

HUGHES




inmarsat



BGAN SATELLITE TERMINAL USER GUIDE

Copyright © 2007 Hughes Network Systems, LLC.

All rights reserved. This publication and its contents are proprietary to Hughes Network Systems, LLC. No part of this publication may be reproduced in any form or by any means without the written permission of Hughes Network Systems, LLC., 11717 Exploration Lane, Germantown, Maryland 20876.

Hughes Network Systems, LLC., has made every effort to ensure the correctness and completeness of the material in this document. Hughes Network Systems, LLC., shall not be liable for errors contained herein. The information in this document is subject to change without notice. Hughes Network Systems, LLC. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Trademarks

All trademarks, marks, names, or product names referenced in this publication are the property of their respective owners, and Hughes Network Systems, LLC. neither endorses nor otherwise sponsors any such products or services referred to herein.

HUGHES and Hughes Network Systems are trademarks of Hughes Network Systems, LLC.

INMARSAT is a trademark of the International Mobile Satellite Organization. The Inmarsat LOGO and the trademark BGAN are trademarks of Inmarsat (IP) Company Limited. All trademarks are licensed to Inmarsat Limited.

For your safety and protection, read this entire user manual before you attempt to use the Broadband Global Area Network (BGAN) Satellite Terminal. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

▶▶ WARNING SYMBOLS USED IN THIS MANUAL



WARNING

Potential radio Frequency (RF) hazard. Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid injury to eyes or other personal injury.



WARNING

Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid personal injury.



DANGER

Electric shock hazard: Where you see this alert symbol and DANGER heading, strictly follow the warning instructions to avoid electric shock injury or death.

▶▶ WARNINGS FOR SATELLITE TERMINAL



DO NOT STAND IN FRONT OF THE ANTENNA

This device emits radio frequency energy. To avoid injury, do not place head or other body parts in front of the satellite antenna when system is operational. Maintain a distance of two meters or more from the front of the Satellite Terminal antenna.



PROPERLY GROUND THE EXTERNAL ANTENNA

Failure to properly ground the optional external antenna may result in severe personal injury or death. Do not attempt to ground the optional external antenna unless you have the skills to do so in accordance with local electrical codes.



DO NOT OPERATE DURING ELECTRICAL STORMS

Operation of the Satellite Terminal during electrical storms may result in severe personal injury or death. Disconnect the Terminal from the computer and store the unit indoors if lightning is anticipated in the area of operation.



GENERAL

Handle your Satellite Terminal with care. The enclosure is weather resistant per IEC 60529 IP55; however, do not submerge the unit or expose it to severe rain storms. Avoid exposing your Satellite Terminal to extreme hot or cold temperatures outside the range -25°C to +60°C.

Avoid placing the Terminal close to cigarettes, open flames or any source of heat.

Changes or modifications to the Terminal not expressly approved by Hughes Network Systems could void your authority to operate this equipment.

Only use a soft damp cloth to clean the Terminal.

To avoid impaired Terminal performance, please ensure the unit's antenna is not damaged or covered with foreign material like paint or labeling.

When inserting the USIM/SIM, do not bend it or damage the contacts in any way. When connecting the interface cables, do not use excessive force.



IN THE VICINITY OF BLASTING WORK AND IN EXPLOSIVE ENVIRONMENTS

Never use the Satellite Terminal where blasting work is in progress. Observe all restrictions and follow any regulations or rules. Areas with a potentially explosive environment are often, but not always, clearly marked. Do not use the Terminal while at a petrol filling station. Do not use near fuel or chemicals.



QUALIFIED SERVICE

Do not attempt to disassemble your Satellite Terminal. The unit does not contain consumer-serviceable components. Only qualified service personnel may install or repair equipment.



BATTERIES AND ACCESSORIES

Use approved batteries (HNS P/N 3003702-0001) and accessories only. Use of non-approved accessories may result in loss of performance, damage to the Satellite Terminal, fire, electric shock or injury.

AC mains power adapter (HNS P/N 3003727-0001) is for indoor use only. It has an indoor operating temperature range of 0°C to +40°C and provides an output voltage of 20 VDC.

The storage capacity of the battery decreases when operated.

The terminal will only charge the battery when the temperature is within the range of 0 to 45°C.



CONNECTING DEVICES

Never connect incompatible devices to the Satellite Terminal. When connecting the Satellite Terminal to any other device, read the device's User Manual for detailed safety instructions.



PACEMAKERS

The various brands and models of cardiac pacemakers available exhibit a wide range of immunity levels to radio signals. Therefore, people who wear a cardiac pacemaker and who want to use a Satellite Terminal should seek the advice of their cardiologist. If, as a pacemaker user, you are still concerned about interaction with the Satellite Terminal, we suggest you follow these guidelines:

- Maintain a distance of 30 cm between the Terminal and your pacemaker;
- Maintain a distance of two meters from the front of the unit's antenna;
- Refer to your pacemaker product literature for information on your particular device.

If you have any reason to suspect that interference is taking place, turn off your Satellite Terminal immediately!



HEARING AIDS

Most new models of hearing aids are immune to radio frequency interference from Satellite Terminals that are more than 2 meters away. Many types of older hearing aids may be susceptible to interference, making it very difficult to use them near a Terminal. Should interference be experienced, maintain additional separation between you and the Satellite Terminal.

| | |
|---|-----------|
| SAFETY INFORMATION | I |
| Warning Symbols Used in this Manual | i |
| Warnings for Satellite Terminal | i |
| CONTENTS | IV |
| INTRODUCTION | 1 |
| About This Product | 1 |
| About This User Guide | 2 |
| Coverage Area..... | 2 |
| Package Contents | 3 |
| Minimum System Requirements..... | 3 |
| GETTING STARTED | 5 |
| Introduction to Getting Started..... | 5 |
| Setting Up Your Terminal..... | 5 |
| Put the Battery on Charge | 7 |
| Installing BGAN Launch Pad | 8 |
| Obtaining a GPS Fix..... | 8 |
| Connecting the Terminal to the Computer | 9 |
| Connecting by USB..... | 10 |
| Connecting by Ethernet | 11 |
| Connecting by ISDN | 12 |
| Connecting by WLAN | 12 |
| Connecting with the Network | 13 |
| Checking the GPS Status..... | 13 |
| Pointing the Terminal..... | 14 |
| Terminal Stand Positioning | 14 |
| Using the BGAN LaunchPad Pointing Wizard | 16 |
| Using the BGAN Terminal Signal quality LEDs..... | 17 |
| Using the Audio Buzzer | 17 |
| Registering with the Network using LaunchPad | 18 |
| Launch Bar | 18 |
| Registration status and coverage map | 19 |
| Status bar | 19 |
| Fixed/Semi-Fixed Installation | 19 |
| LAUNCHPAD SOFTWARE INSTALLATION | 21 |
| Supported Operating Systems..... | 21 |
| BGAN Launchpad Corporate Edition or Personal Edition..... | 21 |
| Installation CD and Installation Wizard..... | 22 |
| TERMINAL OVERVIEW | 26 |

| | |
|---|-----------|
| Size and Weight | 26 |
| Terminal Interfaces | 26 |
| Interface Overview and Defaults | 26 |
| Establishing Communications Between Computer And Satellite Terminal | 27 |
| Terminal Features | 28 |
| USIM/SIM Card | 28 |
| Buttons | 28 |
| Indicator Lights (LEDs) | 29 |
| Compass | 31 |
| Solar Panel Compatibility | 32 |
| Terminal Accessories | 32 |
| DC Power Adapter | 32 |
| Extended Battery | 32 |
| AC Mains Power Adapter | 33 |
| Cables | 33 |
| Fixed Mount Kit | 33 |
| External Antenna | 34 |
| ISDN Compatible Devices | 35 |
| BGAN LAUNCHPAD OVERVIEW | 36 |
| PIN Code entry | 36 |
| Personalization | 37 |
| Pointing | 37 |
| Main Display | 38 |
| Multiple Users | 38 |
| Software Download/Upgrade | 38 |
| Connecting Terminal to PC and Other Devices Via WLAN Interface | 40 |
| ISDN Equipment | 42 |
| BGAN SERVICES | 43 |
| Voice Telephony Services | 43 |
| Supplementary Services | 43 |
| Messaging Services | 46 |
| Short Message Service (SMS) via BGAN LaunchPad | 46 |
| Data Services | 47 |
| Default Connections | 47 |
| Dedicated Streaming Connections | 48 |
| VPNs | 48 |
| ISDN Data | 48 |
| Opening Data Connections | 49 |
| Opening and Closing a Connection | 49 |
| Opening a Dedicated Streaming Connection | 51 |
| Closing a Data Connection | 51 |
| Set up or Edit a VPN Connection | 51 |
| Opening a VPN | 53 |

| | |
|--|-----------|
| Closing a VPN | 53 |
| Adding or Editing a Dedicated Connection | 54 |
| Setting Up an Icon | 54 |
| Configuring Connection Quality | 55 |
| Managing ISDN Connections | 57 |
| Opening an ISDN Data Connection | 57 |
| SERVICE FEATURES | 58 |
| Automatic Mode | 58 |
| Auto "On" Mode | 58 |
| LED On/Off Mode | 58 |
| Antenna Pointing Bypass | 58 |
| Automatic Context Activation | 58 |
| Automatic Context Activation without LaunchPad | 58 |
| Configurable Background Context | 59 |
| Automatic Context for specific Quality of Services (QoS) | 59 |
| Front Panel LED Indicators | 59 |
| LaunchPad "Automatic Connection" Description | 60 |
| Previous "UT Automatic Connection" Description | 60 |
| USIM APN Mode vs. Manual APN Mode | 61 |
| Configuring the New ACA Feature | 61 |
| DNS Server | 64 |
| DNS Server – Automatic Mode | 64 |
| DNS Server – Manual Mode | 64 |
| Phonebook | 64 |
| Emergency Calls | 65 |
| PDP Contexts Overview | 65 |
| PDP Contexts – Primary and Secondary | 65 |
| IP Addressing | 65 |
| Multiple Users | 66 |
| Managing Contacts | 66 |
| Adding and Editing Contacts | 68 |
| Exporting and Importing Contacts | 69 |
| TCP PEP SOFTWARE | 71 |
| Exit, Reset And Restart Features | 72 |
| Exiting LaunchPad | 72 |
| Resetting the Terminal | 72 |
| Restarting the Terminal | 72 |
| GETTING HELP | 73 |
| BGAN Profile Manager | 73 |
| About Profile Manager | 73 |
| Creating and Editing a Profile | 74 |
| Managing Profiles | 83 |
| Security | 84 |
| About Security and Control | 84 |

| | |
|--|------------|
| Changing the SIM PIN and Facility Password | 84 |
| Enabling a PIN | 85 |
| Software Upgrade | 86 |
| Checking for Updates | 86 |
| Software Versions and Availability | 87 |
| Log Files | 88 |
| Deleting or Clearing Log Files | 88 |
| Displaying Log Files | 89 |
| Printing Log Files | 91 |
| Saving Log Files to Disk | 92 |
| Turning Logging On and Off | 92 |
| POWER-ON SELF-TEST | 93 |
| Satellite Terminal Boot Behavior | 93 |
| TROUBLE SHOOTING | 98 |
| TECHNOLOGY OVERVIEW | 101 |
| GPS | 101 |
| Obtaining a GPS Fix | 101 |
| GPS and BGAN Registration | 101 |
| ISDN | 102 |
| Dialing and Numbering | 102 |
| PDP Context | 102 |
| WLAN | 103 |
| Performance | 103 |
| SSID | 103 |
| TECHNICAL SPECIFICATIONS | 104 |
| DECLARATION OF CONFORMITY | 105 |
| EU WEEE (Waste Electrical and Electronic Equipment) Directives | 105 |
| GLOSSARY | 106 |

ABOUT THIS PRODUCT

The Hughes Network System (HNS) 9201 Broadband Satellite Terminal and WLAN Access Point is your gateway to global communication. The 9201 allows you to simultaneously send and receive IP packet and circuit-switched data via Universal Serial Bus (USB), Ethernet, Integrated Services Digital Network (ISDN), and WLAN interfaces over the Inmarsat BGAN satellite network.

The unit offers you the following features and benefits:

- 492 Kbps data (transmit and receive)
- Speech (4Kbps)
- ISDN voice (3.1KHz audio)
- ISDN data (64Kbps)
- WLAN access point
- Multi-user capability for sharing a single unit
- Selectable Quality-of-Service (QoS)
- Full IP compatibility for Email, file transfer (FTP), browsing, VPN, etc.
- Cost-effective “always-on” access – charges only for data sent and received
- UMTS IP-based services
- WLAN, FCC, CE, and GMPCS certified
- Subscriber Identification Module (SIM) card security
- LED indicators and audio pointing aids for obtaining an Inmarsat satellite signal
- GPS and WLAN status LEDs

The unit is easy to install and connects in minutes. It is built for use in fixed, semi-fixed, and portable environments. The rugged design allows the unit to be installed outside in extreme weather conditions for extended periods of time, and the small size and weight lets you easily move it from site to site.

The Satellite Terminal carries a warranty for 12 months from the date of sale. Contact your Service Provider if you have questions about the warranty, or need to return the terminal for repair.

In this document, the following names and abbreviations are used to identify the Satellite Terminal and your computer.

| Term | Definition |
|----------|------------------------------------|
| Terminal | Satellite Terminal |
| TE | Terminal Equipment (your computer) |
| UT | User Terminal/satellite terminal |

▶▶ ABOUT THIS USER GUIDE

This user guide contains the most up-to-date information available on this product, on the date it was generated, and is included as part of the LaunchPad software under the Help tab.

▶▶ COVERAGE AREA

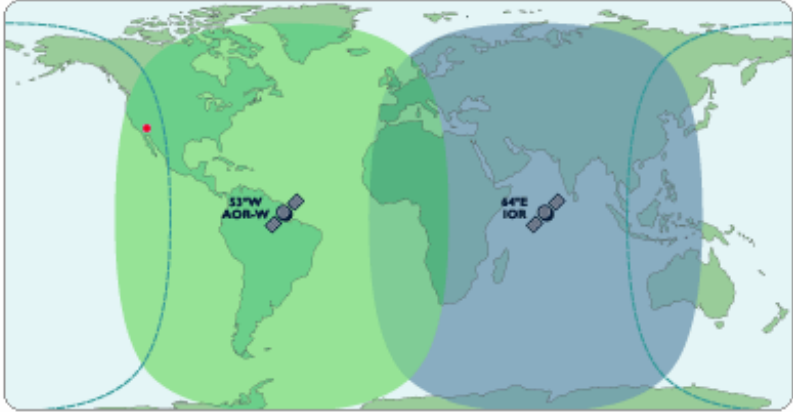
Welcome to BGAN.

Click on the map or choose your nearest city to display terminal pointing instructions.

Nearest city: **San Diego, USA**

Help me setup BGAN

Register with network now



Recommended: Antenna angle: 15° Compass direction: ESE (103°)

The map shows the global coverage provided by the BGAN satellites. You are able to access one of the BGAN satellites by pointing the terminal to that satellite. In addition to the satellites, the BGAN system includes infrastructure equipment on the ground, that connects to telephone networks and the internet. By accessing the satellites, your terminal can then connect to telephone and data networks.

▶▶ PACKAGE CONTENTS

When you unpack the Satellite Terminal package, you will find the following:

- BGAN 9201 Broadband Satellite Terminal and WLAN Access Point
- Rechargeable lithium ion battery pack
- AC mains power adapter and cable (100 – 240 VAC)
- Travel adaptor
- USB cable
- Ethernet cable
- ISDN cable
- Installation CD



The following are accessories not included in the package:

- Extra standard lithium ion battery pack
- Extended lithium ion battery pack
- Standard AC mains power adapter (100 – 240 VAC)
- Fix Mount Kit
- DC (vehicular) power adapter
- External passive antenna
- 2-4 wire ISDN terminal adapter
- Security Covers for Fix Mount Kit

Your Service Provider will supply you with a Subscriber Identification Module (SIM) and its PIN, and Satellite Terminal configuration instructions – you will need these to access the network. Note: The SIM card will also have four (4) MSISDN numbers associated with it for various ISDN services:

4K Voice

3.1KHz Audio/Fax

64K UDI data

56K RDI data

▶▶ MINIMUM SYSTEM REQUIREMENTS

These are the minimum computer system requirements for successful interface with the Satellite Terminal:

- CD-ROM (for installation CD)
- Internet Browser: Microsoft Internet Explorer version 5.5 or later; Netscape Communicator version 7.0 or later (Java must be active).

- PC Support for at least one of these interfaces – USB, Ethernet, ISDN or WLAN (802.11b or b/g).
- Intel Pentium III CPU, or equivalent.
- 100 MB of free hard disk space.
- 128 MB of RAM.

▶▶ INTRODUCTION TO GETTING STARTED

This guide is the simplest and quickest way to connect to the BGAN network. If you are a first time user, you will be guided through the procedure for powering up your terminal, obtaining a GPS fix, connecting your computer to the terminal and registering with the BGAN network. You are then ready to start using voice and broadband services.

▶▶ SETTING UP YOUR TERMINAL

To set up your terminal, you must:

- Install the USIM/SIM Card and the Battery supplied with your terminal
- Put the Battery on Charge.

To set up the terminal:

1. Position the terminal so that the battery door is facing you.
2. Open the battery door. (If you have already installed the battery, release and then remove it.)



3. Push the button on the left-hand side of the USIM/SIM card holder. This releases the holder from its slot.



4. Install the USIM/SIM card in the card holder making sure it is snapped into place.



5. With the card in place, orient the holder with the card's gold contacts facing down. Place the holder back in its slot in the BGAN terminal.



6. Put the battery into its slot in the BGAN terminal and lock it in place. Close and lock the battery door.



PUT THE BATTERY ON CHARGE

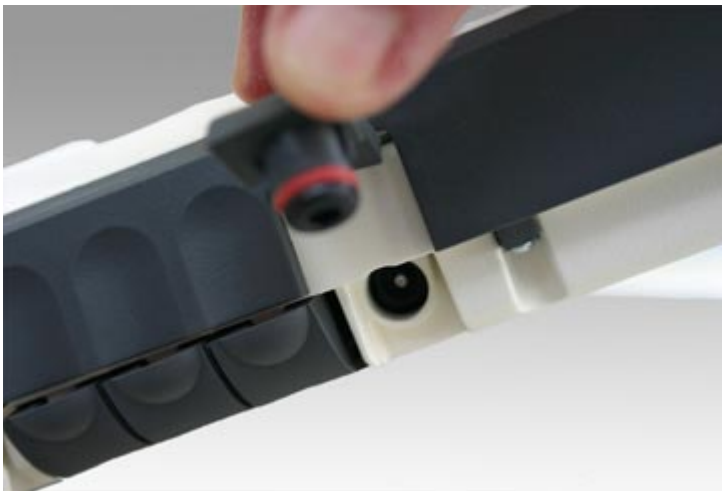
To charge the battery, connect the AC mains power adapter to the terminal and to an external power source. The temperature of the battery must be within 0°C to 45°C for charging to take place successfully.

USING THE AC MAINS POWER ADAPTER

The AC mains power adapter is for indoor use only. It has an indoor operating temperature range of 0°C to 40°C and provides an output voltage of 20 VDC.

To power the terminal using the AC mains power adapter:

1. Remove the power adapter from the terminal box.
2. Insert the power adapter output connector to the DC Power Input Jack on the back of the terminal, as shown below:



3. Plug the AC Power Cable into a suitable AC mains power outlet, and charge the battery for three hours. If the AC Power cable does not fit into your power outlet, use the travel adapter.



Note

You can operate the Satellite Terminal while the battery is charging.



You are now ready to install the BGAN LaunchPad Software.

▶▶ INSTALLING BGAN LAUNCH PAD

As a first step, Inmarsat recommends that you install BGAN LaunchPad on your computer, which also installs the terminal's USB driver. You can use BGAN LaunchPad to open and manage data connections, manage and monitor terminal operations and monitor the status of the connections between your terminal and your computer.

To install BGAN LaunchPad on your computer:

1. Insert the Inmarsat BGAN LaunchPad Installation CD into your computer's CD-ROM drive.
2. Follow the on-screen instructions.

If you need more details, go to the section **LaunchPad Software Installation**

When you start the BGAN LaunchPad application on your computer (TE) and connect to the Terminal, the Terminal will query the current USIM/SIM card to see if the Personal Identification Number (PIN) is enabled. If the PIN is enabled, the BGAN LaunchPad displays a PIN window and requires you to enter a valid SIM PIN. If the SIM PIN is disabled then the BGAN LaunchPad bypasses this display. The PIN should have been supplied with the USIM/SIM.

You are now ready to obtain a GPS fix.

▶▶ OBTAINING A GPS FIX

Your Satellite Terminal contains an integrated GPS receiver that is used to provide location information to the BGAN system. GPS location information is required to register with the BGAN system, and the terminal automatically tries to get a GPS every time it is powered on.

The GPS antenna is located in the main antenna. For optimum GPS signal reception, make sure the Terminal is placed in a horizontal position pointed towards the sky. Since the GPS receiver needs to see at least 3 satellites, it should have visibility of a large part of the sky without obstructions from buildings, mountains or trees. So it might be necessary to take your Satellite Terminal out to a clear space to obtain a new GPS location. It may be possible to obtain a new GPS location in a less favorable circumstance, but the time to get the fix may be longer.

Once the terminal gets a GPS fix, it stores the location, and the terminal can be moved to a more convenient working area, such as inside a building by a window facing the BGAN satellite.

GENERAL INSTRUCTIONS

1. Take the Satellite Terminal outside and lay it down flat. Verify that the unit has an open view of the sky to get a GPS fix.
2. Power up the Terminal. The GPS LED will start to flash green indicating the terminal is getting a GPS fix.



3. Monitor either the BGAN LaunchPad GPS indicator or the Terminal's GPS LED for the status of the GPS fix. It may take a few minutes to get a fix. Once the terminal gets a GPS fix, the GPS LED will turn solid green.

The following is the progression of the GPS LED display as the terminal tries to get a GPS fix:

- **Getting a fix:** The LED flashing green (½ duty cycle, 1 second period) indicates the terminal has not obtained a fix since it was last powered on. The stored fix may be acceptable in

which case the terminal may be able to register, but the LED will continue to flash indicating the terminal is still trying to get a fix.

- **Needs a fix:** The LED changes to flashing red (½ duty cycle, 1 second period) indicating that the terminal tried to register, but the GPS fix was rejected by the network.
- **Got a fix:** The LED changes to solid green when a new GPS fix is obtained. The LED will remain on until the unit registers with the network and the fix is accepted. (Note that once the fix is obtained, the GPS receiver will be turned off unless it is still downloading almanac data from the GPS satellites)
- **Complete:** The LED turns off when the unit successfully registers with the network.
- **GPS Failure:** The LED will be solid red if the Terminal detects a hardware fault with the GPS module.

You are now ready to Connect the Terminal to the Computer.

▶▶ CONNECTING THE TERMINAL TO THE COMPUTER

You can connect your computer to the BGAN terminal with one or more of the following interfaces

- USB
- Ethernet
- Integrated Services Digital Network (ISDN)
- WLAN



Note

There is no need to check the active interface. All interfaces can be used simultaneously to accommodate multiple users.



Note

During initial setup, the terminal can only be configured using either a USB or an Ethernet connection. Once the terminal has been configured, all four interfaces (USB, Ethernet, WLAN and ISDN) can be used for data transfer depending on the service required.

Your computer must be configured to support your chosen connection method. Refer to the documentation supplied with your computer for details.

CONNECTING BY USB

To connect the BGAN terminal to the computer using the USB port:

1. Connect the supplied USB cable to your computer's USB serial port, and insert the other end of the connector into the BGAN terminal's USB port.



2. At the terminal, slide the cable through the rubber door slot in order to secure and protect the connection.



Note

When plugging in the USB cable for the first time, you will see Windows installing a new driver for the device.

When you install LaunchPad the USB driver for the terminal will also be installed. When you plug in the USB cable into your computer for the first time, your computer will detect that new USB Hardware has been connected. You should then follow the computer's instruction to install the **Hughes USB LAN LINK** driver software (for computers using the Windows operating system, the installation is carried out using a **Found New Hardware Wizard**). Your computer will then use this driver to connect to the terminal.

CONNECTING BY ETHERNET

To connect the BGAN terminal to the computer using Ethernet:

1. Connect the supplied Ethernet cable to your computer's Ethernet port, and insert the other end of the connector into the BGAN terminal's Ethernet port.



2. At the terminal, slide the cable through the rubber door slot in order to secure and protect the connection.



CONNECTING BY ISDN

1. Connect the ISDN cable (use the provided Ethernet cable – it is a dual-use cable for both Ethernet and ISDN) to your computer's or phone's ISDN port, and insert the other end of the connector into the Terminal's ISDN port.
2. At the Terminal, slide the cable through the rubber door slot in order to secure and protect the connection.



CONNECTING BY WLAN

If you have not previously used the terminal's WLAN interface, it has to be enabled from LaunchPad, with your computer connected to the terminal using either the USB or Ethernet interface. You can also enable the Wireless Encryption Protocol for added security. When the terminal's WLAN interface is enabled, the WLAN LED is either green (WEP is enabled) or red (WEP is not enabled).

Then any computer with a WLAN interface can detect the terminal's WLAN SSID, and connect to it automatically.

Note: If WEP is enabled, you must provide other WLAN users with the proper WEP key in order for them to connect to the terminal.






You are now ready to Register with the Network.

CONNECTING WITH THE NETWORK

Establishing a connection with the network requires the careful orientation of the BGAN terminal towards the satellite, a process called pointing. Accurate and precise pointing is important, because a badly-pointed antenna can reduce the data rate achievable over the network. When pointing is complete, you can register the terminal with the BGAN network.

CHECKING THE GPS STATUS

After you have connected your terminal to a computer, you can check the GPS status by opening BGAN LaunchPad. Refer to the BGAN LaunchPad status bar and the GPS indicator light on your BGAN terminal for the current GPS status. The table below indicates each possible status:

| LaunchPad Status bar symbol | Terminal GPS indicator light | Status |
|---|------------------------------|---|
|  | Flashing Green | The terminal is getting a GPS fix after being turned on. If you have not changed location since last registering, you may be able to re-register with your last valid fix. Otherwise wait until a new fix has been obtained before registering. |
|  | Solid Green | The terminal has a valid GPS fix. You are ready to point the terminal and register. |
|  | Off | The terminal has successfully registered. |
|  | Flashing Red | The network will not allow you to register with the stored GPS fix. You need to get a new GPS fix. |
|  | Solid Red | The GPS receiver in the terminal is faulty. Contact your Service Provider. |

▶▶ POINTING THE TERMINAL

You can use the BGAN terminal signal quality indicator lights for pointing if you know approximately the direction to the BGAN satellite. If you need detailed pointing instructions you should use the BGAN LaunchPad pointing wizard.

TERMINAL STAND POSITIONING

The terminal's stand is used to position the terminal in the correct direction.

1. Place the Satellite Terminal on a flat surface. Find the knobs located on one side of the unit. Loosen the knobs by rotating them both towards the unit, in the direction shown.



2. To prepare to lift the Terminal, place a finger in the lower right hand corner of the unit and place your other hand in the middle of the unit.



3. Pull out the front stabilizer. Lay the Terminal back on the flat surface.



4. Lift up the Terminal while referring to the protractor on the right-hand side. The protractor gives you the angle at which the unit is positioned. Note that an angle of 0 to 45 degrees is displayed on the inside portion of the protractor, while a 46 to 90 degree angle is displayed on the outside portion. To start, select an angle between 15 and 30 degrees.



5. After you have positioned the Terminal at the desired angle, tighten the knobs by turning them away from the unit. Tighten them so that they are firm and hold the angle but are still movable in case further adjustments are needed. Note that both knobs will gradually tighten if you push the unit to a lower angle. This can help with locking the unit when the desired protractor angle is close to 90 degrees.
6. You can use the compass to pointing the terminal in the correct direction. Refer to the Antenna Pointing section for further instructions.



| | |
|--|--|
| <input checked="" type="checkbox"/> Note | <p>Do not stand in front of the Antenna</p> <p>The Satellite Terminal emits radio frequency energy when in operation. Do not stand or place objects in front of the antenna when the terminal is operational.</p> |
|--|--|

USING THE BGAN LAUNCHPAD POINTING WIZARD

Inmarsat recommends that you use LaunchPad's Pointing Wizard to point your Terminal to the satellite. You can also point your Terminal using the Terminal's LEDs and audio indicator.

The BGAN LaunchPad Pointing Wizard steps you through the process of pointing your terminal, and registers with the network. To do this, first start the BGAN LaunchPad on your computer. The status bar displays the message In Pointing Mode.

1. Confirm your nearest city in the information box to the left of the map. You can change it by clicking on the map at your current location or click on nearest city and then select from the list. Your location will be used to determine the recommended antenna angle and compass direction. Until you successfully register with the BGAN system, your GPS position will not be shown on the map. LaunchPad gives the compass direction in both degrees and direction, the compass shows direction as North, South, East and West, with 10 degree divisions.

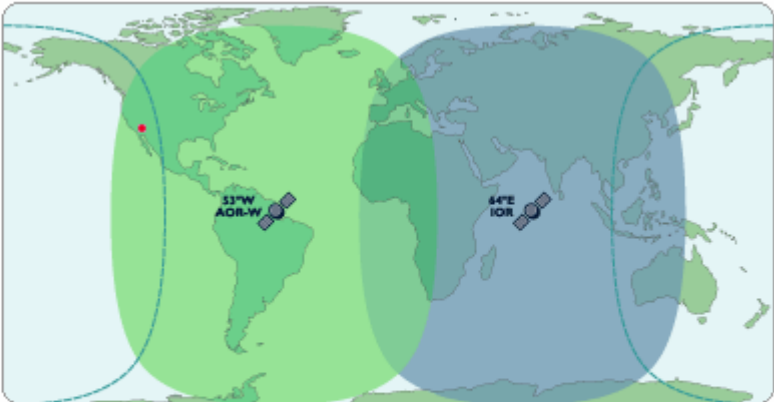
Welcome to BGAN.

Click on the map or choose your nearest city to display terminal pointing instructions.

Nearest city: **San Diego, USA**

[Help me setup BGAN](#)

[Register with network now](#)



Recommended: Antenna angle: 15° Compass direction: ESE (103°)


2. Click on **Help me setup BGAN**.
3. Step through the instructions to correctly position the terminal.

Instruction 2 of 3:

Using the graduated scale, position the antenna to an angle of 9° from vertical

[◀ Back](#) [Next ▶](#)

[Register with network now](#)



Recommended: Antenna angle: 9° Compass direction: ESE (109°)

4. When you are ready to register with the network, click on **Register with Network now**. Refer to *Registering with the Network*. Note: You can also register with the network by pressing the "Audio" button on the terminal for 3-4 seconds. Once the GPS light goes out, the terminal is registered with the network and you can start to make ISDN calls without the use of LaunchPad.

- When you have successfully registered with the network, your position will be displayed on the map, but only if allowed by local regulations.

USING THE BGAN TERMINAL SIGNAL QUALITY LEDs

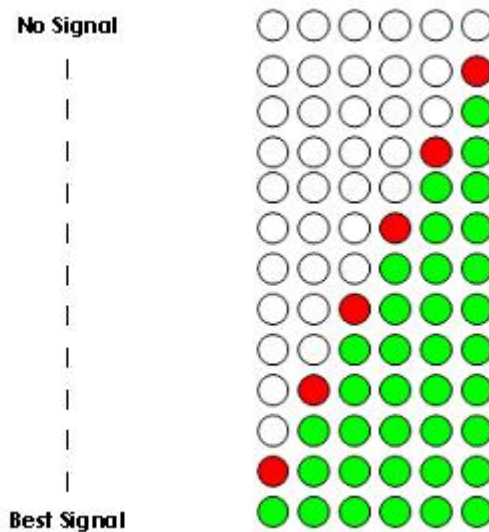
To point the antenna using the LEDs:

- Set the angle and position of the BGAN terminal using the compass and the graduated scale. If you do not know the angle and position to set the terminal to, use the BGAN LaunchPad pointing wizard.

Note the Pointing indicator LEDs as you point the terminal to obtain the maximum possible signal quality.



- The following table shows the colors of the pointing LEDs from the weakest to strongest, as you point the terminal to the BGAN satellite



- When you have finished pointing the terminal, you are ready to register with the network. Go to the next section **Registering with the Network**.

USING THE AUDIO BUZZER

You can also monitor the signal quality using the audio buzzer. By default the audio buzzer is switched off. To use the buzzer when the terminal is in pointing mode:

- Press the audio button to turn the buzzer on.
- Monitor the signal quality using the buzzer. The higher the pitch and the shorter the interval between tones, the stronger the signal.



3. When you have finished pointing the terminal, you are ready to register with the network. .
Note: You can register with the network by pressing the "Audio" button on the terminal for 3-4 seconds. Once the GPS light goes out, the terminal is registered with the network and you can start to make ISDN calls without the use of LaunchPad.
4. or Go to the next section **Registering with the Network** for registering with LaunchPad.
5. When you register with the network, the buzzer turns off automatically.

Note: If the audio button is pressed when the unit is not in pointing mode, it will have no effect.

| | |
|--|--|
| <input checked="" type="checkbox"/> Note | <p>The audio buzzer will always default to off when the unit powers on. When the unit is In pointing mode, pressing the Audio button located in the front of the terminal turns the buzzer on. Pressing it again turns the buzzer off. Long pressing (3-4 seconds) the Audio button starts registration with the network. Once you exit pointing, the buzzer will turn off. If the Audio button is pressed when the unit is not in pointing mode, it will have no effect.</p> |
|--|--|

REGISTERING WITH THE NETWORK USING LAUNCHPAD

When you have successfully pointed the antenna, you then need to exit antenna pointing, and register with the network. If you have an ISDN handset connected to the terminal, you can exit pointing and register by pressing the #1# keys. Otherwise click on the icon **Register with network now** on the BGAN LaunchPad pointing window.

BGAN LaunchPad contains the following:

LAUNCH BAR

Click on any icon to display the associated tab, where you can perform BGAN LaunchPad functions.



The launch bar options include:

- **Data connections** – connecting to the Internet to browse Web sites and send and receive emails, and also using advanced applications such as video and FTP.
- **Text message options** – sending and receiving text messages.
- **Phone options** – Used as a phonebook only for ISDN. Supplementary Services are activated with the ISDN handset via a series of button commands. See Supplementary Services Section.
- **Usage information** – Not currently supported.
- **Services information** – listing Service Provider support options.
- **Support information** – listing LaunchPad help and Service Provider contact details.

REGISTRATION STATUS AND COVERAGE MAP

This area displays the registration date and time, location information and other registration information, and shows the expected coverage zone.

Note: The map depicts BGAN's expectations of coverage, but does not represent a guarantee of service. The availability of service at the edge of coverage areas fluctuates depending on various conditions.

Welcome to BGAN.

Click on the map or choose your nearest city to display terminal pointing instructions.

Nearest city: **San Diego, USA**

Help me setup BGAN





Register with network now



Recommended: Antenna angle: 15° Compass direction: ESE (103°)

STATUS BAR

The **Connected** to status, terminal **Status** and **Signal strength** are all shown on the status bar, as shown below:

| | | |
|---|---|--|
| Connected to HNS 9201  100% | Status  Standard Data connection open. Ready for Phone, Text and Data. Help | Signal strength   |
|---|---|--|

▶▶ FIXED/SEMI-FIXED INSTALLATION

The satellite terminal can be mounted on a pole or flat surface (such as a wall or roof) using the Fixed Mount Kit accessory. This kit includes all the installation brackets, mounting hardware, tools and instructions to complete the installation, except for the screws, bolts, etc. required to mount it to the structure. Proper installation ensures that the terminal is always correctly pointed at the satellite. The terminal can then be left alone for an extended period of time without having to be re-pointed or set-up. The Fixed Mount Kit accessory can be re-used to install the terminal in different locations.

When mounted in a location where access to the terminal may not be straightforward (for example, mounted high on a wall), you may want the terminal to recover automatically after a power outage. To permit this, the following automatic mode settings are recommended (see the Automatic Mode section for more details):

- Auto "on" mode is enabled
- LED off mode is enabled
- Antenna pointing bypass is enabled

- Automatic context activation is enabled
- SIM PIN entry is disabled

In addition, it is recommended that the battery be removed to prevent it being damaged at extreme temperatures.

▶▶ SUPPORTED OPERATING SYSTEMS

The Satellite Terminal supports the following Laptop/PC operating systems:

- Microsoft Windows® XP and 2000
- Linux Red Hat 9 - KDE 3.1.10 (Kernel Version 2.4.20-8). Note that the terminal's USB interface is not supported with this operating system.
- Mac 10.x (PC & Intel based MACs)



Note

You must disconnect any existing LAN connections on your PC before proceeding with installation. This avoids any conflict with the network configuration that you are setting up for the Satellite Terminal.

You must verify that the proxy server settings in your browser are disabled. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labeled "Use a proxy server for your LAN." For Netscape, go to Advanced Preferences and select "Direct connection to the Internet." When complete please close your browser. DO NOT FORGET TO RECHECK THIS BOX ON RETURN TO YOUR OTHER INTERNET CONNECTION.

BGAN LAUNCHPAD CORPORATE EDITION OR PERSONAL EDITION

You can install either the Personal Edition or the Corporate Edition.

BGAN LaunchPad Personal Edition is designed for personal use:

- All BGAN LaunchPad features are available
- You can personalize all of BGAN LaunchPad's functions and features without restriction.

BGAN LaunchPad Corporate Edition is for corporate users:

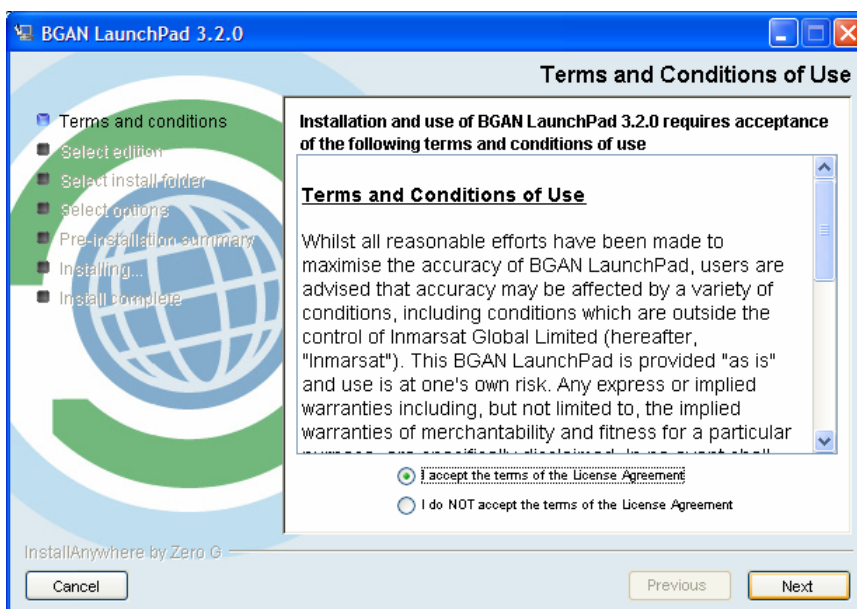
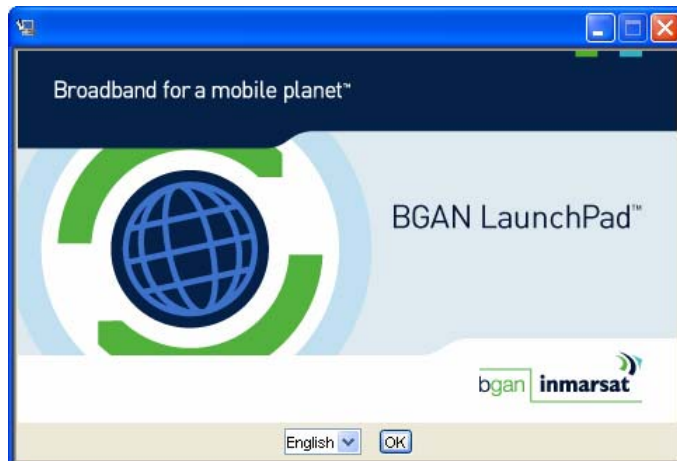
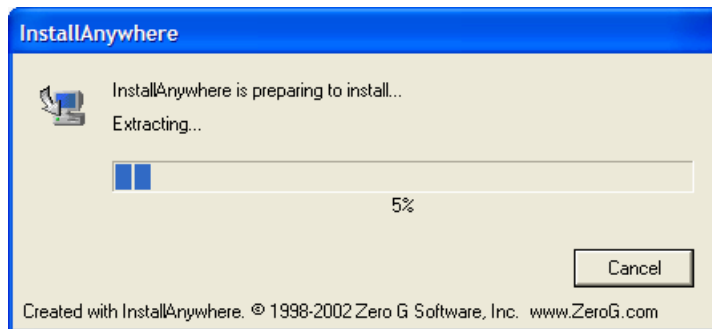
- A user profile is required with the corporate edition. A user profile is created with a separate application called BGAN LaunchPad Corporate Profile Maker.
- The user profile defines user restrictions so some features may not be available to you, depending on the configuration that has been set up by your Corporate IT Manager or service provider.
- You are asked to enter a username and password when logging in to BGAN LaunchPad.

▶▶ INSTALLATION CD AND INSTALLATION WIZARD

Insert the installation CD into your computer's CD-ROM drive to start software installation. If the Installation Wizard, the program which guides you through the installation process, does not automatically begin, use Windows® Explorer or Mac OS X Finder to find setup.exe on the installation CD, double-click on this to start the Installation Wizard.

The following steps show the installation process:

1. The Installer prepare to install the LaunchPad software, and asks you to select the language and accept the licensing agreement.

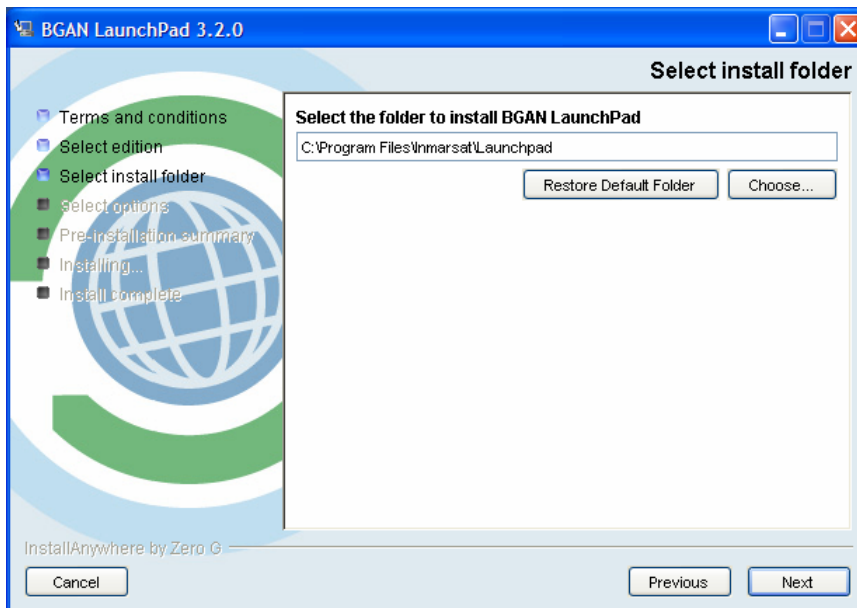


2. Follow the on-screen instructions. **Note the following recommended choices:**
- Make sure you select the appropriate **Edition** (Corporate or Personal) when prompted.



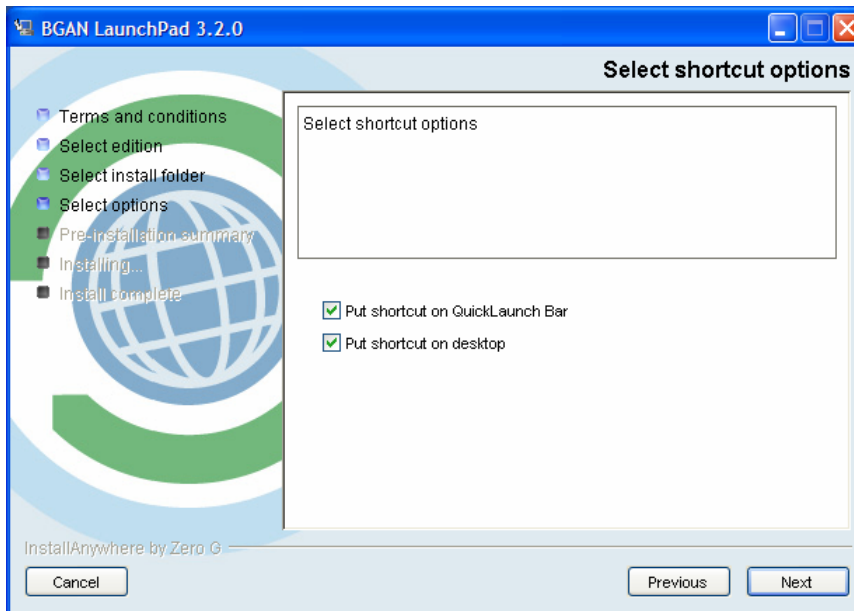
- **Special Corporate Edition Instruction:**
 - Inmarsat recommends that you install **BGAN LaunchPad Profile Manager** with the Corporate Edition. If you want to install Profile Manager, select Browse CD for any extra features, and follow the on-screen instructions.

3. Select the directory into which LaunchPad will be installed.

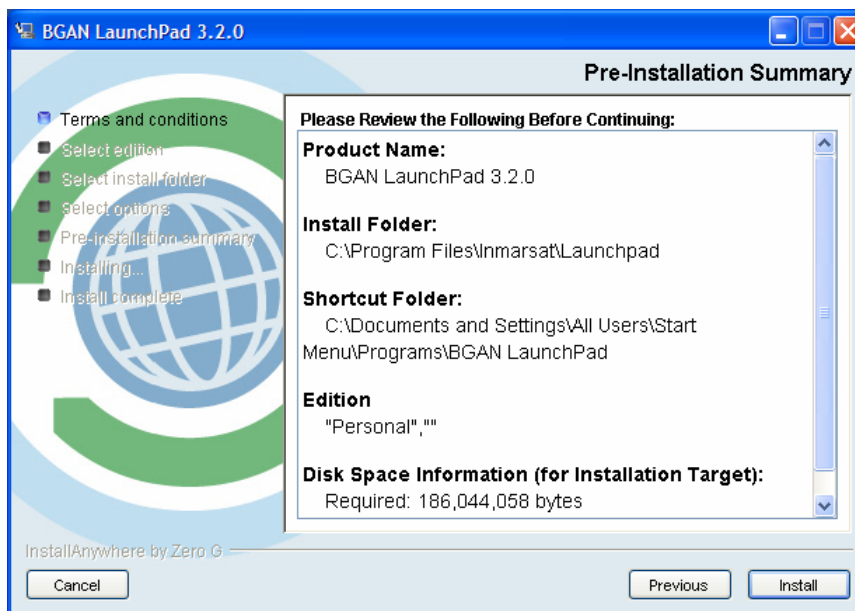


Other items for selection and installation messages:

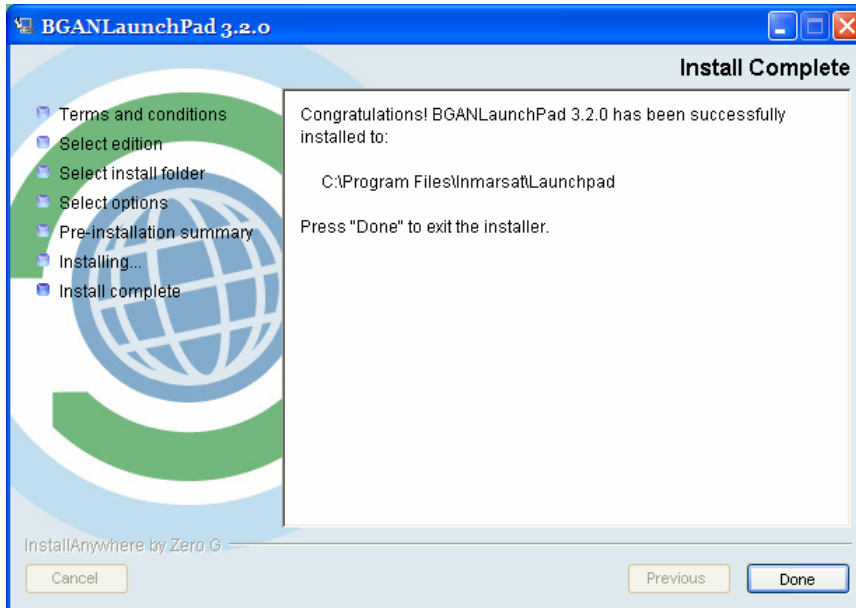
- Shortcut Destination Selection



- Pre-Installation Summary



- Installation Complete



▶▶ SIZE AND WEIGHT

The Satellite Terminal is 27.5 cm x 34.5 cm x 5.0 cm. Its weight is 2.8 kg (including the battery).

The small size and weight allows you to easily move it from site to site, and it can be connected at a new site in minutes.

▶▶ TERMINAL INTERFACES

INTERFACE OVERVIEW AND DEFAULTS

The Satellite Terminal includes four interfaces that can connect to your computer.

- Ethernet
- USB
- ISDN (for voice and data)
- WLAN (IEEE 802.11b)

By default the ISDN, USB and Ethernet interfaces are active when the unit is turned on. The 802.11b Wireless LAN (WLAN) interface is disabled by factory default, but by using the BGAN LaunchPad you can configure the WLAN to be on at startup.

When the Terminal is connected to a DC power source, such as mains, the ISDN interface remains on at all times. When running from the battery, the ISDN interface will turn off 5 minutes after pointing is completed if no ISDN device is connected. You can re-enable the ISDN interface from the BGAN LaunchPad if you subsequently need to connect an ISDN device. This saves power and maximizes operating times because the power sourcing circuitry uses power even if no device is connected. If an ISDN device is connected at power up and then disconnected before the timer expires, the ISDN interface will power off.

The following table summarizes the interface on/off behavior during battery and DC Power operation.

| Interface | | Battery Operation | DC Power Operation |
|-----------|---------------|---|--------------------|
| USB | | On | On |
| Ethernet | | On | On |
| ISDN | | On. After 5 minutes if no ISDN device detected, turns off. | On |
| WLAN | Off (default) | Off | Off |
| | Enabled | On | On |

ESTABLISHING COMMUNICATIONS BETWEEN COMPUTER AND SATELLITE TERMINAL

ETHERNET

Ethernet communications are established by connecting your computer Ethernet LAN port directly to the Satellite Terminal LAN port via the supplied Ethernet cable and monitoring the BGAN LaunchPad for the connection.

USB

USB communications are established by connecting your computer USB port directly to the Satellite Terminal LAN port via the supplied USB cable and monitoring the BGAN LaunchPad for the connection. Please ensure that you have the USB driver installed.

ISDN

ISDN communications are established by connecting your computer ISDN port or ISDN device directly to the Satellite Terminal ISDN port via the supplied ISDN cable (same as the Ethernet cable).

With the ISDN interface you can make voice or data calls. Only one terminal at a time may make a call since only one B channel is supported per Terminal in the BGAN system. However, up to four ISDN phones may be utilized with the one ISDN connection, using a passive ISDN splitter. Only one of the ISDN devices may make a call at one time..

WLAN

The WLAN function is used in access point mode. You can use the BGAN LaunchPad to configure the following parameters:

- Wireless LAN interface on/off. The default is off.
- Network (SSID) name. The default is "BGAN" but you can change it.
- Channel number. This controls the radio channel number (1-14) used by the access point. Depending on the country only certain subsets of these channels may be used (3 options: France, Spain or Rest of the World). Channel 11 is common to almost all countries, so it is used as the default.
- Encryption. 64 or 128 bit WEP encryption can be enabled. Up to 4 WEP keys can be entered, in either Hexadecimal or ASCII format.
- Note: Not all Operating Systems will convert ASCII to hexadecimal when setting up a WLAN connection. If you have any problems, please use the hexadecimal WEP key to connect your computer to the terminal.

Up to eleven WLAN users can access the Satellite Terminal simultaneously.

▶▶ TERMINAL FEATURES

USIM/SIM CARD



The USIM contains an identity that uniquely identifies a subscriber. The USIM provides storage for subscription and subscriber related information.

Access to the USIM, and therefore to the BGAN system, can be restricted to an authorized user or number of users, using the USIM Personal Identification Number (PIN). The PIN is stored securely in the USIM.

The USIM personalization feature ensures that access to a terminal or other user equipment can be restricted to an authorized USIM. The USIM and the terminal share a code stored securely in the USIM and the terminal. If a USIM fails to prove its knowledge of the code, it is denied access to the terminal.

If the USIM is removed during operation, the terminal will deactivate any active PDP contexts, detach from the network, and enter a "NO SIM" operational mode. If the USIM is reinserted while the terminal is still powered on, it must be restarted to detect the new or replaced USIM.

BUTTONS

The Satellite Terminal has two buttons:



- The Power button is used for turning the terminal on or off. A long press of the button will either turn it on or off.
- The Audio button is used for switching the audio tones on and off. These tones are useful during pointing mode (see the section **Using the Audio Buzzer**). Press the button to turn the tones on and off.
- Once you have the terminal correctly pointed to the satellite, you can long press (3-4 seconds) the "Audio" button to register with the network. You can tell when you are registered with the network when the solid green GPS LED goes out.

INDICATOR LIGHTS (LEDs)

The LEDs indicate the status of the Satellite Terminal. The figures below illustrate where the LEDs are located on the terminal and the functions of each.

POWER LED



The Power LED indicates power status.

| LED | Status |
|----------------|---|
| Off | Terminal is turned off. |
| Green | Terminal is powered on. |
| Flashing Red | Fault detected. |
| Flashing Green | Operating on battery power. Power button has been pressed and terminal is powering down. |

BATTERY LED



The Battery LED indicates the battery status. The function differently depending on whether the terminal is powered from an AC mains or DC power adapter or battery.

| LED | DC Power – Status |
|----------------|------------------------------|
| Off | No battery. |
| Green | Battery fully charged. |
| Flashing Green | Battery charging. |
| Flashing Red | Battery Fault – not charging |

| LED | Battery Power – Status |
|---------------------|--|
| Off | Unit is off. |
| Green | Terminal on, in pointing mode. |
| Flashing Green | Terminal on, pointing completed. |
| Flashing Red (fast) | Terminal on, battery low (Power LED is green) |
| Flashing Red (slow) | Terminal on, battery fault detected (Power LED is also flashing red) |

POINTING LEDs



These six, two-color LEDs are used during power-up, Antenna Pointing, and ACA (automatic Context activation) (See ACA Section)

When the terminal is powered on, the power LED turns green. As the Satellite Terminal progresses through the power-on self tests, each of the 6 pointing LEDs turn green or red/green in turn, and then turn off if the terminal successfully completed power-on self-test. See the **Power-On Self Test** section for full details.

These LEDs also indicate the signal quality during antenna pointing, see the **Antenna Pointing** section in the **First Time Setup** chapter for full details).

WIRELESS LAN LED



- This LED is green if Wireless LAN is on and Wireless Encryption Protocol (WEP) is enabled.
- It is red if Wireless LAN is on and WEP is disabled.
- If Wireless LAN is enabled and the terminal is operating off battery power, the LED flashes at 1/8 duty cycle 1-second period to save power, after the unit exits pointing.

GPS LED



The GPS unit in the Satellite Terminal will attempt to get a GPS fix each time the unit powers up. The GPS LED indicates the state of the GPS fix. See **Obtaining a GPS Fix** section.

COMPASS



Use the compass during the Antenna Pointing process to point the terminal in the direction of the satellite. The BGAN LaunchPad can be used to determine the correct direction. North is 0 degrees, East 90 degrees, South 180 degrees, West 270 degrees, each division on the compass corresponds to 10 degrees.



Note

The compass accuracy can be affected if the terminal is placed close to magnetic fields or metallic objects.

SOLAR PANEL COMPATIBILITY

The terminal is compatible with solar panels. The easiest way to interface to a solar panel is through the supplied DC Power Adapter (HNS P/N 3004065-0001). The output of the DC power adapter is plugged into the terminal, with the input (cigarette lighter adapter) connected to the output of the solar panel.

The terminal has been tested to work with the following solar panels:

- IDG T-60 (3 panels) from IDG Europe (60W max, 3.3A at max power)
- SunCatcher F0001 (2 panels) from Powerline Electronics Accessories (14.5W max)
- 55 Watt Solar West Panel

▶▶ TERMINAL ACCESSORIES

Terminal accessories include:

- DC Power Adapter
- Extended Battery
- AC Mains Power Adapter (w/30mm Cable)
- Cables
- Compatible Devices
- Fixed Installation Kit

Each is described in this section.

DC POWER ADAPTER



The DC power adapter can be purchased through your distributor or supplier. It has an operating temperature range of -25°C to +55°C and provides an output voltage of 20 VDC. It can be used with input voltages in the range 10 to 32VDC.

EXTENDED BATTERY



The Extended lithium ion battery pack can be purchased through your distributor or supplier. The Extended battery pack has the same form factor as the standard battery pack, with 50% more capacity.

AC MAINS POWER ADAPTER



AC mains power adapter is for indoor use only. It has an indoor operating temperature range of 0°C to +40°C and provides an output voltage of 20 VDC.

When the Satellite Terminal is first connected to AC Mains power, the unit powers on automatically. Note that when the Terminal will still charge the battery if it is turned off.

CABLES

The Satellite Terminal package comes with a USB cable and cables that provide Ethernet and ISDN connections.

■ USB cable



■ Ethernet/ISDN 10 meter cable



When the Terminal is connected to a PC or laptop it uses a regular Ethernet cable. If the Terminal is connected to a LAN hub, a "crossover" LAN cable is required.

FIXED MOUNT KIT

The following items are found in the Fixed Mount Kit. The user is responsible for mounting the hardware to a suitable surface.

■ Fixed Mount Screws (Theft-Proof)



- 30 meter Cord for AC Mains Power Adaptor



This allows the AC Main power adaptor to be located up to 30 meters away from the terminal.

- Ethernet/ISDN 30 meter cable



EXTERNAL ANTENNA

- The external antenna is a 20" x 20" x .5" passive antenna with a 10 meter long cable. It can be mounted permanently using the Fixed Mount Kit accessory.



ISDN COMPATIBLE DEVICES

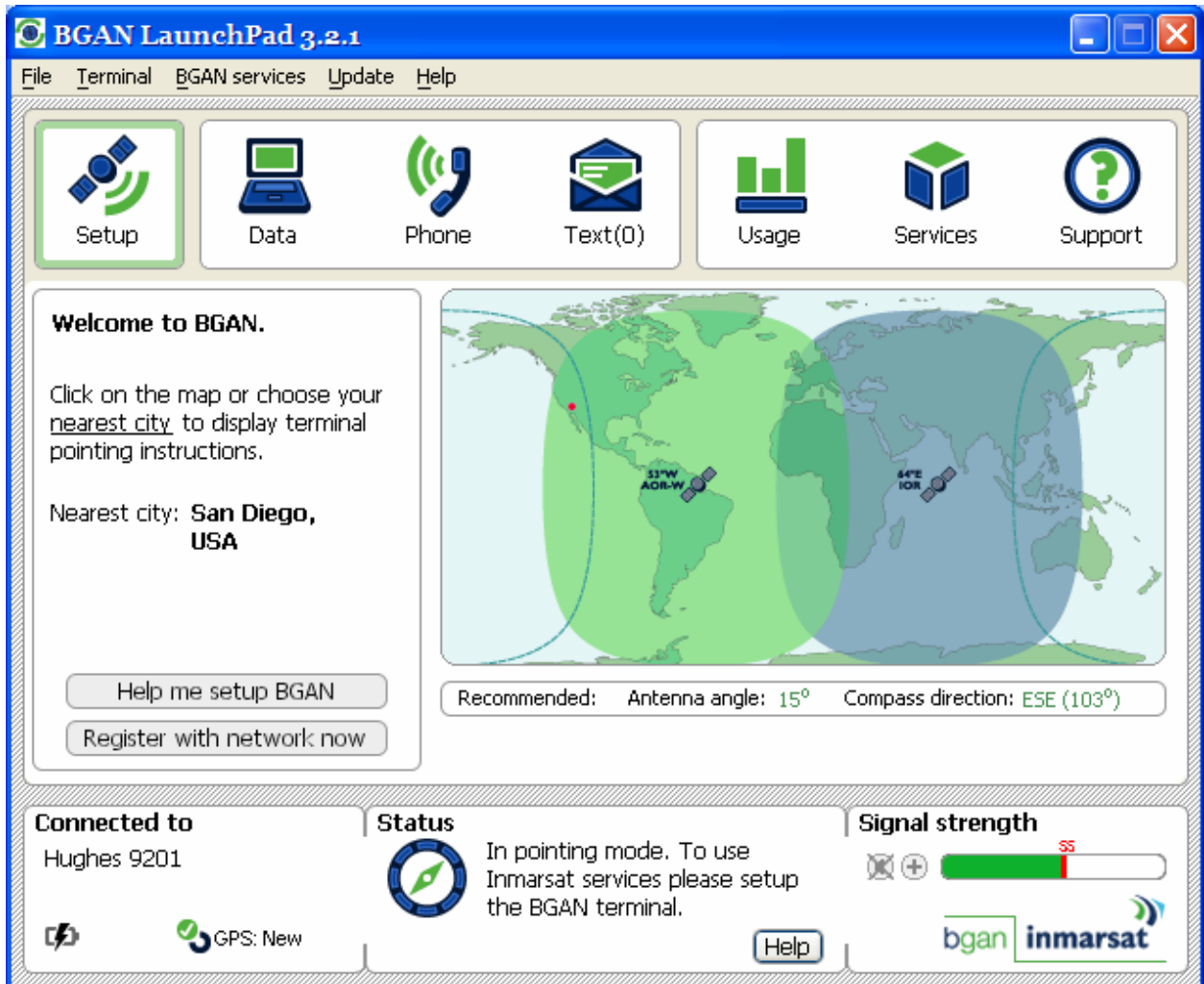
The terminal has been successfully tested with the following ISDN handsets:

- ASCOM Eurit 33 plus
- SwissVoice Eurit 25
- Nera ISDN handsets (old Fleet and new WorldPro handsets)
- Siemens Gigaset SX255
- Hughes 2-4 Wire terminal adapter using any 2-wire analog handset

BGAN LAUNCHPAD OVERVIEW

The BGAN User Interface is called BGAN LaunchPad, and allows you to view and manage the terminal's operations and status via a user-friendly set of tools installed on your computer.

This is the screen that is displayed when you first start LaunchPad.



PIN CODE ENTRY

When the BGAN LaunchPad is started and connects to the Satellite Terminal, the terminal queries the current SIM card to see if the SIM PIN is enabled. If the SIM PIN is enabled, the BGAN LaunchPad displays a SIM PIN window and asks for a valid SIM PIN before service is enabled.



If the SIM PIN is disabled then the BGAN LaunchPad will bypass this display.

▶▶ PERSONALIZATION

After the PIN check, if Personalization is enabled and any checks fail, the BGAN LaunchPad displays the Security window and asks you to enter a valid de-personalization code. If all Personalization checks pass, the terminal will bypass the Security window. If personalization is enabled, the de-personalization code should have been supplied with the USIM/SIM.

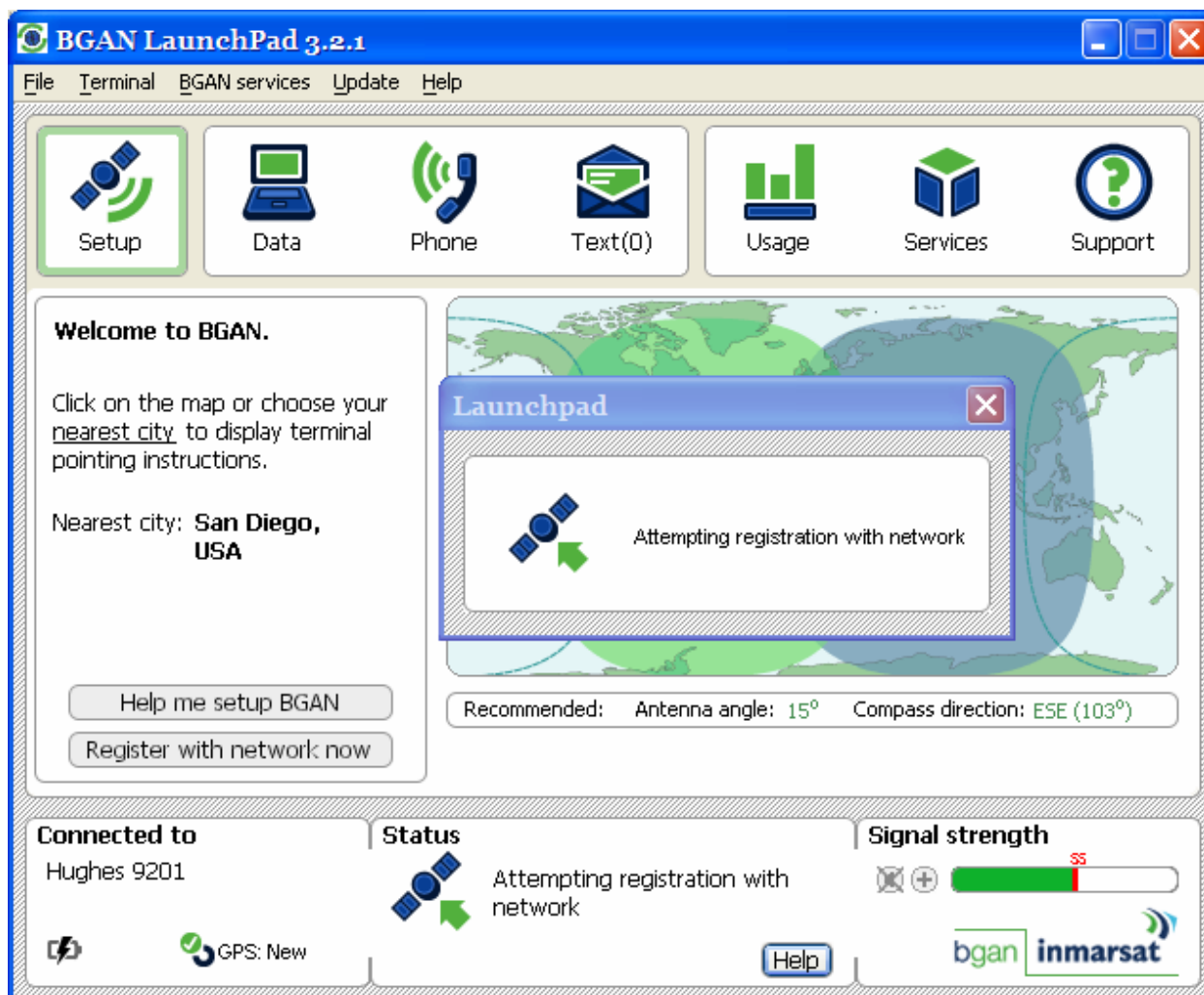
▶▶ POINTING

After the PIN and Personalization checks, the pointing screen is displayed. Once you have completed pointing, click the **Register with Network Now** button to exit pointing and connect to the network.

See the section on **Pointing the Terminal : Using the BGAN LaunchPad Pointing Wizard** for details on how to use the Pointing Screen.

▶▶ MAIN DISPLAY

Once all the initial checks have been completed, the main BGAN LaunchPad page is displayed, showing progress towards acquiring the network.



▶▶ MULTIPLE USERS

Up to 11 users attached to the Ethernet, USB and Wireless LAN interfaces can access the BGAN LaunchPad at the same time.

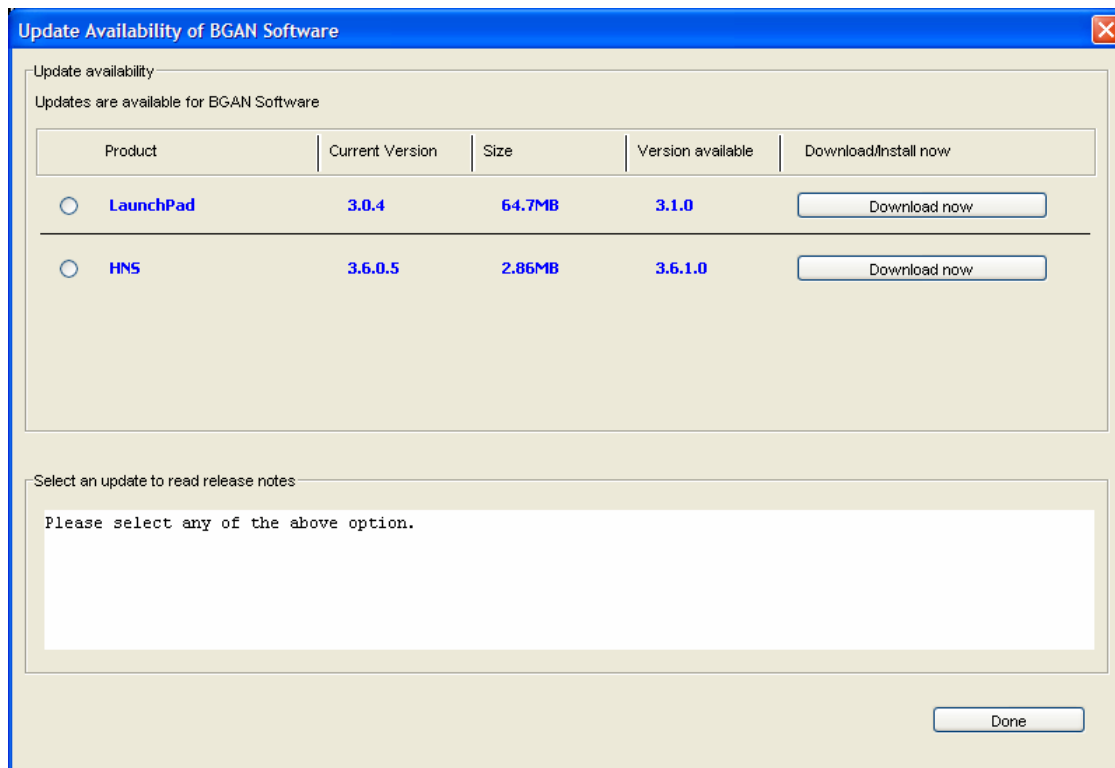
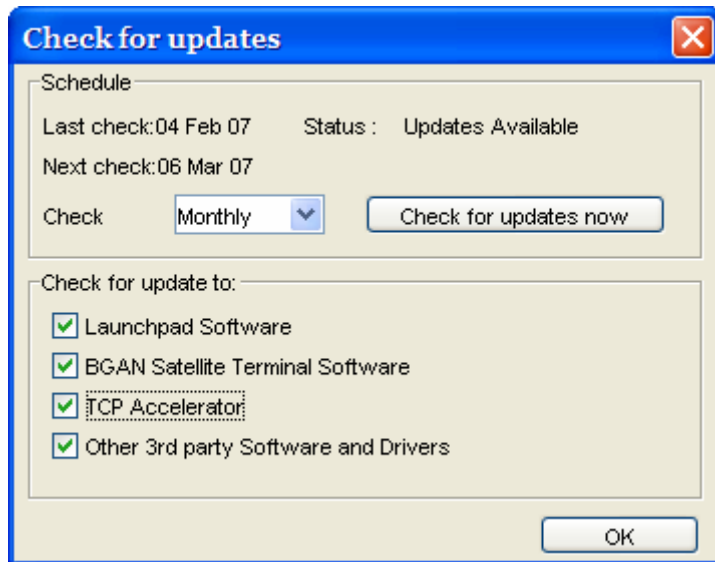
In a multi-user scenario, each user must establish their own PDP context with the network, either using LaunchPad or the ACA feature..

▶▶ SOFTWARE DOWNLOAD/UPGRADE

You should periodically check for new software releases for the terminal. Upgrading the terminal's software is a two-phase process controlled by an upgrader in the BGAN LaunchPad. The Upgrader is accessed from a drop down menu in the BGAN LaunchPad.

During the first phase, the terminal software is downloaded from an Internet server to your computer. The computer may utilize the BGAN network or any other accessible network to obtain the new software image.

In the second phase, the Upgrader loads the software from your computer onto the satellite terminal. If the upgrade fails, the old software is available on your computer and can be re-downloaded to the satellite terminal.



▶▶ CONNECTING TERMINAL TO PC AND OTHER DEVICES VIA WLAN INTERFACE

The terminal provides a WLAN interface to any computer which has a WLAN interface.

The terminal's WLAN interface is configurable via the BGAN LaunchPad, as follows:

1. From the BGAN LaunchPad main menu, select **Terminal > WLAN Interface Settings**. The Configure WLAN Interface dialog box is then displayed:

The screenshot shows the 'Configure WLAN Interface' dialog box with the following settings:

- General:** Wireless access is **Enable**.
- Wireless network:** Network name (SSID) is **BGAN**, Region is **Rest of the world**, and Channel number is **10**.
- WEP security:** Data encryption is **128**, Enter WEP key in: is **Hex**, and there are four rows for WEP keys (1-4), each with a **Default** radio button.

2. Select **Enable** to activate the WLAN interface.
3. Enter a Network Name (**SSID**). The default is BGAN, but you can change this if required.
4. Select a **Region** from the drop-down list (France, Spain, or The rest of the World).
5. Select a **Channel number** from the drop-down list. This controls the channel number (1-14) used by the access point. Depending on the country only certain options are available for selection. Channel 11 is common to almost all regulatory options, and so is the default.
6. Select a **WEP Key Length** from the drop-down list. There are two key lengths available, 64 bit and 128 bit. 128 bit offers a higher level of security, but may cause a slight decrease in performance.
7. Select a **WEP Key Format** at the **Enter WEP key in:** text box. This can be either Hex or ASCII. Hex keys use hexadecimal numbers (0-9, A-F) to encrypt and decrypt data, and are the most widely supported format. Plain text (ASCII) keys are supported on some operating systems (check that your operating system supports ASCII before you select this option).
8. Enter up to **four WEP Keys**. The format depends on whether you selected Hex or ASCII.
 - Hex – Enter a two digit hexadecimal number (0-9, A-F) in each box on the WEP Key 1 row. You can enter up to four keys in total, and you should change the default key periodically for added security.
 - ASCII – Enter a string of 5 characters for 64 bit encryption, or 13 characters for 128 bit encryption. You can enter up to four keys in total, and you should change the default key periodically for added security. Note: Not all operating systems can convert ASCII to

hexadecimal format. If you have problems connecting via WLAN using an ASCII WEP key, try using the hexadecimal WEP key instead.

Note: Check that each key that you set up here is exactly the same as each key on your computer's WLAN interface; ie. WEP Key 1 on the LaunchPad must be the same as Key 1 on the computer WLAN interface, and so on.

9. Click **OK** to save the changes, **Cancel** to exit without saving, or **Apply** to apply the settings for this WLAN session only.

The following table summarizes the default settings.

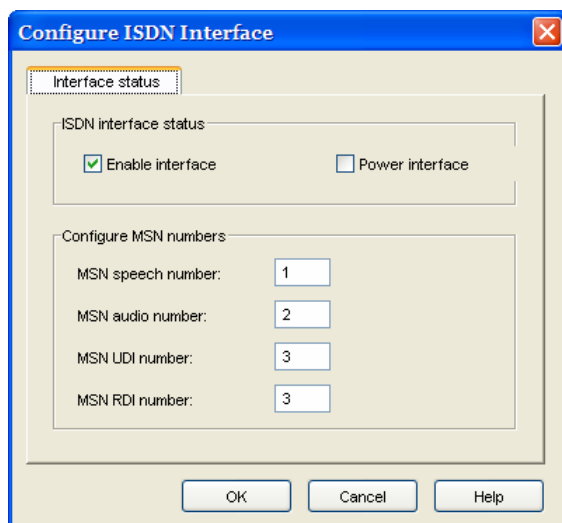
| Parameter | Description | Default |
|---------------------|-------------------------------|-------------------|
| Wireless access | Turn on/off WLAN Interface | Disabled |
| Network Name (SSID) | Sets the SSID | BGAN |
| Region | Region of Operation | Rest of the world |
| Channel | Wireless Channel of Operation | 11 |
| WEP Security | Turn on/off WEP Security | Off |
| WEP Keys [1-4] | Four WEP Keys | None |
| Key Selection | Selects the WEP Key | No key selected |

The terminal does not support MAC Address Filtering.

ISDN EQUIPMENT

You can establish ISDN data communication by connecting your ISDN equipment directly to the BGAN Terminal's ISDN port with the supplied ISDN cable (which is the same as the Ethernet cable). To activate the ISDN interface, and set MSN numbering options, perform the following steps:

1. From BGAN LaunchPad main menu, select **Terminal > ISDN Interface Settings**. The **Configure ISDN Interface** dialog box is then displayed, with suggested MSNs set for each ISDN call types:



2. Select the **Enable Interface** check box to activate the ISDN interface, or uncheck the check box to deactivate the interface.
3. **For a 4 Kbps speech call**, enter MSN 1 into the MSN Speech number: text box. To receive incoming calls, you must program the same MSN into your ISDN handset connected to the ISDN port.
4. **For a 3.1 KHz audio call**, enter MSN 2 into the MSN Audio number: text box. To receive incoming calls, you must program the same MSN into your ISDN fax machine connected to the ISDN port.
5. **For an Unrestricted Digital Information (UDI) call** (64 Kbps ISDN), enter MSN 3 into the MSN UDI number: text box. Check the documentation supplied with your ISDN device for details on whether it is a UDI device.
6. **For a Restricted Digital Information (RDI) call** (56 Kbps ISDN), enter MSN 3 (same as UDI) into the MSN RDI number: text box. Check the documentation supplied with your ISDN device for details on whether it is an RDI device.
7. Click **OK** to save the changes, or **Cancel** to exit without saving.

Note: You can use MSNs other than the ones above, for any of the ISDN call types. But your ISDN equipment must be programmed with the same MSNs to accept incoming calls, and you must use different numbers for speech, audio and UDI/RDI calls. Any changes to this screen require a re-boot of the terminal to save the new configuration. Use the power button to gracefully power down and power back up.

▶▶ VOICE TELEPHONY SERVICES

You can make and receive voice calls using the BGAN Satellite IP Terminal. To do this, you have to connect a phone handset. You can use two general types of phone handsets; either an ISDN handset, or a 2-wire analog handset with an ISDN terminal adapter.

Before your handset can accept incoming voice calls, you have to program its MSN (mobile subscriber number) to the same number as programmed in the terminal (default is 1). This ensures that incoming voice calls are directed to your handset. The handset's instruction manual will explain how to do this. Note: you can make emergency calls without the correct MSN programmed into the handset.

▶▶ SUPPLEMENTARY SERVICES

Supplementary Services have to be provisioned by the Service Provider before they can be used. Please verify with your Service Provider which services are available with your subscription.

You access the Supplementary Services with key-presses on the ISDN terminal. The key-presses consist of the following format:

- A one or two digit activation code
- A two or three digit service code
- Optional parameters preceded by a * keypress

The entry is terminated by a # keypress

The activation codes use the * and # characters as defined in the following table:

| Activation Code | Description |
|-----------------|---------------|
| * | Registration |
| * | Activation |
| # | Deactivation |
| *# | Interrogation |
| ## | Erase |

The optional parameters are as defined in the following table:

| Parameter | Description |
|-----------|------------------------|
| *DN | Directory Number |
| *T | Timeout (5-30 seconds) |
| *PW | Password |

The following table shows all available Supplementary Services:

| Supplementary Service | Description | String |
|-----------------------|---|-------------|
| CLIP | Calling Line Identification Presentation - Interrogation | *#30# |
| CLIR | Calling Line Identification Restriction - Deactivate for a single call (see note) | *31#Number# |
| CLIR | Calling Line Identification Restriction - Activate for a single call (see note) | #31#Number# |

| Supplementary Service | Description | String |
|-----------------------|--|------------|
| CLIR | Calling Line Identification Restriction - Interrogation | *#31# |
| COLP | Connected Line Identification Presentation - Interrogation | *#76# |
| COLR | Connected Line Identification Restriction - Interrogation | *#77# |
| CFU | Call Forwarding Unconditional - Registration | *21*DN*# |
| CFU | Call Forwarding Unconditional - Erasure | ##21**# |
| CFU | Call Forwarding Unconditional - Activation | *21**# |
| CFU | Call Forwarding Unconditional - Deactivation | #21**# |
| CFU | Call Forwarding Unconditional - Interrogation | *#21**# |
| CFNRc | Call Forwarding on Mobile Subscriber Not Reachable - Registration | *62*DN*# |
| CFNRc | Call Forwarding on Mobile Subscriber Not Reachable - Erasure | ##62**# |
| CFNRc | Call Forwarding on Mobile Subscriber Not Reachable - Activation | *62**# |
| CFNRc | Call Forwarding on Mobile Subscriber Not Reachable - Deactivation | #62**# |
| CFNRc | Call Forwarding on Mobile Subscriber Not Reachable - Interrogation | *#62**# |
| CFB | Call Forwarding on Mobile Subscriber Busy - Registration | *67*DN*# |
| CFB | Call Forwarding on Mobile Subscriber Busy - Erasure | ##67**# |
| CFB | Call Forwarding on Mobile Subscriber Busy - Activation | *67**# |
| CFB | Call Forwarding on Mobile Subscriber Busy - Deactivation | #67**# |
| CFB | Call Forwarding on Mobile Subscriber Busy - Interrogation | *#67**# |
| CFNRy | Call Forwarding on No Reply - Registration | *61*DN**T# |
| CFNRy | Call Forwarding on No Reply - Erasure | ##61**# |
| CFNRy | Call Forwarding on No Reply - Activation | *61**# |
| CFNRy | Call Forwarding on No Reply - Deactivation | #61**# |
| CFNRy | Call Forwarding on No Reply - Interrogation | *#61**# |
| CW | Call Waiting - Activation | *43# |
| CW | Call Waiting - Deactivation | #43# |
| CW | Call Waiting - Interrogation | *#43# |
| BAOC | Barring of All Outgoing Calls - Registration | *33*PW*# |
| BAOC | Barring of All Outgoing Calls - Activation | *33*PW*# |
| BAOC | Barring of All Outgoing Calls - Deactivation | #33*PW*# |
| BAOC | Barring of All Outgoing Calls - Interrogation | *#33*PW*# |
| BAIC | Barring of All Incoming Calls - Registration | *35*PW*# |
| BAIC | Barring of All Incoming Calls - Activation | *35*PW*# |
| BAIC | Barring of All Incoming Calls - Deactivation | #35*PW*# |

| Supplementary Service | Description | String |
|-----------------------|---|------------|
| BAIC | Barring of All Incoming Calls - Interrogation | *#35*PW*# |
| BOIC | Barring of Outgoing International Calls - Registration | *331*PW*# |
| BOIC | Barring of Outgoing International Calls - Activation | *331*PW*# |
| BOIC | Barring of Outgoing International Calls - Deactivation | #331*PW*# |
| BOIC | Barring of Outgoing International Calls - Interrogation | *#331*PW*# |

Example:

If you want to forward all incoming calls to a number (0015554529550 in this example), you must activate the Call Forwarding, Unconditional supplementary service.

- Format: *21*DN*#
- Key-presses: *21*0015554529550*#

If you want to cancel Call Forwarding, you must deactivate this supplementary service.

- Key-presses: #21**#

If you want to forward incoming calls to a number (0015554529550 in this example) if they are not answered within 20 seconds, you must activate the Call Forwarding on No Reply supplementary service.

- Format: *61*DN**T#
- Key-presses: *61*0015554529550**20#

If you want to cancel Call Forwarding on No Reply, you must deactivate this supplementary service.

- Key-presses: #61**#

MESSAGING SERVICES

SHORT MESSAGE SERVICE (SMS) VIA BGAN LAUNCHPAD

The BGAN Satellite Terminal supports Short Message Service (SMS) capabilities. The Short Message Service handles point-to-point messages, and SMS messages to can be sent from the terminal, and received by the terminal.

The text messages can contain up to 160 ASCII characters. The amount of data actually transmitted with an SMS message is dependent on the message size.



Note

SMS Messages can be read, edited, created, and sent via the SMS Application in the BGAN LaunchPad. You cannot access SMS from an ISDN Handset or any other ISDN equipment.

The configuration screen for Text Messages can be accessed from the **Settings** Pull Down menu of the **Text** screen. To be able to send text messages you need to have the SMS service center configured with the following number: +870772001799.

Configure Text

General

Service Centres

Current service centre: Inmarsat +870772001799

Manage service centre address

Default Message Options

Validity: maximum

Class: Use default mode

☒ Use same centre for reply

☐ Request status report

☐ Send unicode message

☐ Add signature

Specify signature:

Return to Defaults

Help OK Cancel Apply

DATA SERVICES

LaunchPad provides a variety of connection options to help ensure that all your data requirements are met. LaunchPad is configured with five connections by default. You can edit these default connections or add to them by setting up any number of customized connections, called dedicated connections, using a configuration tool.

DEFAULT CONNECTIONS

The five default types of data connections consist of one standard and four streaming types.

- **Standard:** A standard connection is charged per Mb. You are charged only for the amount of data that is sent. The bandwidth you are allocated depends on terminal type and network availability, but is always 'best effort', that is, you are allocated bandwidth depending on your requirements and the requirements of other users of the BGAN network, or BGAN Terminal. This connection class is suitable for most data types, other than multimedia.
- **Streaming:** A streaming connection is charged by time. You are charged for the amount of time the connection is active. Streaming enables multimedia data, such as video, to be sent in a continuous data stream and converted into sound and pictures. The bandwidth required for a streaming connection is difficult to predict, and depends on factors such as length of connection and number of receivers.

The standard connection is suitable for most basic data requirements, and is charged by the amount of data sent. If you require a guaranteed data rate for your connection, to eliminate delay for example, you can connect using one of the four streaming connections, at the following data rates:

- 32 Kbps streaming
- 64 Kbps streaming
- 128 Kbps streaming
- 256 Kbps streaming

Each streaming class connection is charged by the length of time that the connection is live.

The standard connection and four streaming connections are primary connections and are alternatives to each other, that is only one can be open at a time. You must close one connection before you can open another. This is per TE. Each TE can have its own primary PDP context (e.g. background or streaming connection) and up to 11 TE's may be connected to one UT at a time. Each TE will have a separate global IP address to the network.

DEDICATED STREAMING CONNECTIONS

If required, you can set up one or more dedicated streaming connections for applications such as live video and FTP using only one TE. A dedicated streaming connection ensures that a selected application does not have to share the connection with any other traffic from that same TE. The Terminal supports up to ten dedicated connections alongside the primary connection through the use of Traffic Flow templates (TFT's). A dedicated streaming connection is charged by the length of time that the connection is live.

LaunchPad displays an information note if you are about to open a streaming connection, or open two or more connections at the same time. Refer to About PDP Contexts for details on how LaunchPad manages data connections.

VPNs

If you require extra security when transmitting data, you can add a VPN connection to LaunchPad, and use this connection to run a VPN application on your computer. When your VPN connection is open and the VPN application is running, communications between LaunchPad and the Terminal are closed down. Therefore, when a VPN connection is open, information about the Terminal does not display on the LaunchPad status bar.

ISDN DATA

Data can be sent and received via the ISDN interface on the BGAN IP Terminal. To make use of this service, you will need to connect an appropriate ISDN terminal equipment. Examples of ISDN equipment are ISDN cards in PCs or MACs, ISDN Audio/Video cameras and video-conferencing systems, ISDN group 4 fax machines.

To accept incoming calls, you first have to program the ISDN terminal with the same MSN as is programmed in the satellite terminal for that call type. The MSNs are pre-set in the terminal to be 2 for 3.1KHz audio, and 3 for UDI/RDI data, but any number can be programmed. It is important that for each call type, the MSNs programmed in the terminal and the ISDN equipment match to ensure that incoming calls can be accepted. To re-program the terminal MSN numbers to match the ISDN device, go to LP>Terminal ISDN Interface. Any changes to this screen require the terminal to be re-booted prior to the changes taking effect.

Configure ISDN Interface

Interface status

ISDN interface status

☒ Enable interface ☐ Power interface

Configure MSN numbers

MSN speech number: 1

MSN audio number: 2

MSN UDI number: 3

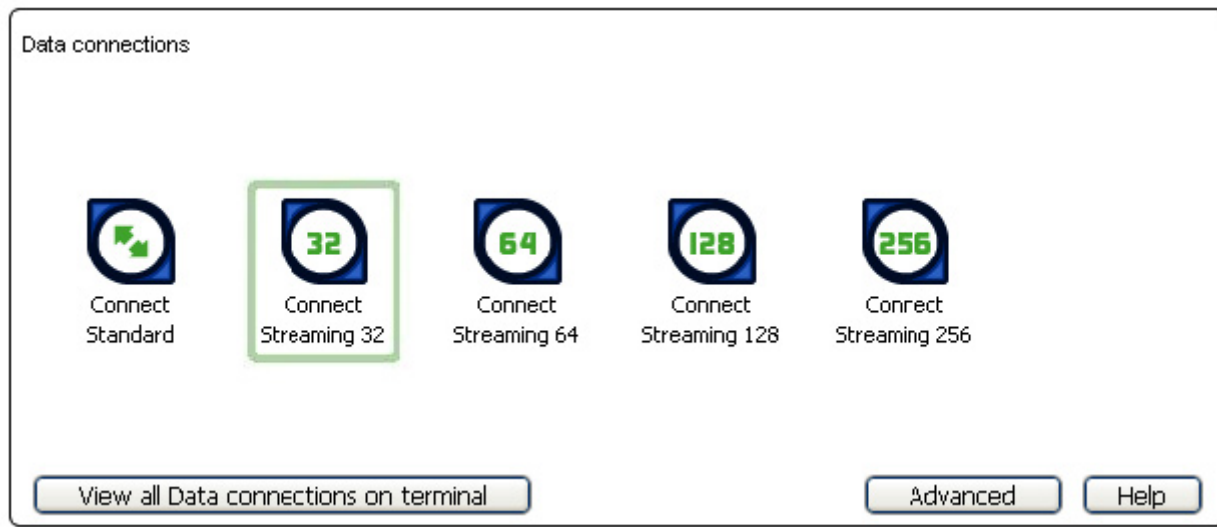
MSN RDI number: 3

OK Cancel Help

Refer to the instructions supplied with the ISDN equipment for information on the equipment capability, the type of call that it uses, and how to program the appropriate MSN.

OPENING DATA CONNECTIONS

Data connections can be opened, added and managed from the Data Connections tab. To open the Data Connections tab, click on the **Data** icon in launch bar. The Data Connections tab opens, as shown below:



From this window, you can do the following:

Open and Close Connections

- Open a Data Connection
- Close a Data Connection
- Open a VPN – only available if you have configured a VPN. Refer to Add a VPN for details.
- Close a VPN – only available if you have configured a VPN.

Add a Dedicated Streaming Connection

- Add a Data Connection

Add a VPN

- Add a VPN

Manage Connections

- View Data Connections
- Delete a Data Connection
- Change the icon order
- Hide an icon

OPENING AND CLOSING A CONNECTION

OPENING A DATA CONNECTION

To open a data connection, click on the **Data** icon in the launch bar to open the Data Connections tab. All the available data connections are displayed. You can select one primary connection, and as many secondary or dedicated connections as you require.

OPENING A STANDARD CONNECTION

To open the standard connection:

If a primary Streaming connection is open, close this connection by clicking on the **Streaming connection** icon. The message The Primary PDP context has been closed displays. Click on **OK** to close this dialog box.

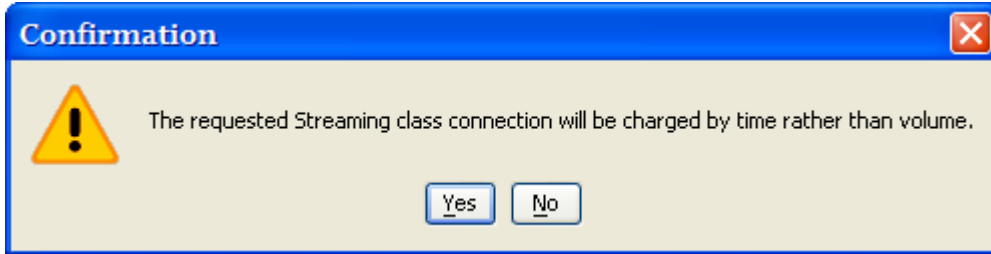
In the Data Connections window, click on the **Standard connection** icon. The message Primary PDP Context has been established successfully displays.

Click on **OK** to continue.

OPENING A STREAMING CONNECTION

To open a primary streaming connection:

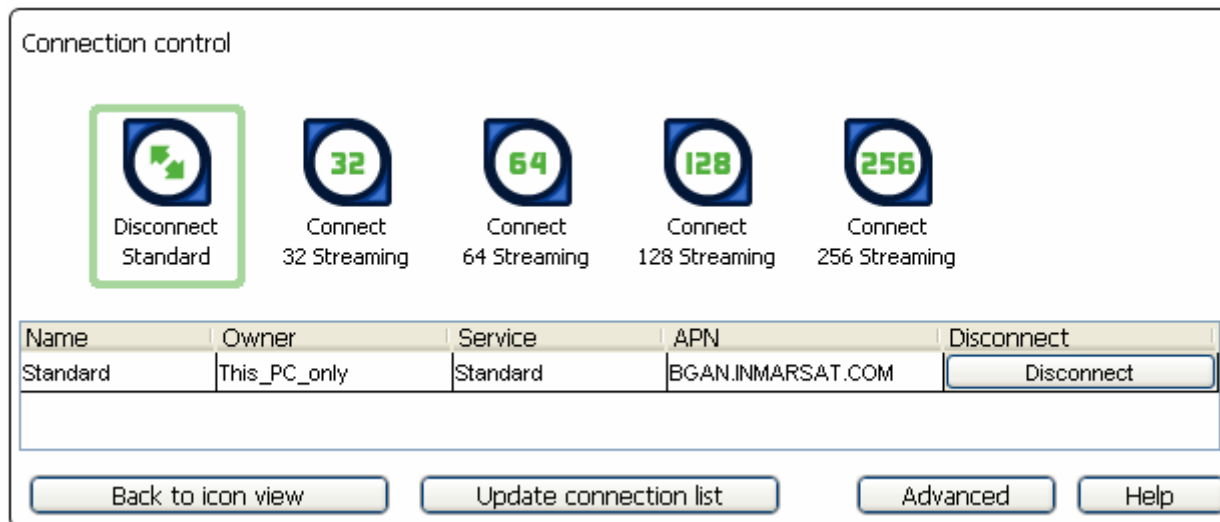
1. If the standard connection is open, close this connection by clicking on the **Standard connection** icon. The message The Primary PDP context has been closed displays. Click on **OK** to close this dialog box.
2. In the Data Connections window, click on a Streaming connection icon. The following dialog box displays:



3. Click on **Yes** to open the Premium connection. The message Primary PDP Context has been established successfully displays.
4. Click on **OK** to continue.

To close a data connection:

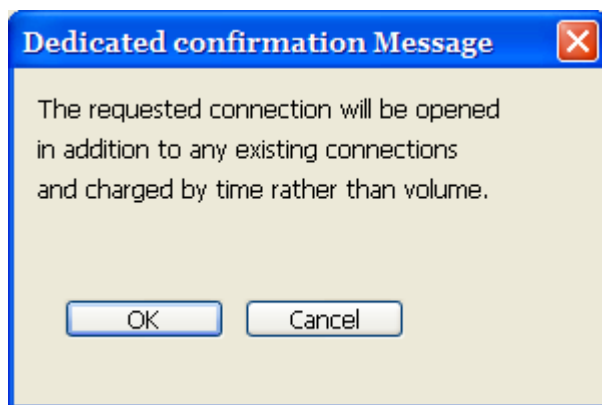
5. You can close any connection that is currently open by clicking on the appropriate icon.
6. Alternatively, click on **View all data connection on terminal**, and then click on the **close** button next to the connection you want to close.



▶▶ OPENING A DEDICATED STREAMING CONNECTION

To open a dedicated streaming connection:

1. Click on the **Dedicated connection** icon that you want to open. The following dialog box displays:



2. Click on **OK** to continue. This opens a dedicated connection alongside your current primary connection. You can open as many dedicated connections as you require, in this way. But the total number of primary and dedicated data connections open on the terminal cannot exceed 11.

CLOSING A DATA CONNECTION

To close a data connection, do any of the following:

- Click on the connection in the **Data Connections** tab. The connection icon loses its outline, indicating that the connection is closed.
- In the Data Connections tab, click on the **View all data connections in terminal** button to display the BGAN Connections window. You can then click on **Disconnect** to close the appropriate connection.
- In the LaunchPad main menu, select **BGAN Services > Close All Data Connections**. The Close all satellite connections dialog box displays, where you have the option to select Close All My Data Connections or Close all Data Connections for All Users.

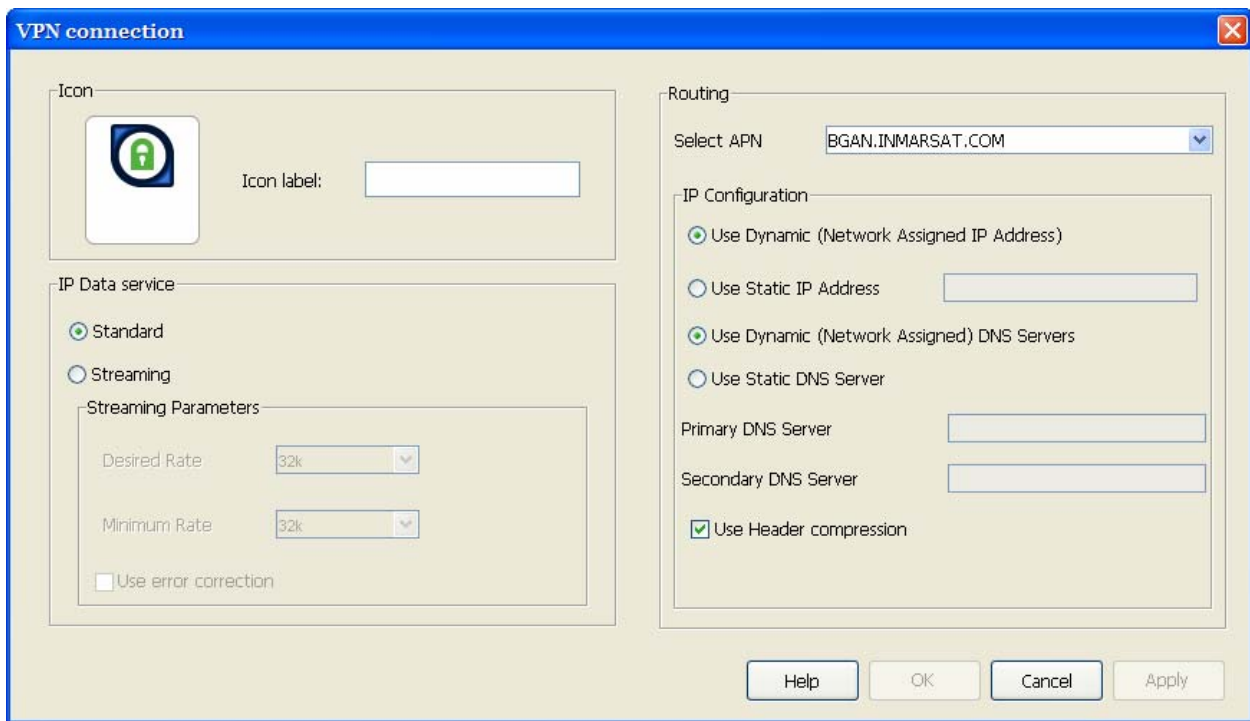
Note: If you are sharing the BGAN Terminal, clicking on **Close All Data Connections for All Users** closes the connections of other Terminal users.

SET UP OR EDIT A VPN CONNECTION

A VPN connection differs from other data connections in that only the VPN connection can be open when a VPN application is running. LaunchPad closes all other functionality related to the Terminal while a VPN connection is open and a VPN application is running. For this reason, you must carefully select when to open a VPN connection, so that other operations are not affected.

To configure a VPN icon and VPN icon name, and launch an application with the VPN icon:

1. Click on the **Data** icon in the launch bar to display the Data Connections tab.
2. Click on **Advanced** to display the Connection Configuration window.
3. Click on **Add New Connection** to display the connection configuration screen.
4. Select **Create new VPN IP Data Connection** and click OK.



5. Type in a name for the VPN connection in the Icon label text box. The name and icon that you select here will display when you open the Data tab in LaunchPad.
6. You can now configure the VPN Connection Quality and Routing Options. The way to do this is identical to other data connections. For full details, see *Configuring Connection Quality* and *Setting Up Routing Options* in the *Adding Or Editing A Dedicated Connection* section below.
7. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to exit without saving.

OPENING A VPN

To open a VPN connection and run a VPN application:

Click on the **VPN** icon in the Data Connections window.

1. Click on **OK** to continue. This opens the VPN connection ready for you to open a VPN application, and closes all other connections. Note the following:
 - All other data connections remain unavailable until you close the VPN application and the VPN connection.
 - The Status section of the status bar indicates that there is No Open Connection, and the Connected to and Signal strength sections of the status bar do not display any Terminal information.
 - Launch Pad closes all other functionality related to the Terminal whilst the VPN application and VPN connection is open.
2. Open the VPN application on your computer.

Note: If you selected a VPN application when **Setting Up an Icon**, this application automatically launches when you open the VPN connection.

CLOSING A VPN

A VPN differs from other data connections in that the LaunchPad closes the interface with the Terminal whilst the VPN connection is open and the VPN application is running. For this reason, you must close your VPN application and reconnect to the Terminal when you want to return to normal LaunchPad functionality.

To close a VPN:

1. Close the VPN application on your computer.
2. In the LaunchPad status bar, click on **Search for BGAN Terminal**. The LaunchPad closes the VPN connection, re-connects to the Terminal, and opens a standard data connection. The process is the same as if the Terminal was Registering with the Network for the first time.

You can now use all LaunchPad features.

▶▶ ADDING OR EDITING A DEDICATED CONNECTION

SETTING UP AN ICON

To configure an icon and icon name, and launch an application with the icon:

1. Click on the **Data** icon in the launch bar to display the **Data Connections** tab.
2. Click on **Advanced** to display the **Connection Configuration** window.
3. Click on **Add New Connection** if you want to set up a new connection, then select **Create new Dedicated Streaming IP Data connection** and click **OK**, or select a connection icon and click on **Edit** if you want to edit an existing connection. The **Dedicated Connection** window displays.

Dedicated connection

Icon

Select icon to represent this application

Icon label

Application Traffic Flow Template

Select template to define which traffic is sent down this IP Data connection

FTP

IP Data streaming service

Desired Rate 32k Minimum Rate 32k

☐ Use error correction

Help OK Cancel Apply

4. Select an icon. The icon displays in the box next to the **Icon label** text box.
5. Type in a name for the connection in the **Icon label** text box. The name and icon that you select here will display when you open the Data tab in LaunchPad.
6. Select the Application Traffic Flow Template for the dedicated connection from the list.
7. Select the desired and minimum streaming data rate for this connection.
8. Check the Use error correction check box if you want to turn error correction on.

9. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screen, or click on **Cancel** to exit without saving.
- 10.

CONFIGURING CONNECTION QUALITY

To configure the Connection quality for a data connection:

1. Either:
 - From the **LaunchPad Data Screen**, right-click the icon you want to edit,
 Or:
 - From the **LaunchPad Data Screen**, click on **Advanced**, select the icon you want to edit and click on **Edit**.
 Or:
 - To create a new connection: From the **LaunchPad Data Screen**, click on **Advanced**, then click on **Add new Connection**, select **Create new Standard IP or Streaming IP Data Connection** and click **OK**.

2. Enter a name for the connection in the field next to **Icon label**:
3. Select a Connection class. This can be either **Standard** or **Streaming**.
 - If you choose Streaming, the **Streaming Parameters** section of the window activates.
4. If you choose Streaming you can do the following in the Streaming Parameters section of the window:
 - Select the Desired Symmetrical Rate from the drop-down list.
 - Select the Minimum Symmetrical Rate from the drop-down list.
 - Check the Use error correction check box if you want to turn error correction on.
5. Edit the routing options for this connection:
 - Select an APN from the **Select APN** drop-down list. If it is not activated, only the default APN is available.

- In the IP Configuration section, set up your IP Address requirements. Select either Use Dynamic (Network Assigned IP Address) or Use Static IP Address. If you select Use Static IP Address, enter the IP Address in the text box. You can get a static IP address from your Service Provider.
 - In the IP Configuration section, set up your DNS Server requirements. Select either Use Dynamic (Network Assigned) DNS Servers or Use Static DNS Server. If you select Use Static DNS Server, enter a Primary DNS Server and, if required, a Secondary DNS Server in the text box.
 - If required, check the Use Header compression check box to turn on header compression.
6. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to exit without saving.

MANAGING ISDN CONNECTIONS

OPENING AN ISDN DATA CONNECTION

Data can be sent and received via the ISDN interface on the Terminal. To make use of this service, you must connect an ISDN device to the Terminal. Examples of ISDN devices are ISDN cards in PCs or MACs, ISDN AudioVideo cameras and ISDN fax machines.

To use the ISDN device with the Terminal:

1. Program an MSN (Mobile Subscriber Number) into the device. The number you use depends on the capability of your ISDN device.
 - If the device sends and receives data as 3.1KHz audio, such as Group 3 fax machines, use MSN 2.
 - The device sends and receives data as Unrestricted Digital Information (UDI) or as Restricted Digital Information (RDI), use MSN 3.

Refer to the instructions supplied with your ISDN device for information on its capability, and how to program the appropriate MSN.

2. Make sure that the ISDN interface is set up in LaunchPad. Refer to *Setting up the ISDN Interface* for details.
3. Connect the ISDN device to the ISDN connector on the BGAN Terminal.

You are now ready to access ISDN Data Services.

▶▶ AUTOMATIC MODE

The Satellite Terminal includes four automatic options: auto power on, LED on/off, antenna pointing bypass, and automatic context activation. You can set all of these options with the BGAN LaunchPad. The terminal also has an Automatic Context Activation feature that can be used without the need for LaunchPad.

AUTO "ON" MODE

When the Satellite Terminal is mounted on a pole, the power button may be inaccessible. This can be a problem if there is a power failure since the unit will turn off and will not turn back on when power is applied. You could use the unit with a battery to provide battery backup in case of power failure. However, at extreme temperatures a battery could be damaged and should not be used.

To solve this problem, you can activate the terminal's auto on feature. With auto on enabled, if a power adaptor is connected, the terminal turns on as if the power button was pressed. The terminal can still be powered off by pressing the power button with this feature enabled. The terminal can be powered on by reconnecting the AC mains or DC power adaptor, or pressing the power button. The default configuration of the terminal is for auto on to be enabled.

The auto on feature can be used in conjunction with antenna pointing bypass to allow the Satellite Terminal to automatically recover from a power outage (assuming PIN, etc are disabled).

LED ON/OFF MODE

In a semi-fixed installation, you can use this option to operate with all LEDs off to make your unit and operation less conspicuous.

ANTENNA POINTING BYPASS

You can configure a pointing bypass option that causes the unit to skip the pointing phase. The unit then performs spot beam selection, registration and network connection. This option should only be used for fixed installations where pointing is not required on subsequent power ups. With this option active, if the unit is moved or the signal attenuated, the unit will remain in global beam scan until the problem is fixed and the global beam acquired. After acquiring the global beam the Satellite Terminal automatically continues with PSAB acquisition.

AUTOMATIC CONTEXT ACTIVATION

If you have enabled automatic context activation, the Satellite Terminal automatically activates a PDP context when it exits antenna pointing and registers with the network.

The "context create" request uses the default Access Point Name (APN), username and password stored in the Satellite Terminal. You can modify these parameters using the BGAN LaunchPad. "Subscribed" QoS is requested and a dynamic network assigned IP address requested ("global" address).

AUTOMATIC CONTEXT ACTIVATION WITHOUT LAUNCHPAD

Automatic Context Activation is a configuration option which specifies whether the UT should automatically activate a PDP context after the UT is pointed and registered with the BGAN network.

If a user has a TE device that can not manually configure the Hughes 9201 to establish a PDP context, they can configure the Hughes 9201 to establish a connection automatically by assigning a specific IP address to the TE. By using static IP addresses, the TE can now have a PDP context automatically established with different Quality of Service (QoS). The QoS used will be dependant on the IP Address of the device.

| Connection Type | Low Address Range | High Address Range | Context QoS |
|----------------------|-------------------|--------------------|----------------|
| Configurable via ACA | 192.168.128.101 | 192.168.128.199 | Background |
| Automatic | 192.168.128.200 | 192.168.128.209 | Background |
| Automatic | 192.168.128.210 | 192.168.128.219 | 32k Streaming |
| Automatic | 192.168.128.220 | 192.168.128.229 | 64k Streaming |
| Automatic | 192.168.128.230 | 192.168.128.239 | 128k Streaming |
| Automatic | 192.168.128.240 | 192.168.128.249 | 256k Streaming |

CONFIGURABLE BACKGROUND CONTEXT

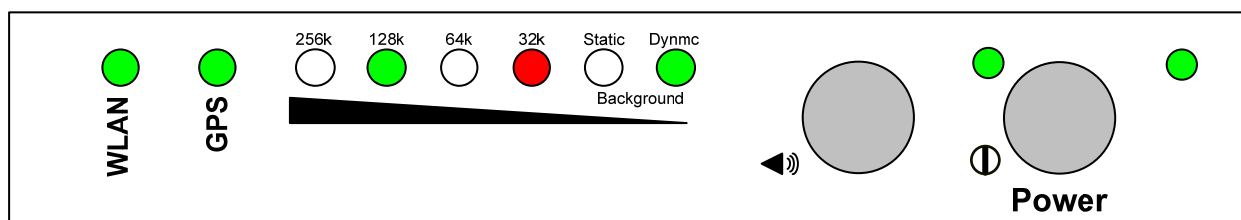
If the Hughes 9201 recognizes a TE with an address range of 192.168.128.101 through 192.168.128.199, a background context will be established if the "Automatic Context Activation" parameter is set. This parameter can be set via the Inmarsat LaunchPad, the UT Web Server or the IHINIT AT-command (refer to "Configuring the New ACA Feature").

AUTOMATIC CONTEXT FOR SPECIFIC QUALITY OF SERVICES (QoS)

If the Hughes 9201 recognizes a TE with an address range of 192.168.128.200 through 192.168.128.249, a PDP Context will be established automatically with a specific QoS as defined in the table.

FRONT PANEL LED INDICATORS

The Automatic Context Activation feature will make use of the front panel LED's to give visual feedback to the user what the context status is for each QoS. The position of the LED indicates the type of service as shown in the figure below:



Blinking Green LED:

The UT is currently trying to establish a PDP context with the desired QoS.

Solid Green LED

The UT currently has at least one PDP context using this QoS.

Blinking Red LED

The UT failed to establish a PDP context using the desired QoS, but it is retrying.

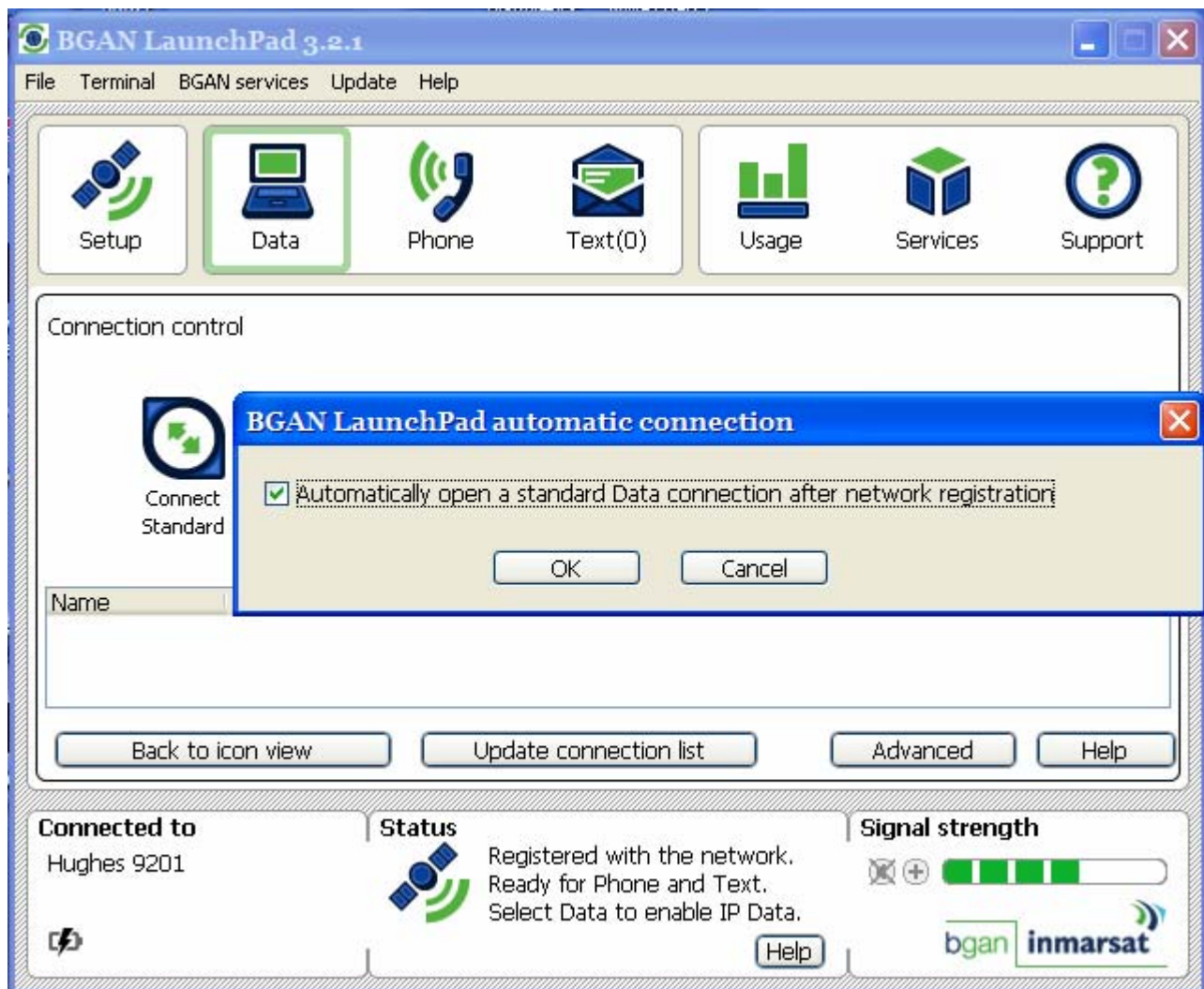
Solid Red LED

The UT failed to establish a PDP context using the desired QoS.

If a second TE attempts to establish a connection for a context with the same QoS as an already established context, there will be no change to the front panel LED, i.e. it will remain solid green.

LAUNCHPAD "AUTOMATIC CONNECTION" DESCRIPTION

The Inmarsat LaunchPad application includes a feature called "Automatic Connection". Automatic Connection is controlled by LaunchPad and is used to automatically establish a PDP Context from LaunchPad for the specific TE it is running on. The Automatic Connection feature is controlled by LaunchPad and runs independently from the configuration of the UT.

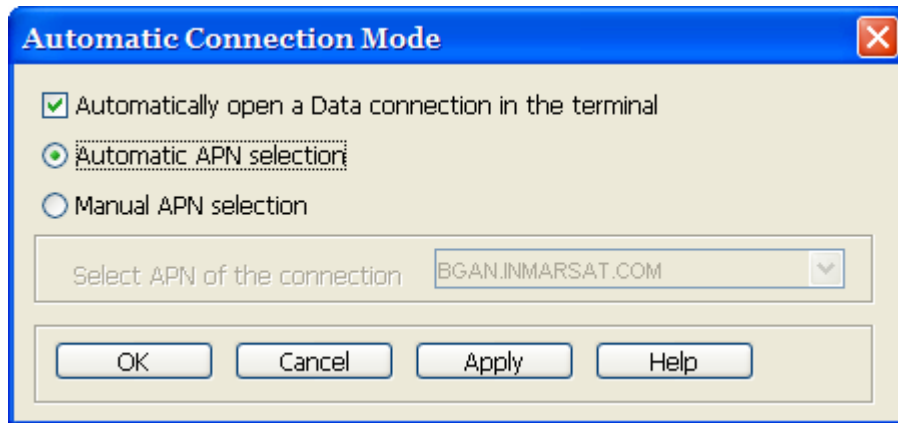


When Automatic Connection is enabled, LaunchPad will automatically activate a Background PDP context after registration with the Network is completed using LaunchPad.

PREVIOUS "UT AUTOMATIC CONNECTION" DESCRIPTION

For Hughes 9201 SW releases up to and including 3.6.0.5, the UT Automatic Context Mode will activate a single context on local IP address 192.168.128.101. Any TE which needs to use this context would have to configure this IP address.

In order for the UT to automatically activate a context with older versions, default context information was required to be configured via either the Inmarsat LaunchPad or AT-commands.



USIM APN MODE VS. MANUAL APN MODE

The ACA feature supports two different modes; USIM APN mode and Manual APN mode. These two modes are supported across all IP Address Ranges for all QoS assignments.

Note: When a UT is upgraded to version 3.6.1.0, the UT is reconfigured to delete any APN information that has been configured, including Username and Password.

USIM APN MODE (DEFAULT)

USIM APN Mode is used if Automatic Context Activation is enabled and the user has not defined a specific APN to be used. If no APN is defined, the UT will read the APN name directly from the USIM when attempting to establish a PDP context.

If a user wishes to enable the Automatic Context Activation feature for any device that is connected to the UT, the feature needs to be enabled via the UT Web Server or via AT-commands.

MANUAL APN MODE

Manual APN Mode is used if Automatic Context Activation is enabled and the user has defined a specific APN to be used. If an APN is defined, the UT will use that APN when attempting to establish a PDP context.

If the APN requires a username and password to successfully establish a PDP context, it must be defined as well.

If a user wishes to enable the Automatic Context Activation feature for any device that is connected to the UT, the feature needs to be enabled via LaunchPad, UT Web Server or via AT-commands.

CONFIGURING THE NEW ACA FEATURE

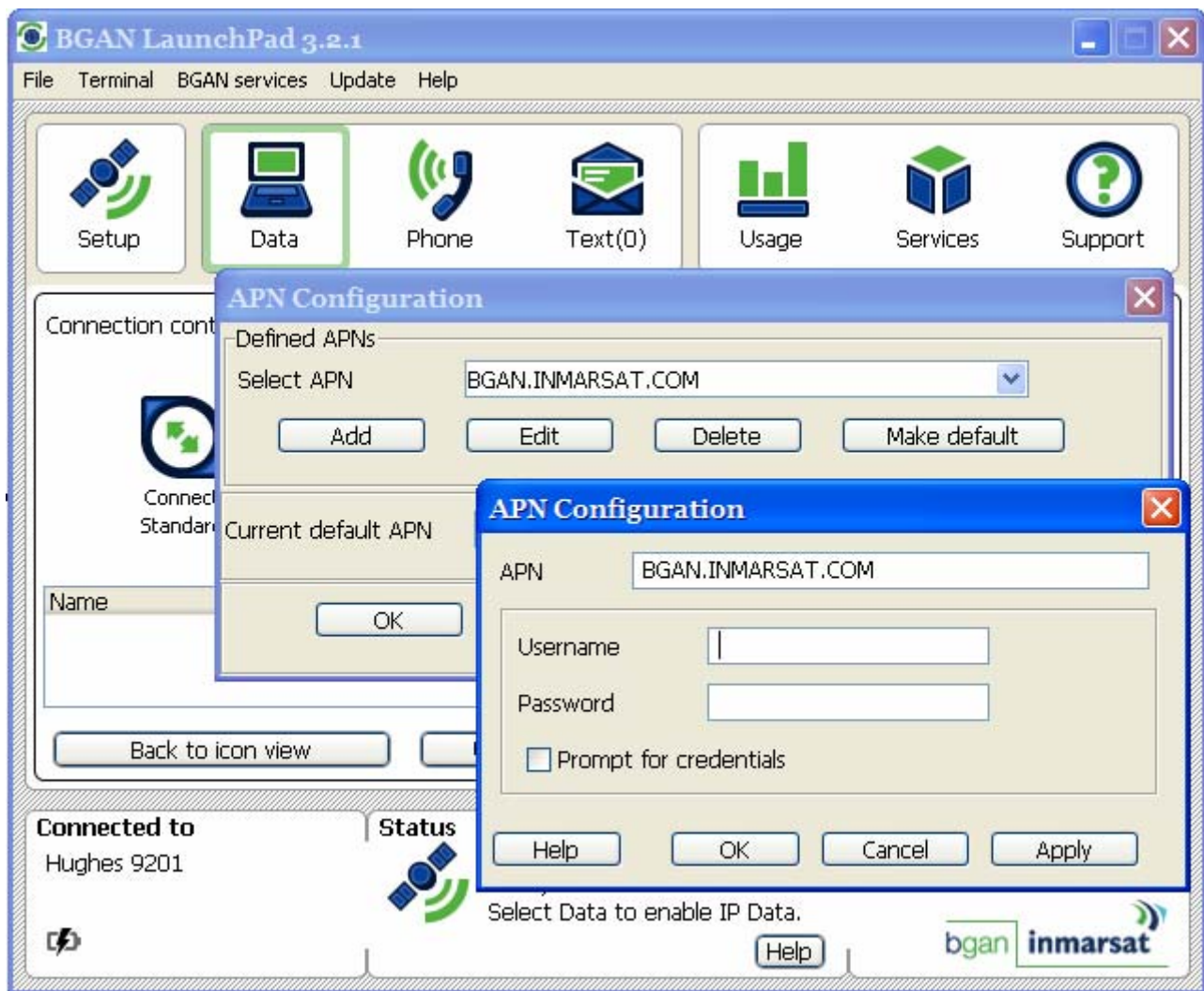
In order to use the new ACA feature, it must be activated by either the Inmarsat LaunchPad, the UT Web Server or the AT-Command interface.

CONFIGURATION VIA LAUNCHPAD

Under the Terminal options, select Automatic Connection Mode. By activating the checkbox, the user will be able to choose the desired APN.

Note:

LaunchPad allows the user to define the APN, along with any required username and password under BGAN Services. After the APN has been defined, it will be available for configuring UT Automatic Connection Mode.



Version 3.2.1 and earlier versions of LaunchPad don't support activating the Automatic Context Activation feature without defining an APN. To use the USIM APN Mode, the UT Web Server or AT-commands must be used for configuration.

CONFIGURATION VIA UT WEB SERVER

The Hughes 9201 SW releases 3.6.1.0 and later now include a built-in Web Server. To access the UT Web Server, access the UT IP address with your favorite Web Browser, e.g. <http://192.168.128.100>. To configure the ACA feature, click on the Setup screen, select the ON button for 'Auto Context Activation' and then click on Apply.

The initial release of the UT Web Server does not support the manual entry of the APN name, username or password. To use the Manual APN Mode, LaunchPad must be used for configuration.



- PROPERTIES
 - RESTORE FACTORY DEFAULTS
- **SETUP**
- CONNECTION CONTROL
- WLAN
 - WEP SECURITY
- ISDN
- OPEN STATUS WINDOW



TERMINAL SETUP

Bypass Antenna Pointing: ☐ On ☒ Off

Auto Context Activation: ☒ On ☐ Off

Auto Power On: ☒ On ☐ Off

Auto PS Attach: ☒ On ☐ Off

Auto CS Attach: ☒ On ☐ Off

Terminal Local IP Address: 192.168.128.268

Terminal Emergency Call Numbers: 000:008:112:110:118:119:911:999

Apply

Cancel

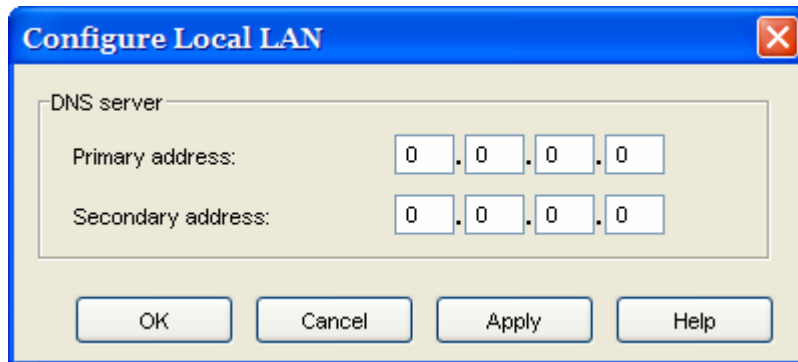
Restart Terminal

▶▶ DNS SERVER

With SW Release 3.6.10. and later, the Hughes 9201 supports automatic or manual DNS server address assignment.

DNS SERVER – AUTOMATIC MODE

To use automatic assignment of DNS addresses to your TE, set the Primary and the Secondary DNS server addresses to 0.0.0.0. Important: both addresses must be set to 0.0.0.0 to activate this feature.

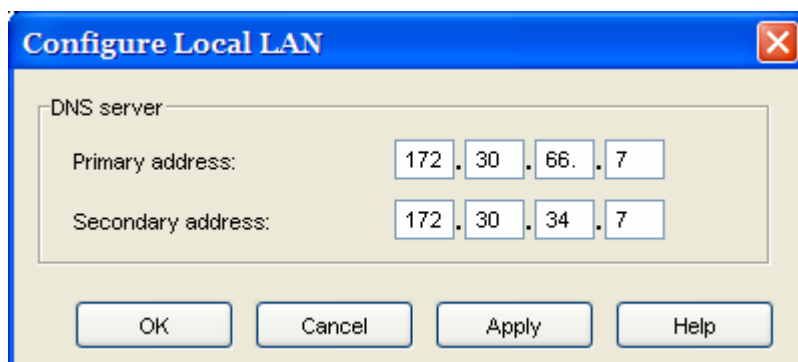


The screenshot shows a window titled "Configure Local LAN" with a close button (X) in the top right corner. Inside the window, there is a section labeled "DNS server". Below this label, there are two rows of input fields. The first row is labeled "Primary address:" and contains four input boxes, each containing the digit "0", separated by dots. The second row is labeled "Secondary address:" and also contains four input boxes, each containing the digit "0", separated by dots. At the bottom of the window, there are four buttons: "OK", "Cancel", "Apply", and "Help".

In automatic mode the terminal will assign the DNS server addresses obtained from the network when an IP Data Connection is established.

DNS SERVER – MANUAL MODE

To use manual assignment of DNS addresses to your TE, program the desired DNS server addresses in the **Configure Local LAN** dialog box. These addresses will be assigned to the TE during initial connection of the TE to the terminal. Note that the TE must be configured to dynamically obtain an IP address through DHCP to obtain DNS server addresses from the terminal.



The screenshot shows a window titled "Configure Local LAN" with a close button (X) in the top right corner. Inside the window, there is a section labeled "DNS server". Below this label, there are two rows of input fields. The first row is labeled "Primary address:" and contains four input boxes with the values "172", "30", "66", and "7", separated by dots. The second row is labeled "Secondary address:" and contains four input boxes with the values "172", "30", "34", and "7", separated by dots. At the bottom of the window, there are four buttons: "OK", "Cancel", "Apply", and "Help".

▶▶ PHONEBOOK

BGAN supports a phonebook feature to facilitate the management of phone numbers.

The phonebook is stored on the USIM, and can have up to 250 entries. The phonebook can also be saved as a file to your computer, and your computer can also load phonebook entries from this file back to the USIM.

EMERGENCY CALLS

You can make emergency calls with an ISDN handset, or an analog handset plus ISDN terminal adapter connected to the terminal. You must have exited pointing, and you do not need to have a USIM in the terminal.

PDP CONTEXTS OVERVIEW

PDP CONTEXTS – PRIMARY AND SECONDARY

Resource management for BGAN is based on PDP contexts, or connections. This means that in congested networks each user needs his or her own context to ensure a fair allocation of bandwidth from the network. Therefore, the Satellite Terminal creates a PDP context for each connected computer that has traffic to send over the network. The multiple contexts can be primary or secondary.

- Primary contexts can connect to different APNs each with an individual username and password. This is useful because each APN will only support a single set of subscribed Quality of Service (QoS) values.
- Primary contexts each get their own global IP address.

The total number of primary and secondary contexts that the Satellite Terminal can support is 11. For example, it can support 5 primary and 6 secondary contexts, but not six primary and 6 secondary contexts. There is only a single primary context assigned to each computer connected to the Satellite Terminal.

You can configure the Satellite Terminal to enable or disable automatic context activation. Even if automatic context activation is used, you can still manually control contexts for flexibility and exception conditions.

Primary Context

The Satellite Terminal creates a primary context with the entered information. If a primary context already exists for your local IP address, you have to disconnect the current context before creating the new one. This could happen if a context was created automatically and the user wants to change to a different APN or QoS. Your BGAN LaunchPad indicates whether the context is successfully created or displays any errors. LaunchPad also allows you to disconnect any contexts.

Secondary Context

Secondary contexts can be set-up from the BGAN LaunchPad, and must always be associated with an existing primary context. Secondary contexts are used when multiple applications on your computer require different types of contexts.

Each secondary contexts requires a Traffic Flow Template to be configured, which defines how the data for the secondary context should be routed. This is done through the BGAN LaunchPad.

IP ADDRESSING

Connections between each TE and the terminal are achieved with private IP addresses, and between the terminal and the BGAN network with global addresses.

Private addresses are dynamically assigned by the DHCP server in the terminal, starting from 192.168.128.101 and up to 192.168.128.199 if the TE is configured to obtain an IP address automatically.

You can also manually configure the IP address of the TE with the operating system's administrative tools. See the Automatic Context Section for the range of static and dynamic addresses that can be used.

The global address of the terminal is assigned by the Network Service Provider, and can be either static or dynamic. Dynamic global address configuration is automatically carried out by the mechanism in the terminal that activates contexts. Static global addresses must be setup with your Network Service Provider in advance.

The local IP address of the terminal can be modified for special applications using the web server of the terminal. To access the web server, open an Internet browser and type in <http://192.168.128.100> in the URL address field. To access the local IP address of the terminal Click on Setup. Change the last octet (e.g. 192.168.128.xxx) and click on Apply. You must re-boot the terminal for the change to take affect.

▶▶ MULTIPLE USERS

Up to 11 computers can be connected to the BGAN terminal using the Ethernet, WLAN and USB interfaces.

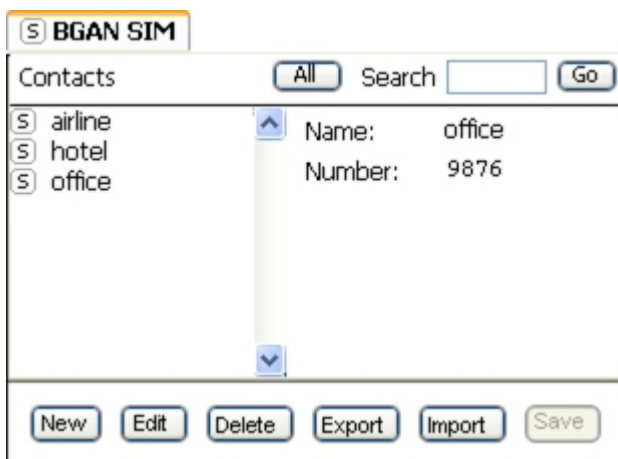
More than one TE can be connected to the Ethernet interface by using either a hub or router. If a hub is used, the BGAN terminal will allocate private IP addresses to each TE connected to the hub, and so each TE will be able to have a primary PDP context. If a router (which includes a NAT) is used, the whole private network would appear as a single device to the BGAN terminal, and so the TEs connected to the router will share a single primary PDP context. The NAT in the router would assign IP addresses within its own subnet.

Multiple computers connected via the WLAN interface will each be allocated a private IP address.

▶▶ MANAGING CONTACTS

The Contacts window enables you to manage your Phone and Text contacts. You can add a new contact, edit or delete an existing contact. In addition, you can exported a contact to a file on your computer, or import a contact from any file on the computer.

The Contacts screen shown below displays when you click on the Phone icon or the Text icon on the launch bar.



Contacts are stored in the BGAN SIM.

From this window you can:

- Create or Add a New Contact
- Edit a Contact
- Export a Contact to a File
- Import a Contact from a File

Click on a contact name in the Contacts column to display the details of the contact alongside.

You can also search for a contact by typing in the first few letters of the contact name in the **Search** text box, and then click on **Go**. The Contacts list then shows only the entries which match the search text. Click on **All** to display all contacts again.

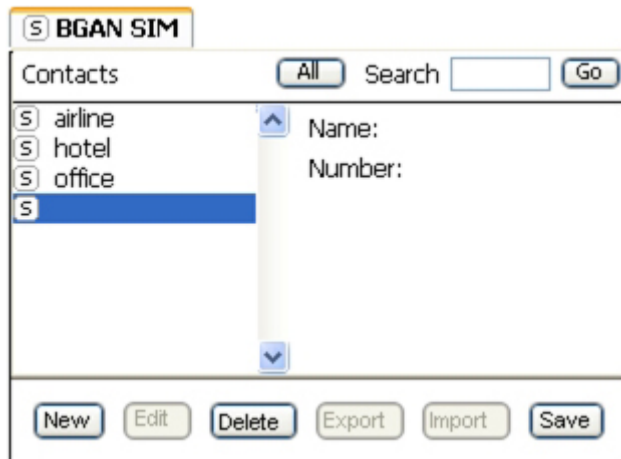
ADDING AND EDITING CONTACTS

This section explains how to add, edit or delete a contact.

ADDING A CONTACT

To add a contact to an address book:

1. Click on **New** in the Contacts window. The following screen displays:



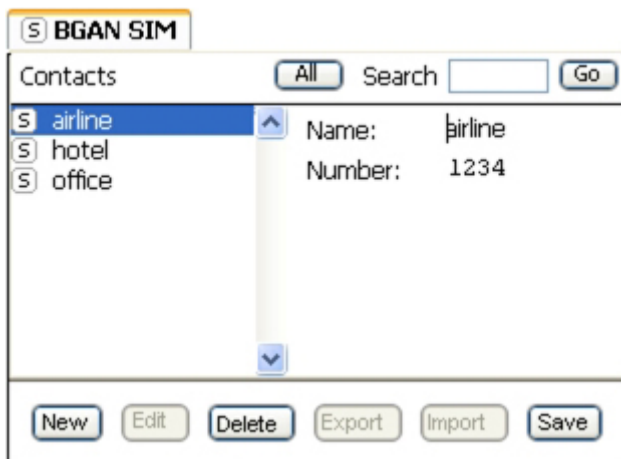
The screenshot shows the 'BGAN SIM' window with a 'Contacts' tab. On the left, a list of contacts includes 'airline', 'hotel', 'office', and an empty entry 'S' which is currently selected. On the right, there are input fields for 'Name:' and 'Number:'. At the bottom, a row of buttons includes 'New', 'Edit', 'Delete', 'Export', 'Import', and 'Save'.

2. Enter the name of the contact on the first line.
3. Enter the contact number at the **Number:** prompt.
4. Click on **Save** to save the contact details.

EDITING A CONTACT

To edit an existing contact:

1. Select the contact to be edited and click on **Edit**. The following screen displays:



The screenshot shows the 'BGAN SIM' window with the 'Contacts' tab. The 'airline' contact is now selected in the list on the left. The 'Name:' field on the right contains the text 'airline' and the 'Number:' field contains '1234'. The 'Edit' button at the bottom is highlighted.

2. Edit the name or the contact number of the contact.
3. Click on **Save** to save the contact details.

DELETING A CONTACT

To delete a contact:

1. Select one or multiple contact from the Contacts list.
2. Click on **Delete**. You are asked to confirm the deletion.
3. Click on **Yes** to confirm, or **No** to return to the Contacts window.

EXPORTING AND IMPORTING CONTACTS

This section explains how to export a contact to a file on your computer, and import a contact from a file on your computer.

EXPORTING A CONTACT

You can export a contact or contacts to a file on your computer.

To export a contact to a file:

1. Select the contact to be exported and click on **Export**. The **Choose Export Type** dialog box displays, as shown below:



2. Check the **File** check box to export the contact to a file on your computer.
3. Click on **Continue**.
4. The **Save** dialog box displays. Navigate through your computer's file structure using this window, and click **Save** to save the contact details.

IMPORTING A CONTACT

You can import a contact from a file on your computer. To do this:

1. Click on **Import**. The **Open** dialog box displays.
2. Navigate through your computer's file structure using this window, and click **Open** to select the contact details you want to import. The **Select Address Book** dialog box displays, as shown below:



3. Check the **BGAN SIM** check box to import the contact to the BGAN SIM.
4. Click **OK** to import.

▶▶ TCP PEP SOFTWARE

Transmission Control Protocol (TCP) enables two hosts, usually computers to establish a connection and exchange data. It improves the efficiency of data transfer by dividing the data into packets, then delivering the packets in the same order that they were sent.

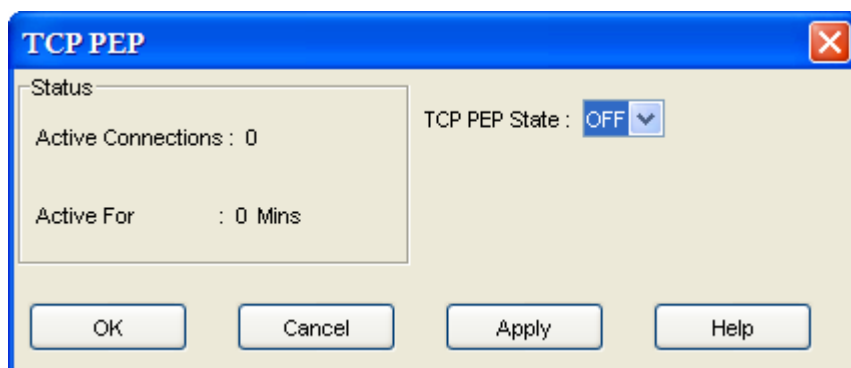
TCP with Performance Enhancing Proxies (TCP PEP) enhances the performance of TCP over a satellite network such as the BGAN network by providing:

- **Fast start** – useful for transferring small amounts of data, since traditional TCP is often slow with smaller data transfers.
- **Increased window size** – improves TCP performance in larger bandwidth applications.
- **Delay based congestion control** – ensures high transfer rates and less delay.

TCP PEP is automatically installed during the Standard installation of LaunchPad, or you can install TCP PEP separately from the installation CD.

You can enable or disable TCP PEP, and monitor any errors, using the TCP Accelerator screen.

- From BGAN Launch Pad main menu, select **BGAN Services > TCP Accelerator**. The TCP Accelerator screen is then displayed. To turn on TCP PEP select "ON" from the drop down in the TCP PEP State and then hit "Apply".



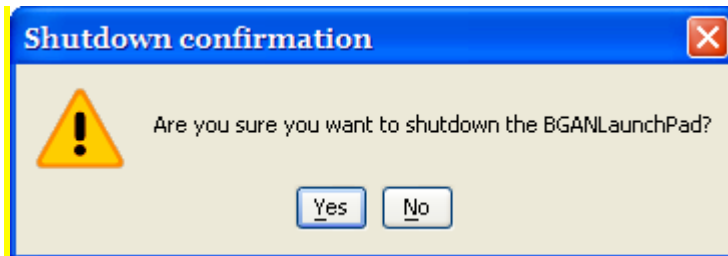
▶▶ EXIT, RESET AND RESTART FEATURES

EXITING LAUNCHPAD

You can exit LaunchPad and leave any active connections open. Refer to *Closing a Data Connection* or *Closing a Connection in Multi-User Mode* for details.

Exit LaunchPad as follows:

1. Click **File > Exit BGAN LaunchPad**. The Shutdown Confirmation dialog box displays:



2. Click **Yes** to confirm shutdown, or No to cancel.

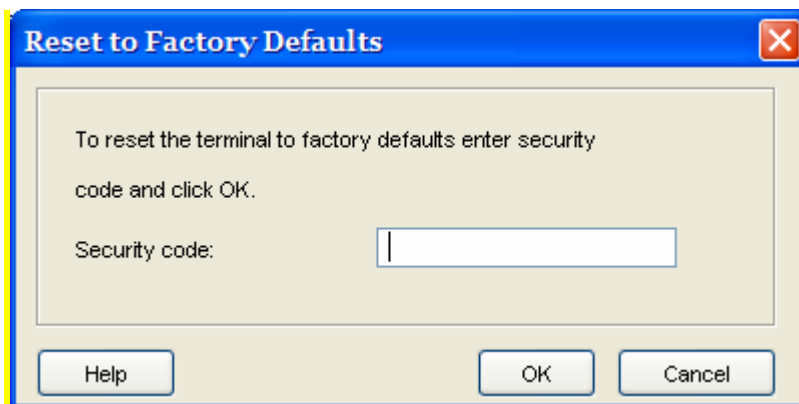
RESETTING THE TERMINAL

If you have the required access privileges, you can reset all the configuration settings of the Terminal to the factory default. Note that your current settings are lost during the reset.

Note: This will delete all "User" Parameters that have been previously setup (WLAN, DNS, User name and password, etc.)

To reset the terminal to factory default:

Select the **Terminal > Reset to Factory Default** option on LaunchPad main menu. The Reset to Factory Default dialog box displays, as shown below:



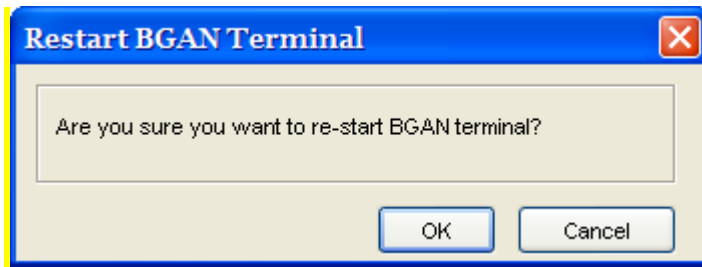
3. Enter the **security code** in the Security Code text box. The security code is "broadband" (lowercase)
4. Click on **OK** to reset the terminal, or click on Cancel to exit without resetting.

RESTARTING THE TERMINAL

You may want to restart the terminal if an error occurs.

To restart the terminal:

1. Select **Terminal > Restart Terminal** from the LaunchPad main menu. The Restart BGAN Terminal dialog box displays, as shown below:



2. Click on **OK** to restart the terminal, or click on Cancel to exit without restarting.

▶▶ GETTING HELP

Support for the BGAN Satellite Terminal is provided via the following help options:

- Using Services
- Using Support
- Using Diagnostics
- Using LaunchPad Help and QuickStart wizard
- Viewing Properties

▶▶ BGAN PROFILE MANAGER

ABOUT PROFILE MANAGER

Note: The Profile Manager is only available to users of the Corporate Edition of LaunchPad.

The Profile Manager enables the BGAN LaunchPad Administrator to create and edit user profiles, and so customize BGAN LaunchPad to your organization's requirements. Using the Profile Manager, you can quickly and easily configure connections, apply user restrictions and set up the customer support details available from within BGAN LaunchPad. This enables you to manage the functionality of BGAN LaunchPad, and gives you more control over how BGAN LaunchPad is used.

Note the following about the Profile Manager:

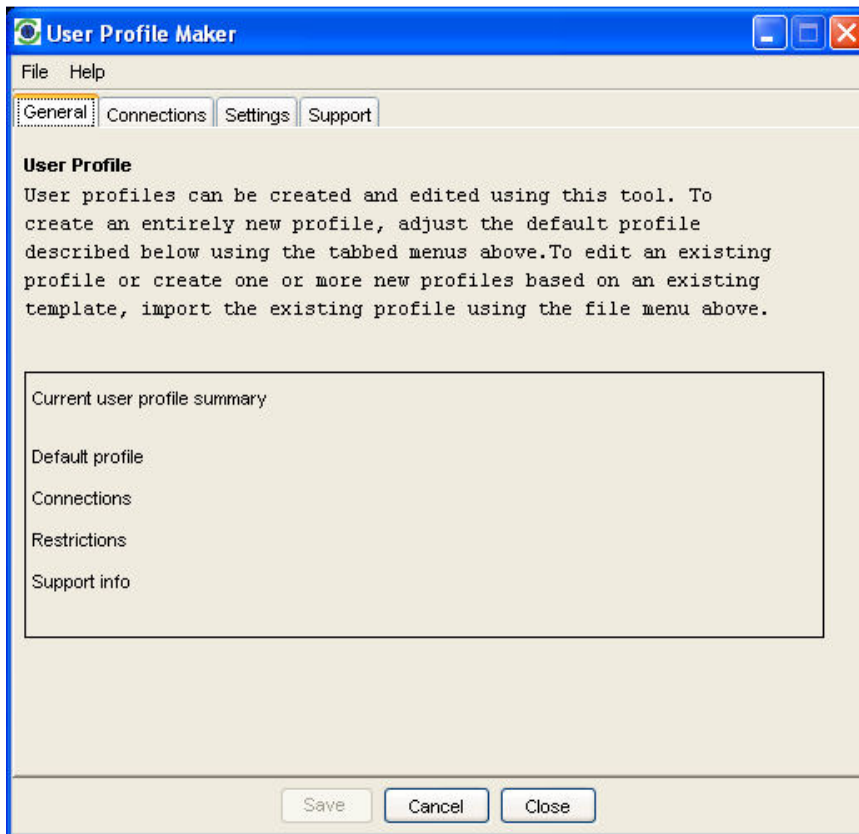
- You can configure and create user profiles for use either on a standalone PC, or across a network of users.
- You can create an unlimited number of user profiles.
- All user profiles are held in the Profile Manager Image Library, stored on a network-shared drive of the computer.

Profile Manager is installed automatically when you install the Corporate Edition of BGAN LaunchPad. Refer to Installing Corporate Edition for details.

CREATING AND EDITING A PROFILE

CONFIGURING A PROFILE

When you open the Profile Manager, the General tab is active, and the default profile is displayed, as shown below:



Note the following when creating or editing a connection:

- If at any time you want to clear all the existing settings for a profile, click on the File menu, and select New. You will be asked to confirm the operation. Click Yes to confirm.
- You must go into each of the tabs in Profile Manager, and complete all mandatory fields, before you can save the profile.
- When you first open Profile Manager, any default profile is displayed.

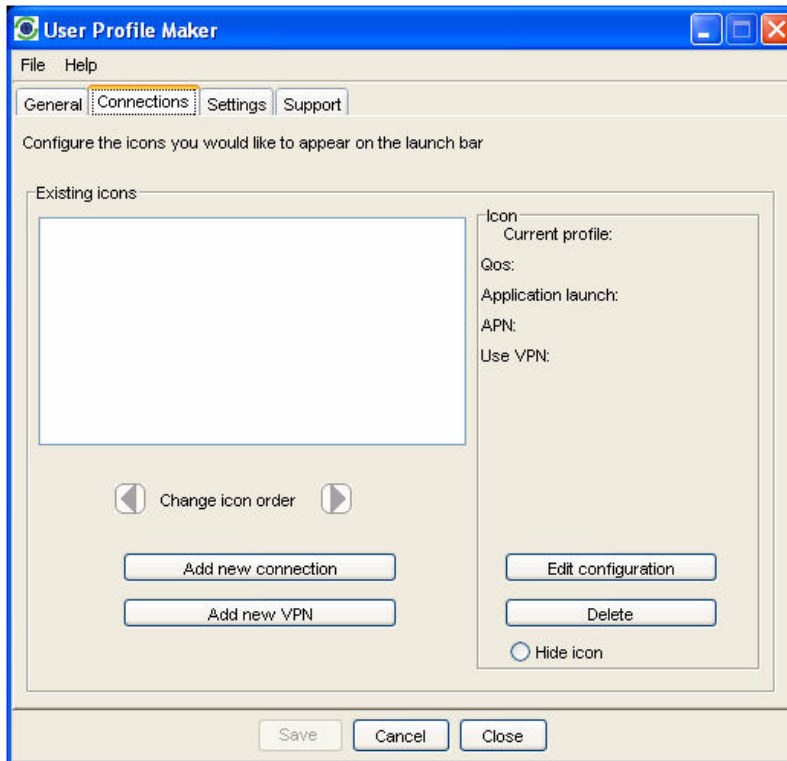
To create a connection:

1. Configure a Connection.
2. Configure Restrictions.
3. Configure Support Details.
4. Configure User Information.

CONFIGURING A CONNECTION

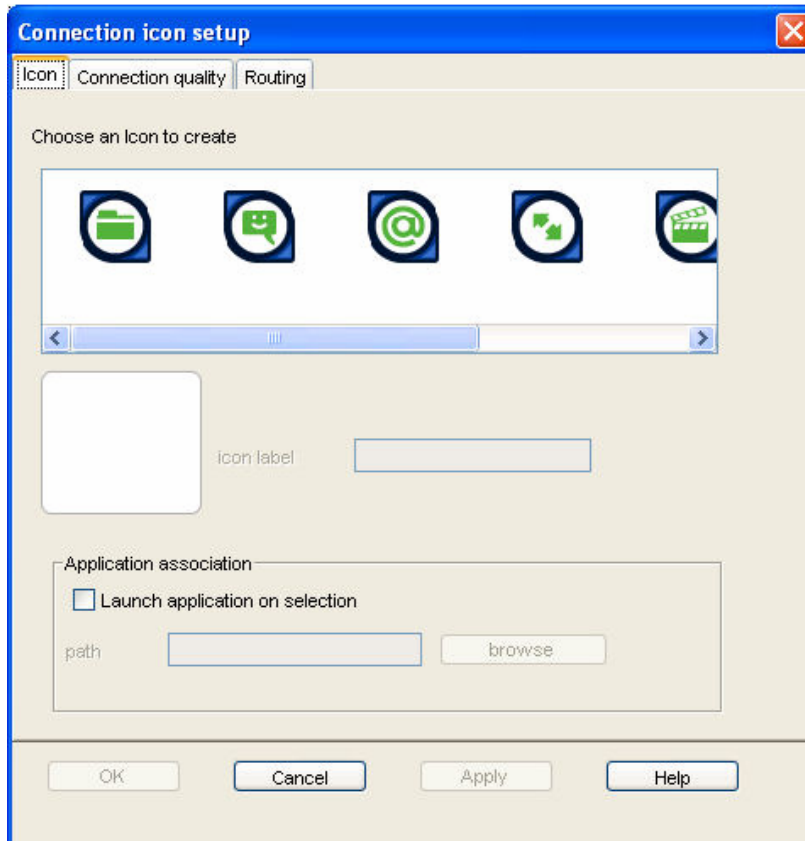
This section describes how to set up a connection. To do this:

1. In Profile Manager, select the **Connections** tab. The Connections screen displays, as shown below:



2. Either:
 - To add a new connection, click on **Add new connection**. Or:
 - To edit an existing connection, select the icon that you want to edit, and click on Edit configuration. Or:
 - To add a VPN, click on **Add new VPN**.

The Connection icon setup screen displays, as shown below:



The Connection icon setup window has three components, as follows:

- Icon
- Connection Quality
- Routing

CONFIGURING AN ICON

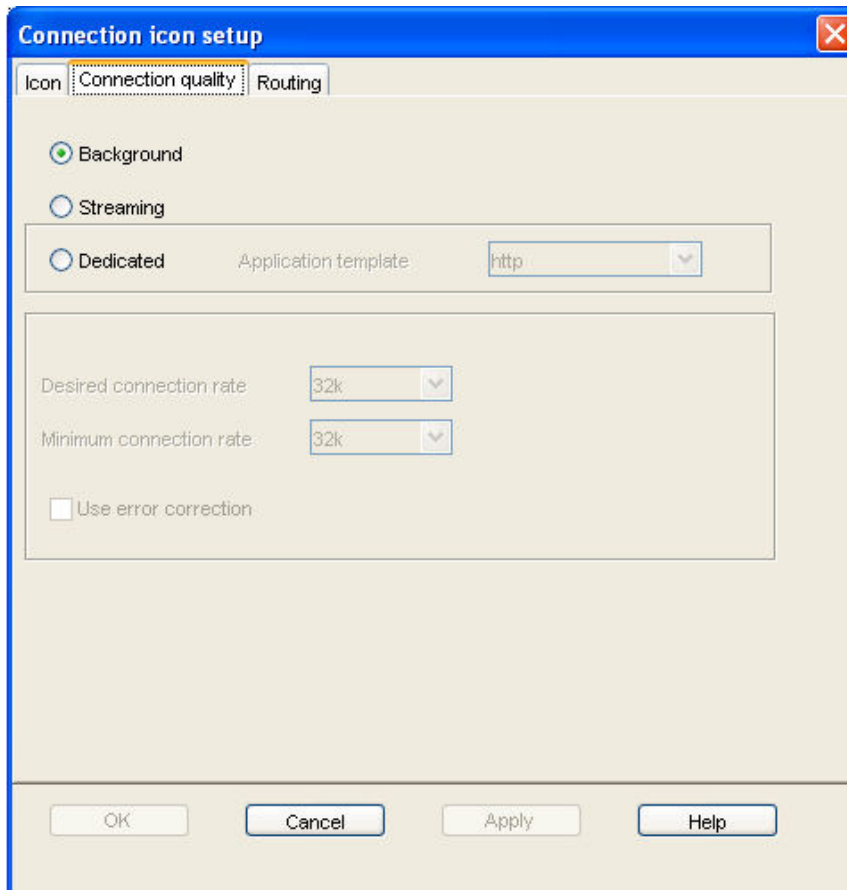
To configure an icon:

1. Select an icon. The icon displays in the box next to the icon label text box.
2. Type in a name for the connection in the **icon label** text box. The name and icon that you select here will display when you open the Data tab in BGAN LaunchPad.
3. Check **Launch Application on selection** check box to launch a particular application when you click on this icon in BGAN LaunchPad. For example, you may want to launch Internet Explorer when you select this icon.
4. Use the **Browse** button to search for the file name of the application you want to launch with this icon (or if you know the file name, enter it in the Path text box). When you open this connection in BGAN LaunchPad, the application automatically opens. You must close the application before you can close this connection.

5. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the **displayed** configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

To configure the Connection quality for a data connection:

From the Connection Icon Setup window, click on the Connection quality tab. The Connection Icon Setup - Connection quality window displays, as shown below:



1. Select a **Connection class**. This can be either Standard, Streaming or Dedicated. Note that Dedicated does not display if you are configuring a VPN.
 - If you chose Standard, no further configuration is required in this window.
 - If you choose Streaming, the Streaming Parameters section of the window activates.
 - If you choose Dedicated, the Application template drop-down list and the Streaming Parameters section of the window activates.
2. If you choose Streaming or Dedicated, you can do the following in the **Streaming Parameters** section of the window:
 - Select the Desired Symmetrical Rate from the drop-down list.
 - Select the Minimum Symmetrical Rate from the drop-down list.
 - Check the Use error correction check box if you want to turn error correction on.
3. If you choose **Dedicated**, select an application template (also known as a traffic flow template) from the Application template drop-down list. This associates an application with this connection, and enables the Terminal to correctly route certain types of traffic. For example, if you want the traffic from a selected FTP application be routed through this dedicated connection, select the FTP template from the drop-down list.
4. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

To configure the Routing options for a data connection:

From the Connection Icon Setup window, click on the Routing tab. The **Connection Icon Setup - Routing** window displays, as shown below:

1. If the drop-down box is activated, select an APN from the **Select APN** drop-down list. If it is not activated, only the default APN is available.
2. In the IP Configuration section, set up your **IP Address requirements**. Select either Use Dynamic (Network Assigned IP Address) or Use Static IP Address. If you select Use Static IP Address, enter the IP Address in the text box. You can get a static IP address from your Service Provider.
3. In the IP Configuration section, set up your **DNS Server requirements**. Select either Use Dynamic (Network Assigned) DNS Servers or Use Static DNS Server. If you select Use Static DNS Server, enter a Primary DNS Server and, if required, a Secondary DNS Server in the text box.
4. If required, check the **Use Header compression** check box to turn on header compression.
5. If required, check the **Use VPN with this connection** check box, and select a VPN from the drop-down list.

Note: This option does not display if you are configuring a VPN connection using Profile Manager.

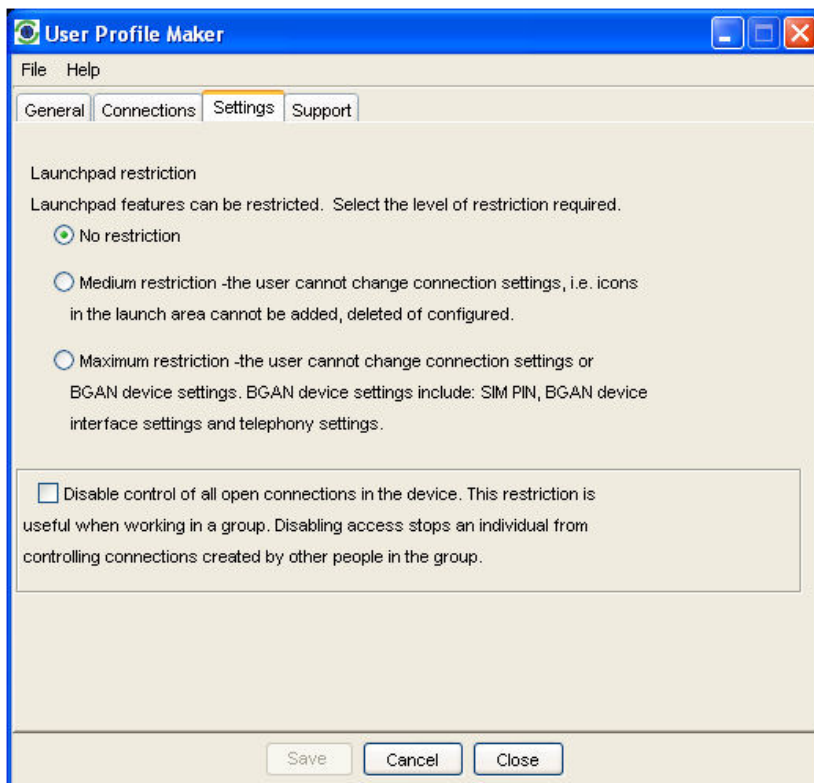
6. Click on **Apply** to save the displayed configuration, and continue editing the connection, click on **OK** to save the displayed configuration and exit the configuration screens, or click on **Cancel** to edit without saving.

CONFIGURING RESTRICTIONS

Using the Settings tab, you can set restrictions on the selected profile.

To set restrictions:

1. Click on the **Settings** tab. The **Settings** screen displays, as shown below:



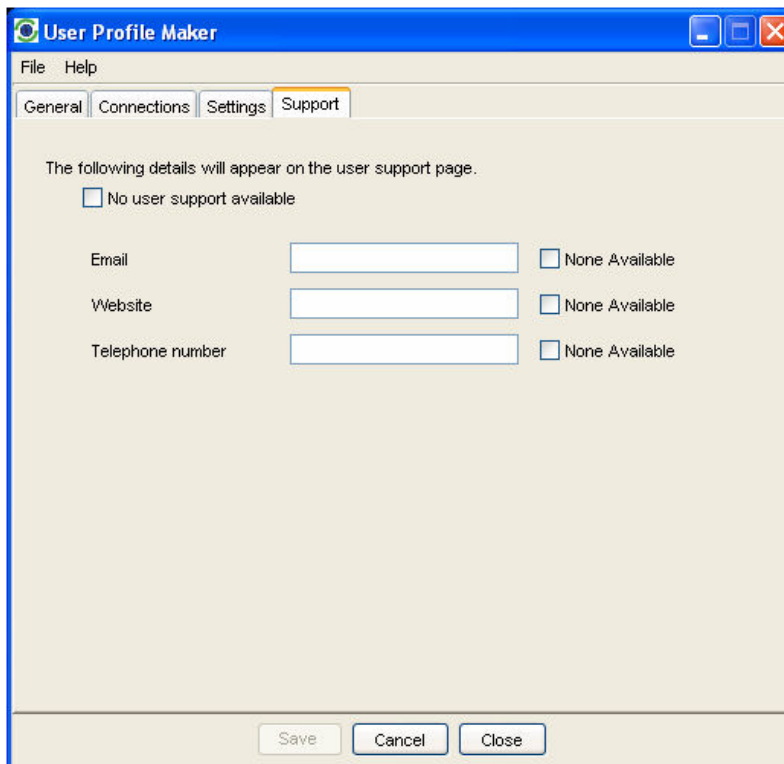
2. Select one of the radio buttons. The options are as follows:
 - **No restriction** – the BGAN LaunchPad user can change the connection and BGAN device settings.
 - **Medium restriction** – the BGAN LaunchPad user cannot change connection settings, but can change BGAN device settings.
 - **Maximum restriction** – the BGAN LaunchPad user cannot change connection settings or BGAN device settings.
3. If required, check the **Disable control of all open connections in a device** check box. This ensures that users cannot edit connections owned by other users.
4. Click **Save** to save the displayed configuration and exit from the **Settings** window.

CONFIGURING SUPPORT DETAILS

Using the Support tab, you can set the Support contact details that will display on BGAN Launch Pad.

To set support details:

1. Click on the **Support** tab. The Support window displays, as shown below:

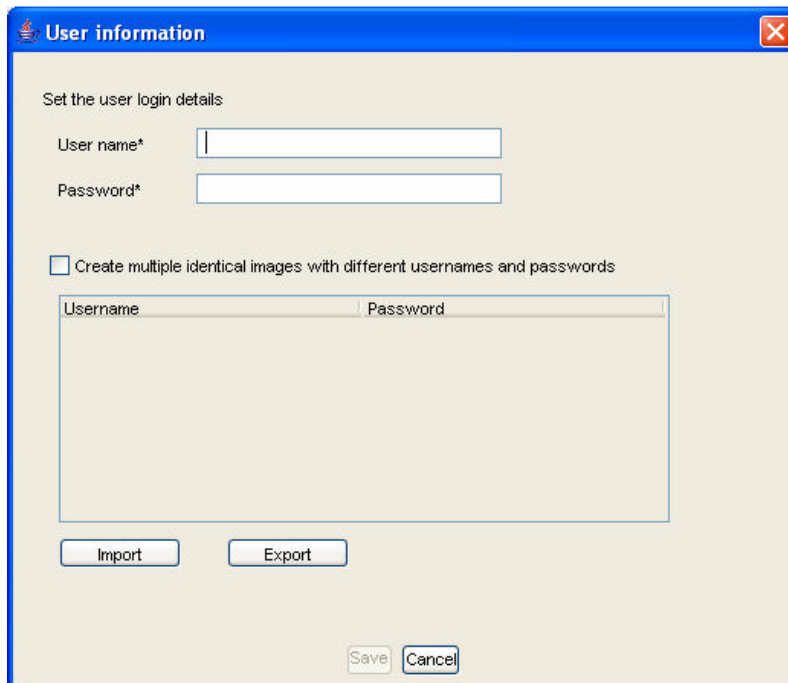


The screenshot shows a window titled "User Profile Maker" with a menu bar containing "File" and "Help". Below the menu bar are four tabs: "General", "Connections", "Settings", and "Support". The "Support" tab is selected. The main area of the window contains the text "The following details will appear on the user support page." followed by a checkbox labeled "No user support available". Below this are three rows of input fields: "Email", "Website", and "Telephone number". Each input field has a corresponding "None Available" checkbox to its right. At the bottom of the window are three buttons: "Save", "Cancel", and "Close".

2. Either:
 - If no user support is available, click on the **No user support available** check box, or,
 - Enter the details of the available user support in the **Email**, **Website** and **Telephone number** text boxes. If one of these options is not available, click the appropriate **None Available** check box.
3. Click **Save** to save the displayed configuration and exit from the Support window.

CONFIGURING USER INFORMATION

After you have completed all screens in the Profile Manager and clicked on Save, the User Information window displays, as shown below:

The image shows a window titled "User information" with a blue title bar and a red close button. The window has a light beige background. At the top, it says "Set the user login details". Below this are two text boxes: "User name*" and "Password*", both with asterisks indicating they are required. Below the password box is a checkbox labeled "Create multiple identical images with different usernames and passwords". If this checkbox is checked, a table with two columns, "Username" and "Password", appears below it. At the bottom of the window are four buttons: "Import", "Export", "Save", and "Cancel".

This window enables you to create a user login for use with this profile, or to create multiple profiles with different user logins.

To create a user login for the current profile:

1. Type a user name in the **User name** text box.
2. Type a password in the **Password** text box.

Either:

- If you only require one user login for this profile, click **Save**. A dialog box opens enabling you to save the login in a selected directory; or
- If you want to add in additional profiles with different user logins, click the **Create multiple different images with different user names and passwords** check box. An **Add** button displays beneath the Password text box.

3. Click **Add**. The user login displays in the login table.
4. Repeat steps 1, 2 and 4 for each additional profile you want to create.
5. Click **Save** when you have created all required logins. A dialog box open enabling you to save the logins in a selected directory.

IMPORTING A USER LOGIN

If required, you can import a user login.

To import a user login, in the User information window:

1. Click on **Import**. The **Open** dialog box displays.
2. Navigate to the directory where the profile is stored, select the required login and click **Open**.
3. The user login is imported into the login table.

EXPORTING A USER LOGIN

If required, you can export a user login.

To export a user login, in the User information window:

1. Click on the user login you want to export, and click **Export**. The **Save** dialog box displays.
2. Navigate to the required directory, and click **Save**.

MANAGING PROFILES

CHANGING THE ICON ORDER

The available data connections display in the BGAN LaunchPad Data connections window. You can change the sequence in which the icons displays using Profile Manager.

To change the icon sequence:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon you want to move, and use the **Move Left** and **Move Right** buttons to move the icon to its new position in the sequence.
Note: If you want to move an icon more then one place to the right or left, you must select the icon each time before using the arrow keys.
3. If required, repeat step 2 for any other icon you want to move.

DELETING A DATA CONNECTION

To delete a connection:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon from the Existing icons screen.
3. Click on **Delete**. You are prompted to confirm the deletion.
4. Click on **Yes** to confirm the deletion, or click on **No** to exit without deletion.

HIDING AN ICON

The available data connections display in the BGAN LaunchPad Data connections window. You can hide an icon if required using Profile Manager.

To hide an icon:

1. In Profile Manager, click on the **Connections** tab.
2. Select an icon you want to hide, and select the **Hide icon** radio button. The selected icon is grayed out, and does not display when you open the BGAN LaunchPad Data connections window.
Note: To restore the icon, repeat step 2 and deselect the **Hide icon** radio button.
3. If required, repeat step 2 for any other icon you want to hide.

▶▶ SECURITY

ABOUT SECURITY AND CONTROL

Using BGAN LaunchPad, you can change the SIM PIN, and enable a PIN to give a high level of management control over security.

The Security and Control options are as follows:

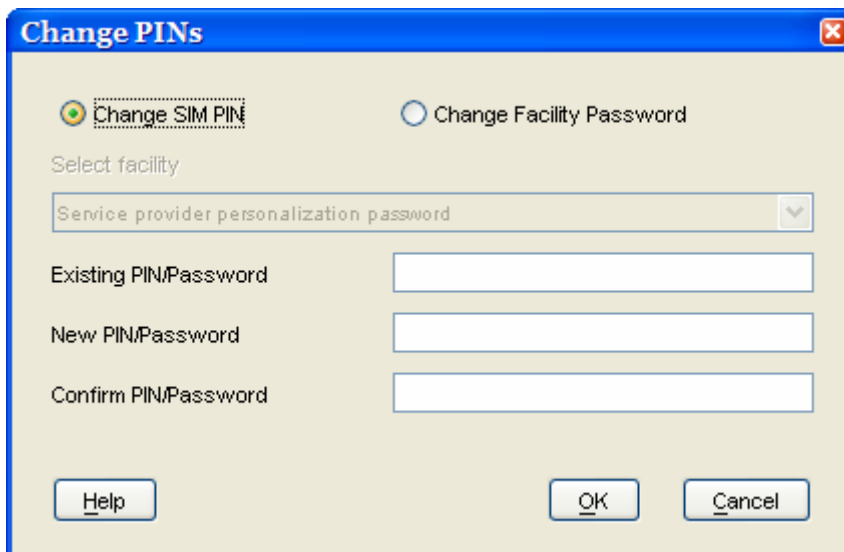
- Changing the SIM PIN
- Enabling a PIN

CHANGING THE SIM PIN AND FACILITY PASSWORD

Using BGAN LaunchPad, you can change the SIM PIN.

To change the SIM PIN:

1. From the LaunchPad main menu, select **Terminal > Change PINs**. The **Change PINs** dialog box displays:

The image shows a Windows-style dialog box titled "Change PINs". It has a blue title bar with a close button (X) in the top right corner. Inside the dialog, there are two radio buttons: "Change SIM PIN" (which is selected) and "Change Facility Password". Below the radio buttons is a label "Select facility" followed by a dropdown menu currently showing "Service provider personalization password". Underneath the dropdown are three text input fields labeled "Existing PIN/Password", "New PIN/Password", and "Confirm PIN/Password". At the bottom of the dialog are three buttons: "Help", "OK", and "Cancel".

2. Select the **Change SIM PIN** radio button.
3. Enter the current pin in the **Existing Pin/Password** text box.
4. Enter the new pin in the **New Pin/Password** text box, then re-enter the new pin in the **Confirm Pin/Password** text box.
5. Click on **Ok** to save the changes, or **Cancel** to exit without saving.

CHANGING THE FACILITY PASSWORD

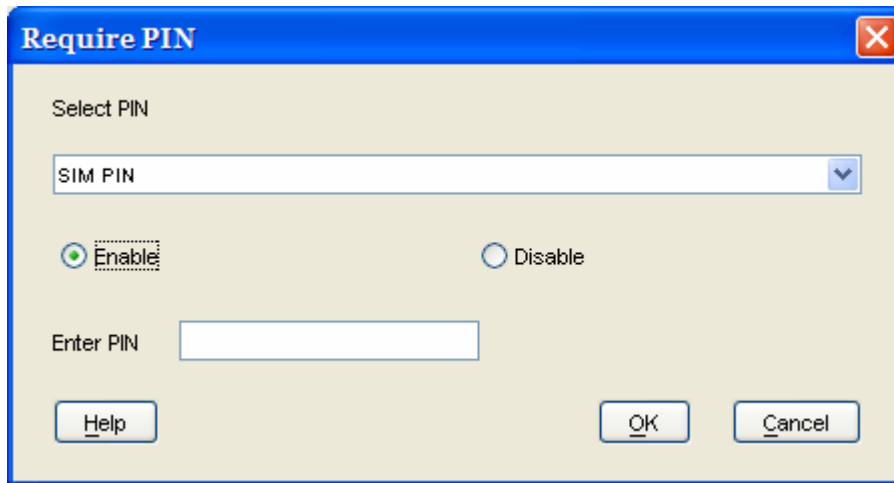
You can set a password for selected phone facilities, such as all incoming calls or all outgoing calls.

ENABLING A PIN

Using BGAN LaunchPad you can enable or disable a configured PIN.

To enable a PIN:

1. From Launch Pad main menu, select **Terminal > Require PINs**. The **Require PIN** dialog box displays:



2. From the **Select PIN** drop-down list, select the facility for which you want to enable or disable the PIN.
3. Click on the **Enable** radio button to enable the PIN, or click on the **Disable** radio button to disable the PIN. Before you can disable the PIN, you must enter the current PIN in the **Enable PIN** text box.
4. Click on **OK** to save the changes and exit, or click on **Cancel** to exit without saving the changes.

▶▶ SOFTWARE UPGRADE

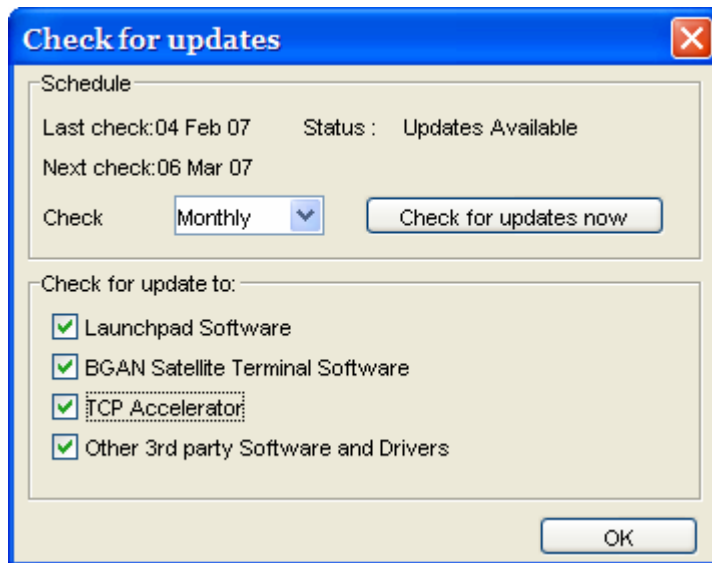
BGAN LaunchPad can check for software updates for the LaunchPad, terminal and other software. It can check for these updates using the BGAN system or a terrestrial connection, and be scheduled to check for updates daily, weekly or monthly.

BGAN LaunchPad can also install the appropriate software to the terminal or computer.

CHECKING FOR UPDATES

You can set the types of upgrade you want BGAN LaunchPad to check for, and how to check.

1. From BGAN LaunchPad main menu, select **Update > Check for Updates**. The Check for Updates screen is then displayed:

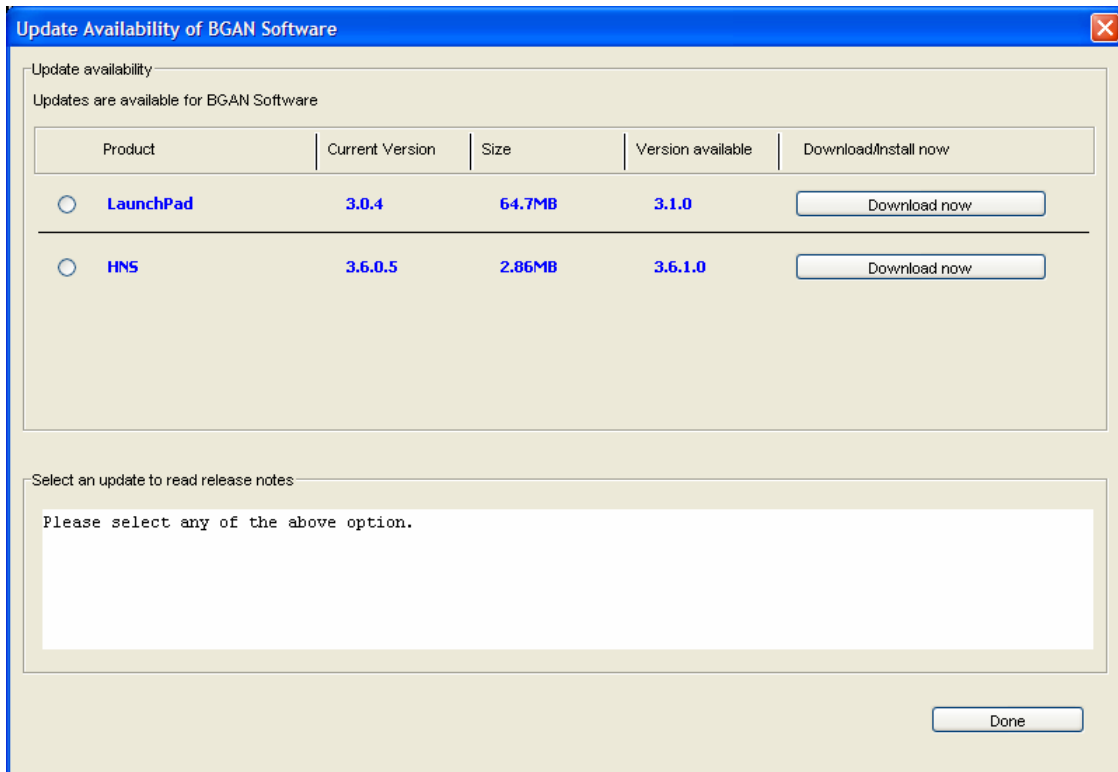


2. From the **Check** drop-down list, select how often you want BGAN LaunchPad to check for updates. The options are Daily, Weekly or Monthly. Alternatively, click on **Check for updates now**.
3. In the **Check for update to:** section, choose which software types you want to check for. For example, if you do not want to check for updates to third party software, uncheck the **Other 3rd party software and drivers** check box. By default, BGAN LaunchPad checks for all software upgrades.
4. Click **Apply** to save the settings, or **Cancel** to exit without saving.

SOFTWARE VERSIONS AND AVAILABILITY

You can install the software upgrades that LaunchPad has found.

1. From BGAN LaunchPad main menu, select **Update > Check for Updates**. Then click on **Check for updates now**. The following screen is then displayed:



2. Review which software you want to install on the terminal or on your computer.
3. Then click on **Download now** to begin the installation.
4. LaunchPad will inform you when the download has completed.

Note: Make sure that a loss of power will not interrupt the download process. You should install the terminal's battery and fully charge it, in case there is a power outage; and connect the AC mains or DC power adapter in case the battery runs flat during the download. Similarly, if your computer is operating from a battery, make sure the battery is charged and connect the computer's AC mains power adapter or charger.

LOG FILES

BGAN LaunchPad maintains log files that detail the commands sent to the terminal, and the responses obtained from the terminal. BGAN LaunchPad also records any unsolicited events reported by the terminal. LaunchPad maintains three types of log file:

- Event log file – reports details of all command and responses exchanged between BGAN LaunchPad and the Terminal.
- Network log file – reports network activity-related information, such as network usage, QoS information, and unsolicited alerts reported by the network.
- Terminal log file – generated by the terminal, and can be accessed from LaunchPad.

You can do the following for any of these log files:

- Delete or Clear a Log File.
- Display a Log File.
- E-mail a Log File.
- Print a Log File.
- Save a Log File.

In addition, for event logs and network logs you can:

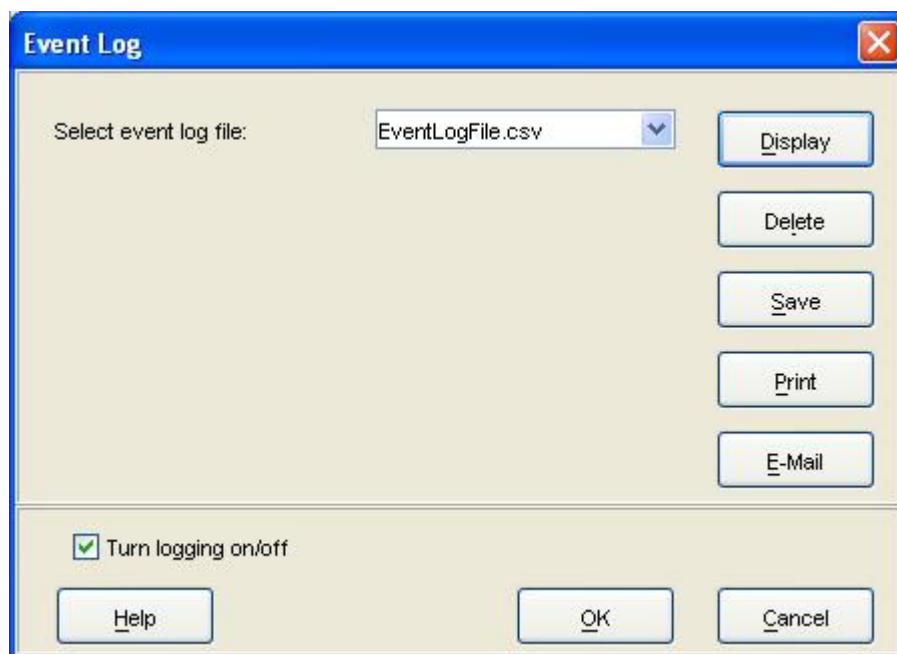
- Turn Logging On and Off.

DELETING OR CLEARING LOG FILES

You can delete an event log file or a network log file, and clear a terminal log file from BGAN LaunchPad main menu.

To delete an event or network log file from your computer, do the following from BGAN LaunchPad main menu:

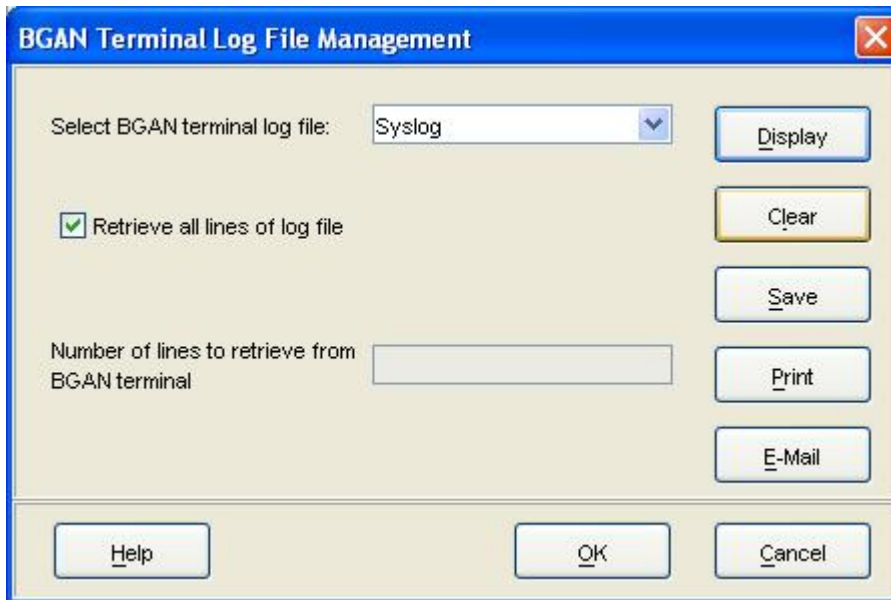
1. Select **File > Event Log File** or **Network Log File**. The Event Log dialog box is shown below:



2. Select a log file from the drop-down list.
3. Click on **Delete**. The log file is deleted from your computer.

To clear a BGAN log file from your computer, do the following from BGAN LaunchPad main menu:

1. Select **File > Terminal Log File**. The **BGAN Terminal Log File Management** dialog box displays, as shown below:



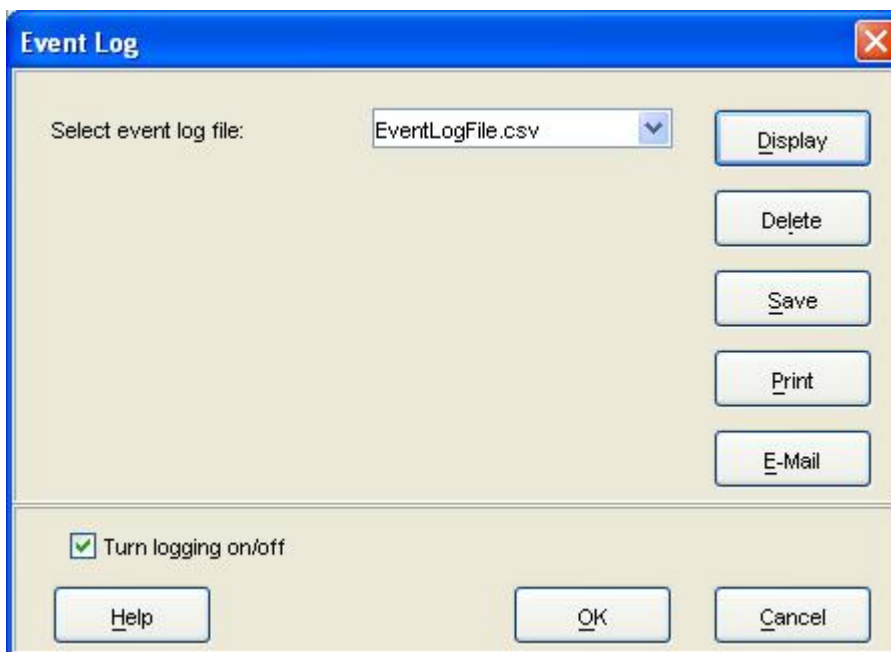
2. Select a log file from the **Select BGAN terminal log file** drop-down list.
3. Click on **Clear**. The log file is cleared from your computer.

DISPLAYING LOG FILES

You can display the event log file, the network log file or the BGAN log file from BGAN LaunchPad main menu.

To display any of these files, do the following from BGAN LaunchPad main menu:

1. Select **File > Event or Network or BGAN Log File**. The **Event Log** dialog box is shown below:

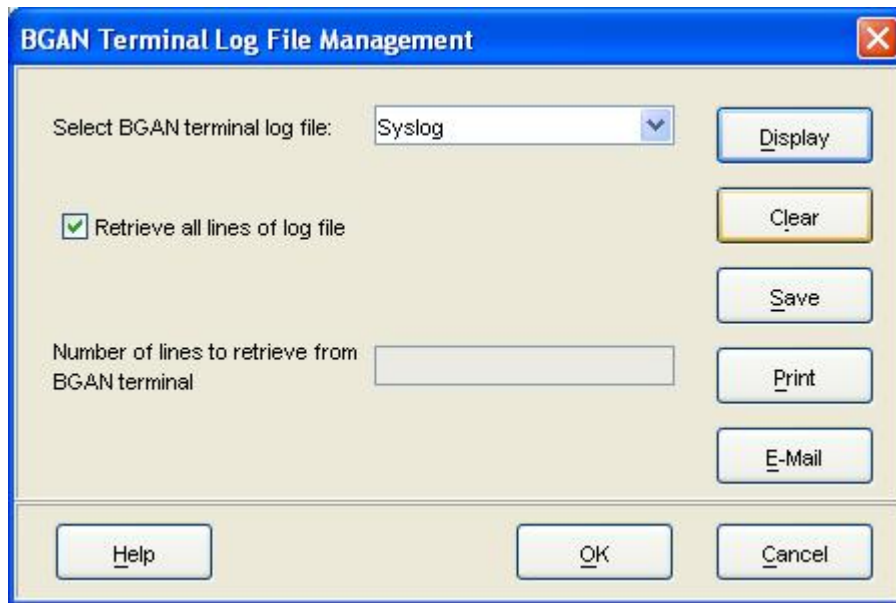


The BGAN Terminal Logging dialog box is slightly different to the network or event log box, and gives a choice to:

- display all the lines in the log file, check the **Retrieve all lines of log file** check box.

Or,

- display selected lines in the log file, uncheck **Retrieve all lines of log file** check box, and enter the number of lines you want to retrieve in the **Number of lines to retrieve from BGAN terminal** text box.

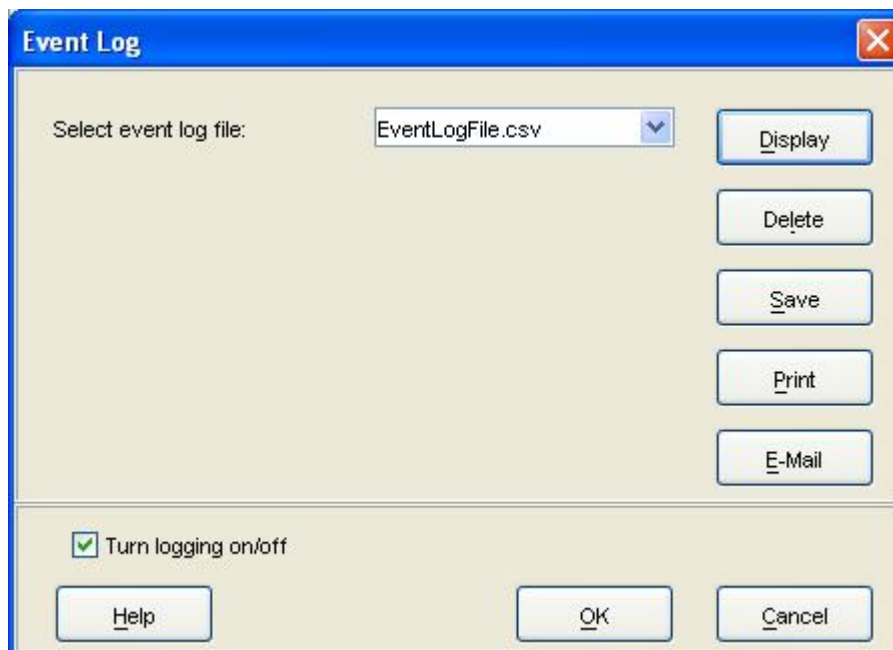


2. Click on **Display** to see the contents of the file you selected.
3. Click the **Turn logging on/off** box to turn logging on or off.
4. Click **OK** to save the change.

EMAILING LOG FILES

You can email the event, network or BGAN log files from BGAN LaunchPad main menu.

1. Select **File > Event** or **Network** or **BGAN Terminal Log File**. A dialog box displays, as shown below:

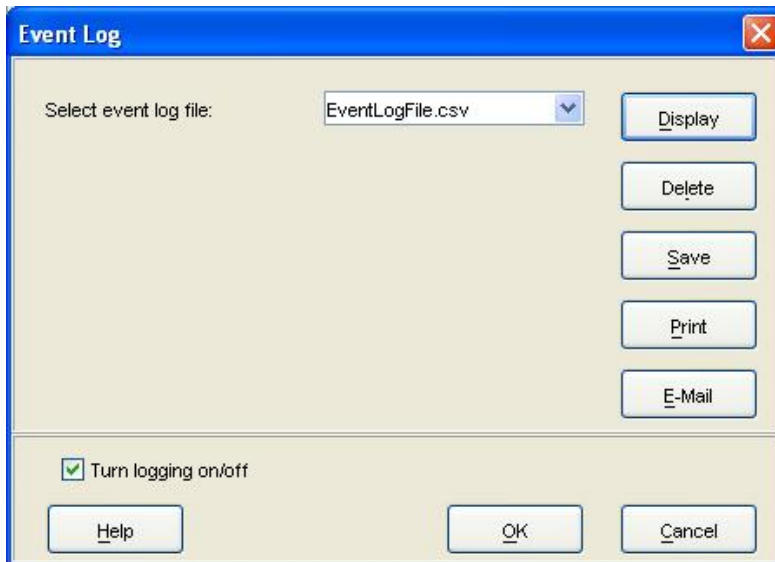


2. Select the file to email from the drop down list.
3. Click on **E-Mail** to open a new message in your Email application, addressed to your support contact and with the log file attached. You can type in a message, if required.
4. Select the file to email from the drop down list.
5. Click on **E-Mail** to open a new message in your Email application, addressed to your support contact and with the log file attached. You can type in a message, if required.

PRINTING LOG FILES

You can print an event, network or BGAN log file from BGAN LaunchPad main menu.

1. Select **File > Event** or **Network** or **BGAN Terminal Log File**. A dialog box displays, as shown below:

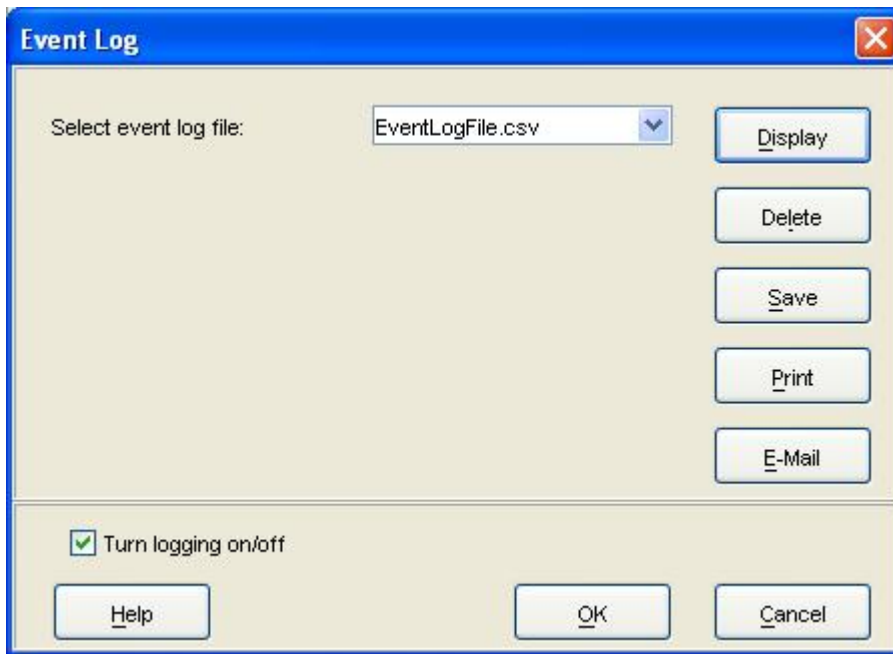


2. Select a log file from the drop-down list.
3. Click on **Print** to open your operating system's print dialog box, and print the log file.

SAVING LOG FILES TO DISK

You can save an event, a network, or BGAN log file to a file on your computer from BGAN LaunchPad main menu.

1. Select **File > Event** or **Network** or **BGAN Terminal Log File**. A dialog box displays, as shown below:



2. Select a log file from the **Select event log file** drop-down list.
3. Click on **Save**. The directory folder for your operating system opens.
4. Navigate through to the required directory, and save the log file under the selected name.

TURNING LOGGING ON AND OFF

1. Select **File > Event** or **Network** or **BGAN Terminal Log File**. A dialog box displays.
2. Click the **Turn logging on/off** box to turn logging on or off.
3. Click **OK** to save the change.

▶▶ SATELLITE TERMINAL BOOT BEHAVIOR

When the terminal is powered up, it goes through a two-phase boot process. The first phase loads a Minimum Boot ROM (MBR) module, which provides basic functionality, including self-test and basic network connectivity.

When the self-test has completed with no failures detected, the MBR then proceeds to the second phase, and loads the application module. This provides full terminal functionality.

If the applications module is not installed or is bad, a new application has to be installed. A bad application could cause the terminal to stall in the second phase, or constantly reset. To prevent this, the boot process can be stopped at the MBR phase, so that a new application can be installed. This is achieved by holding down the audio button at the same time as the power button is pressed.

If the audio button is accidentally pressed during power up, causing the boot process to stop at the MBR phase, then simply power cycle the terminal. It will power-up through both phases of the boot process.

If the terminal MBR module detects a failure during the self-test, it will stop the boot process and indicate the source of the failure through the 6 LEDs used for pointing, as follow:

| | Pointing LED Color and Status |
|-----------|-------------------------------|
| G | Solid green LED |
| R | Solid red LED |
| B | Blank or off LED |
| BG | Blinking green LED |
| BR | Blinking red LED |

| 1 | 2 | 3 | 4 | 5 | 6 | Description of Failure | Action |
|---|----|----|----|----|----|---|--------|
| R | B | B | B | B | B | The main processor has failed to start | Note 1 |
| G | BR | BR | B | B | B | The main processor has detected a fault in its memory | Note 1 |
| G | BR | BG | BR | B | B | The terminal SW is not properly installed | Note 2 |
| G | BR | BG | BG | BR | B | The terminal SW is not properly installed | Note 2 |
| G | G | BR | BR | B | B | The main processor has detected a fault in the Ethernet interface | Note 1 |
| G | G | BR | BG | BR | B | The main processor has detected a fault in the USB interface | Note 1 |
| G | G | BR | BG | BG | BR | The main processor has detected a fault on the | Note 1 |

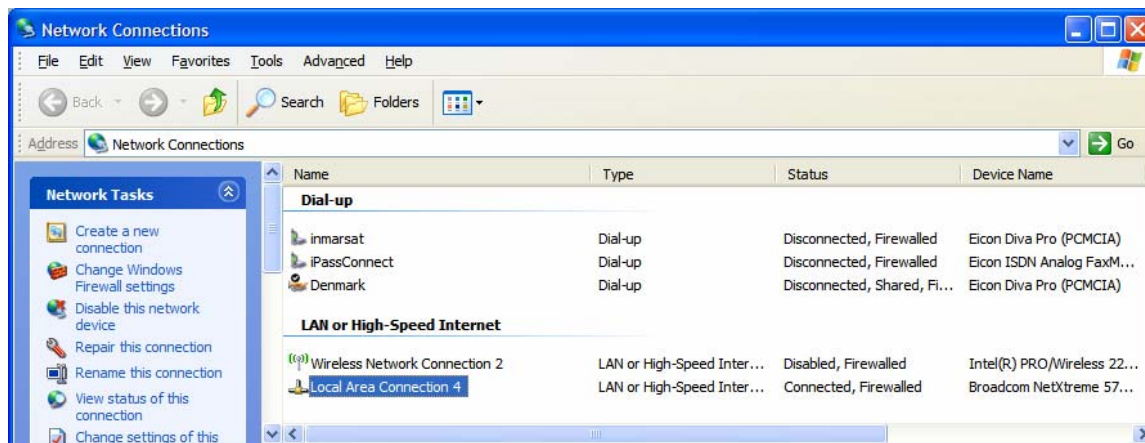
| 1 | 2 | 3 | 4 | 5 | 6 | Description of Failure | Action |
|---|---|---|----|----|----|--|--------|
| | | | | | | WLAN interface | |
| G | G | G | BR | B | B | The main processor has detected a fault in the ASIC | Note 1 |
| G | G | G | BR | BG | BR | The main processor has detected a fault in the transmitter | Note 1 |
| G | G | G | BR | BR | BG | The secondary processor has detected a fault in its memory | Note 1 |
| G | G | G | BG | BR | BR | The secondary processor has failed to start | Note 1 |

Note 1: Remove all data cables and power cables from the terminal (remember to remove the battery). Wait 30 seconds, then reconnect power and re-start the terminal. If this does not clear the failure, follow the troubleshooting procedures below.

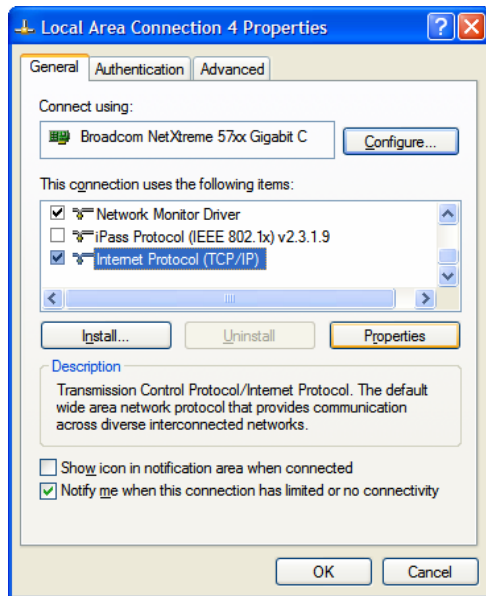
Note2: Re-load the terminal's SW using the BGAN LaunchPad.

TROUBLE SHOOTING BOOT MODE PROBLEMS

If a SW upgrade fails, the UT will come up in boot mode and the LEDs will be lit up as indicated in the above chart. A known problem in this mode is that the DHCP server does not work. If the communication to the UT can not be established, then you have to manually configure the IP address of the connected PC by going to your Network Connection icon and right click and select "Properties". The following screen shot shows your Network Connections. You need to select the connection that is tied to your Ethernet card (e.g. Local Area Connection 4). Right click on the LAN connection (maybe named differently) and select "Properties".



The following screen appears. Scroll down until you find the Internet Protocol (TCP/IP) and then click on "Properties".



The following screen appears:

Click on the radio button that says "Use the following IP address"

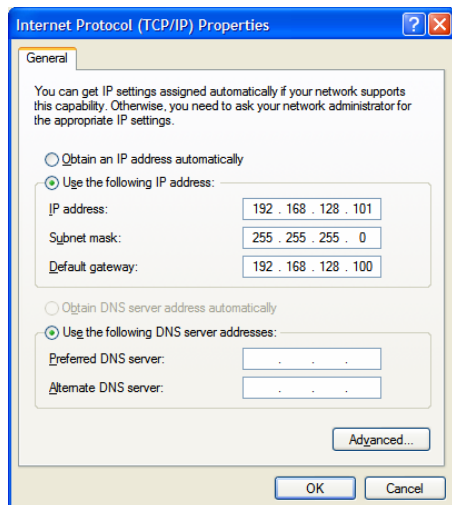
The static IP address information below should be entered:

IP Address: 192.168.128.101

Subnet Mask: 255.255.255.0

Default GW: 192.168.128.100

Click on OK to confirm the entries..



To verify the connection to the terminal, open a DOS command window and at the DOS prompt try pinging the UT by typing "ping 192.168.128.100". If you get 4 replies back, you know you have connectivity to the UT.

Once you have connectivity to the UT, then you can use the Hughes Upgrader to load the latest software into the UT. You can download the latest Upgrader and software from the Hughes website by using the following link:

<http://bgan.hughes.com>

Instructions to use the BGAN software upgrader for the Hughes 9201

1. Run the ZIP file, which will unpack the BGAN upgrader into the c:\BGAN_Upgrader_a.b.c.d folder on your computer. Note that a.b.c.d is the version of software that the upgrader will load onto your Hughes 9201 satellite terminal.
2. Connect the Ethernet port of the BGAN modem to be upgraded to the LAN port of the PC using a standard Ethernet cable. Insert a SIM card into the BGAN modem.
3. Connect an AC/DC converter (supplied in the BGAN install kit) to the BGAN modem, if it does not power on automatically, press the power button to turn it on.
4. Run BGANUpgrader.exe file in the above folder
5. On the BGAN Upgrader Window, click the "Upgrade" button
6. During the Upgrade process, it is imperative that the power supply and Ethernet connections to the BGAN modem are not removed or interrupted.
7. The status and progress of the Upgrade is shown in the BGAN Upgrader window.
8. If a SIM card is not present, an error window will pop-up asking to check that a SIM card is present. You will then need to go back to step 2.

If a SIM card is present, the Upgrader will show a pop-up window with the DNS server addresses. You can change one or both of these addresses and click on "modify" to save the change, or click on "keep current" if you do not want to change the addresses.

9. The upgrade process will proceed. After about 2 minutes, a window will pop-up stating: "Upgrade Complete". Click OK and wait until the new Software version is indicated.
10. Click OK
11. After about 30 seconds, the following message will appear in the window: "Software version was retrieved!"
12. The terminal has been successfully upgraded, and the power and Ethernet connections can be removed.
13. If you want to upgrade another terminal, there is no need to close the BGAN Upgrader window. Just repeat steps 2 through 12, but omit step 4.

The following functions are also available from the pull-down menu items in the Upgrader program:

File->

- Upgrade: upgrade modem software (same function as 5 above)
- Restore: restores the terminal software back to the version prior to the upgrade
- PICupgrade: upgrades only the PIC software, not the main modem software. The PIC software is normally not part of the software release, so it is normally not upgraded at the same time as the modem software. If the upgrader includes PIC software, then it will be automatically upgraded.
- Disable Auto PIC upgrade: disables the upgrader from automatically upgrading the PIC software if it is included with the upgrader.

Tools->

- Get SW version: reads the software version loaded on your modem, and the version that is available to be upgraded
- Set DNS addresses: read and change the DNS server addresses (same function as 8 above).
- Reset Modem: turns the modem off and back on.

Help->

- About upgrades: shows the version number of the upgrader.

Note: You can also use the Diagnostic Report function under the LaunchPad Help pull down window to validate that the download was successful.

TROUBLE SHOOTING

| Problem | Possible Cause | Possible Solution |
|--|---|--|
| Terminal will not turn on | Power button not pressed for long enough Discharged battery Battery not fitted | Press the button for 2 seconds Connect the AC mains or DC power adapter Connect the AC mains or DC power adapter |
| Battery does not charge | Battery is defective (battery LED is flashing red) Battery temperature is outside charging range | Replace battery Battery will only be charged at temperatures between 0°C and 45°C. |
| Cannot insert battery into terminal | Battery incorrectly oriented | Ensure the battery is oriented as shown in First Time Setup |
| Cannot insert USIM card holder into terminal | USIM is not correctly seated in the card holder Card holder incorrectly oriented | Ensure the USIM is pressed firmly into the card holder Ensure the card holder is oriented as shown in First Time Setup |
| Cannot lock the terminal's stand at the desired protractor angle | Lock knobs are not tight enough | Ensure lock knobs are turned in the direction shown on the knobs. Both knobs will gradually tighten if you push the unit to a lower angle. This can help with locking the unit when the desired protractor angle is close to 90 degrees. |
| Terminal's lock knobs cannot be loosened | Closing the stand has tightened both lock knobs | Open the terminal's stand, this will automatically loosen the lock knobs. |
| The Terminal tips forward. | The stabilizer has not been deployed | See Terminal Stand Positioning |
| In a fixed installation, the terminal will not turn on and reconnect to the BGAN system after a power outage | Terminal's automatic modes are not set correctly | Set the automatic modes, see Automatic Mode |

| Problem | Possible Cause | Possible Solution |
|---|---|--|
| The BGAN LaunchPad will not connect to the terminal | No interface connection between the terminal and computer Terminal is in Boot Mode | Ensure there is a WLAN, Ethernet or USB connection between the terminal and computer, see Connecting the Terminal to the Computer Follow the instructions in Troubleshooting Bootmode Problems to recover the terminal from Boot Mode. |
| The BGAN LaunchPad will not connect to the terminal over the WLAN interface | WLAN WEP is enabled on terminal and the computer's WLAN is not programmed with the WEP key. WLAN signal is not strong enough | Disable WEP, or use the same WEP keys for both the terminal and computer. For details, go to Connecting Terminal to PC and other devices via WLAN interface Locate the terminal and computer to reduce any obstructions between them, and locate them closer together. |
| Terminal will not accept incoming ISDN calls | The MSN programmed into the ISDN device does not match the MSN programmed into the terminal | Ensure the appropriate MSN is programmed into the ISDN device, see Voice Telephony Services and ISDN Data Ensure the appropriate MSN is programmed into the terminal, see ISDN Equipment |
| Terminal will not make outgoing ISDN calls | The ISDN interface is turned off (Note the interface turns off automatically when the terminal is operating from battery power, if no ISDN device is detected within 5 minutes from power on) Terminal is still in antenna pointing mode | Enable the ISDN interface from the BGAN LaunchPad, see ISDN Equipment Alternatively, turn the terminal off, then turn it on and immediately connect the ISDN device Exit antenna pointing |

| Problem | Possible Cause | Possible Solution |
|---|--|--|
| Terminal is connected to the BGAN network, but cannot obtain the requested Quality of Service | The terminal is not optimally pointed at the satellite | <p>Re-point the terminal, see Pointing the Terminal.</p> <p>Ensure the following minimum LEDs are lit for the requested Quality of Service:</p> <p>Streaming 256: all LEDs green</p> <p>Streaming 128: 3 green + 1 red LED</p> <p>Streaming 64: 2 green + 1 red LED</p> <p>Streaming 32: 1 green + 1 red LED</p> <p>background or standard: 1 red LED</p> <p>ISDN data (64Kbps): 2 green + 1 red LED</p> <p>CS voice (4): 1 red LED</p> |
| Terminal does not obtain a GPS fix | <p>Terminal's location limits visibility of 4 or more GPS satellites.</p> <p>See Field Service Bulletin FSB0306-01.pdf for instructions on tightening chassis screws around GPS antenna area.</p> | Move the terminal to a location where there are few obstructions such as trees or tall buildings, so that as much as possible of the sky is visible; see Obtaining a GPS fix |
| You hear a continuous beep from the terminal when you connect an ISDN device to the ISDN port | <p>The ISDN device is trying to draw too much power from the satellite terminal's ISDN interface</p> <p>The device you are connecting is not an ISDN device. It might be an Ethernet device that you are accidentally connecting to the ISDN port.</p> | <p>Only connect an ISDN device that draws less than 70mA of current at 40V (equivalent power 2.8W)</p> <p>Make sure you connect only ISDN devices to the ISDN port</p> |
| None of the above solutions resolve the problem | Terminal may have a hardware or software fault, and needs to be re-booted. | <p>Remove both the AC mains or DC power adapter, and battery. Wait 30 seconds. Reconnect the AC mains or DC power adapter or the battery, and turn on the terminal.</p> <p>As the terminal powers up, check the status of the LEDs, see Satellite Terminal Boot Behavior</p> |

▶▶ GPS

The Global Positioning System (GPS) uses 24 orbital satellites to determine the position of the Terminal anywhere on the globe.

OBTAINING A GPS FIX

In normal operation, a GPS receiver, such as that built in to the Terminal, needs to be able to receive signals from at least four satellites so that it can then calculate a latitude, a longitude and an altitude – this position fix is referred to as a 3-dimensional or 3-D fix. If only three GPS satellites can be seen by the GPS receiver, then the last available altitude measurement is assumed and the GPS receiver calculates a position fix based on latitude and longitude only. This simpler position fix is referred to as a 2-dimensional or 2-D fix and is quicker and easier to obtain than a 3-D fix, but may be less accurate.

The GPS receiver may take between a few seconds and 20 minutes to obtain a GPS fix, depending on how frequently the GPS receiver is being used. The frequency of use determines the how quickly the GPS Terminal is able to start.

- **Hot start** – if the GPS receiver is being used frequently, (that is, in the last two hours), it is regularly updated with data from the GPS satellites, and so only takes a few seconds to obtain a GPS fix after being switched on.
- **Warm start** – if a GPS receiver has not been used for more than two hours, then it will take up to 45 seconds to obtain a GPS fix.
- **Cold start** – if the GPS receiver has not been used for some time or is 300 km or more from where it was last used, it can take as long as 15 minutes to obtain a valid position fix.

The time taken to obtain a valid GPS fix can also be affected by the visibility that the GPS receiver has of the GPS satellites. The GPS system is relatively tolerant of atmospheric conditions such as heavy cloud or rainfall. However, physical blockages, such as tall buildings or terrain can significantly degrade the ability of the GPS receiver to obtain a fix. For this reason, ensure that the GPS receiver has a clear view of as much open sky as possible.

GPS AND BGAN REGISTRATION

BGAN uses the accurate position and timing information obtained from GPS to help ensure efficient registration of a BGAN Terminal with the BGAN network.

Following successful registration and providing the Terminal is left switched on and remains stationary, the GPS is no longer needed. Periodically, the BGAN Terminal contacts the BGAN network to inform the network that it is still switched on. In addition, the BGAN network periodically checks each Terminal for activity, and if the Terminal has not automatically contacted the BGAN network as described above, then the Terminal will be de-registered from the network.

ISDN

The Satellite Terminal provides an ISDN (Integrated Services Digital Network) interface to connect devices for Circuit Switched voice and data services. It is a Basic Rate (also known as 2B+D) interface and uses the Euro ISDN protocol. Note that the Satellite Terminal can only provide service for one 64Kbps B-channel at a time.

DIALING AND NUMBERING

DIALING

As the ISDN numbering system follows the same pattern as the normal telephone system, dialing is carried out in exactly the same manner as making a normal telephone call. The subscriber number is used with the same international and area codes as any other telephone network.

MULTI-SUBSCRIBER NUMBERING (MSN)

ISDN supports Multi-Subscriber Numbering (MSN). MSN is a facility whereby more than one telephone number can be allocated to an ISDN line. The BGAN Satellite Terminal assigns different MSNs for Voice, 3.1KHz Audio, UDI and RDI devices. Each incoming call will be directed to the appropriate MSN depending on the type of call. This allows to route incoming calls to the correct ISDN device (e.g. ISDN phone, data card or Fax).

PDP CONTEXT

A Packet Data Protocol (PDP) Context defines connection aspects such as routing, Quality of Service (QoS), security and billing between a mobile user terminal, such as the BGAN Terminal, and a data network. PDP Contexts are essential to the General Packet Radio Service (GPRS) system, which is used by GSM and UMTS-based 3G networks worldwide for transmitting data.

In order for a user to be able to transfer data across a network, a PDP Context must be activated in the Terminal and associated Core Network. The procedure for this is as follows:

1. After registration with the network, the user activates a PDP Context using an application on the computer or Terminal, and requests sufficient radio resources (that is, power and bandwidth) to support the context activation procedure.
2. Once the resources are allocated, the Terminal sends the Activate PDP Context request to the Core Network. This request includes key information about the mobile user's PDP address (for example an IP address), PDP type (that is, static or dynamic address) the QoS requested for this context, the APN of the external network to which connectivity is requested, the user's identity (IMSI) and any necessary IP configuration parameters (for example, security settings).
3. On receiving the Activate PDP Context message, the Core Network checks the user's subscription record to establish whether the request is valid. If the request is valid, a virtual connection is established between the Terminal and the Core Network, and data transfer can then take place between the Terminal and the external data network, within the scope of the current PDP Context. The PDP Context is stored in both the Terminal and the Core Network.

A single Terminal may have multiple PDP Contexts each with different QoS profiles. The primary PDP Context is a PDP Context with default QoS profile attributes and is always activated first. All other PDP Contexts with the same PDP Address are secondary PDP Contexts. Secondary PDP Contexts share the same PDP Address and connect to the same APN but may have different QoS profiles.

WLAN

Wireless Local Area Networking (WLAN) enables two or more computers equipped with wireless adapter cards to share resources.

A wireless network comprises of two or more computers each equipped with wireless adapter cards forming a network. When the computers are within range of each other each computer has access only to the resources of the other computer but not to any central server or other resource. This type of basic configuration is known as an ad hoc network.

A more common and efficient use of a wireless network is one in which two or more computers equipped with wireless adapter cards are linked to a WLAN Access Point. The Access Point allows each computer to have access to shared resources, such as a broadband Internet connection, as well as to other computers on the network. Such a configuration is known as Infrastructure Mode. This is the default configuration for WLAN in the UT.

PERFORMANCE

The performance of a WLAN network will be influenced by several factors including the number of users on the network, the location of the antenna, the distance from the antenna and the degree of blocking from buildings and other infrastructure. Typical operating ranges are 200-300 meters outdoors and 30-60 meters indoors, the performance degrades gradually as the signal strength decreases.

SSID

A wireless network is identified by a Service Set Identifier or SSID. An SSID is also referred to as a Network Name because it is a name that identifies a wireless network. Wireless devices that wish to communicate with each other must be configured with the same SSID. Several Access Points can be set up using the same SSID so that users can roam from one Access Point to the other without losing network access. The SSID is broadcast so that any wireless device in range can read the SSID and ask permission to associate with it. The SSID is not intended as a security measure – it is used only to identify different networks.

TECHNICAL SPECIFICATIONS

| | |
|--|--|
| Weight | 2.8 Kg (terminal with battery) |
| Dimensions | 27.5 cm x 34.5 cm x 5.0 cm |
| Battery Life (actual performance based on range of factors and actual usage) | Transmit: 162 Mbits Receive: 864 Mbits 36 hours standby time (standard battery) |
| Humidity | 95% RH at +40°C |
| Temperature | -25°C to +60°C operating -25°C to +80°C storage |
| Water & Dust | IP-55 standard |
| Transmitter power | 20dBW EIRP maximum |
| Antenna characteristics | Nominal gain 15dBi, nominal 3dB beamwidth ± 20 degrees. |

The Satellite Terminal carries a warranty for 12 months from the date of sale. Contact your Service Provider if you have questions about the warranty, or need to return the terminal for repair.

DECLARATION OF CONFORMITY

Hughes Network Systems, LLC, of 9605 Scranton Road, San Diego, CA, 92121, USA, declares under our sole responsibility that the product Hughes 9201 Satellite IP Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents:

ETSI EN 301 444 , ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17, ETSI EN 301 489-20, IEC 60950-1, Council Recommendation 1999/519/EC.

We hereby declare that all essential radio test suites have been carried out and that the above named product is in conformity to all the essential requirements of R&TTE Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10 and detailed in Annex [III] or [IV] of Directive 1999/5/EC has been followed with the involvement of the following Notified Body(ies):

BABT, Balfour House, Churchfield Road, Walton-on-Thames, KT12 2TD, UK.

Identification mark: **0168** (Notified Body number).

The technical documentation relevant to the above equipment will be held at:

Hughes Network Systems, LLC, 9605 Scranton Road, San Diego, CA, 92121, USA

Signed by Peter Sroka (Senior Technical Director, August 12, 2005) and Bill Lindsay (Senior Program Manager, August 12, 2005).

▶▶ EU WEEE (WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT) DIRECTIVES

The European Union (EU) directive on waste electrical and electronic equipment mandates recycling of electrical and electronic equipment throughout the EU by August 13, 2005.

Unless otherwise noted, all products, assemblies, and sub-assemblies manufactured by Hughes and its sub-contractors will be compliant with this directive and any subsequent revisions or amendments. This product carries the WEEE label below to demonstrate compliance.

For addition information, contact Hughes Network Systems at: www.hughes.com.



APN: An Access Point Name (APN) provides access to an external network. By default, the SIM Card in your terminal is configured with the APN of your Service Provider. You may want to configure further APNs if you have arranged with your Service Provider to use more than one SIM Card.

BGAN Satellite Terminal: Referenced throughout this document as the Satellite Terminal or "The Terminal," this device implements and manages BGAN satellite communications between your computer and Service Provider's network.

Quality of Service: Quality of Service (QoS) assigns a level of priority to certain types of data traffic, in particular high bandwidth applications such as video and multimedia. QoS attempts to maintain a guaranteed throughput level, and minimize error rates and end to end latency, so providing a higher level of service than "best effort" protocols.

DNS Server: The Domain Name System (DNS) is an Internet service that is required because the Internet does not recognize the text-based Web address or email address that you type into your Web browser or email application. All or part of a Web address or an email address is a domain name, and DNS translates this domain name into an IP address that is recognized by the Internet.

A DNS Server holds a database of domain names and IP addresses, so that when you enter a Web address or email address, you are directed to the correct IP address over the Internet.

Dynamic DNS Server: If you are using dynamic IP addressing, Inmarsat recommends that you use a dynamic DNS server. A dynamic DNS server updates the IP address information in the DNS database each time your IP address changes. A dynamic DNS server also enables a computer using a dynamic IP address to use network applications that normally require a static IP address, for example FTP servers. This service requires subscription with a Dynamic DNS provider.

Static DNS Server: If you are using static IP addressing, Inmarsat recommends that you use a static DNS server. If you select this option, you must enter the IP address of the Primary DNS Server. This is supplied by your Internet Service Provider. Optionally, you can enter the IP address of a Secondary DNS Server, also supplied by your ISP. This is used in the event of failure of the Primary DNS Server.

Error correction: Error correction ensures that very little data is lost during transfer by asking for dropped packets to be resent. However, because it holds subsequent data whilst the packet is being resent, you may notice some jitter or delay in the received data. This is normal for most data types.

For real-time applications, such as Voice over IP (VoIP) or video, it is recommended that you remove error correction. Removing error correction minimizes delay and jitter..

Ethernet: Ethernet is a local area networking method used widely throughout the computer industry. It is one of the three communications interfaces supported by the Satellite Terminal.

Fault Code: A number which uniquely references an error in a hardware or software system. In the Satellite Terminal, if there is a fault detected, the fault code and a description are displayed in suitable LaunchPad windows.

GPS: Global Positioning System. The GPS receiver in the Satellite Terminal receives signals from the constellation of GPS satellites. It uses these signals to determine the Terminal's location on earth. That location is used during registration to gain access to the BGAN system.

Header Compression: A header is the component of a data packet that precedes the data that you are sending. The header contains information such as source and destination address, error checking and other administrative details. In most data types this does not noticeably

affect the data transmission rates. However in multimedia applications such as voice and video, the header can significantly affect performance.

Inmarsat recommends that you switch on header compression for multimedia applications, such as video.

IP Address: An Internet Protocol address, or IP address, is a number that identifies the computer that is sending or receiving information transmitted over the Internet. An IP address is made up of four groups of numbers between 0 and 255, separated by periods. For example, 207.115.79.4 is an IP address. In the BGAN system, IP addresses can be dynamic or static.

Dynamic IP Address: A dynamic IP address is a temporary address that is assigned by your Internet Service Provider (ISP) when you connect to the Internet. If you do not need a permanent IP address, Inmarsat recommends that you obtain a dynamic IP address. Normally, individual users of the Internet use a dynamic IP address.

Static IP Address: A static IP address is assigned permanently, and is used every time you connect to the Internet. Normally, companies and other organizations that have their own networks use static IP addresses.

SIM Card: Your Service Provider supplies you with a Subscriber Identification Module (SIM) Card or a Universal Mobile Telecommunications System Subscriber SIM (USIM) Card.

A SIM or USIM Card is a card commonly used in a GSM phone. The card holds a microchip that stores information and encrypts voice and data transmissions, making it extremely difficult to listen in on calls. The USIM Card also stores data that identifies the caller to the Service Provider.

Standard Connection: A standard connection is charged by volume of data sent. The bandwidth you are allocated depends on terminal type and network availability, but is always 'best effort', that is, you are allocated bandwidth depending on your requirements and the requirements of other users of the BGAN network, or BGAN Terminal. This connection class is suitable for most data types, other than multimedia.

Streaming: A streaming connection is charged by time. You are charged for the amount of time the connection is active. Streaming enables multimedia data, such as video, to be sent in a continuous data stream and converted into sound and pictures. The bandwidth required for a streaming connection is difficult to predict, and depends on factors such as length of connection and number of receivers.

Symmetrical Rate: The rate at which streaming data is transmitted, in kilobits per second (Kbps). This rate applies to transmitted (uplink) and received (downlink) data.

Desired Symmetrical Rate: From the drop-down list, choose the desired data rate for your Streaming connection. This can be 32 Kbps, 64 Kbps, 128 Kbps or 256 Kbps. This figure is guaranteed, unless the connection cannot meet this requirement because of bandwidth restrictions. In this case the rate defaults to the minimum symmetrical rate.

Minimum Symmetrical Rate: From the drop-down list, choose the minimum data rate that you are prepared to accept for your Streaming connection. This can be 32 Kbps, 64 Kbps, 128 Kbps or 256 Kbps. This rate must be lower than the Desired Symmetrical Rate. If the connection cannot meet this requirement, an error message displays.

Traffic Flow Template: A Traffic Flow Template, also called an Application Template, is a series of data filters such as QoS (Quality of Service), PDP Context and security settings, that allow the Core Network to classify packets received from an external network into the correct PDP Context. When incoming data arrives at an access point in the core network, a packet classifier will make a PDP Context selection based on the Traffic Flow Template, and map the incoming data packets into the PDP Context with the correct QoS attributes. The use of a Traffic Flow Template allows multiple PDP Contexts to be associated with the same PDP address.

USIM Card: Your Service Provider supplies you with a Subscriber Identification Module (SIM) Card or a Universal Mobile Telecommunications System Subscriber SIM (USIM) Card.

A SIM or USIM Card is a card commonly used in a GSM phone. The card holds a microchip that stores information and encrypts voice and data transmissions, making it extremely difficult to listen in on calls. The USIM Card also stores data that identifies the caller to the Service Provider.

Virtual Private Network: A Virtual Private Network (VPN) enables remote offices or users to gain secure access to their organization's network over the public telecommunications network. This provides the benefits of remote access without the expense of dedicated leased or owned lines. VPNs work by using tunneling protocols, such as L2TP, to encrypt data at the sending end, and decrypt the data at the receiving end. This "tunnel" cannot be accessed by data that is not properly encrypted.