



Using Comrex ACCESS over BGAN

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1 Overview

Comrex ACCESS Stereo BRIC IP codecs offer high quality audio transmission over a wide variety of wired and wireless IP circuits. Available in both Portable and Rackmount configurations, ACCESS provides fully bi-directional mono, stereo and dual mono audio transmission with up to 20 kHz frequency response. Used with Inmarsat's BGAN service, ACCESS allows users to transmit broadcast quality audio from virtually any location on the planet.

2 Product range

BGAN terminals can be used with either the ACCESS Portable or the ACCESS Rackmount. The ACCESS Portable, with integral user interface and battery power, is preferred for use with portable BGAN terminals.

3 Typical users

Comrex ACCESS is in use around the world by radio broadcasters and governmental agencies in a variety of applications ranging from outside broadcast of news, entertainment and sporting events, station-to-transmitter links, as well as surveillance and "closed circuit" audio communications.

4 Key Features

Comrex ACCESS codecs offer the following main features over the BGAN network:

- 20 Hz to 15 kHz frequency response, fully bidirectional audio using Inmarsat's 32Kbps streaming service.
- Built-in audio mixer interface with microphone preamp w/12V phantom power, headphone output, line level input/output, volume controls.
- ACCESS Portable comfortably fits in the palm of your hand and includes rechargeable LiON battery, good for seven hours of talk time.
- Optional "clip on" mixer provides an addition five mic inputs and headphone outputs.
- Optional HE-AAC algorithms provide up to 20 kHz audio using Inmarsat's 64Kbps streaming service.

5 Benefits to BGAN users

Comrex ACCESS provides:

- Completely wireless transmission from virtually anywhere on Earth.
- A small, compact, handheld unit (less than 6 lbs./3 kg).
- 15 kHz mono and stereo transmission using 32 kbps Streaming.
- Ability to be pre-configured for “Plug & Play” operation.

6 Setting up

This section describes how to set up BGAN for use with Comrex ACCESS and gives an example of a typical configuration when using ACCESS with a BGAN terminal. Broadcast transmission was tested over a standard 32 kbps Streaming connection using an EXPLORER™ 500. The audio broadcast was transmitted to a terrestrial Internet address. The test showed that BGAN terminals and the Inmarsat BGAN network work well as a transport media for the Comrex ACCESS IP Codec. The test has also been carried out with the EXPLORER 110 and the Hughes 9201; it is assumed to work as well with the EXPLORER™300, EXPLORER™527 and EXPLORER™700.



The ACCESS Portable, computer and BGAN terminal should be connected to a switch or directly with Ethernet cables, as shown in the diagram above. The computer's IP settings should be configured for DHCP. The ACCESS IP settings are described below.

6.1 Step by step setup – EXPLORER 300/500/527 and 700.

The 32 kbps Streaming service should be initiated from the BGAN terminal, and can be configured from either the EXPLORER's built-in web server (via a laptop's web browser), or using the LCD interface on the terminal.

Note: Although the solution will work on the Standard IP connection type, there is no quality guarantee, so Inmarsat recommends that you utilise the 32Kbps Streaming connection.

The screenshot below shows the settings required as configured via the EXPLORER's web server interface. Please consult your EXPLORER manual for more detailed information.



Connecting to BGAN via the terminal's LCD interface

For security reasons, a Streaming IP connection needs to be started manually. This is to ensure that per minute charges do not inadvertently accrue when the EXPLORER terminal is switched on, and allows you to more carefully monitor usage and connection time. The screenshot below shows you how to set up using the EXPLORER's LCD interface.

- a. To initiate a connection from the LCD interface, go to the main view of the LCD.



- b. Press the arrow down button until the **CONNECT** menu displays.



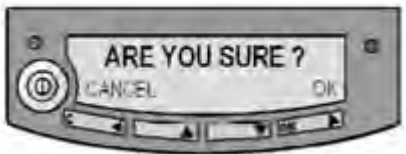
- c. Press **OK**. The following screen displays:



- d. Select **STREAMING 32**, and press **OK**. The following screen displays:



- e. Select **START** and press **OK**. The following screen displays:



- f. Press **OK** to confirm the Streaming connection, and wait a minute or two to allow the EXPLORER to register the Packet Switched connection with the BGAN system. After registration the LCD main screen will show **DATA ACTIVE**, as shown below:



Now go to "ACCESS Portable configuration" on page 6.

6.2 Step by step setup – EXPLORER 110 (formerly Nera WorldPro 1010)

This section describes how to set up BGAN for use with Comrex ACCESS, and gives an example of a typical configuration when using ACCESS with the EXPLORER 110 terminal.

This is a one-time configuration to set the terminal up so that it connects to the network automatically. After the first time you only need to follow the instructions for "Connecting to BGAN", below.

The 32 kbps Streaming service should be initiated from the BGAN terminal, and needs to be configured from the EXPLORER 110's built-in web server (via a computer's web browser).

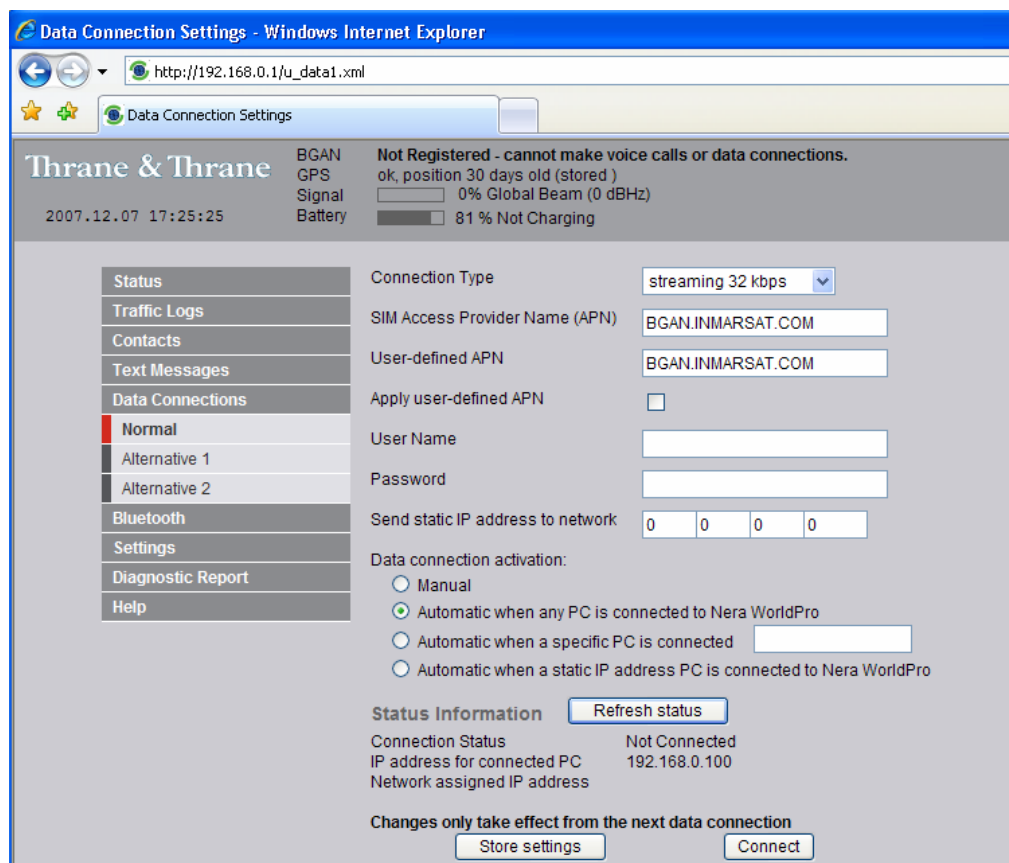
Note: Although the solution will work on Standard IP, there is no quality guarantee, so Inmarsat recommends that you utilise the 32kbps Streaming connection.

To do this:

- a. Open your internet web browser and type the following IP address in the address bar:
192.168.0.1



- b. Now you should see the web server interface. On the left hand navigation select **Data connections**.
- c. Change the connection type by clicking the dropdown box and selecting **Streaming 32 kbps**.
- d. Make sure **Data Connection Activation** is set to **Automatic when any PC is connected to the Nera WorldPro**.
- e. Before you exit the web interface make sure you click **Store Settings**.



Connecting to BGAN

You can connect to BGAN in two different ways - from the web server interface, or by using the terminal's front panel.

To use the front panel:

- a. Power on the terminal by pressing and holding the **ACTIVATE** button for 1.5 seconds.

- b. Obtain a GPS fix.
- c. Find the best signal.
- d. Press the **ACTIVATE** button to automatically register to the network. Wait approx. 30 seconds and you should be able to connect to the Internet. (If you have a Nera World Set, the display shows **Connected**)

Now go to “ACCESS Portable configuration” on page 6.

6.3 Step by step setup – Hughes 9201

The Access Portable uses the Automatic Context Activation (ACA) feature of the Hughes 9201 to activate a PDP context after the terminal is registered with the BGAN Network.

The Access Portable cannot manually configure the Hughes 9201 to establish a PDP context. To set up the Hughes 9201 to establish a PDP context automatically, simply change the Access Portable IP address as follows:

- a. Use the menu at the top of the screen on the Access Portable to select **Network > Manage Networks**
- b. Select **Ethernet Port** on the main screen, and click **Configure** at the bottom left of the screen
- c. In the window that appears select the **TCP/IP** tab, and uncheck **Acquire address automatically (DHCP)**
- d. Set a static IP address between **192.168.128.210** to **192.168.128.219**. Once the Access Portable is ready to broadcast to the BGAN IP network, it will automatically open a 32kbps Streaming IP data connection.
- e. Set the Subnet mask to **255.255.255.0** and the gateway to **192.168.128.100** (default)
- f. You may want to enter a DNS server (provided by your ISP), if you are calling an IP address this is not needed.
- g. Click **Save**

Connecting to BGAN

As with all the terminals, connect using an Ethernet cable.

- a. If you need to acquire a new GPS then do so. Consult the ‘Getting started with Hughes 9201’ guide for more information. You have a new GPS when the GPS LED on the terminal is solid green.
- b. Press and hold the audio button for 3 seconds to register the terminal. The terminal is registered once the GPS light goes out completely.
- c. When you try making a call, the third LED from the right should start to flash. The data connection is established when the signal strength light goes solid Green. If it goes red, it has failed.

Now refer to “ACCESS Portable configuration” below.

6.4 ACCESS Portable configuration

No changes to the default Ethernet settings on the ACCESS Portable are required. Be sure that the ACCESS is set for DHCP network addressing.

6.5 Start your broadcast using ACCESS

Select the **Remotes** menu and then **Manage Connections** from the drop down menu to display the **Select Remote ACCESS Unit** menu. This menu allows you to select from a number of pre-configured connections, and simply press the green **Connect** button to initiate the transmission of audio.



If a connection has not been pre-configured for your receiving "Studio" unit, simply select **Add New Remote** from the **Remotes** drop down menu. The screen below displays, allowing you to enter the information necessary to connect to the Studio unit. Please consult your ACCESS user's manual for a more detailed description of these functions.



6.6 Equipment needed

- ACCESS Portable or ACCESS Rackmount Codec.
- BGAN terminal.
- Laptop computer with web browser.
- Multiport Ethernet switch.
- ACCESS Rackmount connected to the public Internet (studio side).

7 BGAN customisation

No BGAN customization is required.

8 Hints and tips

The following are best practice hints and tips to ensure you get the most from ACCESS over BGAN:

- The BRIC-HQ2 algorithms that come standard with ACCESS provide broadcast quality mono and stereo transmission when used with BGAN 32 kbps Streaming service.

9 Technical summary

Feature	ACCESS rack mount	ACCESS portable
Data connections	RJ-45, RJ-11 (PSTN), USB, Serial 9-pin, GPI 9-pin	RJ-45, CardBus slot, USB, Serial DIN, GPI DIN
Audio input connections	Stereo balanced line level XLR, AES3 XLR	Mono balanced adjustable mic/line XLR, unbalanced stereo line level 1/8" (3mm), unbalanced hands free mobile 1/8" (3mm)
Audio output connections	Stereo balanced XLR, AES3 XLR	Unbalanced stereo adjustable headphone 1/8" (3mm), unbalanced stereo line level 1/8" (3mm), unbalanced hands free mobile 1/8" (3mm)
Power connections	IEC style, internal 110/220V auto-switching	DIN style, external 110/220V auto-switching, rechargeable LiON battery, 12V DC connector (optional)
Display options	Via web browser to integrated web server, VGA adapter on rear panel	Via web browser to integrated web server, integrated TFT display

Standard algorithms	BRIC-HQ1, BRIC-HQ2, BRIC-ULB, Linear	BRIC-HQ1, BRIC-HQ2, BRIC-ULB, Linear
Optional algorithms	AAC, HE-AAC, HE-AAC v2, AAC-LD	AAC, HE-AAC, HE-AAC v2, AAC-LD
Firmware Updates	Available via IP	Available via IP
BGAN IP addressing requirement	Supports STATIC and DYNAMIC addressing	Supports STATIC and DYNAMIC addressing
Data Protocols supported	UDP, TCP, RTP, Multicast	UDP, TCP, RTP, Multicast

10 Further details and support

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