HUGHES
NETWORK SYSTEMS

bgan | **inmarsat**

BGAN SATELLITE TERMINAL
USER GUIDE

SAFETY INFORMATION

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.

CONTENTS

INTRODUCTION

▶▶ 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 you 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.
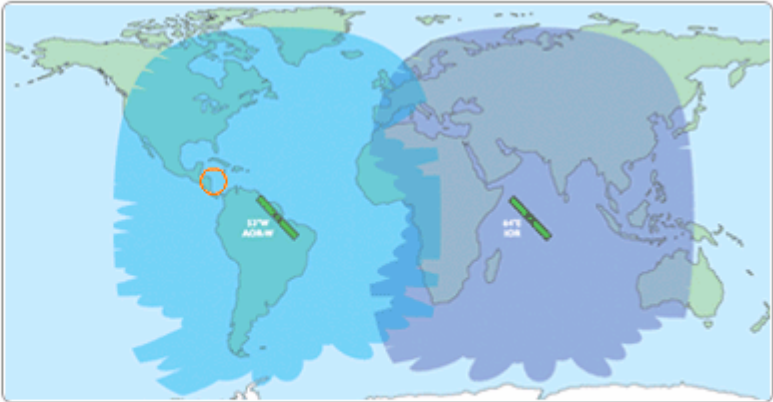
Term	Definition
Terminal	Satellite Terminal
TE	Terminal Equipment (your computer)
UT	User Terminal

▶▶| 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 on the installation CD.

▶▶| COVERAGE AREA

Registration status

You are registered with **Inmarsat**

Registered:	11.50
	06/16/05
Latitude:	4°18'N
Longitude:	74°6'W
NearestCity:	Santafedebog
Local time:	01:22
Paris	07:22
Washington	01:22
Perth	14:22
Mumbai	11:52

Recommended: Antenna angle: 68°   Compass direction: E (93°)

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)

- Fixed installation kit

- DC (vehicular) power adapter

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.

▶▶ 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.

GETTING STARTED

▶▶ 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 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 BGAN LaunchPad.

▶▶ 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 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.

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.

☑ Note	**Do not stand in front of the Antenna** 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.
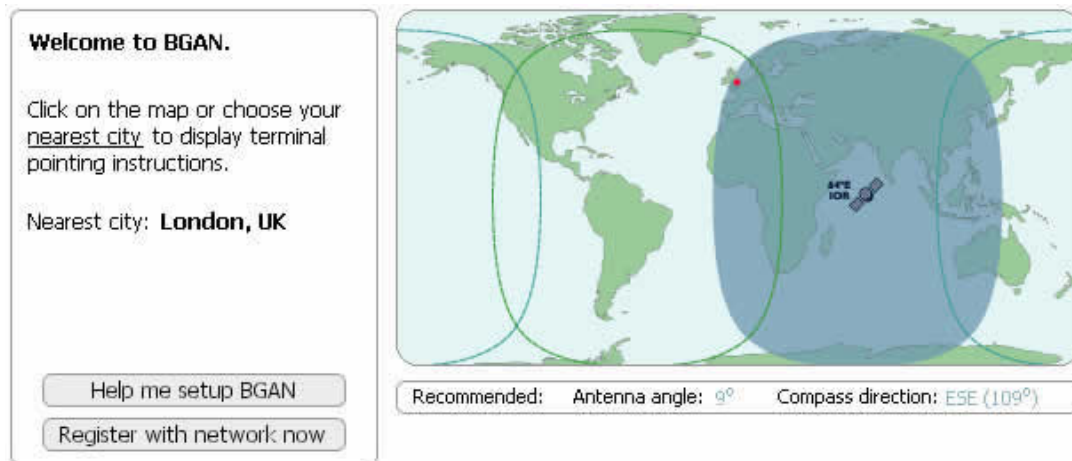
USING THE BGAN LAUNCHPAD POINTING WIZARD

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.

2. Click on **Help me setup BGAN**.

3. Step through the instructions to correctly position the terminal.

4. When you are ready to register with the network, click on **Register with Network now**. Refer to *Registering with the Network*.

5. 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:

1. 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.

2. The following table shows the colors of the pointing LEDs from the weakest to strongest, as you point the terminal to the BGAN satellite
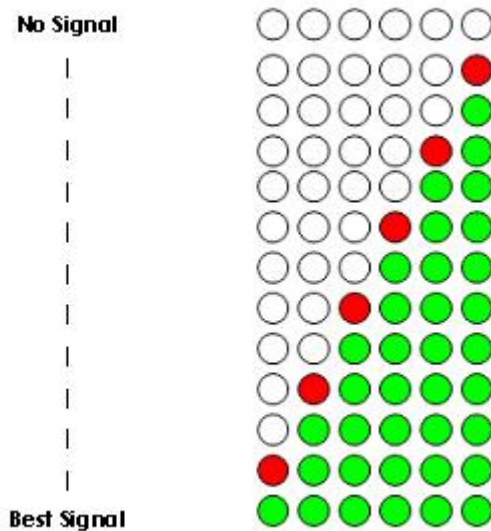
3. When you have finished pointing the terminal, you are ready to register with the network. Go to the next section *Registering with the Network*.

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:

1. Press the audio button to turn the buzzer on.

2. 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. Go to the next section **Registering with the Network**.

4. 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.

☑ **Note**	**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. 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.

▶▶ REGISTERING WITH THE NETWORK

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.

When registered with the network, BGAN LaunchPad will automatically open a standard IP data connection. The status zone will read **Standard IP data connection open**. 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** – monitoring call records.

■ **Usage information** – providing data usage and call duration information.

■ **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.

STATUS BAR

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

▶▶ 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 Installation Accessory Kit. This kit includes all the installation brackets, mounting hardware, tools and instructions to complete the installation, including mounting the terminal so that it 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 Installation Accessory Kit 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.

LAUNCHPAD SOFTWARE INSTALLATION

▶▶ 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

☑ **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.
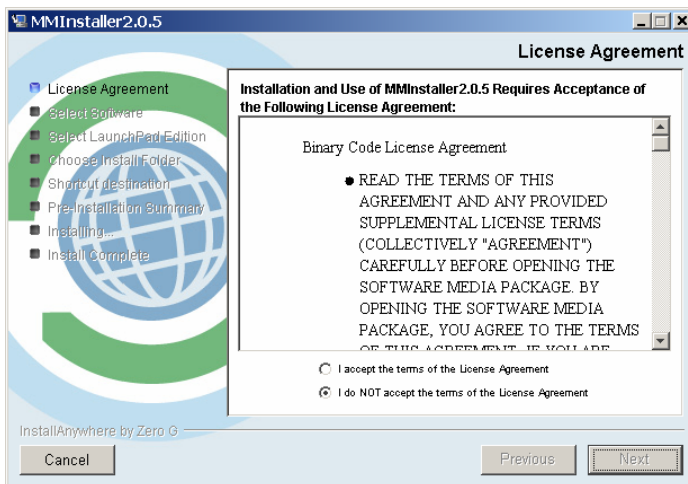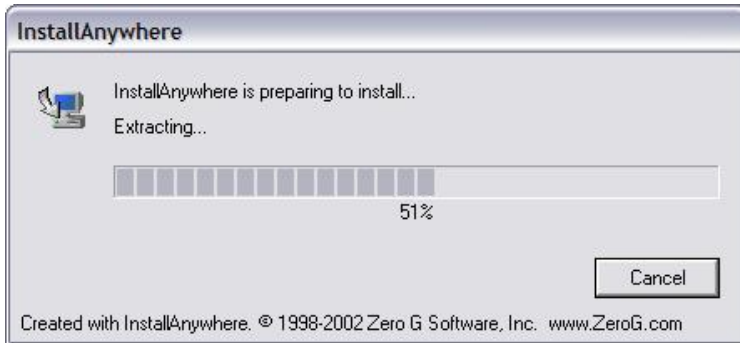
2.   Select the directory into which LaunchPad will be installed.
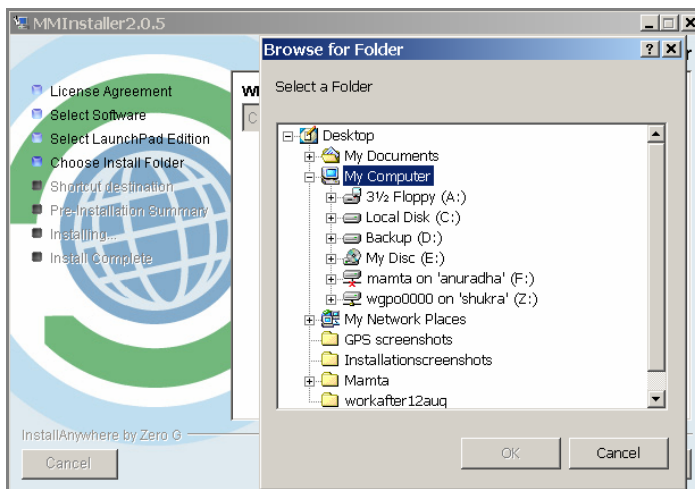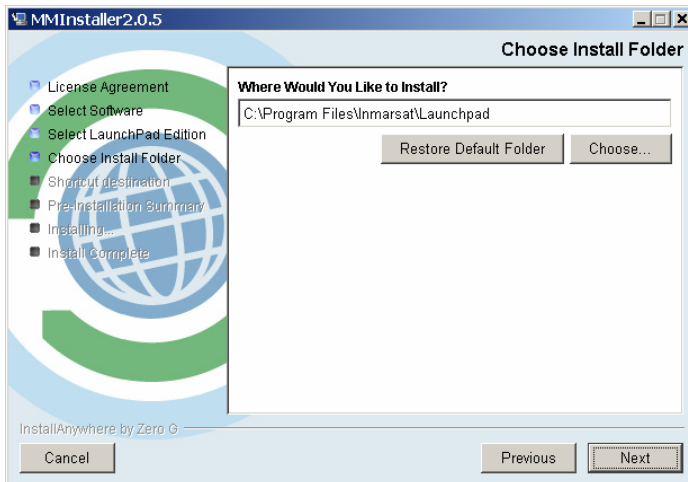
3.   Follow the on-screen instructions. **Note the following recommended choices**:

    ▪ 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.

Other items for selection and installation messages:

- Shortcut Destination Selection
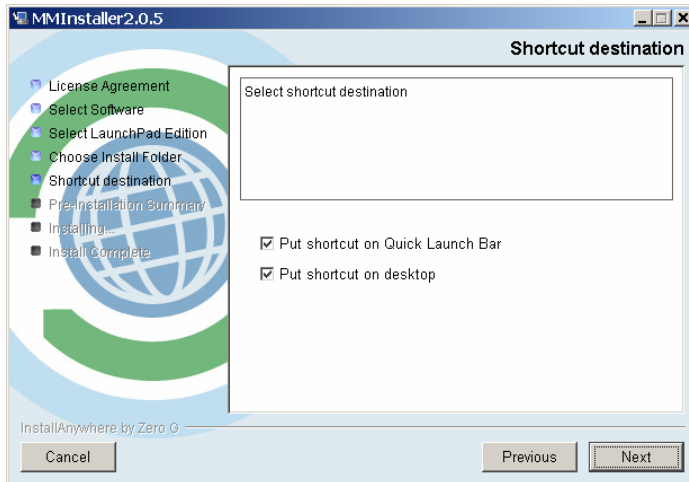
- Pre-Installation Summary
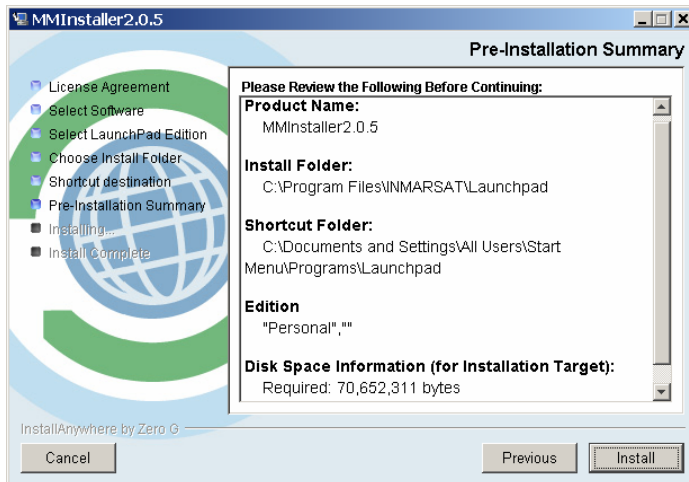
- LaunchPad Installation Message

- Installation Complete
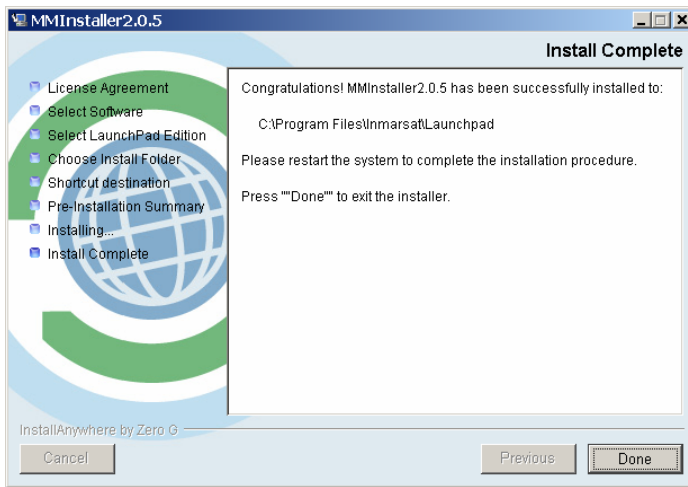
►► SIZE AND WEIGHT

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.

ISDN

ISDN communications are established by connecting your computer ISDN port 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. Note that this limit is imposed by the power limit function in order to protect Ethernet devices in case they are accidentally connected to the ISDN port.

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 ASCI format.

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.

INDICATOR LIGHTS (LEDS)

The LEDs indicate the status of the Satellite Terminal. The figures below illustrate where the LEDs are located on the MT 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.

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, and Antenna Pointing.

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).

- 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) form IDG Europe (60W max, 3.3A at max power)

■ SunCatcher F0001 (2 panels) from Powerline Electronics Accessories (14.5W max)

▶▶ 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 (HNS P/N 3004065-0001) 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 (HNS P/N 3003702-0002) 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 (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.

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 (HNS P/N 3003027-0001)

■   Ethernet/ISDN 10 meter cable (HNS P/N 3003692-0001)

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 INSTALLATION KIT

The following items are found in the fixed installation kit. The user is responsible for mounting the hardware to a suitable surface.

■   Fixed Mount Screws (Theft-Proof) (HNS Part #: 3004066-0001)

■ 30 meter Cord for AC Mains Power Adaptor (HNS Part #: 3003750-0001)

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

■ Ethernet/ISDN 30 meter cable (HNS Part # 3003692-0002)

ISDN COMPATIBLE DEVICES

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

■ ASCOM Eurit 33 plus

■ SwissVoice Eurit 25

■ Nera ISDN handset

■ Siemens Gigaset SX255

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.
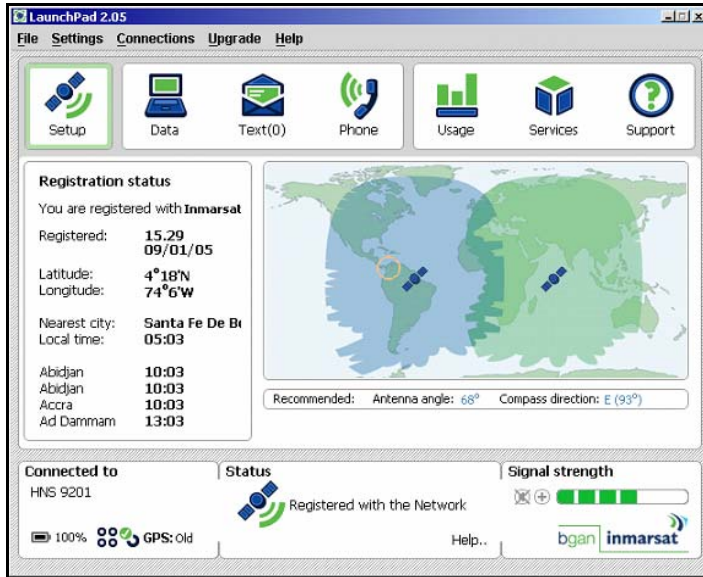
PIN CODE ENTRY

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.
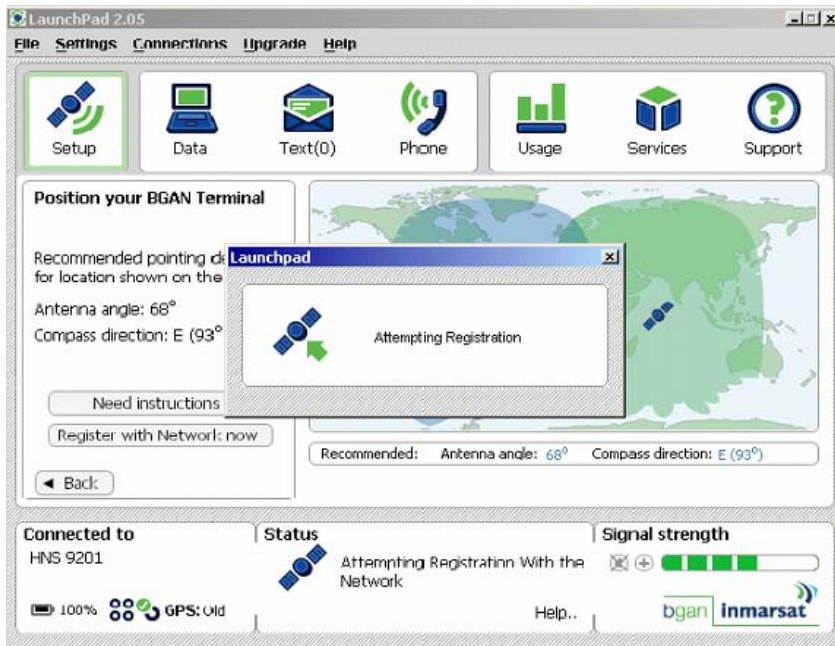
▶▶ MULTIPLE USERS

Up to 11 users attached to the Ethernet, USB and Wireless LAN interfaces can access the BGAN LaunchPad at the same time. Each user establishes a TCP connection to the Satellite Terminal.

In a multi-user scenario, it is advisable to have one user configure the terminal, other users could then use a BGAN LaunchPad profile that prevents them from making any configuration changes.

▶▶ 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

PC

The terminal provides a WLAN interface to any computer which as 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:

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.

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: 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:
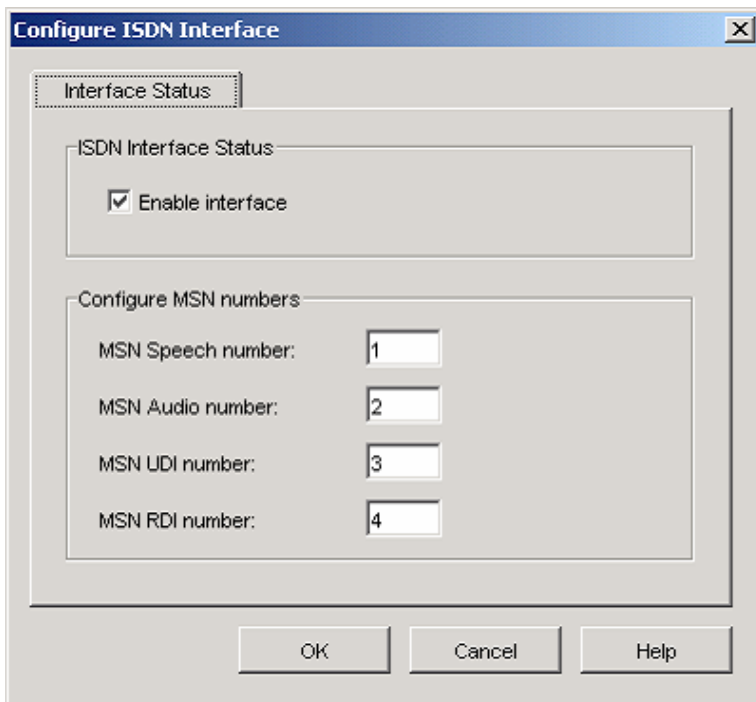
2. Select the **Enable Interface** check box to activate the ISDN interface, or uncheck the check box to deactivate the interface.

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.

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.

BGAN SERVICES

▶▶ 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
##	Erasure

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#`
CLIR	Calling Line Identification Restriction - Interrogation	`*#31#`
COLP	Connected Line Identification Presentation - Interrogation	`*#76#`

Supplementary Service	Description	String
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*#`
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.

▶▶ 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.

DEDICATED STREAMING CONNECTIONS

If required, you can set up one or more dedicated streaming connections for applications such as live video and FTP. A dedicated streaming connection ensures that a selected application does not have to share the connection with any other traffic. The Terminal supports up to ten dedicated connections alongside the primary connection. 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 AudioVideo cameras and video-conferencing systems, ISDN group 4 fax machines.

To accept incoming calls to your ISDN equipment via the BGAN terminal, you first have to program it with the same MSN, as is programmed the 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 between 0 and 9 can be programmed. It is important that for each call type, the MSNs programmed in the terminal and the ISDN equipment match, to ensure the ISDN equipment can accept incoming calls.

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:
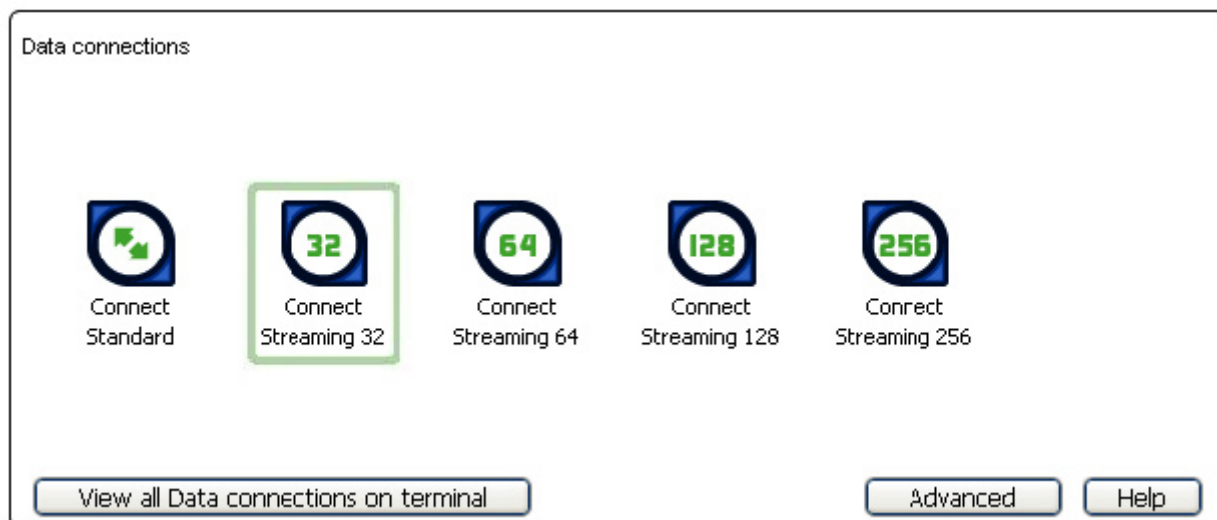
From this window, you can do the following:

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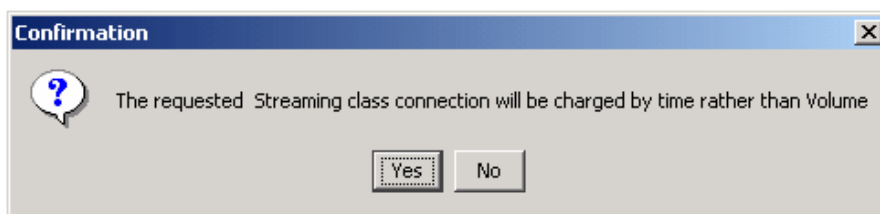
3. Click on **Yes** to open the Premium connection. The message Primary PDP Context has been established successfully displays.

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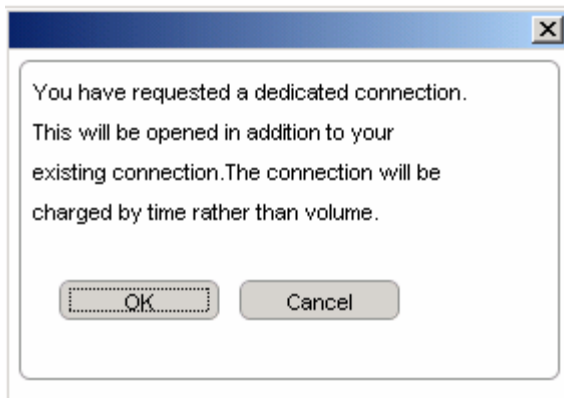
2. Click on **OK** to continue. This opens a dedicated connection alongside your current primary connection. You can open as many dedicated connections as you require, in this way. But the total number of primary and dedicated data connections open on the terminal cannot exceed 11.

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 either click on **Close All** to close all the currently active connections, or click on **Close** alongside the connection or connections you want to shut down.

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

- 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 VPN** or select a VPN connection and click on **Edit**, the VPN Icon Setup window displays.

4. Click on the **General** tab. The VPN Icon Setup - General screen displays, as shown below:
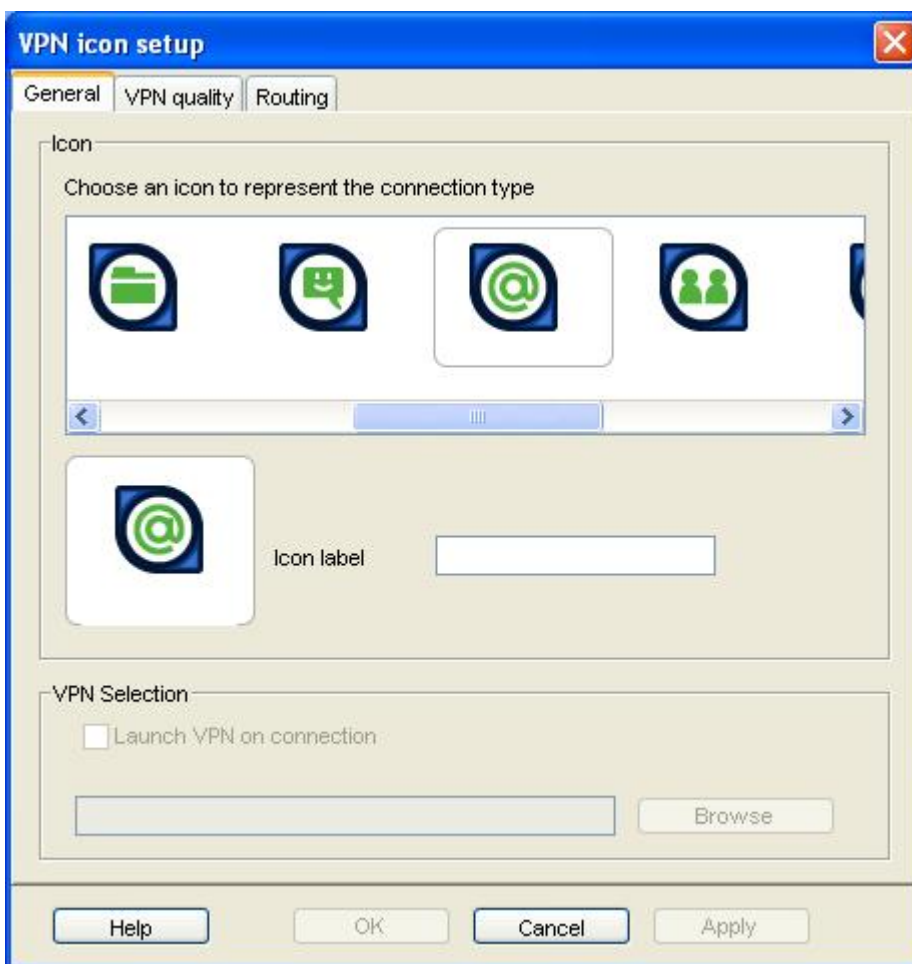
5. Select an icon. The icon displays in the box next to the Icon label text box.

6. 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.

7. Check the **Launch VPN on selection** check box to launch a particular application when you click on this VPN icon in LaunchPad. For example, you may want to launch Internet Explorer when you select this VPN icon.

8. Use the **Browse** button to search for the file name of the application you want to launch with this VPN icon (or if you know the file name, enter it in the Path text box). When you open this VPN connection in LaunchPad, the application automatically opens. You must close the application before you can close this connection.

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 screens, or click on **Cancel** to edit without saving.

10. You can then configure the VPN Connection Quality and Routing Options by clicking the **VPN Quality** or **Routing** tabs in the VPN Icon Setup window. 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.

OPENING A VPN

To open a VPN connection and run a VPN application:

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

11. 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.

12. 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:

13. Close the VPN application on your computer.

14. 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, or click on **Edit Configuration** if you want to edit an existing connection. The **Connection Icon Setup** window displays.

4. Click on the **Icon** tab. The **Connection Icon Setup** screen displays, as shown below:
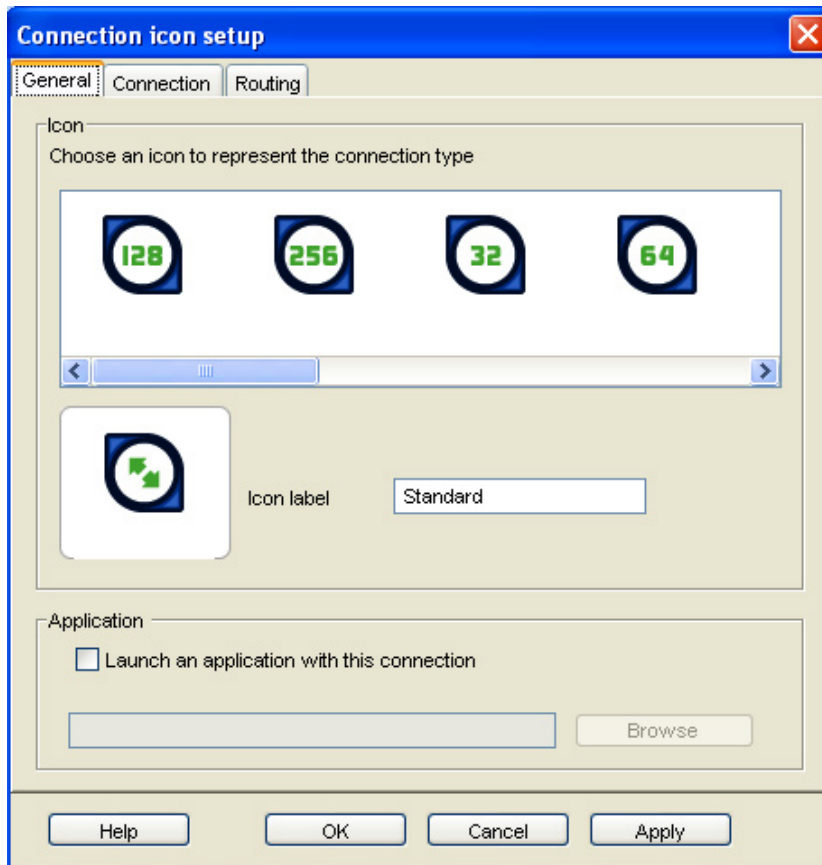
5. Select an icon. The icon displays in the box next to the **Icon label** text box.

6. 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.

7. Check the **Launch an application with this selection** check box to launch a particular application when you click on this icon in LaunchPad. For example, you may want to launch Internet Explorer when you select this icon.

8. 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 LaunchPad, the application automatically opens. You must close the application before you can close this connection.

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 screens, or click on **Cancel** to edit without saving.

CONFIGURING CONNECTION QUALITY

To configure the Connection quality for a data connection:

1. Either:

   ▪ From the **Connection Icon Setup** window, click on the **Connection quality** tab.

   Or:

   ▪ From Launch Pad:

     – Click on the **Data** icon in the launch bar to display the **Data Connections** tab.
     – Click on **Advanced** to display the **Connection Icon Setup** window.
     – Click on **Add New Connection** if you want to create a new connection, or select an icon and click on **Edit Configuration** if you want to edit an existing connection. The **Connection Icon Setup** window displays.
     – Click on the **Connection** tab. The **Connection Icon Setup - Connection** window displays, as shown below:
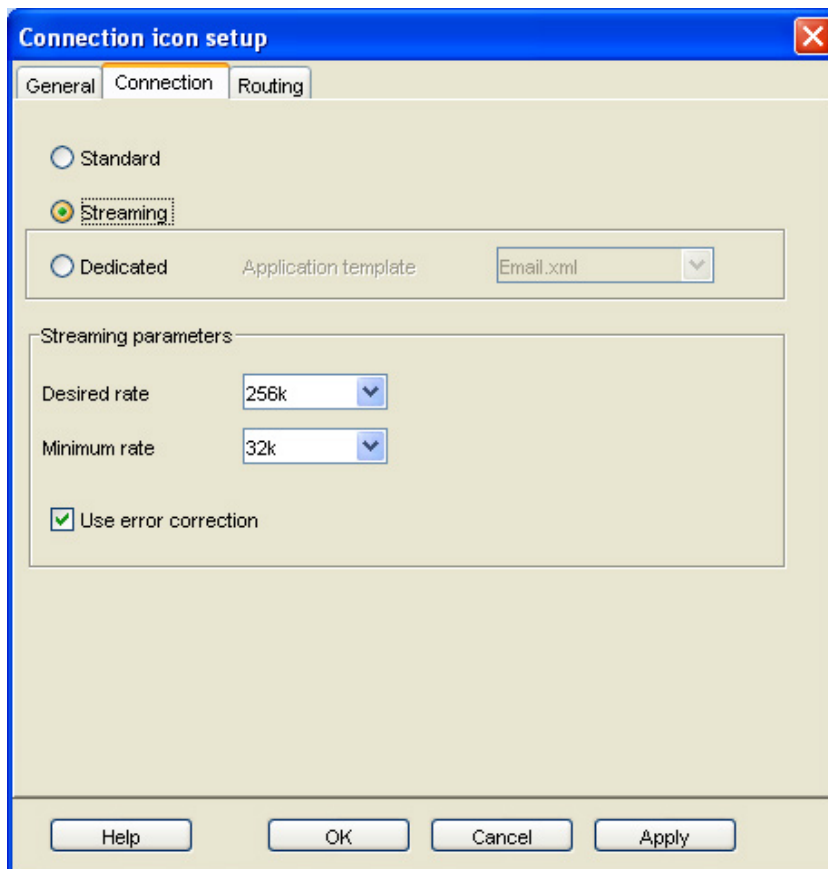
2. Select a Connection class. This can be either **Standard, Streaming** or **Dedicated**.

   ▪ 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.

3. 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.

4. If you choose Dedicated, select an application 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.

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 exit without saving.

SETTING UP ROUTING OPTIONS

To configure the Routing options for a data connection:

1. Either:

   ▪ From the **Connection Icon Setup** window, click on the **Routing** tab.

   Or:

   ▪ From Launch Pad:

      – Click on the **Data** icon in the launch bar to display the **Data Connections** tab.

      – Click on **Advanced** to display the **Connection Configuration** window.

      – Click on **Add New Connection** if you want to create a new connection, or click on **Edit Configuration** if you want to edit an existing connection. The **Connection Icon Setup** window displays.

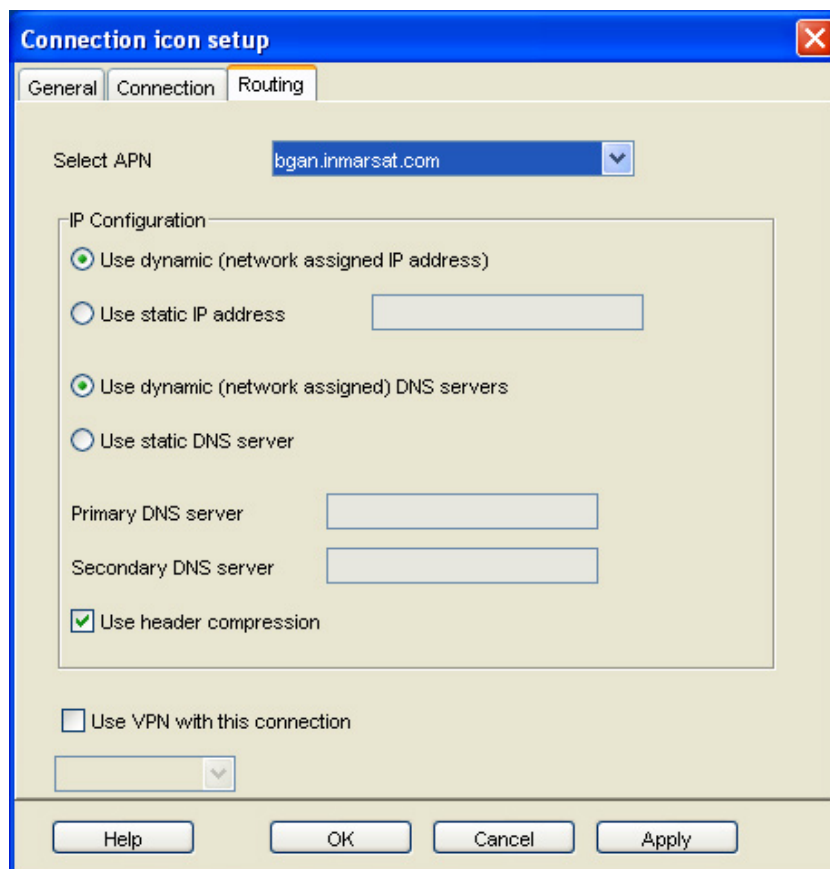   – Click on the **Routing** tab. The **Connection Icon Setup - Routing** window displays, as shown below:

2. 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.

3. 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.

4. 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.

5. If required, check the **Use Header compression** check box to turn on header compression.

6. If required, check the **Use VPN with this connection** check box, and select a VPN from the drop-down list.

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 edit 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.

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).

▶▶ 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 from192.168.128.101, 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. The address must be in the range of 192.168.128.1 through 192.168.128.254, excluding the satellite terminal's own address of 192.168.128.100.

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 address configuration is carried out by the user via the BGAN LaunchPad on the TE, by entering a static address provided by the Network Service Provider.

▶▶ 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.
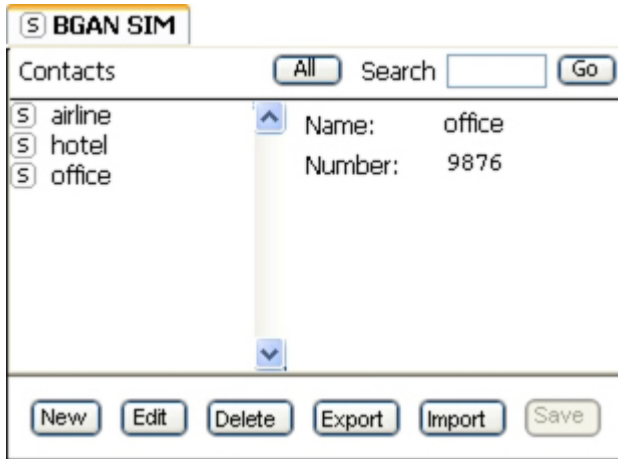
Contacts are stored in the BGAN SIM.

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.
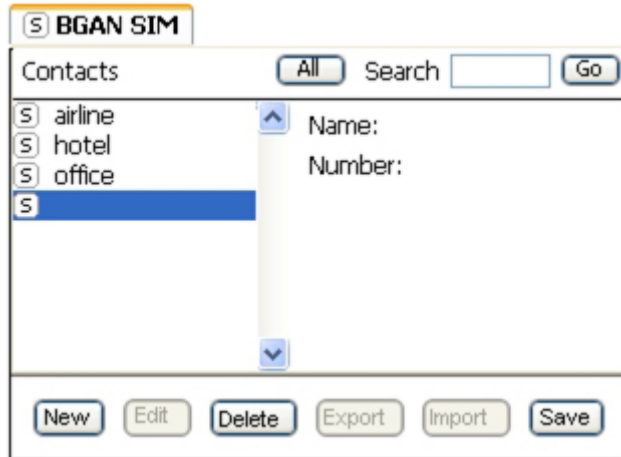
ADDING AND EDITING CONTACTS

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:
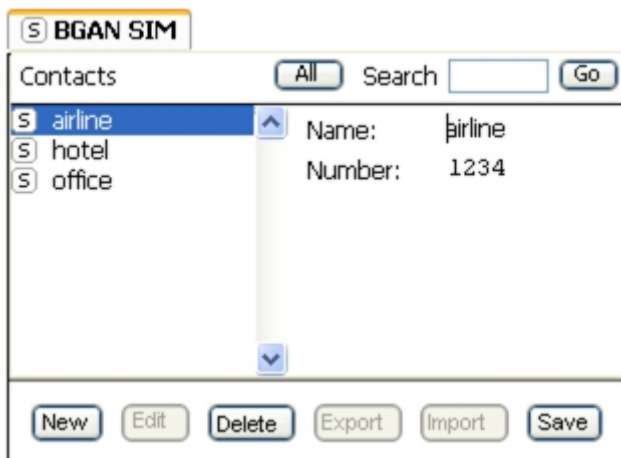
2. Enter the name of the contact on the first line.

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:

2. Edit the name or the contact number of the contact.

3. Click on **Save** to save the contact details.

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.

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:
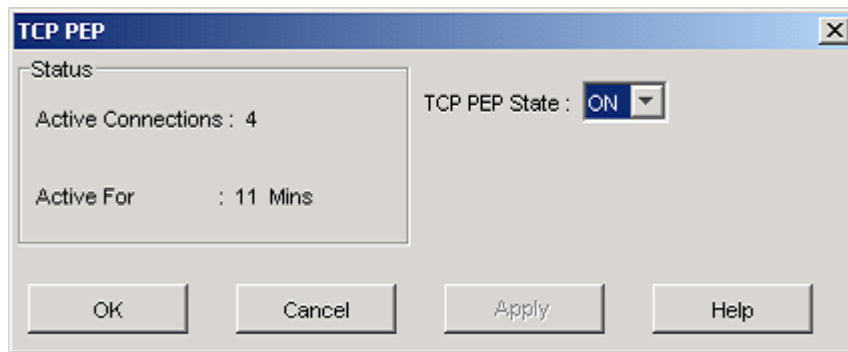
▶▶ EXIT, RESET AND RESTART FEATURES

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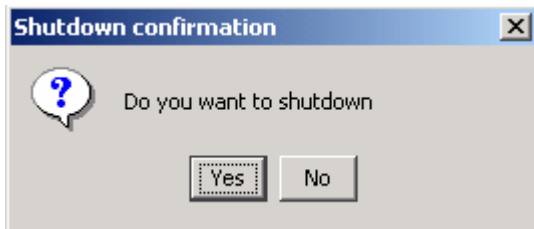
2. Click **Yes** to confirm shutdown, or No to cancel.

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.

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:
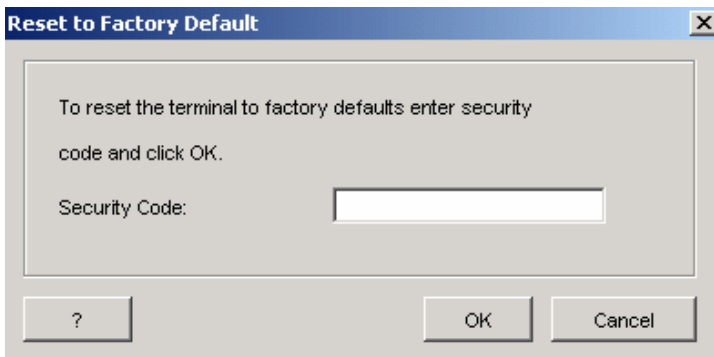
3. Enter the **security code** in the Security Code text box.

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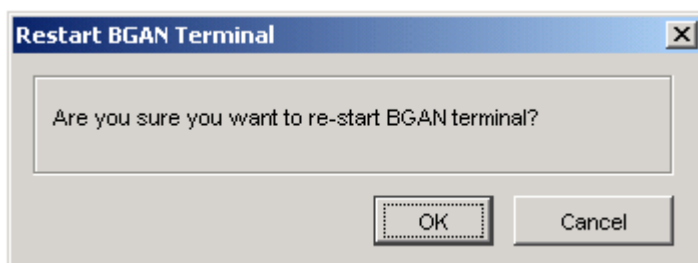
2. Click on **OK** to restart the terminal, or click on Cancel to exit without restarting.

▶▶ 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:
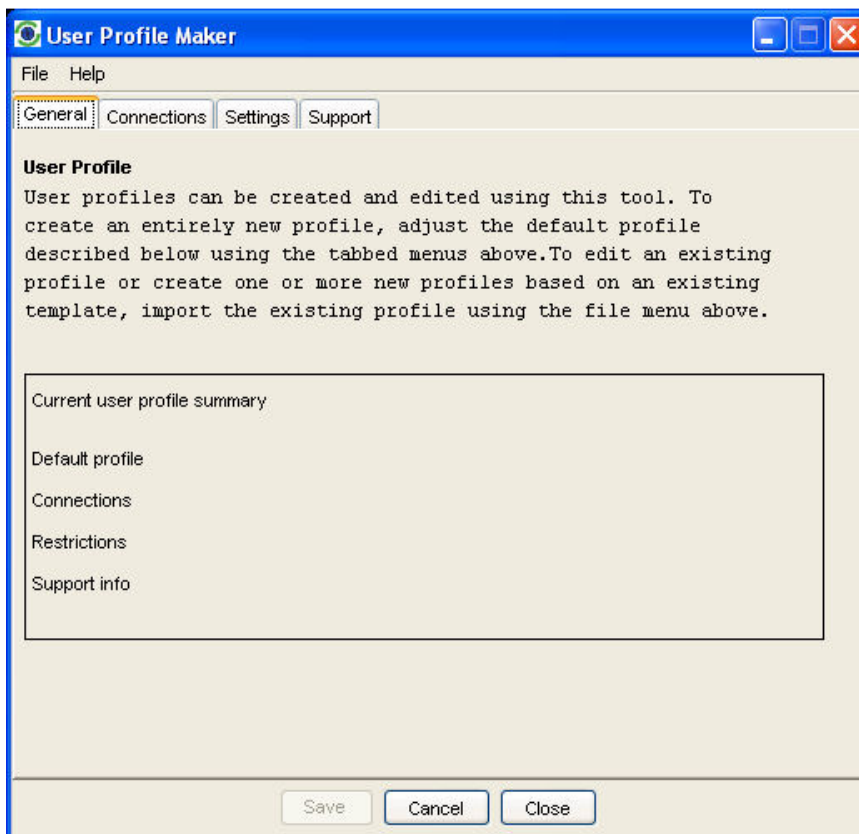
Note the following when creating or editing a connection:

- 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:
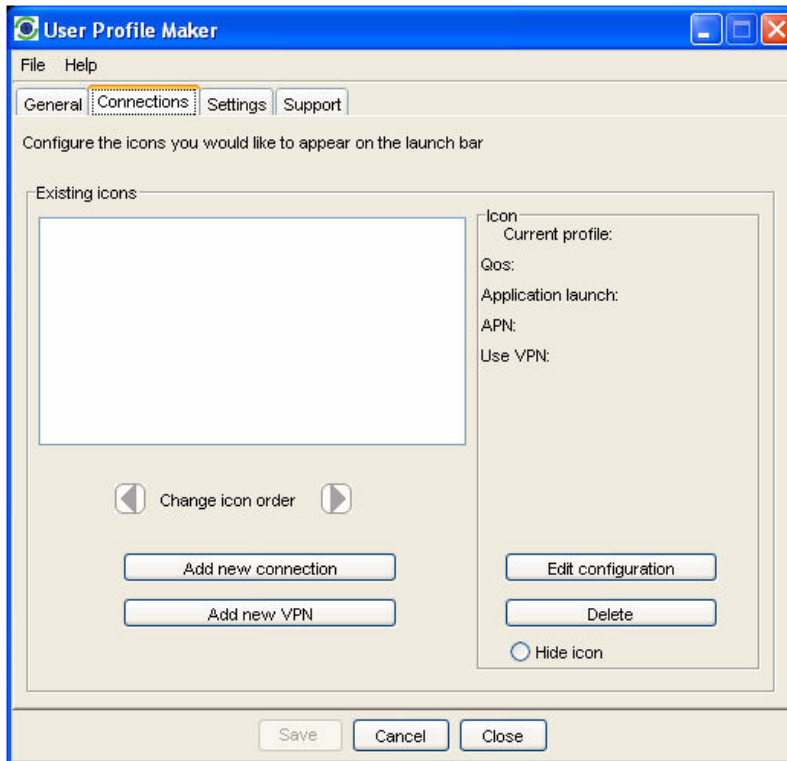
2. Either:

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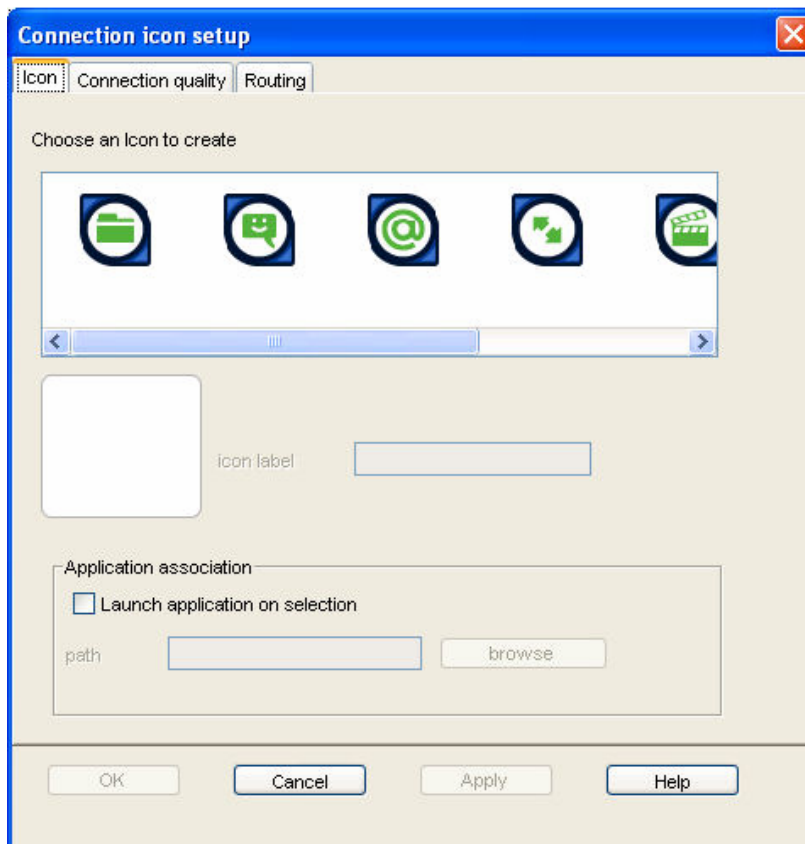
The Connection icon setup window has three components, as follows:

- 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:
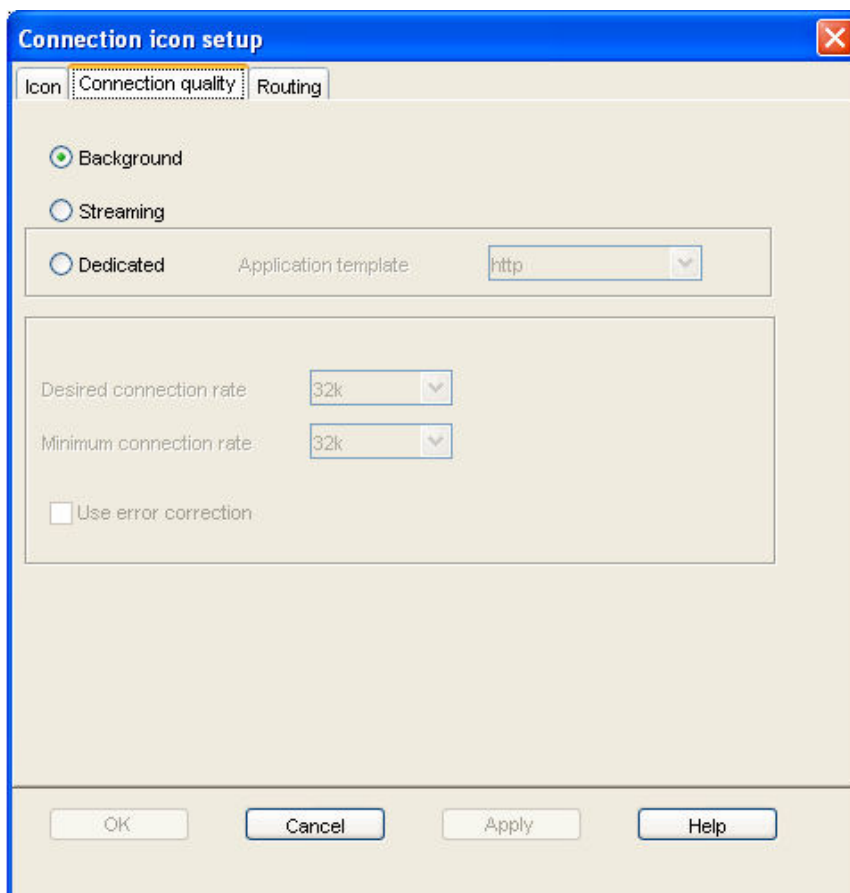
1. Select a **Connection class**. This can be either Standard, Streaming or Dedicated. Note that Dedicated does not display if you are configuring a VPN.

   ▪ 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.

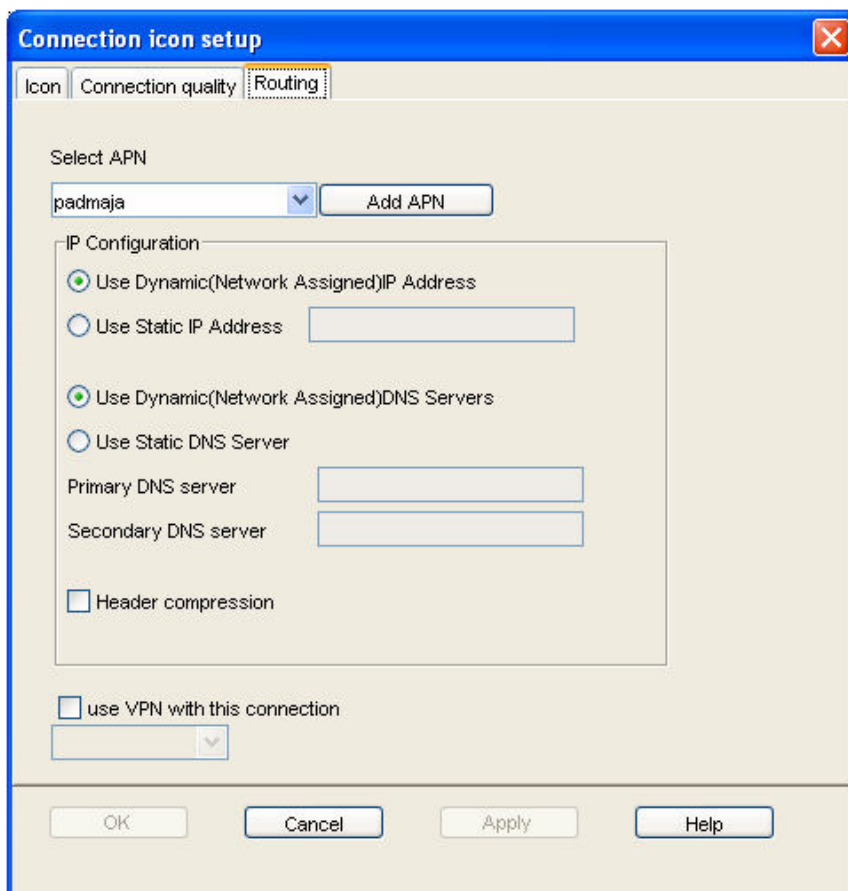CONFIGURING ROUTING OPTIONS

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.

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:
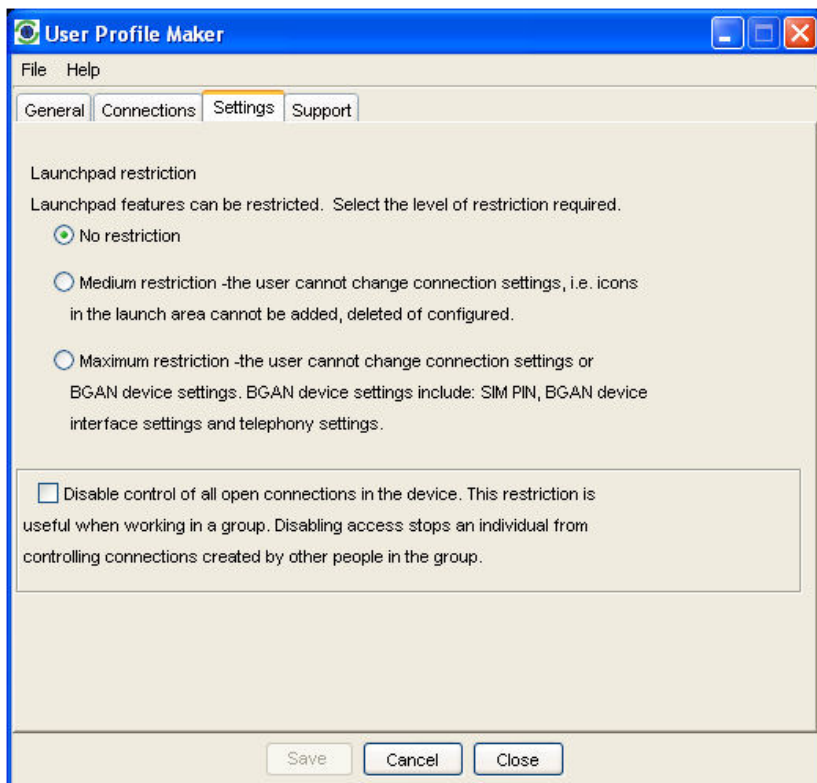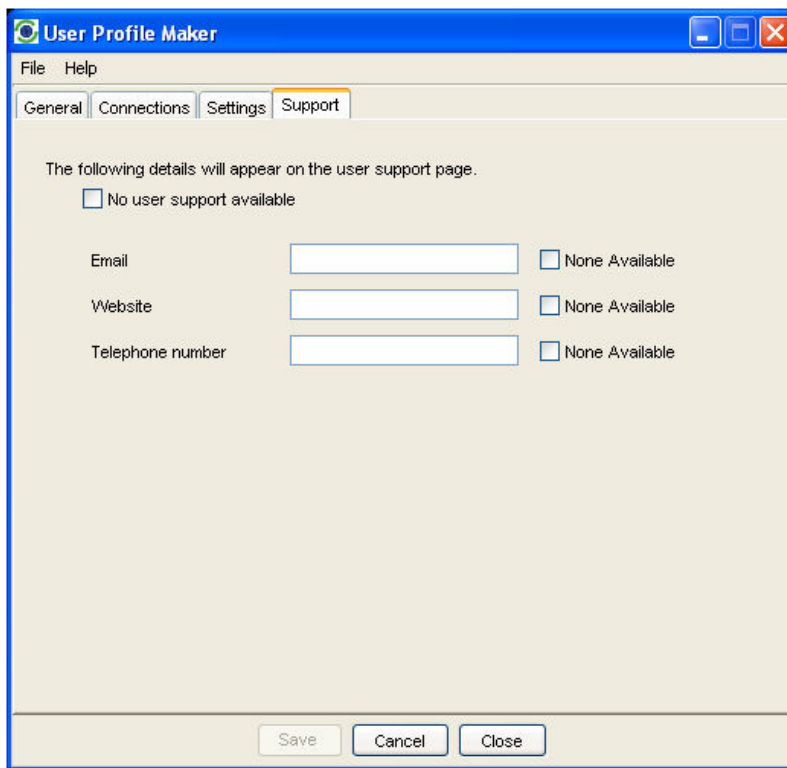
2. Select one of the radio buttons. The options are as follows:

    ▪ **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. The 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:
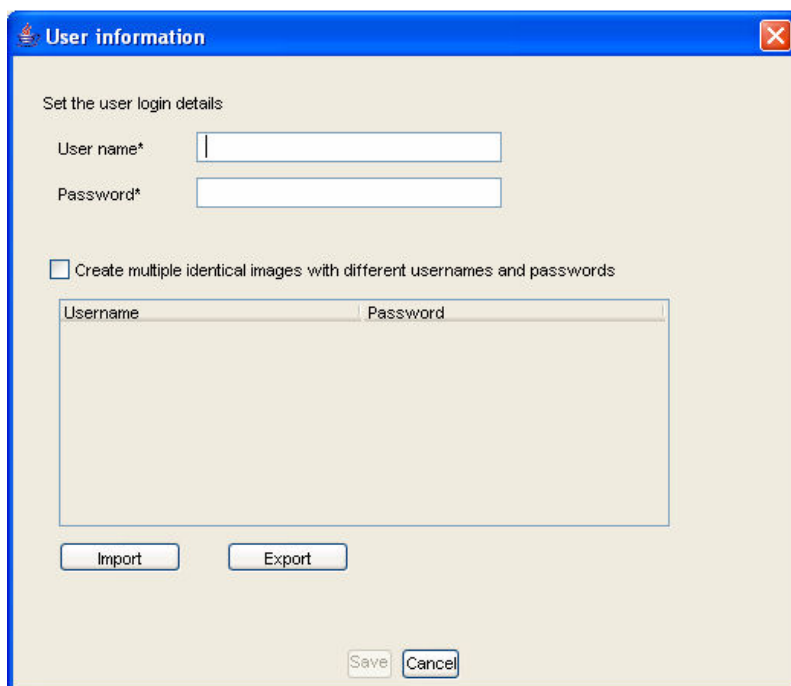
2. Either:

   ▪ 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.

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

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.

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:
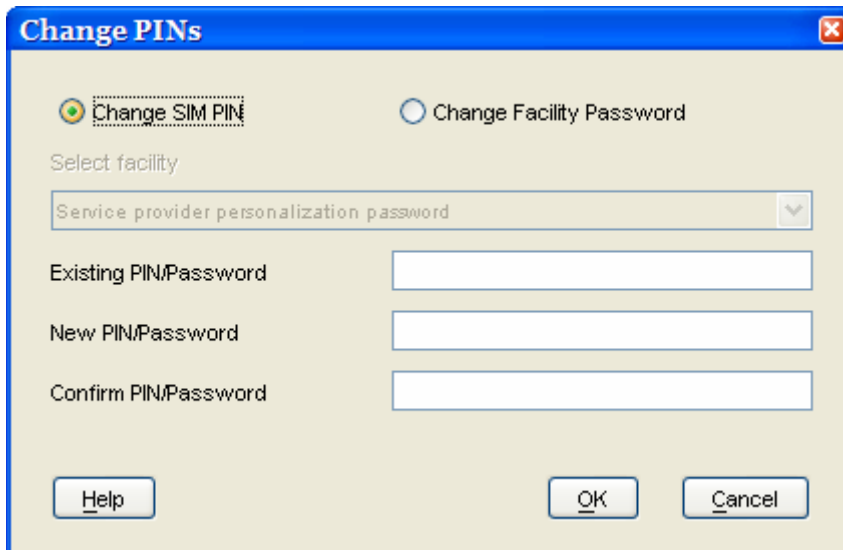
- Changing the SIM PIN
- Enabling a PIN

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:

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:
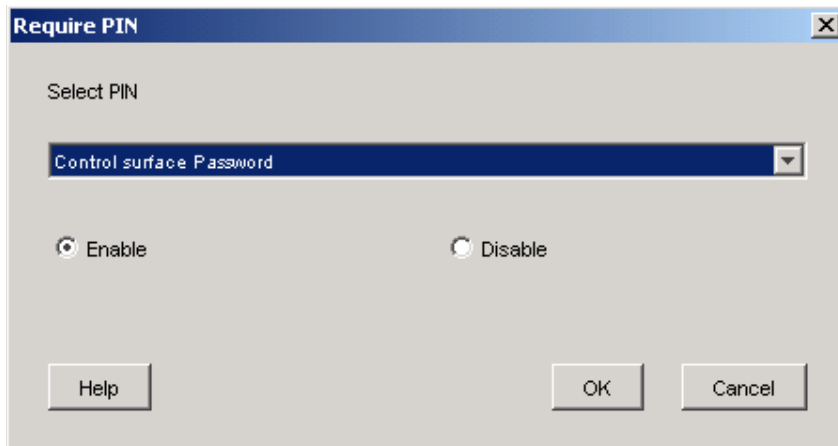
2. From the **Select PIN** drop-down list, select the facility for which you want to enable or disable the PIN.

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 every** 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. In the **BGAN or LAN connection section**, choose whether you want to check for updates when there is a LAN connection (terrestrial), a BGAN connection (satellite), or when both connections are active.

5. 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 > Versions and Availability**. The following screen is then displayed:
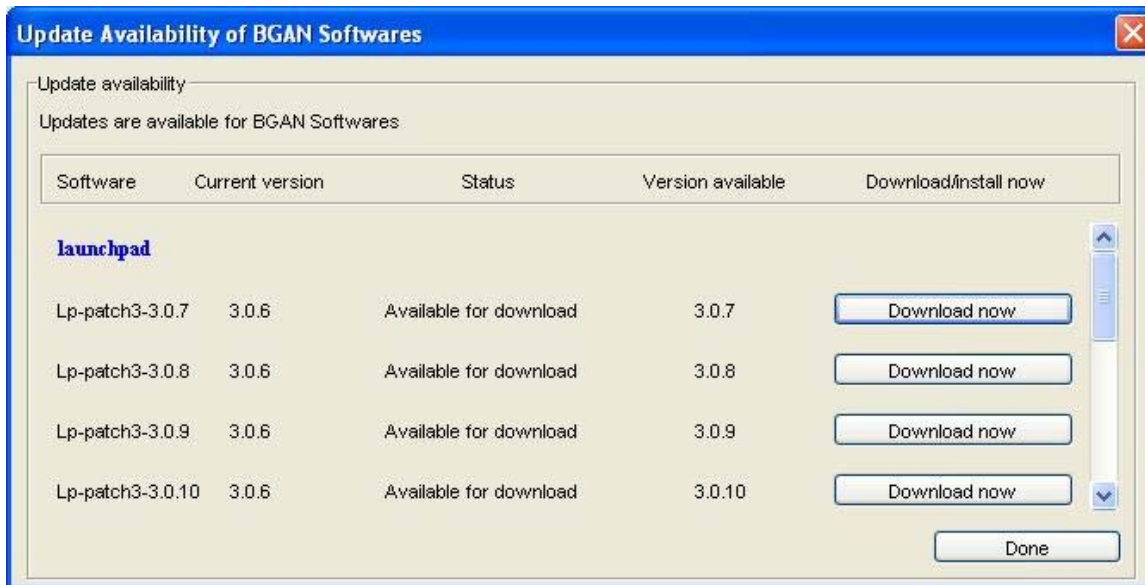
2. Scroll down to view which software you want to install on the terminal or on your computer.

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:
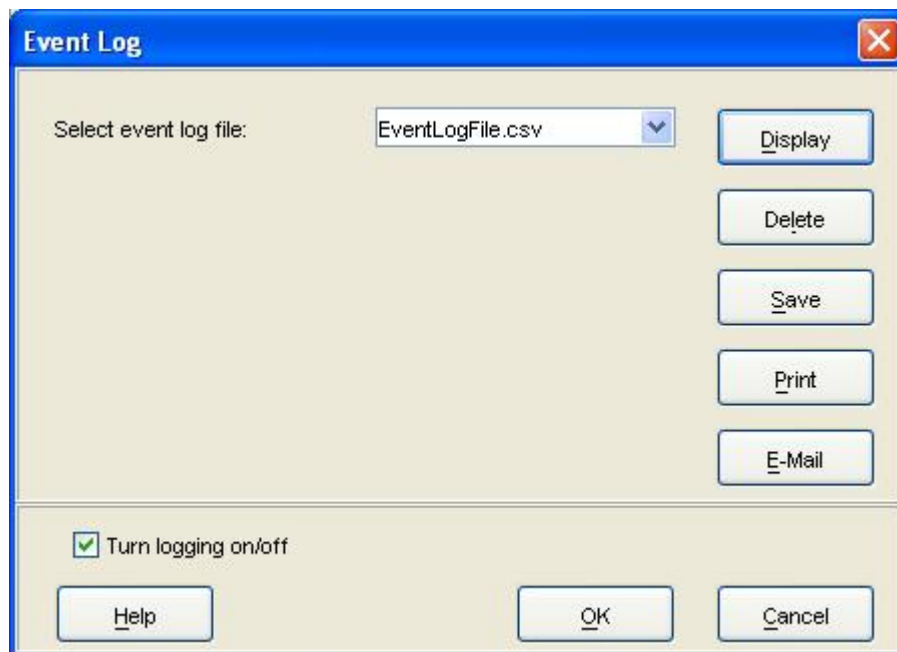
2. Select a log file from the drop-down list.

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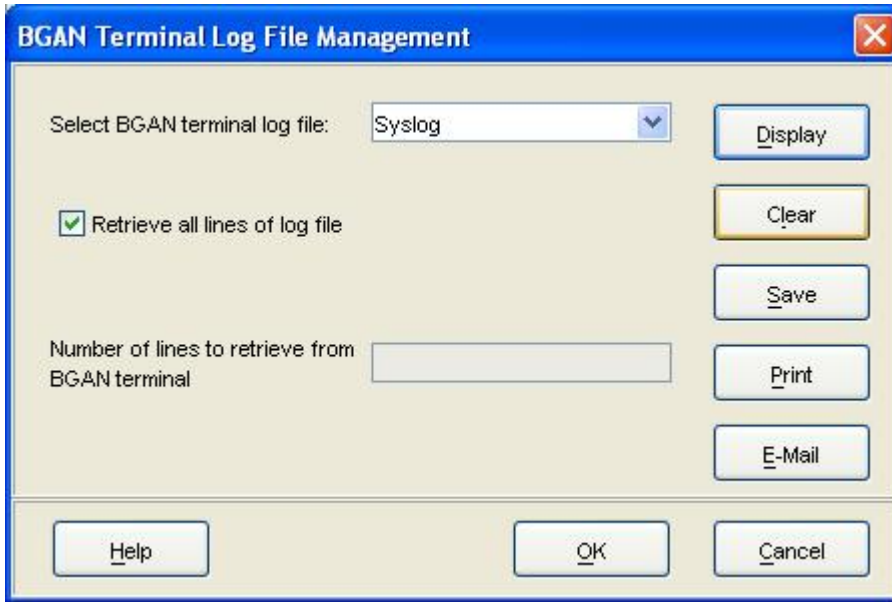
2. Select a log file from the **Select BGAN terminal log file** drop-down list.
3. Click on **Clear**. The log file is cleared from your computer.

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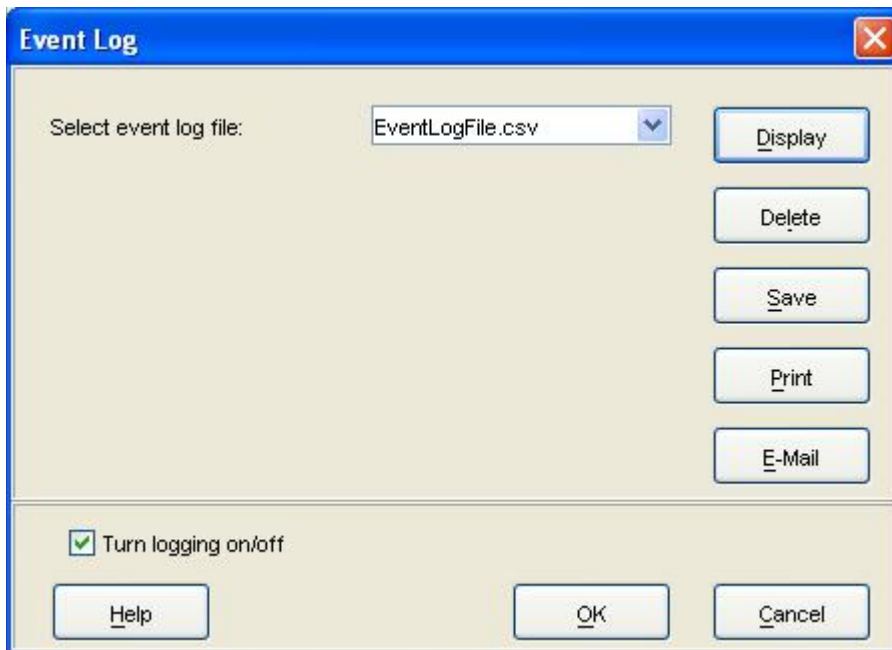
The BGAN Terminal Logging dialog box is slightly different to the network or event log box, and gives a choice to:

- 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.
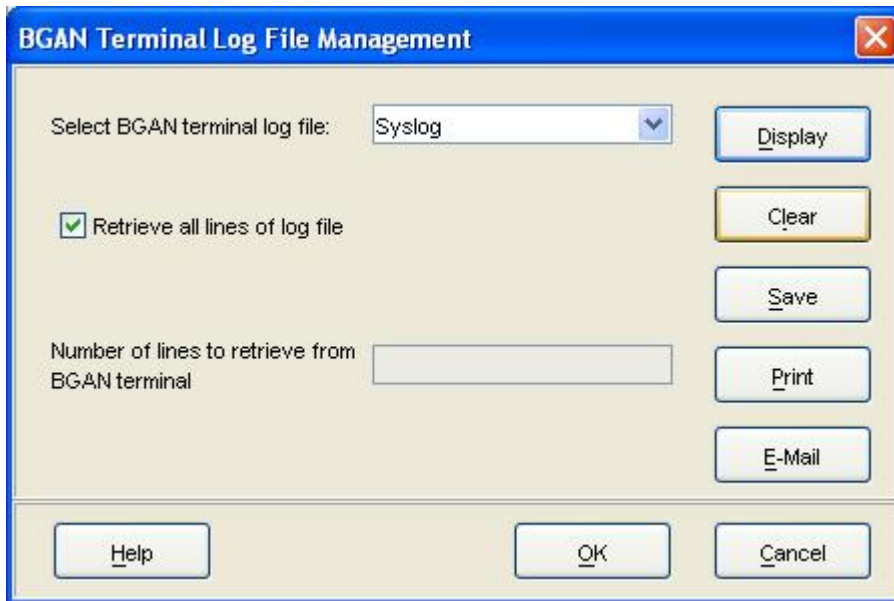
2. Click on **Display** to see the contents of the file you selected.

3. Clock 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:
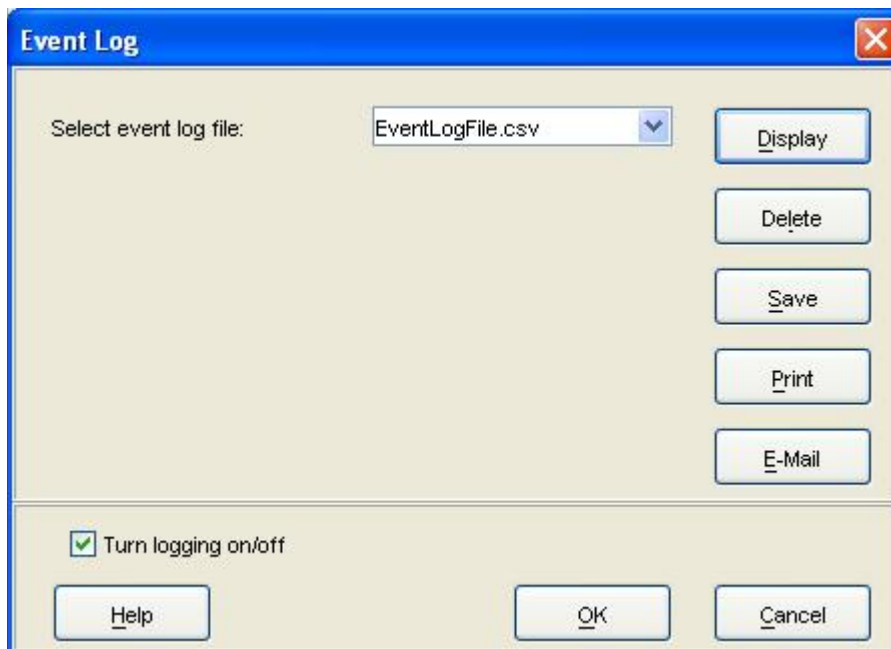
2. Select the file to email from the drop down list.

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:
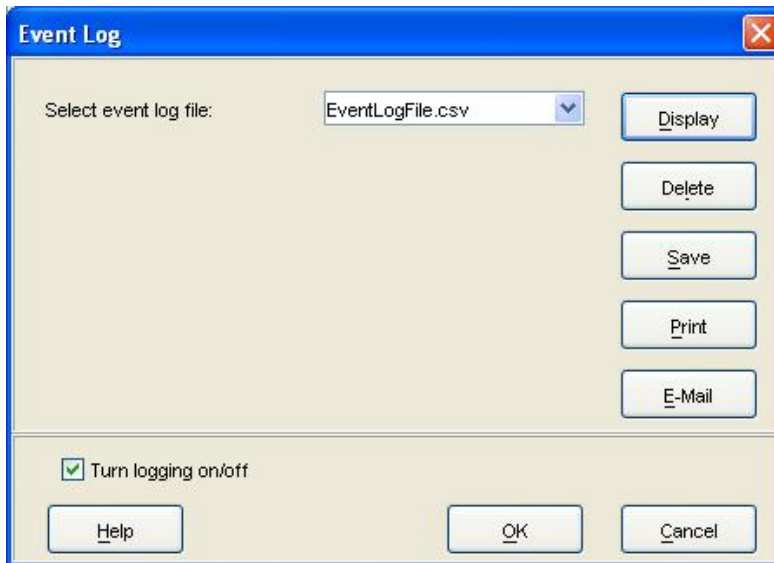
2. Select a log file from the drop-down list.

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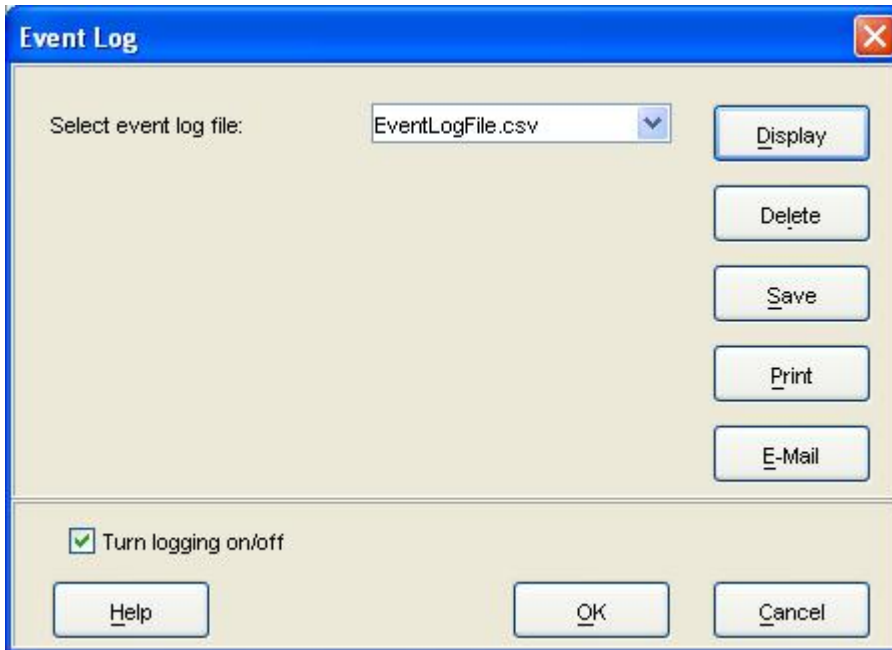
2. Select a log file from the **Select event log file** drop-down list.
3. Click on **Save**. The directory folder for your operating system opens.
4. Navigate through to the required directory, and save the log file under the selected name.

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 WLAN interface	Note 1
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

1	2	3	4	5	6	Description of Failure	Action
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, you will need to return the terminal for repair.

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

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 **Fixed/Semi-fixed Installation**
The BGAN LaunchPad will not connect to the terminal	No interface connection between the terminal and computer	Ensure there is a WLAN, Ethernet or USB connection between the terminal and computer, see **Connecting the Terminal to the Computer**
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 keys 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

Problem	Possible Cause	Possible Solution
		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)	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
	Terminal is still in antenna pointing mode	Exit antenna pointing
Terminal is connected to the BGAN network, but cannot obtain the requested Quality of Service	The terminal is not optimally pointed at the satellite	Re-point the terminal, see **Pointing the Terminal.**
		Ensure the following minimum LEDs are lit for the requested Quality of Service:
		Streaming 256: all LEDs green
		Streaming 128: 3 green + 1 red LED
		Streaming 64: 2 green + 1 red LED
		Streaming 32: 1 green + 1 red LED
		background or standard: 1 red LED
		ISDN data (64Kbps): 2 green + 1 red LED
		CS voice (4): 1 red LED
Terminal does not obtain a GPS fix	Terminal's location limits visibility of 4 or more GPS satellites.	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	The ISDN device is trying to draw too much power from the satellite terminal's ISDN interface	Only connect an ISDN devices that draws less than 70mA of current at 40V (equivalent power 2.8W)
	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.	Make sure you connect only ISDN devices to the ISDN port
None of the above solutions resolve the problem	Terminal may have a hardware or software fault, and needs to be re-booted.	Remove both the AC mains or DC power adapter, and battery. Wait 30 seconds. Reconnect the AC mains or

Problem	Possible Cause	Possible Solution
		DC power adapter or the battery, and turn on the terminal.
		As the terminal powers up, check the status of the LEDs, see **Satellite Terminal Boot Behavior**

▶▶ 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 GPRS 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 GPRS 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 GPRS 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 GPRS 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 GPRS 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 at its most basic 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 know as Infrastructure Mode.

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 you 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 HNS-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 HNS 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.hns.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, you may find that the level of jitter or delay is too great. In this case, it is recommended that you remove error correction. Removing error correction minimizes delay and jitter, but note that a small amount of data may be lost during transfer, because dropped data packets are not resent.

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 GPRS 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.