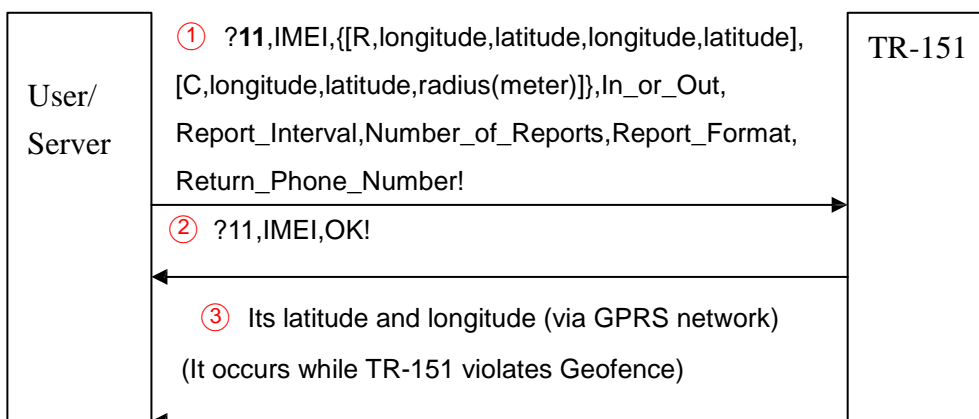The format of command is following as:
$**2**,IMEI!

2.4 Geo-fence Mode

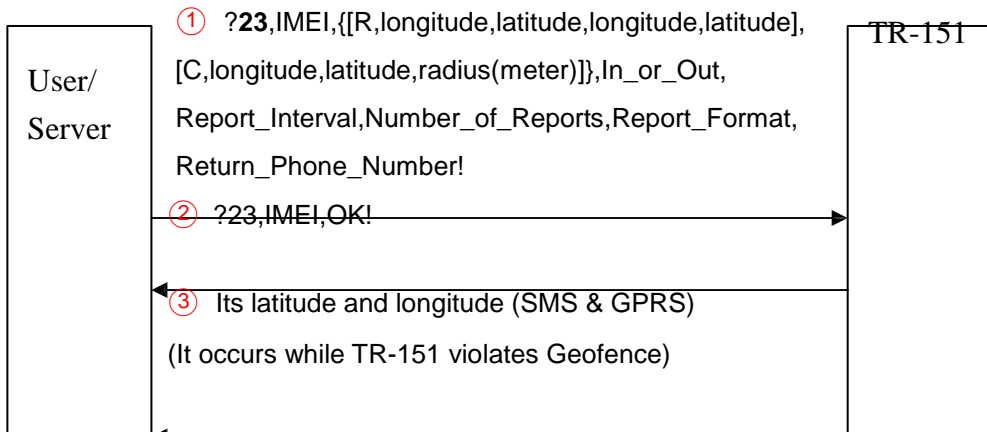## 2.4.1 Process of making TR-151 enter SMS Geo-fence mode by SMS

User/ Server	① ?**4**,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	TR-151
	② ?4,IMEI,OK!	
	③ Its latitude and longitude (SMS) (It occurs while TR-151 violates Geofence0	

For details, please refer to "How to set TR-151 enter Geofence mode by SMS?"

2.4.2 Process of making TR-151 enter GPRS Geo-fence mode by SMS

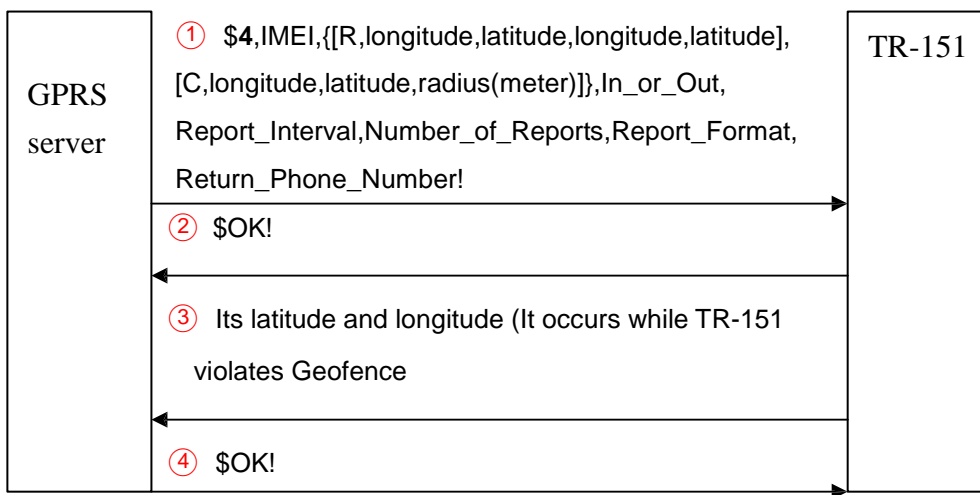| User/ Server	① ?**11**,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	TR-151
	② ?11,IMEI,OK!	
	③ Its latitude and longitude (via GPRS network) (It occurs while TR-151 violates Geofence)	

For details, please refer to "How to set TR-151 enter Geofence mode by SMS?"

2.4.3 Process of making TR-151 enter SMS & GPRS Geo-fence mode by SMS

① ?**23**,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!

User/ Server

TR-151

② ?23,IMEI,OK!

③ Its latitude and longitude (SMS & GPRS) (It occurs while TR-151 violates Geofence)
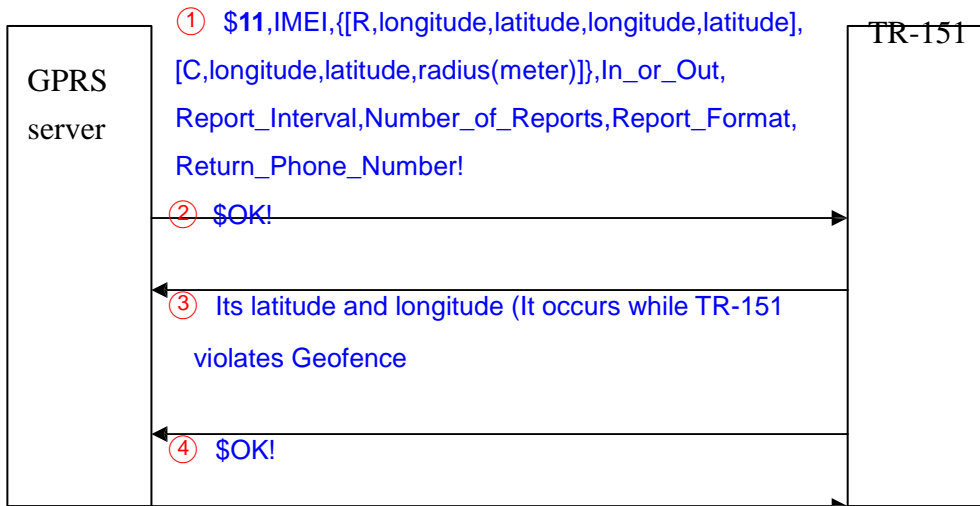
For details, please refer to "How to set TR-151 enter Geofence mode by SMS?"

2.4.4 Process of making TR-151 enter SMS Geo-fence mode by GPRS server

① $**4**,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!

GPRS server

TR-151

② $OK!

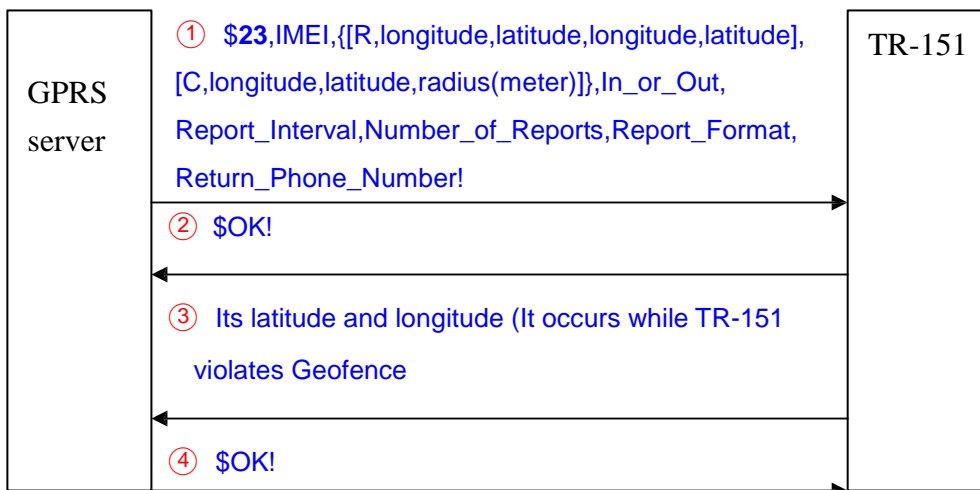③ Its latitude and longitude (It occurs while TR-151 violates Geofence

④ $OK!

For details, please refer to How to set TR-151 to enter Geo-fence mode by GPRS?

2.4.5 Process of making TR-151 enter GPRS Geo-fence mode by GPRS server

GPRS server — TR-151

① **$11**,IMEI,{[R,longitude,latitude,longitude,latitude],
[C,longitude,latitude,radius(meter)]},In_or_Out,
Report_Interval,Number_of_Reports,Report_Format,
Return_Phone_Number!
② $OK!
③ Its latitude and longitude (It occurs while TR-151
   violates Geofence
④ $OK!

For details, please refer to How to set TR-151 to enter Geo-fence mode by GPRS?

2.4.6 Process of making TR-151 enter SMS & GPRS Geo-fence mode by GPRS server

GPRS server — TR-151

① **$23**,IMEI,{[R,longitude,latitude,longitude,latitude],
[C,longitude,latitude,radius(meter)]},In_or_Out,
Report_Interval,Number_of_Reports,Report_Format,
Return_Phone_Number!
② $OK!
③ Its latitude and longitude (It occurs while TR-151
   violates Geofence
④ $OK!

For details, please refer to How to set TR-151 to enter Geo-fence mode by GPRS?

2.4.7 How to set TR-151 to enter Geo-fence mode by SMS?

You can send SMS to TR-151 for setting up to 10 permissible or restricted areas whose shape is circular or rectangular for tracking the vehicles or monitoring the equipment/assets. You can choose to receive alarm message while TR-151 enters the restricted areas or to receive alarm message while TR-151 gets out the permissible areas. The content of the SMS includes the rectangular or circular areas defined by longitudes and latitudes, getting in the restricted areas or getting out the permissible areas to send alarm, time intervals of alarm report, number of reports, report format and return phone number.

The format of SMS is as below.

	Report type	Format	Return message
4	SMS Geofence	?**4**,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	?4,IMEI,OK!
11	GPRS Geofence	?11,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	?11,IMEI,OK!
23	SMS & GPRS Geo-fence	?23,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	?23,IMEI,OK!

The description of SMS

Format	Description
?4 ?11 ?23	Start sign and function code ?4 Æ Send location info to SMS interface like mobile phone. ?11 Æ Send location info to TR-151 management center ?23 Æ Send location info to SMS interface like mobile phone and TR-151 management center
IMEI	IMEI of TR-151
{[R,longitude,latitude,longitude,latitude],[C,longitude,latitude, radius(meter)]}	Boundary information: R: rectangular shape Æ Follow by two longitudes, latitudes. C: circular shape Æ Follow by one longitude, latitude and one radius.
In_or_Out	In_or_Out=in Æ Send alarm message if TR-151 gets in the restricted areas. In_or_Out=out Æ Send alarm message if TR-151 gets out the permissible areas.
Report_Interval	Time interval of sending data report. The unit is second. The range is 5-86400 seconds.

Number_of_Reports	Set how many reports will be sent? Number_of_Reports=0　Æ continuous report Number_of_Reports=X　Æ X times report
Report_Format	0 or 1. 0 is for end user, and 1 is for call center development
Return_Phone_Number	**?4**: The phone number for receiving return message and alarm message. **?11**:The phone number for receiving return message **?23**: The phone number for receiving return message and alarm message.
!	End sign

Note 1:

TR-151 and Google map/ earth use different units to express longitudes and latitudes. The unit used in TR-151's longitude and latitude is degree and minute with a 4-digit decimal fraction while the unit in Google Map/Earth is degree, minute, and second. So please convert the unit to degree and minute with a 4-digit decimal fraction before setting Geo-fence.

TR-151's longitude and latitude is like E12129.3167 and N2459.8479

The number 121 represents longitude's degree and 29.3167 represents the longitude's minute. The number 24 represents the unit of latitude's degree, and 59.8479 represents the unit of latitude's minute.

The degree of TR-151's longitude must be 3 digits. The degree of TR-151's latitude must be 2 digits. If you are in the areas where the longitude's degree is not 3 digits or latitude's degree is not 2 digits, please enter 0 for the first and second digits.

Example1:

The longitude and latitude from Google earth is E121°29'15.72" & N24°59'47.40"

The number 121 represents longitude's degree, 29 represent the minute, and 15.72 represents second.

The number 24 represents latitude's degree, 59 represent the minute, and 47.40 represents second.

You can convert E121°29'15.72" & N24°59'47.40" into the unit of TR-151's longitudes and latitude as the method below.

15.72 (second) ÷60=0.262 (minute)

47.40 (second) ÷60=0.79 (minute)

The expression of TR-151's longitude and latitude is E12129. 2620 & N2459.7900

Example 2:

The longitude and latitude from Google earth is W1°12'55.05" & N5°55'17.93"

You can convert W1°12'55.05" & N5°55'17.93" into the unit of TR-151's longitudes and latitude as the method below.

55.05 (second) ÷60= 0.9175 (minute)

17.93 (second) ÷60= 0.2988 (minute)

The expression of TR-151's longitude and latitude is W00112.9175 & N0555.2988

Example 3

If you get a set of longitude and latitude, E21.4877° & S4.9965°, you can convert it into TR-151's longitudes and latitude as the method below.

0.4877 (degree) x 60= 29.262 (minute)

0.9965 (degree) x60=59.79 (minute)

The expression of TR-151's longitude and latitude is E02129.2620 & S0459.7900

Note 2:

You can set up to 10 rectangular or circular boundaries. Each SMS contains one boundary setting. You can send numerous SMS to complete one set of settings, including numerous rectangular or circular boundaries. For example, if you want to set the boundary includes 2 rectangles and 1 circle. You have to send 3 SMS, two with rectangle information, one with circle information.

SMS1:

?4,IMEI,R,longitude,latitude,longitude,latitude,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

SMS2:

?4,IMEI,R,longitude,latitude,longitude,latitude,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

SMS3:

?4,IMEI,C,longitude,latitude,radius,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

If you use numerous SMS in one setting, the IMEI, In_or_Out, Report_Interval, Number_of_Reports, Report_Format, Return_Phone_Number must be the same between each SMS. If above parameters are not the same between SMS, TR-151 only follows **last SMS**.

Note 3

In Boundary information

{[R,longitude,latitude,longitude,latitude],[C,longitude,latitude,radius],}

can set

R: rectangular follows by two longitudes and two latitudes.

Or

C: circular follows by one longitude, one latitude and one radius.

Example: Rectangle

R,E12128.1883,N2342.8117,E12129.2186,N2459.8915

Example: Circle (radius is 1000 meters)

C,E12129.2186,N2459.8915,1000

Note 4:

Example:

„   Send **one SMS** to setup Geofence.

„   Boundary includes **one rectangle (**two longitudes and two latitudes Æ

E12128.1883,N2342.8117,E12129.2186,N2459.8915)

„   When TR-151 gets out boundary, it would send format1, 10 times, 120 sec interval, alarm

message to 626123456.

?4,355632000166323,R,E12128.1883,N2342.8117,E12129.2186,N2459.8915,out,120,10,1,6161234

56!

Example:

„   Send **three SMS** to setup Geofence.

„   Boundary includes **one rectangle (**two longitudes and two latitudes Æ

E12128.1883,N2342.8117,E12129.2186,N2459.8915) and **two circles** (one longitude/latitude is

E12228.1883,N2442.8117, and radius is 1000 meter) (the other longitude/latitude is

E12328.1883,N2452.8117, and radius is 1500 meter)

„   When TR-151 gets out boundary, it would send format1, 10 times, 120 sec interval, alarm

message to 626123456.

SMS1:

?4,355632000166323,R,E12128.1883,N2342.8117,E12129.2186,N2459.8915,out,120,10,1,6161234

56!

SMS2:

?4,355632000166323,C,E12228.1883,N2442.8117,1000,out,120,10,1,616123456!

SMS3:

?4,355632000166323,C,E12328.1883,N2542.8117,1500,out,120,10,1,616123456!

Exit Geofence mode:

You can send an SMS to exit Geofence mode.

The format of SMS is following as:

?**2**,IMEI,Return_Phone_Number!

Caution:

If you exit Geofence mode, all the settings will be deleted.

2.4.8 How to set TR-151 to enter Geo-fence mode by GPRS?

You can send commands by GPRS server to TR-151 for setting up to 10 permissible or restricted areas whose shape is circular or rectangular for tracking the vehicles or monitoring the equipment/assets. You can choose to receive alarm message while TR-151 enters the restricted areas or to receive alarm message while TR-151 gets out the permissible areas. The content of the command includes the rectangular or circular areas defined by longitudes and latitudes, getting in the restricted areas or getting out the permissible areas to send alarm, time intervals of alarm report, number of reports, report format and return phone number.

The format of command is as below.

	Report type	Format	Return Message
4	SMS Geofence	$4,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	$OK!
11	GPRS Geofence	$11,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format!	$OK!
23	SMS & GPRS Geo-fence	$23,IMEI,{[R,longitude,latitude,longitude,latitude], [C,longitude,latitude,radius(meter)]},In_or_Out, Report_Interval,Number_of_Reports,Report_Format, Return_Phone_Number!	$OK!

The description of SMS

Format	Description
$4 $11 $23	Start sign and function code $4 Æ Send location info to SMS interface like mobile phone. $11 Æ Send location info to GPRS server $23 Æ Send location info to SMS interface like mobile phone and to GPRS server
IMEI	IMEI of TR-151
{[R,longitude,latitude,longitude,latitude],[C,longitude,latitude, radius(meter)]}	Boundary information: R: rectangular shape Æ Follow by two longitudes, latitudes. C: circular shape Æ Follow by one longitude, latitude and one radius.
In_or_Out	In_or_Out=in Æ Send alarm message if TR-151 gets in the restricted areas. In_or_Out=out Æ Send alarm message if TR-151 gets out the permissible areas.
Report_Interval	Time interval of sending data report. The range is 5-86400 second.
Number_of_Reports	Set how many reports will be sent?

	Number_of_Reports=0 Æ continuous report Number_of_Reports=X Æ X times report
Report_Format	1
Return_Phone_Number	**$4**: The phone number for receiving alarm message. **$23**: The phone number for receiving alarm message.
!	End sign

Note 1:

TR-151 and Google map/ earth use different units to express longitudes and latitudes. The unit used in TR-151's longitude and latitude is degree and minute with a 4-digit decimal fraction while the unit in Google Map/Earth is degree, minute, and second. So please convert the unit to degree and minute with a 4-digit decimal fraction before setting Geo-fence.

TR-151's longitude and latitude is like E12129.3167 and N2459.8479

The number 121 represents longitude's degree and 29.3167 represents the longitude's minute. The number 24 represents the unit of latitude's degree, and 59.8479 represents the unit of latitude's minute.

The degree of TR-151's longitude must be 3 digits. The degree of TR-151's latitude must be 2 digits. If you are in the areas where the longitude's degree is not 3 digits or latitude's degree is not 2 digits, please enter 0 for the first and second digits.

Example1:

The longitude and latitude from Google earth is E121°29'15.72" & N24°59'47.40"

The number 121 represents longitude's degree, 29 represent the minute, and 15.72 represents second.

The number 24 represents latitude's degree, 59 represent the minute, and 47.40 represents second.

You can convert E121°29'15.72" & N24°59'47.40" into the unit of TR-151's longitudes and latitude as the method below.

15.72 (second) ÷60=0.262 (minute)

47.40 (second) ÷60=0.79 (minute)

The expression of TR-151's longitude and latitude is E12129. 2620 & N2459.7900

Example 2:

The longitude and latitude from Google earth is W1°12'55.05" & N5°55'17.93"

You can convert W1°12'55.05" & N5°55'17.93" into the unit of TR-151's longitudes and latitude as the method below.

55.05 (second) ÷60= 0.9175 (minute)

17.93 (second) ÷60= 0.2988 (minute)

The expression of TR-151's longitude and latitude is W00112.9175 & N0555.2988

Example 3

If you get a set of longitude and latitude, E21.4877° & S4.9965°, you can convert it into TR-151's longitudes and latitude as the method below.

0.4877 (degree) x 60= 29.262 (minute)

0.9965 (degree) x60=59.79 (minute)

The expression of TR-151's longitude and latitude is E02129.2620 & S0459.7900

Note 2:

You can set up to 10 rectangular or circular boundaries. Each command contains one boundary setting. You can send numerous commands to complete one set of settings, including numerous rectangular or circular boundaries. For example, if you want to set the boundary includes 2 rectangles and 1 circle. You have to send 3 commands, two with rectangle information, one with circle information.

Command1:

$4,IMEI,R,longitude,latitude,longitude,latitude,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

Command2:

$4,IMEI,R,longitude,latitude,longitude,latitude,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

Command3:

$4,IMEI,C,longitude,latitude,radius,In_or_Out,Report_Interval, Number_of_Reports,Report_Format,Return_Phone_Number!

If you use numerous command in one setting, the IMEI, In_or_Out, Report_Interval, Number_of_Reports, Report_Format, Return_Phone_Number must be the same between each command. If above parameters are not the same between SMS, TR-151 only follows **last command**.

Note 3

In Boundary information

{[R,longitude,latitude,longitude,latitude],[C,longitude,latitude,radius],}

You can set

R: rectangular follows by two longitudes and two latitudes.

Or

C: circular follows by one longitude, one latitude and one radius.

Example: Rectangle

R,E12128.1883,N2342.8117,E12129.2186,N2459.8915

Example: Circle (radius is 1000 meters)

C,E12129.2186,N2459.8915,1000

Note 4:

Example:

„ Send **one command** to setup Geofence.

„ Boundary includes **one rectangle (**two longitudes and two latitudes Æ

E12128.1883,N2342.8117,E12129.2186,N2459.8915)

„ When TR-151 gets out boundary, it would send format1, 10 times, 120 sec interval, alarm message to 626123456.

$4,355632000166323,R,E12128.1883,N2342.8117,E12129.2186,N2459.8915,out,120,10,1,6161234 56!

Example:

„ Send **three commands** to setup Geofence.

„ Boundary includes **one rectangle (**two longitudes and two latitudes Æ

E12128.1883,N2342.8117,E12129.2186,N2459.8915) and **two circles** (one longitude/latitude is E12228.1883,N2442.8117, and radius is 1000 meter) (the other longitude/latitude is E12328.1883,N2452.8117, and radius is 1500 meter)

„ When TR-151 gets out boundary, it would send format1, 10 times, 120 sec interval, alarm message to 626123456.

Command1:

$4,355632000166323,R,E12128.1883,N2342.8117,E12129.2186,N2459.8915,out,120,10,1,6161234 56!

Command2:

$4,355632000166323,C,E12228.1883,N2442.8117,1000,out,120,10,1,616123456!

Command3:

$4,355632000166323,C,E12328.1883,N2542.8117,1500,out,120,10,1,616123456!

Exit Geofence mode:

You can send a command exit Geo-fence mode.
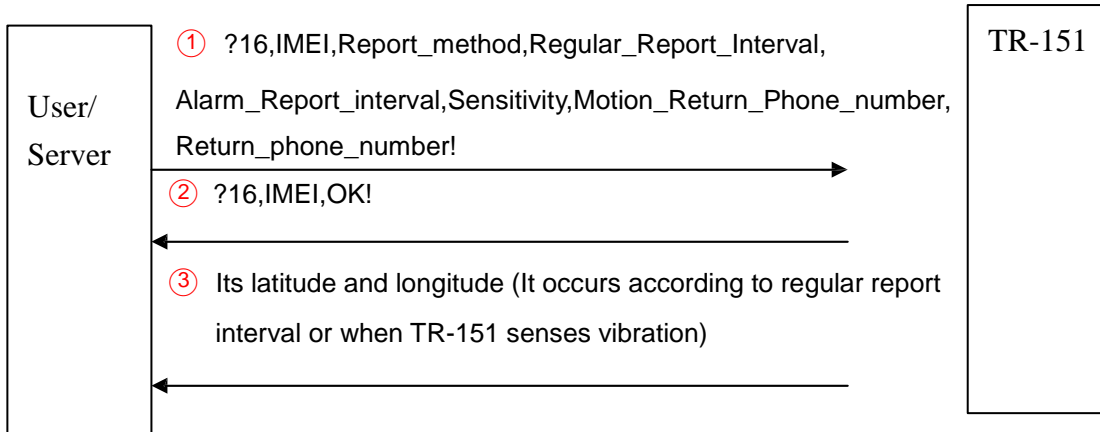
The format of command is following as:

$**2**,IMEI!

Caution:

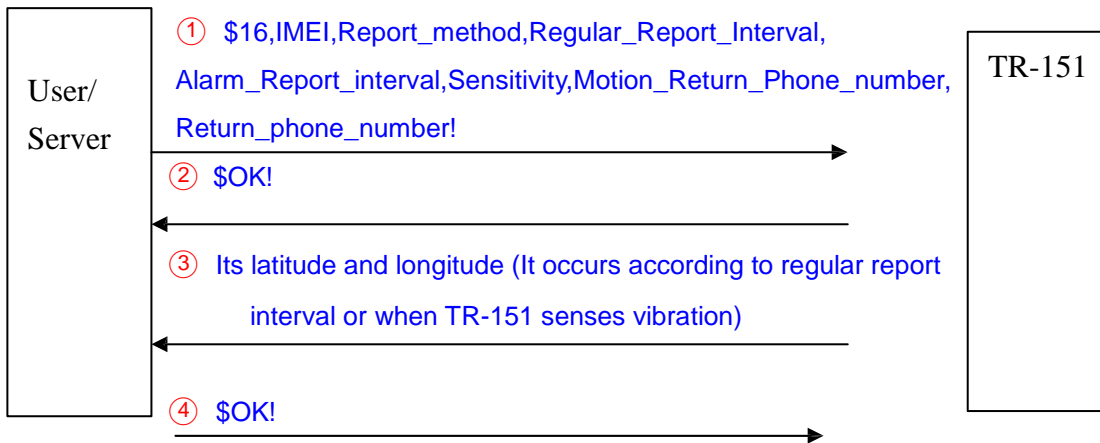If you exit Geo-fence mode, all the settings will be deleted.

2.5 Motion Mode

2.5.1 Process of making TR-151 enter Motion mode by SMS

① ?16,IMEI,Report_method,Regular_Report_Interval,
Alarm_Report_interval,Sensitivity,Motion_Return_Phone_number,
Return_phone_number!

② ?16,IMEI,OK!

③ Its latitude and longitude (It occurs according to regular report
interval or when TR-151 senses vibration)

User/Server

TR-151

For details, please refer to "How to make TR-151 enter motion mode by SMS?"

2.5.2 Process of making TR-151 enter Motion mode by GPRS

① $16,IMEI,Report_method,Regular_Report_Interval,
Alarm_Report_interval,Sensitivity,Motion_Return_Phone_number,
Return_phone_number!

② $OK!

③ Its latitude and longitude (It occurs according to regular report
interval or when TR-151 senses vibration)

④ $OK!

User/Server

TR-151

For details, please refer to How to make TR-151 enter motion mode by GPRS server?

2.5.3 How to make TR-151 enter motion mode by SMS?

You could send a SMS to ask TR-151 to enter motion mode. Under motion mode, in addition to the regular report interval, TR-151 will send out the motion report when it senses vibration. If you'd like to continually get the location information of the vehicle installed with TR-151, you could make TR-151 enter motion mode.

The format of SMS is following as:
?16,IMEI,Report_method,Regular_Report_Interval,Vibration_Report_interval,Sensitivity,Motion_Return_Phone_number,Return_phone_number!

The table below explains the content of the SMS

Format	Description
?	Start sign
16	Function code
IMEI	IMEI code of the TR-151
Report Method	The method of sending the location information 1: SMS 2: GPRS 3: SMS & GPRS
Regular Report Interval	The regular report interval of motion mode. The unit is minute. The range is 30-1440 minute.
Motion Report Interval	The report interval when TR-151 senses vibration. The unit is second. The range is 5-86400 second.
Sensitivity	The number of vibration which activates TR-151 to send motion report. The value range is 1~255. The larger the number is, the less sensitive the device is.
Motion_Return_Phone_Number	The phone number for receiving location report
Return_Phone_Number	The phone number for receiving return message.
!	End sign

TR-151 will send an SMS whose format is"?16,IMEI,OK!" to the return phone number to confirm it has received the request.

According to the regular report interval, TR-151 will send the regular report like "?IMEI,**17**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to SMS Return Format)

When TR-151 senses vibration over the value of the sensitivity for the first time, it will send the motion report like "?IMEI,**24**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to SMS Return Format)

When TR-151 senses vibration over the value of the sensitivity following the first time of

motion report, it will send the motion report like
"?IMEI,**16**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to [SMS Return Format](#))

Example 1:
Asking TR-151 to enter motion mode, report method: GPRS, regular report interval: 90 minute, motion report interval: 60 second, sensitivity: 5, Motion return phone number: 0920942187, Return phone number: blank.
You can send SMS as: "?16,355632000166323,2,90,60,5,0920942187,,!"
TR-151 will send "?16, 355632000166323,OK!" to the caller ID.
TR-151 will send regular report every 90 minute to GPRS server like
"?,355632000166323,**17**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!
When TR-151 senses vibration over 5 times for the first time, it will send the motion report like
"?,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!
When TR-151 senses vibration over 5 times following the first time of motion report, it will send the motion report like
"?,355632000166323,**16**,3,311008,114630,E12130.2233,N2454.8118,95.3,10.22,142.31,04,2.4!

Example 2:
Asking TR-151 to enter motion mode, report method: SMS & GPRS, regular report interval: 60 minute, motion report interval: 90 second, sensitivity: 10, Motion return phone number: 0920942187, Return phone number: 0966339154.
You can send SMS as: "?16,355632000166323,3,60,90,10,0920942187,0966339154!"
TR-151 will send "?16, 355632000166323,OK!" to 0966339154
TR-151 will send regular report every 60 minute to GPRS server and 0920942187 like
"?,355632000166323,**17**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!
When TR-151 senses vibration over 5 times for the first time, it will send the motion report to GPRS server and 0966339154 like
"?,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!
When TR-151 senses vibration over 5 times following the first time of motion report, it will send the motion report to GPRS server and 0966339154 like
"?,355632000166323,**16**,3,311008,114630,E12130.2233,N2454.8118,95.3,10.22,142.31,04,2.4!

Exit Motion mode:
You can send SMS to exit from motion mode.
The format of SMS is "?2,IMEI,Return Phone Number!"

2.5.4 How to make TR-151 enter motion mode by GPRS server?

You could send a command by GPRS server to ask TR-151 to enter motion mode. Under motion mode, in addition to the regular report interval, TR-151 will send out the motion report when it senses vibration. If you'd like to continually get the location information of the vehicle installed with TR-151, you could make TR-151 enter motion mode.

The format of command is following as:
$16,IMEI,Report_method,Regular_Report_Interval,Vibration_Report_interval,Sensitivity,Motion_Return_Phone_number!

The table below explains the content of the command

Format	Description
$	Start sign
16	Function code
IMEI	IMEI code of the TR-151
Report Method	The method of sending the location information 1: SMS 2: GPRS 3: SMS & GPRS
Regular Report Interval	The regular report interval of motion mode. The range is 30-1440 minute
Motion Report Interval	The report interval when TR-151 senses vibration. The range is 5-86400 second.
Sensitivity	The number of vibration which activates TR-151 to send motion report. The value range is 1~255. The larger the number is, the less sensitive the device is.
Motion_Return_Phone_Number	The phone number for receiving location report
!	End sign

TR-151 will send a command "$OK!" to the GPRS server to confirm it has received the request.
According to the regular report interval, TR-151 will send the regular report like
"$IMEI,**17**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to GPRS Return Format)
When TR-151 senses vibration over the value of the sensitivity for the first time, it will send the motion report like
"$IMEI,**24**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to GPRS Return Format)
When TR-151 senses vibration over the value of the sensitivity following the first time of motion report, it will send the motion report like

"$IMEI,**16**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to GPRS Return Format)

Example 1:

Asking TR-151 to enter motion mode, report method: GPRS, regular report interval: 90 minute, motion report interval: 60 second, sensitivity: 5, Motion return phone number: blank

You can send command as: "$16,355632000166323,2,90,60,5,!

TR-151 will send "$OK!" to the GPRS server.

TR-151 will send regular report every 90 minute to GPRS server like

"$,355632000166323,**17**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times for the first time, it will send the motion report like

"$,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

When TR-151 senses vibration over 5 times following the first time of motion report, it will send the motion report like

"$,355632000166323,**16**,3,311008,114630,E12130.2233,N2454.8118,95.3,10.22,142.31,04,2.4!

Example 2:

Asking TR-151 to enter motion mode, report method: SMS & GPRS, regular report interval: 60 minute, motion report interval: 90 second, sensitivity: 10, Motion return phone number: 0966339154.

You can send command as: "$16,355632000166323,3,60,90,10,0966339154!

TR-151 will send "$OK!" to the GPRS server

TR-151 will send regular report every 60 minute to GPRS server and 0966339154 like

"$,355632000166323,**17**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times for the first time, it will send the motion report to GPRS server and 0966339154 like

"$,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

When TR-151 senses vibration over 5 times following the first time of motion report, it will send the motion report to GPRS server and 0966339154 like

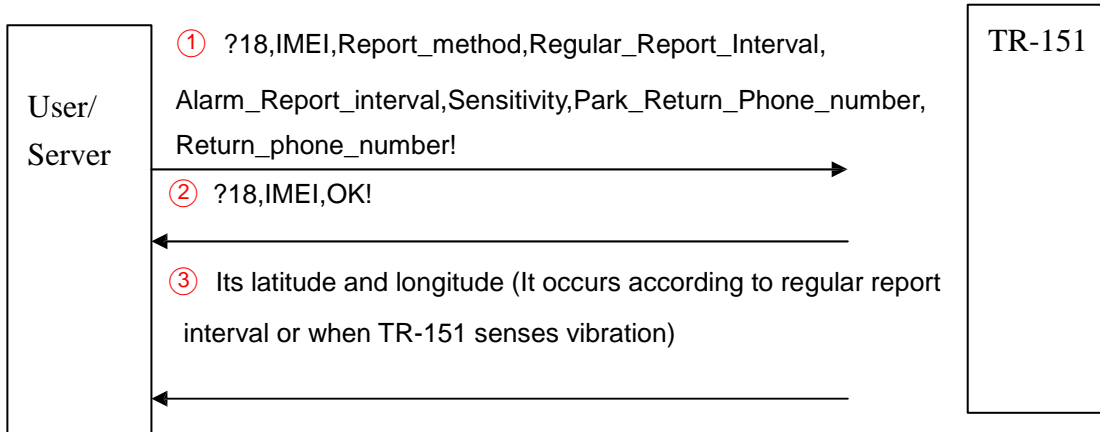"$,355632000166323,**16**,3,311008,114630,E12130.2233,N2454.8118,95.3,10.22,142.31,04,2.4!

Exit Motion mode:

You can send command to exit from motion mode.

The format of SMS is "$2,IMEI!"

2.6 Park Mode

2.6.1 Process of making TR-151 enter Park mode by SMS

① ?18,IMEI,Report_method,Regular_Report_Interval,

Alarm_Report_interval,Sensitivity,Park_Return_Phone_number,

Return_phone_number!

② ?18,IMEI,OK!

③ Its latitude and longitude (It occurs according to regular report

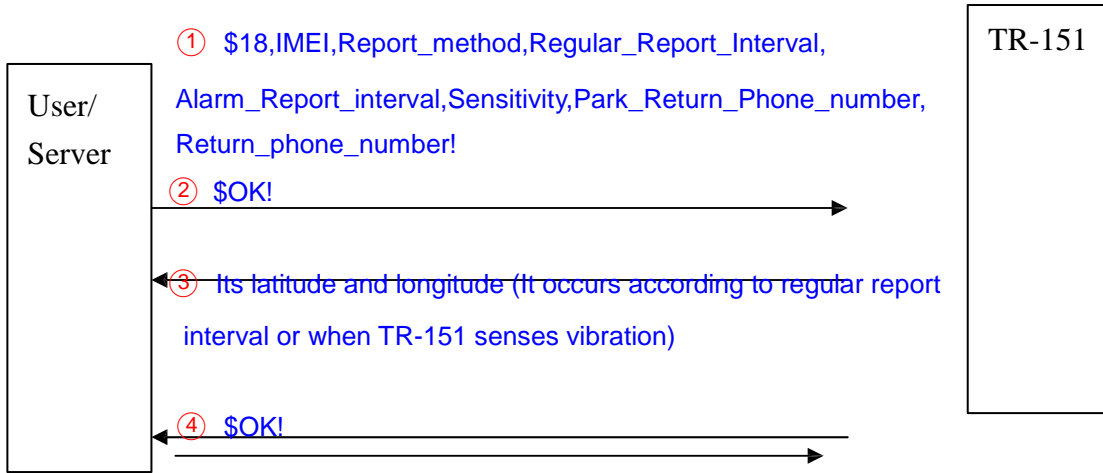interval or when TR-151 senses vibration)

TR-151

User/ Server

For details, please refer to How to make TR-151 enter and exit Park mode by SMS?

## 2.6.2 Process of making TR-151 exit from Park mode by SMS

① ?**25**,IMEI,Return_Phone_Number!

② ?25,IMEI,OK!

User/ Server
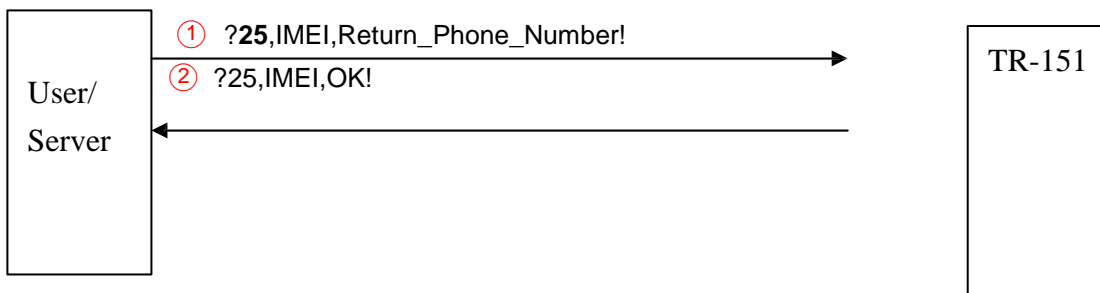
TR-151

For details, please refer to How to make TR-151 enter and exit Park mode by SMS?

2.6.3 Process of making TR-151 enter Park mode by GPRS

User/ Server	① $18,IMEI,Report_method,Regular_Report_Interval, Alarm_Report_interval,Sensitivity,Park_Return_Phone_number, Return_phone_number!	TR-151

① $18,IMEI,Report_method,Regular_Report_Interval,

Alarm_Report_interval,Sensitivity,Park_Return_Phone_number,

Return_phone_number!

② $OK!

③ Its latitude and longitude (It occurs according to regular report

interval or when TR-151 senses vibration)

④ $OK!

For details, please refer to How to make TR-151 enter and exit Park mode by GPRS?

2.6.4 Process of making TR-151 exit from Park mode by GPRS

① $25,IMEI,Return_Phone_Number!

② $OK!
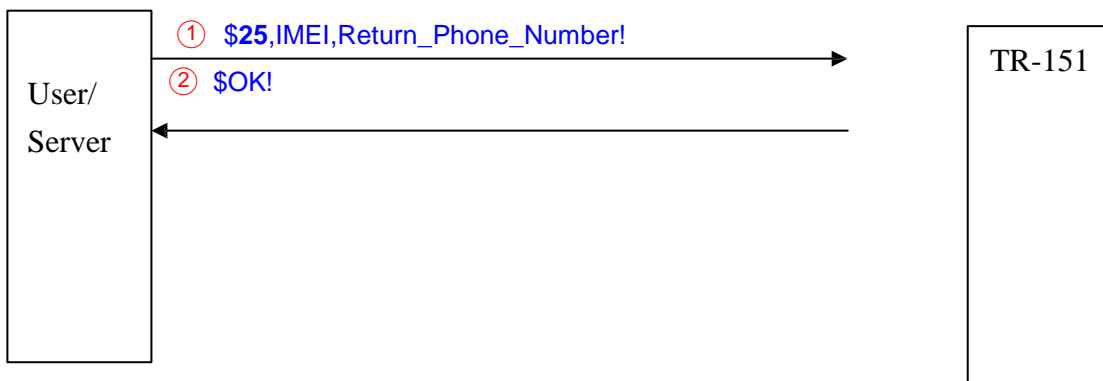
For details, please refer to How to make TR-151 enter and exit Park mode by GPRS?

2.6.5 How to make TR-151 enter and exit Park mode by SMS?

You could send a SMS to ask TR-151 to enter Park mode. Under park mode, TR-151 will send out vibration report when it senses vibration over the value of sensitivity. TR-151 will also send out regular report according to the regular report interval under park mode. The GPS module is turned off and motion sensor is turned on in the park mode. If you'd like to make sure the objects or vehicles installed with TR-151 is not moved, you could make TR-151 enter park mode

The format of SMS is following as:
?18,IMEI,Report_method,Regular_Report_Interval,Vibration_Report_interval,Sensitivity,Motion_Return_Phone_number,Return_phone_number!

The table below explains the content of the SMS

Format	Description
?	Start sign
18	Function code
IMEI	IMEI code of the TR-151
Report Method	The method of sending the location information 1: SMS 2: GPRS 3: SMS & GPRS
Regular Report Interval	The regular report interval of park mode. The unit is minute. The range is 30-1440 minute
Vibration Report Interval	The report interval when TR-151 senses vibration. The unit is second. The value range is 5-86400 second
Sensitivity	The number of vibration which activates TR-151 to send motion report. The value range is 1~255. The larger the number is, the less sensitive the device is.
Motion_Return_Phone_Number	The phone number for receiving location report
Return_Phone_Number	The phone number for receiving return message.
!	End sign

TR-151 will send an SMS whose format is"?18,IMEI,OK!" to the return phone number to confirm it has received the request.

According to the regular report interval, TR-151 will send the regular report like "?IMEI,**19**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to SMS Return Format)
When TR-151 senses vibration over the value of the sensitivity, it will send the motion report like

"?IMEI,**18**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to [SMS Return Format](#))

Example 1:

Asking TR-151 to enter park mode, report method: SMS, regular report interval: 90 minute, motion report interval: 60 second, sensitivity: 5, Motion return phone number: 0920942187, Return phone number: 0958881122.

You can send SMS as: "?18,355632000166323,1,90,60,5,0920942187,0958881122!

TR-151 will send "?18, 355632000166323,OK!" to 0958881122.

TR-151 will send regular report every 90 minute to 0958881122 like

"?,355632000166323,**19**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times, it will send the motion report to 0958881122 like

"?,355632000166323,**18**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

Example 2:

Asking TR-151 to enter park mode, report method: SMS & GPRS, regular report interval: 60 minute, motion report interval: 90 second, sensitivity: 10, Motion return phone number: 0920942187, Return phone number: 0966339154.

You can send SMS as: "?18,355632000166323,3,60,90,10,0920942187,0966339154!

TR-151 will send "?18, 355632000166323,OK!" to 0966339154

TR-151 will send regular report every 60 minute to GPRS server and 0966339154 like

"?,355632000166323,**19**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times, it will send the motion report to GPRS server and 0966339154 like

"?,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

Exit from park mode:

You can send SMS to make TR-151 exit from park mode and return to the last report mode.

The format of the command:

?**25**,IMEI,Return_Phone_Number!

You can also send SMS to make TR-151 stop all report modes.

The format of the command:

?**2**,IMEI,Return_Phone_Number!

2.6.6 How to make TR-151 enter Park mode by GPRS server?

You could send a command by GPRS server to ask TR-151 to enter Park mode. Under park mode, TR-151 will send out vibration report when it senses vibration over the value of sensitivity. TR-151 will also send out regular report according to the regular report interval under park mode. The GPS module is turned off and motion sensor is turned on in the park mode. If you'd like to make sure the objects or vehicles installed with TR-151 is not moved, you could make TR-151 enter park mode

The format of command is following as:
$18,IMEI,Report_method,Regular_Report_Interval,Vibration_Report_interval,Sensitivity,Motion_Return_Phone_number,Return_phone_number!

The table below explains the content of the command

Format	Description
$	Start sign
18	Function code
IMEI	IMEI code of the TR-151
Report Method	The method of sending the location information 1: SMS 2: GPRS 3: SMS & GPRS
Regular Report Interval	The regular report interval of park mode. The range is 30-1440 minute
Vibration Report Interval	The report interval when TR-151 senses vibration. The range is 5-86400 second.
Sensitivity	The number of vibration which activates TR-151 to send motion report. The value range is 1~255. The larger the number is, the less sensitive the device is.
Motion_Return_Phone_Number	The phone number for receiving location report
!	End sign

TR-151 will send a command "$OK!" to the GPRS server to confirm it has received the request.

According to the regular report interval, TR-151 will send the regular report like "?IMEI,**19**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satellites_In_Use,HDOP!". (For details of the data, please refer to GPRS Return Format)
When TR-151 senses vibration over the value of the sensitivity, it will send the motion report like
"?IMEI,**18**,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed,Heading,Number_of_Satelli

tes_In_Use,HDOP!". (For details of the data, please refer to GPRS Return Format)

Example 1:

Asking TR-151 to enter park mode, report method: GPRS, regular report interval: 90 minute, motion report interval: 60 second, sensitivity: 5, Motion return phone number: blank.

You can send command as: "$18,355632000166323,2,90,60,5,!

TR-151 will send "$OK!" to GPRS server.

TR-151 will send regular report every 90 minute to GPRS server like

"$,355632000166323,**19**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times, it will send the motion report to GPRS server like

"$,355632000166323,**18**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

Example 2:

Asking TR-151 to enter park mode, report method: SMS & GPRS, regular report interval: 60 minute, motion report interval: 90 second, sensitivity: 10, Motion return phone number: 0920942187.

You can send SMS as: "$18,355632000166323,3,60,90,10,0920942187!

TR-151 will send "$OK!" to GPRS server.

TR-151 will send regular report every 60 minute to GPRS server and 0920942187 like

"$,355632000166323,**19**,3,301008,125935,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

When TR-151 senses vibration over 5 times, it will send the motion report to GPRS server and 0920942187 like

"$,355632000166323,**24**,3,311008,114550,E12140.1444,N2455.8118,95.3,10.22,142.31,04,2.4!

Exit from park mode:

You can send command to make TR-151 exit from park mode and return to the last report mode.
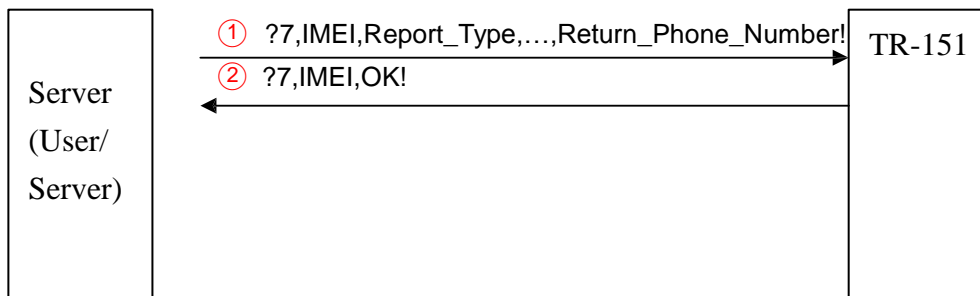
The format of the command:

$**25**,IMEI!

You can also send command to make TR-151 stop all report modes.

The format of the command:

$**2**,IMEI!

2.6.7 Process of configuring the parameters of TR-151 by SMS

```
┌──────────┐        ① ?7,IMEI,Report_Type,…,Return_Phone_Number!  ┌──────────┐
│          │   ─────────────────────────────────────────────────► │          │
│ Server   │        ② ?7,IMEI,OK!                                  │  TR-151  │
│ (User/   │   ◄─────────────────────────────────────────────────  │          │
│ Server)  │                                                        │          │
│          │                                                        │          │
└──────────┘                                                        └──────────┘
```

For what parameters can be configured by SMS and details, please refer to "How to configure TR-151 by SMS?"

For details, please refer to How to make TR-151 enter Park mode by SMS?

3 Return Format

3.1 SMS Return format

Return SMS format from TR-151

The data format is configurable in the SMS tracking commands. There are two types of the data format as below.

Format0 is for general end users who send SMS commands to TR-151 by their cell phone or PDA phone. This format is very easy to read by end users.

Format1 is specifically read by software Call Center that is developed by service provider.

Data Report Format:
Report_Format=0 Æ **Format0**
Report_Format=1 Æ **Format1**

Format0:	Example:
Position report Name Time Date GPS position Fix or not	Position report Name 2006/9/15 10:20:39 N2459.8915,E12129.2186 GPS fixed

Format1:
?IMEI,Status,GPS_Fix,Date,Time,Longitude,Latitude,Altitude,Speed, Heading,Number_of_Satellites_In_Use,HDOP!
Example:
?353857014816785,2,3,280807,035825,E12129.2616,N2459.7918,97.2,0.13,142.31,04,2.4!

The description of Format1

Format	Value	Note
Command_Head	?	
IMEI	(The number of IMEI)	
Status	0	0:SMS immediate report
	1	1:SMS period report
	2	2: Stop connect
	4	4: SMS Geo-fence (Alarm)
	5	5: SOS(Alarm)
	13	13: Sleep mode report(Alarm)
	14	14.Battery low(Alarm)
	16	16: Motion report(Vibration)
	17	17. Motion report(Regular)
	18	18: Parking mode(Alarm)
	19	19: Parking mode (Regular)

	20	20: Sleep mode (Regular)
	21	21: SMS/GPRS Immediate report
	22	22: SMS/GPRS period report
	23	23: SMS/GPRS Geofence(Alarm)
	24	24. Motion report(Activate)
GPS_fix	1	1: Fix not available
	2	2: GPS 2D Fix
	3	3: GPS 3D Fix
date	ddmmyy	
time	hhmmss	
longitude	(E or W)dddmm.mmmm	Example: E12129.2186 → E 121°29.2186'
latitude	(N or S)ddmm.mmmm	Example: N2459.8915 →N 24°59.8915'
altitude	xxxxx.x	unit: meters
speed	xxxxx.xx	unit: knots (1knots = 1.852km)
heading	ddd	
number of satellites in use	xx	
HDOP	xx	
Command END	!	

3.2 GPRS Return Format

<table>
<tr><td colspan="3" align="center">**Format of return GPRS from TR-151**</td></tr>
</table>

Format:

Command_Head,IMEI,status,GPS_fix,date,time,longitude,latitude,altitude,speed,heading,number of satellites in use,HDOP,Command_End

Example:

$355632004245866,1,1,040202,093633,E12129.2252,N2459.8891,00161,0.0100,147,07,2.4!

Format	Value	Note
Command_Head	$	
IMEI	(The number of IMEI)	
Report Mode	2	2: Stop connect
	5	5: SOS(Alarm)
	8	8: GPRS Immediate report
	9	9: GPRS Period report
	10	10.Disconnect and GPRS period
	11	11.GPRS Geofence(Alarm)
	14	14.Battery low(Alarm)
	16	16: Motion report(vibration)
	17	17. Motion report(regular)
	18	18: Parking mode(Alarm)
	19	19: Parking mode
	21	21: SMS/GPRS Immediate report
	22	22: SMS/GPRS period report
	23	23: SMS/GPRS Geofence(Alarm)
	24	24. Motion report(Activate)
GPS_fix	1	1: Fix not available
	2	2: GPS 2D Fix
	3	3: GPS 3D Fix
date	ddmmyy	
time	hhmmss	
longitude	(E or W)dddmm.mmmm	Example: E12129.2186 → E 121°29.2186'
latitude	(N or S)ddmm.mmmm	Example: N2459.8915 →N 24°59.8915'
altitude	xxxxx.x	unit: meters
speed	xxxxx.xx	unit: knots (1knots = 1.852km)
heading	ddd	

number of satellites in use	xx	
HDOP	xx	
Command END	!	