

Technical Notification

Document number: 95-134282

Date: Aug – 2011

New features 'Tracking' and 'Terminal Usage Mode' BGAN-X

Subject:

The below is describing new features **Tracking** (position reporting) and **Terminal usage mode** (Standard or X-Stream) - and is including extracts from EXPLORER®727 User Manual Rev.D

Tracking

The EXPLORER 325/727 & FBB 250/500 systems can be used for tracking purposes. You can set up the terminal to report its position to a server at certain time intervals or after moving a specified distance.

To use the tracking feature you must either set up a tracking server or get a tracking solution from your service provider. The EXPLORER system must be set up to match this server.

Setting up Tracking

The EXPLORER system can be used for tracking purposes. You can set up the terminal to report to a server at certain time intervals or after moving a specified distance.

To set up tracking, do as follows:

1. Select **SETTINGS > Tracking**.
2. Type in the **Server IP address, Server port, Client port** and **Encryption** key for your server connection.
 - **IP address.** The IP address of the server that the EXPLORER terminal will report to.
 - **Server port.** Port number on the server. Default number is 7474.
 - **Client port.** Port number on the EXPLORER terminal. Default number is 7475.
 - **Encryption key.** A pre-shared 128 bit key which must match on both the client and server side.
3. To allow remote control of the tracking settings from the tracking server, select **Yes** at **Allow remote control**.
This means the EXPLORER terminal will accept commands from the specified tracking server, for example to change reporting intervals or start/stop reporting.
4. Select the **APN** to use for Tracking. You have the following options:
 - **Common.** The APN is taken from the Common APN defined under **SETTINGS > Common**. Refer to Setting the common interface settings on page 76.
 - **SIM default.** The APN is taken from the SIM card. This is the recommended option, unless you have special requirements.
 - **Network assigned.** The APN is assigned from the network.
 - **User defined.** Type in the APN. APNs are provided from the Airtime Provider.

5. Under **Position reports**, select the report type you want to use.
- **Compressed**. Only latitude and longitude are reported.
 - **Extended**. Apart from latitude and longitude, heading and altitude are also included.
 - **ECEF**. The same information as Extended, but position and speed data are 3D (ECEF coordinates).

Example:

The screenshot shows a configuration window with the following sections and settings:

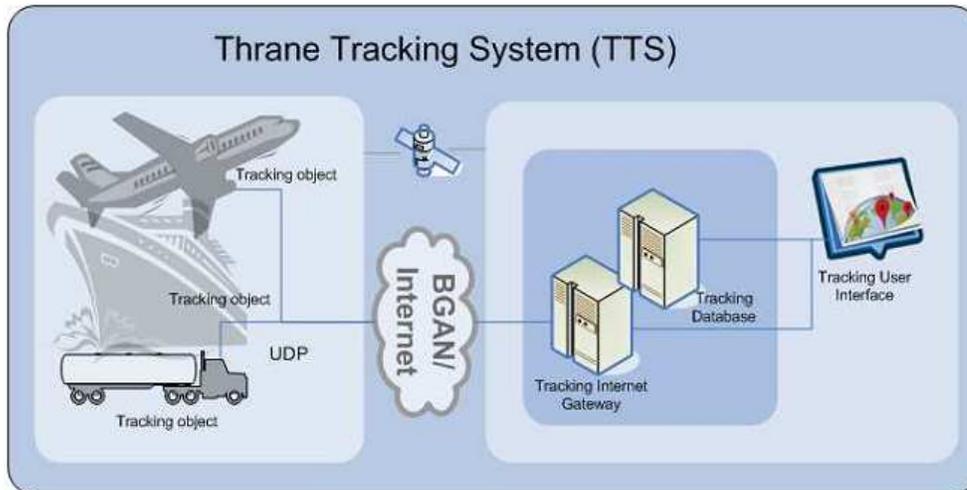
- SERVER CONNECTION**
 - Server IP address: 10 . 5 . 40 . 74
 - Server port: 7474
 - Client port: 7475
 - Encryption key: 12345678912345678912345678912345
 - Allow remote control: Yes No
- APN**
 - Common
 - SIM default
 - Network assigned
 - User defined: BGAN.INMARSAT.COM
- POSITION REPORTS**
 - Report type: Compressed, Extended, ECEF
- INTERVAL REPORT**
 - Status: Enabled Disabled
 - Report each: 0 : 0 (hh:mm)
- DISTANCE REPORT**
 - Status: Enabled Disabled
 - When moved: 0 meters
 - Max one report per: 0 : 15 (hh:mm)

Buttons: Apply, Cancel

6. Under **Interval report**, select **Enabled** or **Disabled** and type in the interval between the reports.
7. Under **Distance report**, select **Enabled** or **Disabled** and type in the following:
- **When moved**. Enter the distance the vehicle should be moved before sending a report.
 - **Max one report per**. Enter the minimum time that should pass between two reports.

Example: The distance is set to 10000 m and the time is set to 15 minutes. The EXPLORER system has moved 10000 m since last report, but only 10 minutes have passed. A report will not be sent until the 15 minutes have passed.

8. Click **Apply**.



The Thrane Tracking Protocol (TTP) is based on UDP and designed to consume as little bandwidth as possible on the air interface while still maintaining all necessary data and a fair level of security.

Message encryption

Since the TIG (Tracking Internet Gateway) can be placed anywhere on the internet it is preferable to have some sort of encryption of the messages between the UT (user Terminal) and the TIG. For that purpose AES has been chosen with a block size of 128 bits.

Encryption will be done using a pre-shared key which is entered by the user. The key must be 128 bits long.

UDP ports

The administrator of the TIG must choose an UDP port that the TOB (Tracking Object) can connect to. This port value must be configured on the TOB.

When the TOB sends the register message it must use the same port number as source port as it will use to listen for incoming messages from the TIG.

The TIG must send all messages to the TOB to the source port number of the register message.

The following default port numbers has been defined:

Device	Listening port number
TOB	7475
TIG	7474

For more details, please contact Thrane & Thrane GTAC via extranet/eSupport at <http://extranet.thrane.com/Support/Technical%20Support.aspx>

EXPLORER 727 - Terminal usage modes

Software release ver. 1.14 enables the terminal to operate in two different modes:

A standard (on-the-move) mode where the terminal signs on to the BGAN network as a Class 10 vehicular terminal and a X-Stream mode (on-the-pause) where the terminal signs on as a Class 1 terminal such as the EXPLORER 700.

Standard (on-the-move) mode

This is the normal mode of the EXPLORER 727, where all the usual EXPLORER 727 services are available whether or not the terminal is moving.

X-Stream (on-the-pause) mode

The X-Stream (on-the-pause) mode can only be used when the terminal is not moving. In the X-Stream (on-the-pause) mode you can use the Inmarsat BGAN X-Stream service and extend coverage to the entire BGAN coverage area for all available services. For details, see below

Service	Standard (on-the-move) mode (Inmarsat Class 10)	X-Stream (on-the-pause) mode (Inmarsat Class 1)
Standard Voice	4 kbps	4 kbps
3.1 kHz Audio	64 kbps	64 kbps
Standard Data	432kbps	492 kbps
Streaming Data	Up to 256 kbps Note: 256 kbps is only supported from 45 degrees elevation and inwards. ^a	<ul style="list-style-type: none"> With the BGAN X-Stream service included in the subscription: Up to approximately 450 kbps BGAN X-Stream service not included in subscription: Up to 256 kbps Full coverage area for all subscribed services.
BGAN X-Stream	Not supported	From a minimum of 384 kbps up to approximately 450 kbps
ISDN UDI/RDI	64/56 kbps Note: ISDN UDI/RDI is only supported from 20 degrees elevation and inwards. ^a	64/56 kbps Full coverage area for all subscribed services.

Note! – the term ‘Standard mode’ is not related to the term ‘Standard background connection’ !!

- In Standard (on-the-move) mode the EXPLORER 727 system supports 32, 64, 128 and 256 kbps Streaming.
- In X-Stream (on-the-pause) mode the system supports 32, 64, 128, 176 and 256 kbps Streaming and BGAN X-Stream (from a minimum of 384 kbps up to approximately 450 kbps).

Switching between the usage modes

When the terminal is restarted, it always starts up in the usage mode that was selected before shutting down.

To change the usage mode in the IP Handset, select **BGAN > Terminal usage**. Then select the usage mode and select **Apply**. For further information, see the user manual for the IP Handset.

To change the usage mode in the web interface, select **SETTINGS > Terminal usage mode**, select the usage mode and click **Apply**.

- Standard (on-the-move): Normal EXPLORER 727 function.
- X-Stream (on-the-pause): Extended function for use when the vehicle is stationary. In addition to the standard EXPLORER 727 functions it supports BGAN X-Stream and extended coverage.

TERMINAL USAGE MODE

Terminal usage mode Standard (on-the-move)

X-Stream (on-the-pause)

The terminal will reboot when usage mode is changed. Press Apply to restart terminal.

Note!

- When you change the usage mode the terminal restarts.
- The X-Stream (on-the-pause) mode is not available whilst on-the-move and the terminal automatically stops transmitting with the loss of all existing connections, if X-Stream (on-the-pause) mode is active when the vehicle is moving.

Global Technical Assistance Centre
Thrane & Thrane A/S