ATrack AVL Devices
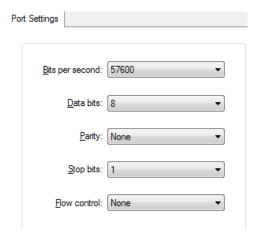
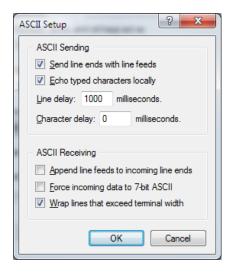# Basic Configuration Procedure

1 Physical Wiring

On the package for the AVL device, there will be a power I/O cable and serial cable. Please connect the power I/O cable to the device, and take the pin 1 (red) and pin 2 (black) to V+ and GND on an external power source, respectively. Next, connect the serial cable between your PC and the device, and you are able to communicate with the device over serial connection.

2 Serial Port Setting for Hyper Terminal

This test document describes the simple commands to perform the communication establishment. These are the very basic function of the ATrack AVL devices. In order to do it, the device needs to be set via serial port at the initial step. The serial port setting for the device is 57600bps baud rate, 8-N-1 with no flow control. Please see the picture below for the setting screenshot:

Also, to make sure the typed command will be echoed on the screen, please set the exact settings as shown in the ASCII Setup screen below:

3 Communication

3.1 GSM Registration

GSM network registration is automatically done. There is no need to configure unless the PIN code is enabled.

If the PIN code is enabled, please issue the following command in the hyper terminal to allow the device to access the SIM:

AT$SPIN="0000"

Note: please replace the 0000 to the specified PIN for the SIM card.

3.2 SMS function

The device will only apply AT commands specified in the protocol document. Other unrecognized texts will be discarded.

To test this function, a receiving number must be set in advance by issuing

AT$GSMS="0975130243"

Note:

    a. Replace 0975130243 to the number which you wish to receive the response from the device. This number is defined as the <Base Number>.

    b. All command status will be sent to the number specified in this command

    c. To test, you can simply send **AT$GPOS=0** command as an SMS to the device SIM number, and you will receive a position message from the device as a response.

3.3 GPRS Registration

The device requires entering GPRS APN, username and password if required by carrier, Host address and port, and packet type in order to establish a connection to the server. The command involved for this setting is AT$GPRS.

AT$GPRS=<Enable>,<APN>,<Username>,<Password>,<Host Address>,<Host Port>,<Socket Type>,<Retry>,<Timeout>,<Keep Alive>,<Report ACK>

For example, consider the following parameters:

GPRS APN = INTERNET

GPRS Username = User

GPRS Password = Pass

Host Address = atrack.com.tw

Host Port = 8051

Packet Type = TCP

Then, the command will be:

AT$GPRS=1,"INTERNET","User","Pass","atrack.com.tw",8051,0,3,30,3,1

Another example, assuming the parameters are all the same except the Host Address and Socket Type has changed:

Host Address = 10.254.33.128

Socket Type = UDP

AT$GPRS=1,"INTERNET","User","Pass","10.254.33.128",8051,1,3,30,180,1

Please note that the device will send one Keep-Alive message regardless of the <Keep-Alive> interval setting. In the above settings, the Keep-Alive interval is set to be 3 minutes (TCP: 3 minutes, UDP: 180 seconds). The Keep-Alive message is in Binary format, and depending on the <ACK> setting, the server will need to reply to the device with exactly received Keep-Alive message back if <ACK> is set to 1.

For more information, please refer to the protocol document.

Once the AT$GPRS is set to the device, on the server side, please open the specified port in order to listen for the incoming request. In the above setting, the device will send a binary string that needs to be replied with exactly the same as received data. To simplify the test, please use the Simple Server Tool application provided by ATrack.

4 Position Message Format

Once the communication is established, please set the format of the position message. By default, the device will send the message in binary format with Unix timestamp.

The default format setting is

AT$FORM=1,@P,0,""

If you would like to receive position messages in ASCII format with readable timestamp (YYYYMMDDhhmmss), please send the following command to the device:

AT$FORM=0,,1

Note that, to skip the field within a command, you can simply put a comma as shown above.

To parse the data, please refer to the protocol document in Position Format.

5 Tracking

All the AVL devices can be used for two modes of tracking:

5.1 Tracking on demand

This is to manually get the position message on demand. To do so, simply send

AT$GPOS=0

and the device will send the position message to the command originator with the current information (time, coordinates, I/O status, and etc).

To specify where the position message to be sent to, the parameter can be changed. For example, if the command is sent via SMS but the message is meant to be sent over GPRS to the server, the

SMS command to the device will be

AT$GPOS=2

On the other hand, if the command is sent from server and wish the cellular phone (which the number was defined as the <Base Number> in AT$GSMS) to receive a Google Map link from the device, the command can be set as

AT$GPOS=1,1

Please refer to the protocol document for the AT$GPOS command detail.

Note that, the position messages sent to SMS will be based on ASCII format, while the messages sent to GPRS (server) will be based on the AT$FORM setting.

5.2 Automatic Tracking

The device can be set based on the criteria. To start a basic time mode tracking with 3 minutes interval with destination of GPRS (server), simply send

AT$TRAC=1,180,,,,,2

In addition to a simple time mode tracking, the device can be set to use ACC signal as a trigger and set two different intervals (ACC ON: 30 seconds, ACC OFF: 300 seconds) as

AT$TRAC=5,30,,,,,2,,300

Note that the device will take the IN0 (yellow wire on cable) as the ACC signal input by default. To test it without an actual installation on the vehicle, take the yellow wire and connect to the V+ on the power source to simulate the ACC ON, and to GND to simulate ACC OFF.

To start with other modes (distance, heading change, or combination of multiple modes), please refer to the Protocol Document AT$TRAC section.

6 Event Setting

This chapter shows some examples of setting the events in the ATrack devices. The devices are set to use the following methods to send an event report:

defines event	-->	set user define report to monitor event	-->	trigger report action when report becomes true

An example is to set the ACC ON/OFF reports. The ACC is defined as the signal detected on IN0. Therefore, we set the below commands to make the device send reports when ACC is ON or OFF:

AT$INPT=0,7
AT$REPT=101,1,"%IN0","1",0,1
AT$REPT=102,1,"%IN0","0",0,1
AT$RACT=1,3,2

The AT$INPT is to define the debounce time for the IN0.

AT$REPT commands are to define the state of IN0 to monitor. When IN0 is triggered with high voltage, the report ID 101 will be true and refer to the report action defined as AT$RACT index 1 for action(s) to take. The same applies to report 102.

AT$RACT in the example here is to define to send the event report to the server over GPRS and log the incident also in the internal flash memory for later retrieval.

For more detail, please refer to the protocol document.

7   Sample Script

This chapter is to include all the example setting above into a script file. Simply copy all the commands below and paste it to the hyper terminal at once. Note that the AT$GPRS is put as the last command, and the reason is that the device will reboot itself after receiving AT$GPRS command. You might need to hit the enter key for the last command if the <CR><LF> was not copied.

Note that the following is to set the device to communicate using GPRS by default, use ACC (IN0) as the trigger for ACC ON/OFF tracking mode, along with ACC status change reports (ACC ON: 101, ACC OFF: 102).

```
AT$FORM=0,,1
AT$GSMS="0975130243"
AT$TRAC=5,30,,,,,2,,300
AT$INPT=0,7
AT$REPT=101,1,"%IN0","1",0,1
AT$REPT=102,1,"%IN0","0",0,1
AT$RACT=1,3,2
AT$GPRS=1,"INTERNET","User","Pass","atrack.com.tw",8051,0,3,30,3,1
```

For settings or command questions, please contact ATrack representative.