Servicom G.R.I.P.
Enabling Global Push-to-Talk over BGAN and Fleet Broadband
Version 01
30.09.11
## Contents

1  Overview..................................................................................................................... 1
2  Background .................................................................................................................. 1
3  Key Features ............................................................................................................... 2
4  Typical Users ............................................................................................................... 2
5  Benefits to BGAN and Fleet Broadband users ......................................................... 2
6  BGAN Setup and operation ....................................................................................... 3
7  G.R.I.P Setup and Operation ..................................................................................... 7
    7.1 System requirements ......................................................................................... 7
    7.2 Client Software setup ....................................................................................... 8
    7.3 Channel Operation ......................................................................................... 9
    7.4 GRIP Radio Interface Hardware Setup .......................................................... 9
    7.5 GRIP Mobile IP unit ...................................................................................... 10
8  Further Support and Details .................................................................................... 10
1 Overview

G.R.I.P. is a dedicated VOIP solution providing voice communications at very low bandwidth using background IP. Bandwidth requirement is less than 4kbps, providing secure closed user group communications.

2 Background

Servicom’s G.R.I.P. Solution enables voice communications at very low bandwidth therefore a cost effective solution for operation on the Inmarsat BGAN / Fleet Broadband network.

Available as a PC software or hardware solution, G.R.I.P. enables customers to monitor and interact with hand held portable or mobile radios anywhere in the world without having to worry about compatibility issues surrounding frequencies or radio equipment type.

Two way radio users, (UHF, VHF or HF) are able to talk to each other across a dedicated secure link via the internet.

An innovative, easy to install and comparatively low cost solution that broadens the capabilities of systems and opens new possibilities in radio & Satellite communications G.R.I.P. is not a peer to peer solution it is operated as a Server & Client and the server requires a Fixed IP address, to enable all Clients to connect to the server.

The Server software is available to purchase and install on a dedicated Computer but does require a fixed IP address.

Alternatively Servicom can provide access to a secure hosted server for a minimal annual hosting fee per client.
3 **Key Features**

- Servicom G.R.I.P offers the following over the BGAN network
- Available in Client or Hardware
- Very efficient 4kbps codec – cost effective voice for BGAN and Fleet Broadband
- Secure dedicated link
- Compatible with HF, UHF and VHF
- Linking Push to Talk radios regardless of distance or terrain
- Designed for site-to-many-site inter-connectivity
- Rugged hardware construction, designed for harsh environments.

4 **Typical Users**

- First Responders
- Broadcasters
- Aid agencies
- Oil and Gas
- Mining
- Military
- Multi-radio sites
- Construction
- Marine
- Security
- Road and Rail

5 **Benefits to BGAN and Fleet Broadband users**

G.R.I.P offers you the following main benefits:

- Site-to-many-site connectivity across all Internet platforms, including BGAN and Fleet Broadband
- Excellent voice quality.
- Full control of users via the Administration software.
- Extremely low bandwidth requirement.
- Very cost effective.
6 BGAN Setup and operation

To be able to use the G.R.I.P with BGAN or with Fleet broadband it is a very simple configuration. On the remote side all that is required is that a Standard IP connection with a connection to the internet is present.

This can be done using Inmarsat Launchpad or by setting up the terminal for an automatic data connection via the terminal web interface.

6.1 Setting up for the Thrane & Thrane EXPLORER BGAN terminals

A Standard IP 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 MMI.

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

2. Click on Settings and then LAN. Now you should see the web server interface.

3. Scroll down to “Profiles” and make sure “Primary” is set to “Standard”

4. Also make sure that the “Automatic Activation” is set to “On”

5. Now your terminal is configured to start a Standard IP connection after you register on the network.

6. Restart your terminal and click OK button on LCD after properly pointing the terminal. Once the Explorer is register on the BGAN network you will be connected automatically with a Standard IP connection.
6.2 Setting up the Wideye SABRE BGAN terminal

A Standard IP service should be initiated from the BGAN terminal and needs to be configured from the Wideye™ Sabre I’s built-in web server (via a PC’s web browser).

1. Open your internet web browser and type the following IP address in the address bar: **192.168.1.35**
2. Type in the User Name: **sabre1**, and the password **wideye**. The following screen displays.

3. Click on the Data Icon
4. Click on Primary Profiles
5. Select the connection Type as **Standard IP**
6. Check mark Set as default
7. Click on Update Settings
Your configuration should look like this:

8. Click on the **Settings** Tab
9. Select Router Mode (Single User)
10. Check the box for **Auto PDP context Activation**. This opens a Streaming connection automatically after you register with the network.
11. Your configuration should look like this:
12. Reboot the terminal
13. Accept the signal strength by pressing Enter on the LCD screen. Your Streaming connection should start in a minute or so.

### 6.3 Setting up the Hughes 9201 BGAN terminal

A Standard IP service should be initiated from the BGAN terminal and needs to be configured from the Hughes 9201’s built-in web server (via a PC’s web browser).

1. Open your internet web browser and type the following IP address in the address bar: **192.168.128.100**. The following screen displays:

2. Click on ACA on the menu on the left.
3. Make sure that on the section “ACA Settings for TEs with Static-IP address” the second radio button is **on** for the QoS of **Background**.
4. Click Apply
5. Click on **Restart Terminal**. The following screen displays:

6. Configure the codec's Static IP address in order to open the 32k Streaming connection automatically after registration. To do this:

7. Press softkey 4 "MENU"

8. Select “Configuration” → “Advanced Menu” → “LAN Settings” → “IP Setup” → “Static” → “IP Address”

9. Type **192.168.128.211** and press **OK**.

10. Select “Subnet Mask”, type **255.255.255.0** and press **OK**.

11. Select “Default Gateway”, type **192.168.128.100** and press **OK**.

12. Register the terminal by pressing the Audio button until the signal strength lights go off.

13. On the codec try your IP call to the studio.

14. The terminal will automatically recognize the Static IP and request the 32k Streaming service automatically.

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### 7 G.R.I.P Setup and Operation

This section describes setting up the G.R.I.P solution. G.R.I.P has two platform options. There is a software option and a light hardware option which can be used as a standalone or to interface with UHF/VHF/HF radios.

#### 7.1 System requirements

Required operating system:

Windows XP/Vista

Hardware requirements:

Computer with Headset & microphone / Desk-top Microphone & Speakers
NOTE: Please note that when operating this software on a PC behind a firewall a specific IP port will need to be opened to allow access as GRIP requires an Internet connection to access the Server.

The communications IP port allocated is to ensure a secure and stable link to the main server. This IP port will need to be opened to enable GRIP to operate.

7.2 Client Software setup

Once you have installed the client software there is little configuration required. Although there are various configuration options the key two options that you will need to configure are how you will key up the voice to “push to talk”, the second is the sound configuration.

To choose how to “push to talk”

From the FILE tab you set-up your preferences including how you key up the remote radio system in order to communicate.

Select “Push to Talk” and then Set-up Keys and here you can choose your keyboard key combination for operating the system PTT (Push to Talk as used on portable radios).

The other option shown “Voice activated” should not be used in the office or workshop environment.

To set your preferences click on the preferences tab this will bring a new dialogue window where you will see the following tabs.

Configure the sound system

If the audio is not working through you’re preferred devices you may need to make changes to the Sound System. This menu cannot be altered unless you first disconnect by going to “FILE” and selecting “Disconnect”.

Click on File and select click on the Preferences menu from the drop down
Select the Sound System tab
Adjust sound settings to match your PC/laptop (you may need to do this when installing)

NOTE: Please note that it is essential to have the USB license dongle inserted for the software to function. It will not work without the dongle.
7.3 Channel Operation

If you are not already connected to the GRIP server, select FILE then CONNECT and your system will automatically log on to the server. This should show you a display with folders of the Internet radio channels that have been set up for your use.

The general configuration is to have a Main Control Channel then a sub channel such as Network Channel 1.

Your identity will be shown in bold. It is in this channel that all communications will take place between your authorised radio users and PC based personnel.

When you or one of your radio groups is active a green icon will light up to show activity.

Please observe standard radio protocol and wait until your calling radio has finished (Green icon will go out) then you can speak.

A Red Indicator is the last call received. The best way to use the PC based client software is to imagine that you also have a radio. Talk into the microphone and key up your “radio” by holding down the keyboard key that you set up previously as the PTT key.

If you have several radio groups set up on the remote server then you have the ability to join other radio channels to monitor and communicate with them.

This is easily achieved by using your mouse to select the radio channel and Right click and select join.

All channels can be password protected to ensure security so you will have to input the password for the channel before you are allowed to join it and communicate with the users already in that channel.

The GRIP client software can be minimised to the task bar and you will still be able to have communications with your personnel via your Computer multimedia devices.

Get to know the software and adjust your multimedia devices to a comfortable level in order to avoid annoying any other PC users within your own environment.

7.4 GRIP Radio Interface Hardware Setup

NOTE: Ensure an internet connection is available. This can be achieved by a local broadband connection, or satellite terminal, such as Inmarsat BGAN or Fleet Broadband. For a standard default set-up, a specific IP port will need to be opened on your Router.

You must ensure this port is opened. You may need to contact the person in control of your internet infrastructure to enable this.
Plug the power supply cable provided into your GRIP unit and also plug the Radio Interface cable supplied into the rear socket of the local Base radio.

The interface lead supplied connects as follows: The small 9 way “D” Plug is fitted to COM 1

The final connection is to the local radio where the connector at the other end, is fitted into the rear data socket on the radio. This connection differs with radio different manufacturers & models.

Once all connections are complete please tighten the locking screws to ensure reliable connections are maintained when the equipment is in use.

Plug in the internet connection to one of the RJ45 LAN Sockets

(The following section may have been configured by your radio supplier)

Ensure the local radio has the appropriate operating frequencies programmed. You will require a GRIP config file applied to your radio if it is a mobile or base unit.

Switch the GRIP Radio interface on and wait a few minutes whilst it automatically logs on to the server.

You will hear a Three tone audible confirmation from the GRIP unit upon successful connection to the Internet.

Your GRIP radio Interface is now ready to use.

Switch on the radio, and communicate via your radio network as normal.

(If you hear a two tone alert there is an issue with your Internet connection.)

7.5 GRIP Mobile IP unit

The GRIP mobile IP unit is the same hardware as the GRIP radio interface but is supplied with a fist Microphone & External speaker. Designed for a single user installed in a vehicle which also requires a connection to the Internet such as 3G / Inmarsat Bgan

Operation of this unit is similar to using a vehicle mounted Two way mobile radio. The fist microphone has the facility to change GRIP channels via a switch on the top of the microphone.

Also when changing GRIP channels a voice announcement to the GRIP Mobile IP user informs which channel is selected.

Attach a USB GGPS receiver, and from the Admin software Vehicle tracking is available on Google maps / Google Earth, this facility is provided at no extra cost.

Voice prompts are also provided to alert the GRIP mobile IP user of connection status (such as connected / not connected) to the GRIP server therefore enabling the GRIP Mobile IP user confirmation of communications.

When operating the ptt on the fist microphone a small audible tone is provided to confirm you have successful voice communications.

8 Further Support and Details

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