



Thuraya ATLAS IP Satellite Terminal



User Manual
Revision 2.0

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REGULATORY INFORMATION



FCC Identifier: QO4-AVIATLASIP

USE CONDITIONS:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT NOTE: EXPOSURE TO RADIO FREQUENCY RADIATION

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna used for this transmitter must be installed to provide a separation distance of at least 100cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC CAUTION:

Any changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by FCC, to operate this Maritime Broadband Satellite Terminal, ATLAS IP.

Declaration of Conformity:

Addvalue Innovation Pte Ltd., 8, Tai Seng Link, Level 5 (Wing 2), Singapore 534158.

declares under our sole responsibility that the Product, brand name as Thuraya and model: ATLAS IP, Maritime Broadband Satellite Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents:

**ETSI EN 301 489-1, -17, -19, -20, ETSI EN 301 444, ETSI EN 300 328, EN 60945,
IEC 60950 - 1 AND EN 60950-1,**

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

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

TIMCO ENGINEERING, INC., P.O BOX 370, NEW BERRY, FLORIDA 32669.

Identification mark: 1177 (Notified Body number)

The technical documentation relevant to the above equipment are held at:

- Addvalue Innovation Pte Ltd., 8, Tai Seng Link, Level 5 (Wing 2), Singapore 534158.
- Signed by Mr. Tan Khai Pang (Chief Technology Officer, September 29, 2014) and Mr. Prabakar Kuttaniseeri (Manager- Quality Management, September 29, 2014).

SAFETY INSTRUCTIONS

For the sake of safety and protection, read the manual before attempting to use Thuraya Atlas IP Terminal.

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this user guide violates safety standards of intended use of the terminal.

Addvalue Innovation Pte Ltd assumes no liability for the customer's failure to comply with these requirements.

Hazard Symbols

Antenna Radiation Warning and Distance to other Radiation Equipment 	For safety reasons, all personnel must keep at least 2 meters from the ADU.
Power Supply 	Turn off the power at the mains switchboard before beginning of the installation. Confirm the power voltage is compatible with voltage rating of the equipment. It is highly recommended to use +24V DC power line, provided that it is available on the vessel. In case of unavailability of +24V DC power line provided by the vessel, an external AC/DC power supply of 115/230V AC with its output of +24V DC can be used. Note: The requirements of the AC/DC power supply should take care of high surge current of 25A at 24V DC for 1ms.

Grounding, cables and connections 	The chassis of the equipment must be connected to an electrical ground. This will minimise electric shock and mutual interference. In short, the EQUIPMENT must be grounded to the vessel.
Service 	Do not attempt to access to the interior of the equipment. Only qualified personnel authorized by its manufacturer may perform service. Failure to comply with this rule will result in the warranty void. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power before accessing the equipment.

Alert Symbol

Alert Button 	For triggering an emergency alert.
--	---

Equipment Ventilation

To ensure adequate cooling of the equipment, 5-centimeter of unobstructed space must be maintained around all sides of the unit except the bottom side. The ambient temperature range of the equipment is: -25°C to +55°C.

Fire Precautions

The equipment must not be operated in the presence of flammable gases or fumes as well as any explosive atmosphere. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Obtaining Licensing For Thuraya Transceivers

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that affect the purity of signal, which may be radiated in the various frequency bands of the radio spectrum.

To legally operate Thuraya equipment, it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating from. Using your equipment in any country without permission causes you to run the risk of confiscation of the equipment by the local authorities. The normal procedure to bring such equipment into another country is to apply for a license before travel. If a license has not been obtained before travel, the equipment may be put in to storage by local authorities until such time license is obtained.

IMPORTANT INFORMATION TO INSTALLERS AND USERS

General

It is important that the user of this equipment read and observe all safety requirements and operate the terminal according to the descriptions published in this manual.

Failure to comply may result in risk of injury or equipment failure and voids the validity of the warranty provided by equipment manufacturer.

The terminal consists of 2 systems, BDU and ADU and they must be used as provided by the manufacturer or authorized dealer. Do not substitute any one of the system which is not provided by the manufacturer or authorized dealer. Should needs of servicing or replacement is required, always contact the distributor or manufacturer for instructions.

Any modifications or attempts to open up the devices by not authorized personnel will void the warranty.

Contents in this manual are subjected to change without notice and may contain errors or inaccuracies. The manual is periodically revised and updated. To obtain latest version, please enquire it from product manufacturer or distributor.

Installation

Refer to Installation Manual for Thuraya Atlas IP Terminal.

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Microsoft, Windows, Windows NT, Windows 2000, Windows XP and Windows 7 are registered trademarks of Microsoft Corporation in the U.S.A. and/or other countries.

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1 INTRODUCTION

Thuraya Atlas IP is a maritime-specific broadband terminal and it supports broadband data communications at speed up to 444kbps and asymmetric streaming at 16kbps to 384 kbps.

The Atlas IP features improved power efficiency, a smaller form factor and greater versatility than rival maritime broadband products. The terminal features a single cable connection to the stabilised antenna, direct bulkhead mounting and built-in Wi-Fi.

Used with a computer or laptop, the Atlas IP with its primary handset gives an user access to:

- Email and webmail
- Secure communications
- Internet browsing
- SMS and instant messaging
- Videoconferencing and streaming
- Phone services
- File transfers

It also includes a range of features designed to support improved communications functionality and enhance shipboard operations. These include port forwarding, which can automatically transfer data from shipboard equipment and devices in support of M2M reporting routines, an English/Chinese web interface, a built-in firewall, continuous GPS output and the ability to limit data sessions by time or volume.

Services

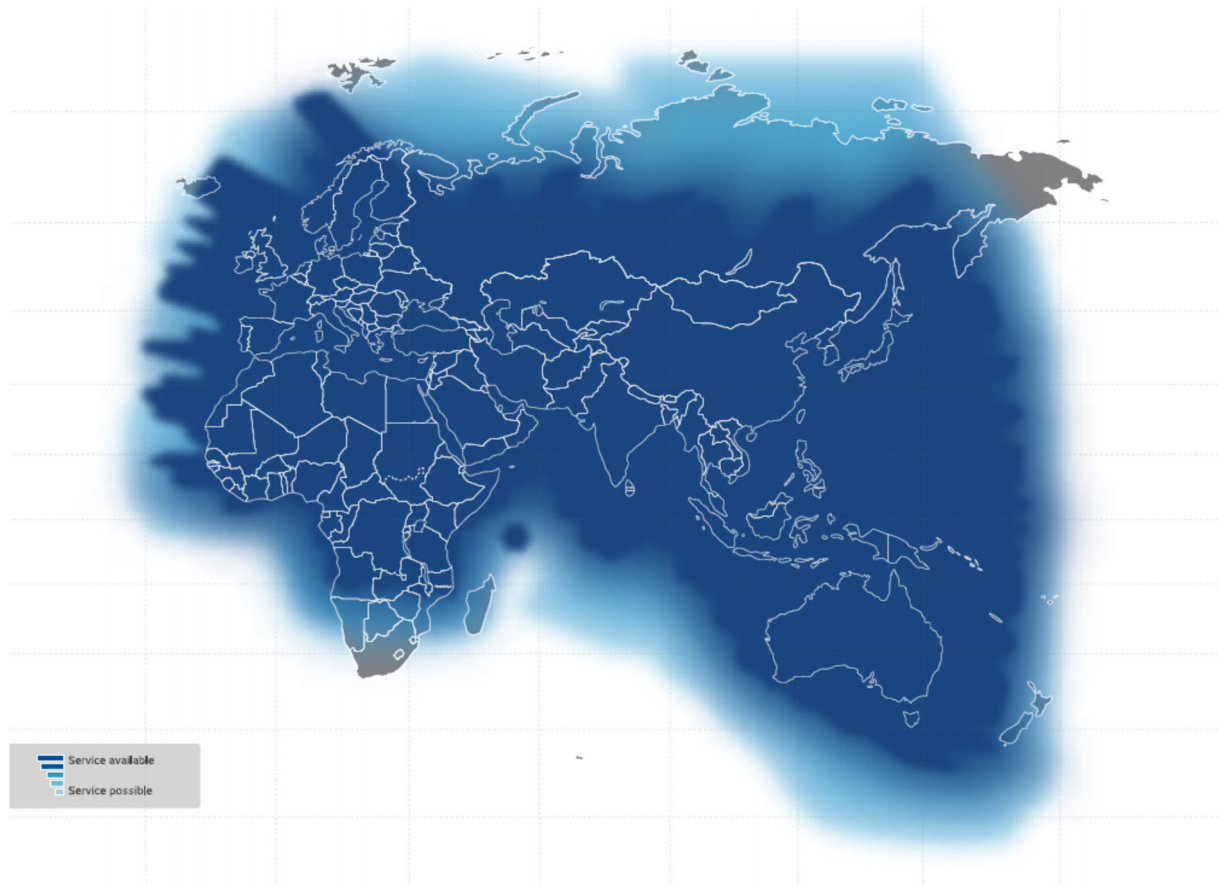
The terminal has the following services:

Services	Specification
Standard IP	Up to 444 kbps
Streaming IP	Up to 384 kbps (Asymmetric)
Circuit Switch Voice	CS Voice
SMS	Up to 160 Characters

The terminal has built-in Web Console, allowing you to manage your phone book, messages and calls, and customize the terminal to your specific needs.

2 THURAYA NETWORK COVERAGE

Thuraya's robust satellite network provides coverage in the most remote locations, ensuring congestion-free satellite communications to keep you connected at all times. From innovative satellite design to the reliability of each Thuraya device and accessory, we provide a truly superior satellite communication solution beyond the boundaries of terrestrial systems and cellular networks.



The above map represents Thuraya's expectations of coverage.

3 MAIN UNITS

The terminal includes the following main units:

- BDU
- ADU
- Primary Handset

3.1 Above Deck Unit (ADU)

The ADU is a maritime-based 3-axis controlled antenna. The antenna is self-tracking based on patented beam squint technology. The simple and robust electromechanical system, with one motor per free axis, provides full coverage in azimuth and elevation. Tracking is accomplished by measuring signals being continuously broadcast from the satellite.

The radome covers the antenna equipment, which is composed of:

- Antenna Unit
- RF and GPS circuit
- Rotary joint
- Antenna pedestal

The antenna unit includes LNA (low noise amplifier), HPA (high power amplifier) and tracking receiver circuitry to ensure communication even in adverse circumstances.



All signals (and DC power) shall pass through a single coaxial antenna cable, which connects the ADU to the BDU.

3.2 Below Deck Unit (BDU)

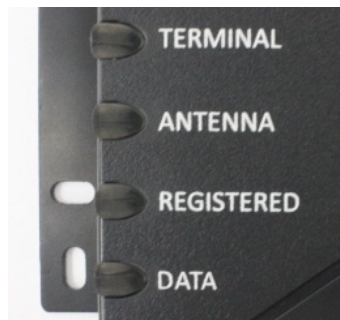
The BDU has been developed for maximum flexibility and is the controlling unit for the terminal. It features a reliable industry standard interface connectors and enables users to have optimal connectivity no matter what the conditions or your position at sea.



The BDU has a built-in Web Console, which can be accessed from a computer connected to the BDU, using an Internet browser. The Web Console provides easy configuration of the BDU, firmware upgrade and daily use. For more information, refer to the chapter of the Web Console.

The BDU is supplied by a +12V or +24V DC power supply, and it supplies power to the ADU via a single coaxial antenna cable.

Status LEDs



There are 4 Status LEDs to indicate the operational status of the BDU at one glance.

Each LED is assigned to the following function:

- Terminal Status
- Antenna Status
- Registered Network Status
- Data Status

SIM Card Slot



The BDU has a SIM (Subscriber Identity Module) card slot located at the front panel of the BDU. The terminal requires a dedicated Thuraya SIM card to access the Thuraya network and configure the settings of the terminal.

Connectivity Ports and Button

The following diagram shows the front panel of the BDU and the alert button on its top.



- a. Antenna Connector (TNC)
- b. Wi-Fi Connector (SMA)
- c. GPIO Port
- d. LAN Ports (RJ45)
- e. PoE Port (RJ45)
- f. Primary Handset Port
- g. RS-232 Serial Port
- h. SIM Card Slot
- i. USB Mini B Port
- j. Grounding Stud
- k. Resettable Circuit Breaker
- l. Power Switch
- m. DC Input
- n. Alert Button

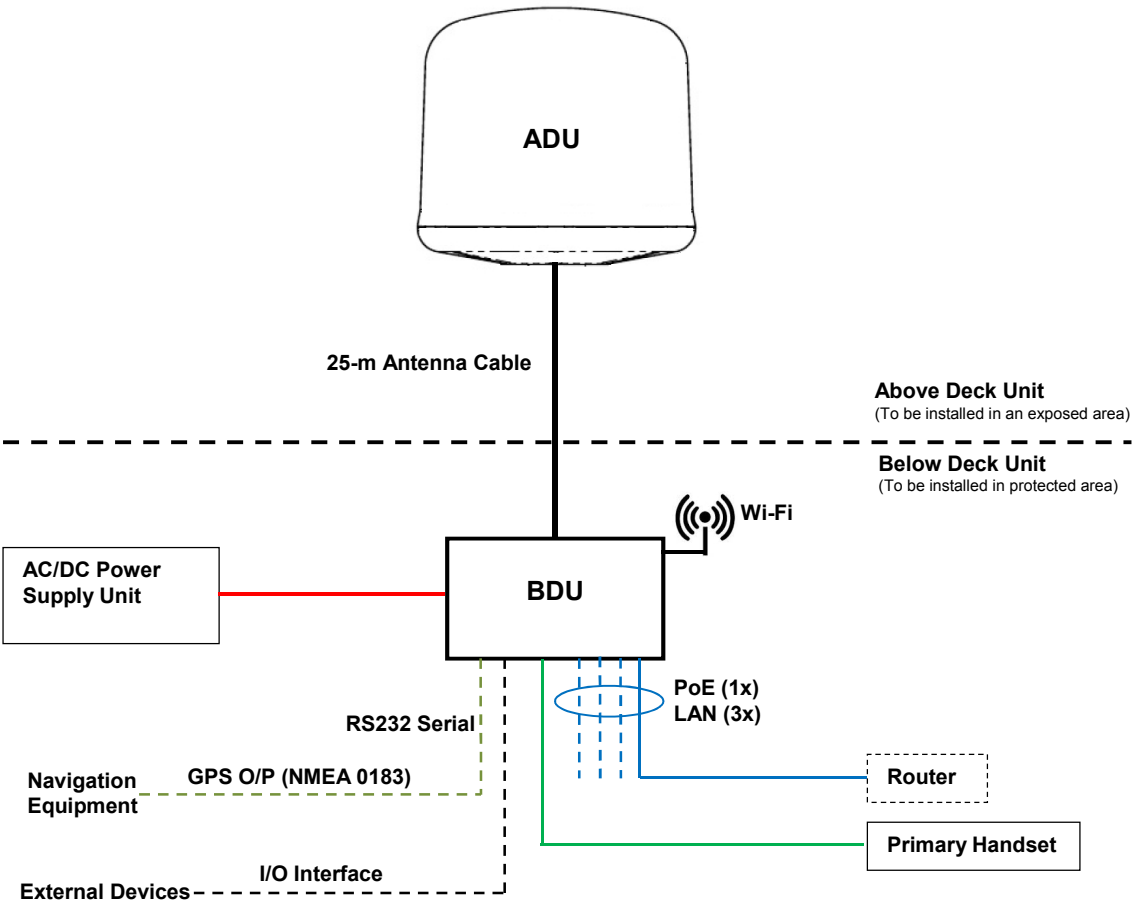
3.3 Primary Handset



The wired Primary Handset has a colour LCD and keypad for making and receiving voice calls and sending SMS using an interface similar with a mobile phone. It can serve as a remote access for user to access various BDU functions. The Primary Handset connector is plugged into the BDU primary handset port and it is powered directly from the BDU.

4 GETTING STARTED

System Configuration



Solid line refers to the basic configuration.

Preparation for Operation

4.2.1 Install the SIM card.

The terminal requires a SIM card to access the Thuraya network and configure the settings of the BDU. Please refer to your Airtime Service Provider for more information.

- a. Tilt up the SIM card slot rubber cover.



Note: Make sure the BDU is **switched off** before inserting or removing the SIM card.



- b. Position the SIM card with its gold-contacts facing down. (There is a symbol of SIM Card with its arrow on the front panel to ensure the correct orientation of the SIM Card when it is being inserted.)



- c. Push the SIM card gently until it clicks and is locked in place.



- d. Tilt down the SIM card cover to its original position.



4.2.2 Connecting Primary Handset

The Primary Handset is powered from the BDU through the Primary Handset Port.

- a. Plug in the Primary Handset connector into the Handset port on the BDU front panel. Make sure the key of the handset is aligned to the red mark of the handset port.



4.2.3 Connecting the Wi-Fi Antenna

- a. Connect the Wi-Fi antenna to the Wi-Fi's connector on the BDU front panel. Rotate the connector in the clockwise direction until it is secured.

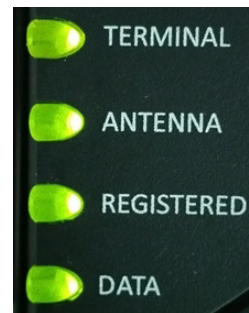


4.2.3 Powering Up The Terminal

- a. Use the ON/OFF switch on the BDU's front panel.



- b. Wait for all LED indicators to turn green to indicate the terminal is completely power up. Refer the table below for meaning of the status indicators.



LED Name	Status	Meaning
TERMINAL	Blinking Green	BDU is functioning as the “heartbeat”.
	Steady Red	BDU powers up or detects failure.
ANTENNA	Steady Green	ADU is functioning.
	Steady Red	ADU detects failure.
	No Light	ADU is calibrating.
REGISTERED	Steady Amber	Registration to network in progress.
	Steady Green	Registration to network.
	Steady Red	Network failure/Error
DATA	Steady Green	In Data Mode, user can browse internet.
	No light (Off)	In Voice Mode, user can make a voice call using Primary Handset but cannot activate data connection and browse internet.

5 USING PRIMARY HANDSET

The Primary Handset

The Primary Handset is connected to the BDU via its handset port and is powered directly from the BDU. Equipped with a large 2", 65K CSTN, 220 Liquid Crystal Display (LCD), Primary Handset not only acts as a standard phone that allows you to make/ receive voice calls, it also serves as a remote access to the terminal for an user to access various configurations supported by the BDU.

Primary Handset offers the following features:

- ✓ Making standard CS voice calls *
- ✓ Messaging (SMS) *
- ✓ User contacts
- ✓ Speed dial
- ✓ Call logs
- ✓ Displaying various BDU status and information
- ✓ Local handset configurations

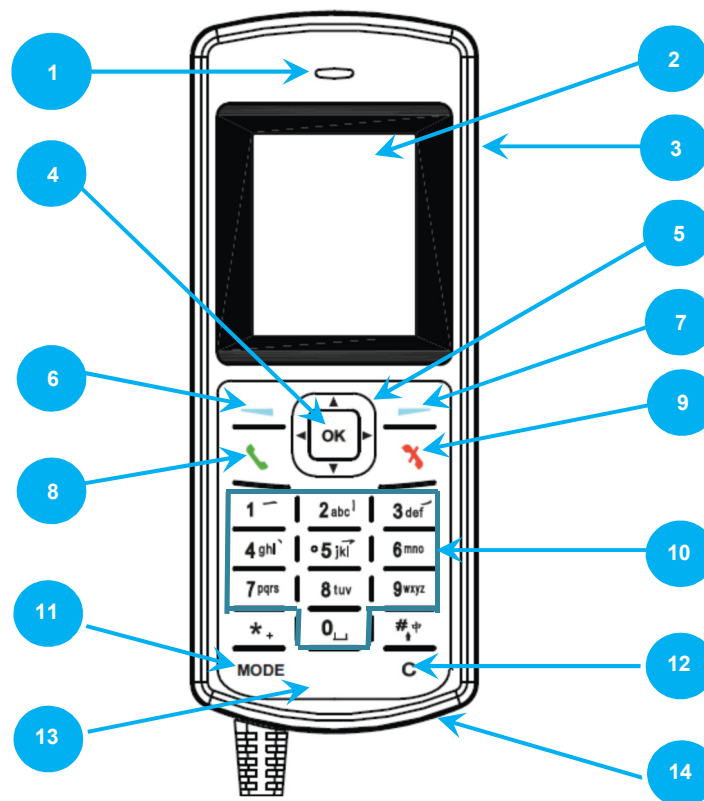


***Note:** *Only when the BDU is set in Voice Mode, the Primary Handset can support the CS voice calls and messaging (SMS). In other words, when the BDU is set in Data Mode, there will be no incoming/outgoing calls and messages (SMSs).*

Powering Up the Primary Handset

The Primary Handset is automatically powered up once it is connected to the dedicated **HANDSET** port on the BDU's front panel.

Overview of Primary Handset



1. Earpiece
2. Display
3. Hands-free Headset Jack
4. OK Key
5. 4-Way Navigation Ring
6. Select Left Key
7. Select Right Key
8. Call/Answer Key
9. Call/Menu End Key
10. Keypad (Alpha-Numeric)
11. Mode Key
12. Clear Key
13. Microphone
14. Service Port
15. Ringer*

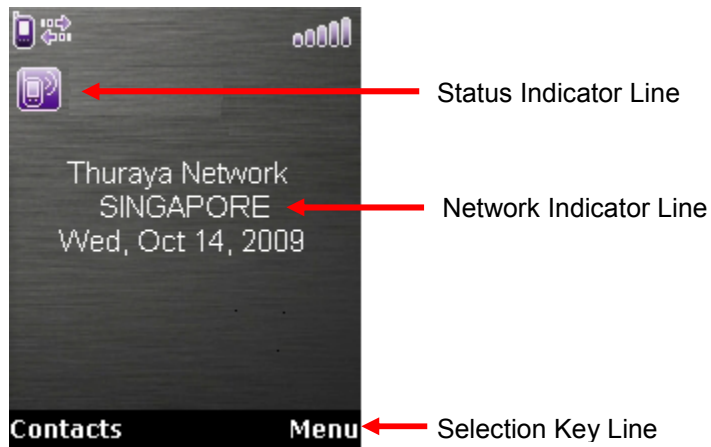
***Note:** The ringer is located at the back of the Primary Handset.

5.3.1 Keypad - Description and Functions

Keys	Description/Functions
	4-way navigation ring. Press the 4-way navigation ring to scroll left, right, up, and down on the display. Enables scrolling through names, phone numbers, menus or settings.
	OK key. Pressing this key selects/confirms the function highlighted on the display.
	Left selection key. The function of this key depends on the guiding text shown on the display above the key.
	Right selection key. The function of this key depends on the guiding text shown on the display above the key.
	Call/Answer key After entering a phone number: Initiates a call to the number. From Main Display screen: Opens a list of dialed calls When Ringing: Answers the incoming call.
	Call/Menu End key Press this key to end active calls or exits from any menus or sub menus.
	Keypad Used to enter numbers and characters. Press 0 to add a space when writing text. The functions available depend on whether you are typing a phone number (number mode) or text (text mode).

Keys	Description/Functions
	Star * key When entering a phone number, press this key to insert a *. Press and hold this key to insert a +. When writing text, press this key to access a list of special symbols.
	Hash # key When entering a phone number, press this key to insert a #. To quickly change the text input method when writing text, press this key repeatedly and check the indicator at the top of the display. In standby mode, press and hold this key to set the Primary Handset into silent mode.
MODE	Mode key To select the terminal operating mode (Voice or Data).
C	Clear Key Press key once to clear one character at a time or press and hold this key to clear the whole text entry.

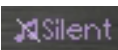
5.3.2 The Main Display Screen



- **Status Indicator line**
The indicator line shows status symbol informing you about the operating conditions of the BDU.
- **Network Indicator Line**
The indicator line shows the registration status and region information of the terminal.
- **Selection Key line**
The Selection key line operates using the Left  or Right  selection keys with the  to access menus and controls.

Primary Handset Status Indicators

Table below explains the meaning of each status indicator displayed in the Main Display screen.

Status Indicator	Description
	Signal Strength Indicator
	New Short Message (SMS) in Inbox
	Handset Disconnected from Terminal
	Handset Connected to Terminal
	Voice Mode
	Data Mode
	Handset in Silent Mode
	Handset Keypad Lock is active

5.3.3 Primary Handset Operations

Making a Voice Call (Only Supported in Voice Mode)

Before making a voice call, please make sure that:

- The BDU is set to Voice Mode.
- Primary Handset is connected to the BDU. ( Status indicator should be on.)
- The BDU has successfully registered with the network and ready for circuit-switched voice connection services. ( Status indicator should be on.)

You can use the following two options for making a call:

- **Manual Dial:**
 - Using the alphanumeric keypad, dial **00 <country code> <phone number>**.
 - Press  key.
- **Using Contacts or Call Log list from the Primary Handset:**
 - Enter the **Contacts** list of the Primary Handset; scroll to the desired number and press  key, or

- Enter the **Log** list of the Primary Handset; scroll to the desired number and press  key.

Note: For voice calls and SMS, you may also use '+' by pressing and holding the * + key instead of "00" at the beginning of dialled number string as an alternative ('+' <country code> <phone number>).

- **To end a Call**

- Press .

Receiving a call (Only when the BDU is set in Voice Mode)

When there is an incoming call, the Primary Handset will:

- Ring.
- The calling party's number will be displayed on the screen.
If the number is stored in the contacts, the corresponding name of contact will be displayed.

To answer an incoming call, press the  key.

Adjusting volume during a call

Use the 4-way navigation ring  to adjust the volume. Press up key to increase the volume and press down key to decrease the volume.

Using the Menus

You can access the Menu System by pressing the Right  selection key in the Main Display screen.

The main menu of the Primary Handset includes nine (9) menu options with each menu option having their respective sub-menus.

You can use the 4-way navigation  ring to navigate to the desired menu option and press  to confirm your selection. You can also end the menu or sub menus and return to the Main Display screen at any time by pressing the  key.

Table below summarizes the functionalities within each menu option:



Contacts

This menu manages your user contacts.



Log

This menu allows you to view call histories.



Telephony

This menu configures settings related to voice telephony services.



Signal

This menu displays the terminal information of satellite signal and GPS.



Messaging

This is menu is for SMS related services.



Settings

This menu configures BDU settings of Time Zone and Language.



Terminal

This menu displays general BDU information.



Security settings

This menu provide a factory reset to the handset.

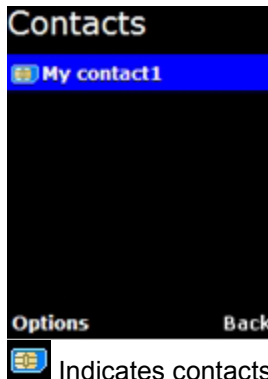


Phone manager

This menu configures local handset settings.



Contacts Menu



The **Contacts** menu allows you to store, retrieve and update names and phone numbers of your contacts in the SIM card memory. You can also access this menu by pressing Left  selection key in Main Display screen.

This menu lists all the contacts saved in SIM card memory where,

 Indicates contacts that are saved in SIM card.

The following options are available when pressing the Left  selection key while browsing through the contacts:

- **New contact**

Add new contact to the memory. To add contact:

- a. Select **New contact**.
- b. Enter the name for the contact.

Note: Press *** +** key to browse for symbols.

- c. Enter the number for the contact.

Note: Stored number can be in any one of the following formats:

- '+' <country code> <phone number>
- 00 <country code> <phone number>

Press *** +** key longer to insert '+' sign.

Saving of contact without number is not allowed.

- d. Select **Save** (Left  selection key) or pressing the  key to save the contact to the selected memory.

Note: Refer to “Tips for writing the text” section under New message for more information on text writing.

- **Edit contact**

Edit information of this contact

- **Call**
Make a voice call to this contact.
- **Search**
Select this to enter a specific name to search within the contact list.
- **Delete**
Delete selected contact.

Note: You can also delete the selected contact by pressing the Clear  key.

- **View number**
Display the number of the selected contact.
- **Assign Speed Dial**
Add the selected contact to the speed dial list.
- **Reload Contacts**
Select this to reload contacts from the BDU/SIM card into the local memory of the Primary Handset.
- **Memory Status**
Select this to view the memory status of the contacts.

While browsing through the contact list, press the  key to view the phone name and number or the selected contact. The following options are available when pressing the Left  selection key while viewing the selected contact:

- **Call**
Make a voice call to this contact.
- **Send message**
Open a SMS editor to send a text message to this contact.
- **Edit contact**
Edit information of this contact.
- **Delete**
Delete this contact.
- **Forward contact**
Forward information of this contact using SMS.

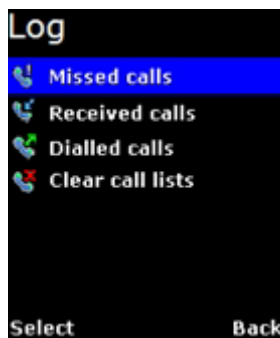
- **Assign Speed Dial**

Add this contact to the speed dial list.

Note: You can also make a voice call to the selected contact when browsing through or viewing the contacts by pressing the Call  key.



Log Menu



The **Log** menu allows you to view historical information about phone calls and data usage in chronological order with the following sub menus:



Missed calls



Received calls



Dialed calls

Call history of the particular category is displayed in chronological order when selected. Up to 5 latest entries of each category can be saved.

The following options are available when pressing the Left  selection key while browsing through or viewing the call log:

- **Delete**

Delete the selected log entry from the list.

Note: You can also delete the entry by pressing the Clear  key.

- **Call**

Call the number in the selected log entry.

- **Send**

Send an SMS to the number in the selected log entry.

- **Save**

Save the number from the selected log entry to the contact list.

Note: This option is not available when the log entry already has an entry in the contact list.

Note: You can also make a voice call to the number of the selected log entry when browsing through or viewing the call log by pressing the Call  key.



Clear call lists

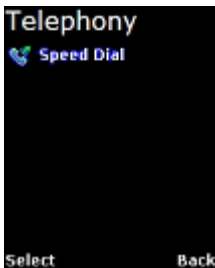
Select this to clear the call log entries. Available log options are:

- **Missed calls**
- **Received calls**
- **Dialled calls**
- **All calls**

Delete all logs including **Missed**, **Received** and **Dialled** logs.



Telephony Menu



The **Telephony** menu allows you to configure telephony related settings with the following sub menus:



Speed dial

- **Setting**

Contain options to enable/disable the speed dial feature.

- **Speed Dial List**

Select this to configure the speed dial list. The following options are available when pressing the Left  selection key while browsing through the list:

- **Assign**

Assign a contact to the selected entry. To assign a contact:

- a. Select **Speed Dial** List.
 - b. Browse through the list to locate an empty entry.
 - c. Select **Options** by pressing Left  selection key.
 - d. Select **Assign** and press  from the option.
 - e. Select the desired contact to assign to the speed dial list.
 - f. Press  to confirm your selection.
- **Delete**
Remove contact from the selected entry. This option is not available for empty entry.

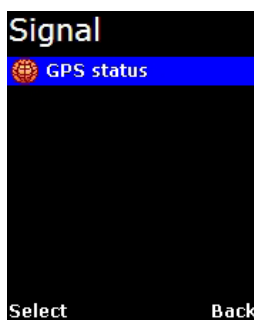
Note: You can also delete the entry by pressing the Clear  key.
 - **Call**
Make call using the number from the selected entry. This option is not available for empty entry.

Note: You can also make a voice call to the number of the selected entry by pressing the Call  key.

You can make a voice call directly from the Main Display screen by pressing the corresponding speed dial entry number + Call  key once the speed dial feature is enabled with a valid contact entry.



Signal Menu



The **Signal** menu provides the following sub menus to get the information of the terminal's GPS.

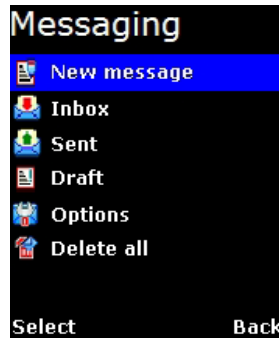


GPS status

Show current Latitude and Longitude coordinates, Speed (knots) and Date & Time of acquisition on the BDU.



Messaging Menu



The **Messaging** menu allows the user to write new messages, view stored messages from **Inbox**, **Drafts** and/or **Sent** folders and configure settings related to SMS with the following sub menus:



New Message (Only Supported in Voice Mode)

Select this to create and send a new message. To create new message:

- Select **New Message** by pressing the  key. A SMS editor will be displayed on the Primary Handset screen for writing new message.
- Type in your SMS message using the alphanumeric keypad.
- To send the message, press the  key and select **Send**.
- Enter the recipient's phone number, and press the  key. Alternatively you can select **Search** by pressing the Left  selection key to select the phone number from the contacts.

Options:

You can press the Left  selection key to select options available when writing the message.

- **Send**
Select this when you are ready to send your message.
- **Save**
Select this to save the message into the **draft** folder.
- **Clear screen**
Select this to clear all the written text.

Tips for writing the text:

- Press the **0** key to add a space.
- To quickly change the text input mode when writing text, press  key repeatedly and check the indicator at the top of the display:
 - **<ABC>**: Capital letters
 - **<123>**: Numbers
 - **<abc>**: Small letters
 - **<Abc>**: Initial Capital letter followed by small letters
- To add a number in alphabet mode, press and hold the desired number key.

Inserting symbols to your message:

- To get a list of special symbols, press the *** +** .key.
- Using the 4-way navigation ring , navigate to the desired symbol.
- Press  to confirm selection.

Clearing text:

- To clear text, press  once to clear one character at a time.
- To clear the whole text entry, press and hold  to clear the whole text entry.



Inbox

Contain new/opened text messages that you have received. When browsing through the messages list using the 4-way navigation  ring,



Indicates an unread (new) message and



Indicates read (opened) text messages.

The following are available options when pressing the Left  selection key while browsing through or viewing the messages in this folder:

- **Open**

Open selected message. You can also press  while browsing through the message list to open the selected message (This option is not available when viewing the message).

- **Reply**

Select this to reply to the selected message sender.

- **Delete**

Delete selected message.

Note: You can also delete the selected message by pressing the Clear  key.

- **Forward**

Forward this message to another recipient.

- **Call**

Make a voice call to the selected message sender.

- **Save**

Save the selected message into the Draft folder.

- **Details**

Display the details of the selected message.

- **Add to contact**

Select this to add the phone number of the selected message into the contact list.

Note: You can also make a voice call to the selected message contact when browsing through the messages list by pressing the Call  key.



Sent

Contain text messages that you have sent. The following are available options when pressing the Left  selection key while browsing through or viewing the messages in this folder:

- **Open**

Open selected message. You can also press  while browsing through the message list to open the selected message (This option is not available when viewing the message).

- **Delete**

Delete selected message.

Note: You can also delete the selected message by pressing the Clear  key.

- **Send**

Send the selected message to another recipient.

- **Save**

Save the selected message into the Draft folder.

- **Add to contact**

Select this to add the phone number of the selected message into the contact list.

Note: You can also make a voice call to the selected message contact when browsing through the message list by pressing the Call  key.



Draft

Contain text messages that you have saved. The following are available options when pressing the Left  selection key while browsing through or viewing the messages in this folder:

- **Open**

Open selected message. You can also press  while browsing through the message list to open the selected message (This option is not available when viewing the message).

- **Delete**

Delete selected message.

Note:

You can also delete the selected message by pressing the Clear  key.

- **Send**

Send this message to another recipient.

- **Save**

Save the selected message into the Draft folder

- **Add to contact**

Select this to add the phone number of the selected message into the contact list.

Note: You can also make a voice call to the selected message contact when browsing through the message list by pressing the Call  key.



Options

The following settings are available in this sub menu:

- **Message Centre**

Select this to set the number of the SMS service centre.

- **Save sent message**

Select this to enable or disable the saving of sent messages. When this option is enabled, all successfully sent messages are saved in the **Sent** folder.

- **Memory status**

Select this to view the memory status of the messages.

- **Reload Messages**

Select this to reload messages from the BDU into the local memory of the Primary Handset.



Delete all

Select this to clear the messages in a particular folder. Available folder options are:

- **All messages**

Delete messages in all folders including **Inbox**, **Sent** and **Draft**.

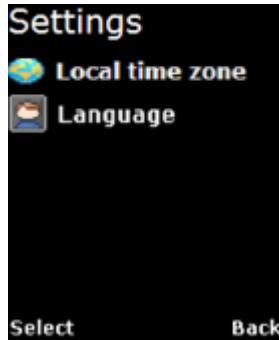
- **Inbox**

- **Sent**

- **Draft**



Settings Menu



The **Settings** menu provides the following sub menus to configure the time zone and language.



Local Time Zone

Change the local time zone of the handset.

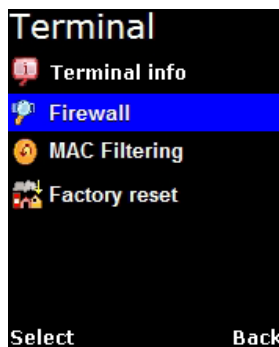


Language

Change the menu display language.



Terminal Menu



The **Terminal** menu provides the information of the BDU, the activation and deactivation of the Firewall and MAC filtering, and Factory Reset to be carried out on the terminal.



Terminal Info

Display a list of information of the BDU.

- **Model**
Model name of the BDU

- **Serial number**
Serial number of the BDU.
- **Software version**
Software version of the BDU
- **Thuraya Module**
Firmware version of Thuraya Module
- **IMEI number**
IMEI number of the BDU
- **IMSI number**
IMSI number of the SIM card
- **Own Number**
Telephone Number of the SIM card



Firewall

To select **Disabled** or **Enabled** the Firewall.



MAC Filtering

To select **Disabled** or **Enabled** the Mac Filtering.

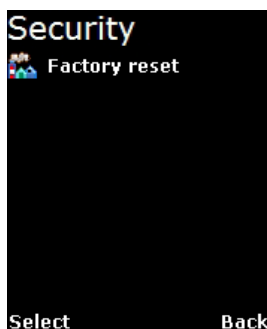


Factory reset

To perform a Factory Reset on the terminal. enter the password “**admin**” and click **OK**.



Security settings Menu



The **Security** menu provides an option to carry out a factory reset to the Handset.

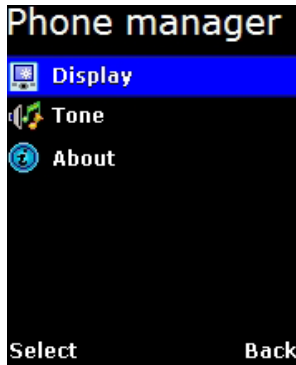


Factory reset

To Perform factory reset on the Handset.



Phone manager Menu



The **Phone manager** menu provides the following sub menus to configure settings that are local to the Primary Handset:



Display

Configure settings that are related to Primary Handset display.

- **Wallpaper**
To select the available wallpaper for the handset background.
- **Backlight**
To set the duration of the display backlight to remain on. Settings range from Always On (Backlight permanently turned on), 15 seconds to 1 minute.

Note: The backlight will be slightly dimmer and finally off when there is no keypad activity after sometime. However, this feature is not available when the setting is set to Always On.



Tone

Configure tone setting for the standard and ring tones.

- **Standard tone**
 - **Key tone**
Contain options to enable/disable the key tone.
 - **Message tone**
Contain options to enable/disable the message tone.
 - **Volume**

Configure the volume for the standard tones (both key and message tones). Using the 4-way navigation ring  , press up/right to increase and down/left to decrease the volume.

- **Ring tone**

- **Tone**

Select desired ring tone pattern.

- **Volume**

Configure the volume of the ring tone. Using the 4-way navigation ring



, press up/right to increase and down/left to decrease the volume.



About

Display a list of information of the Primary Handset.

- **Model**

Model name of the Primary Handset

- **Software version**

Software version of the Primary Handset

- **Hardware version**

Hardware version of the Primary Handset

- **Copyright**

Contain Copyright message

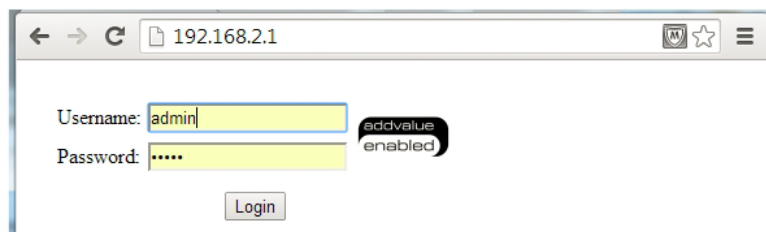
6 USING WEB CONSOLE

6.1 Register to the Network

- a. Connect your computer to the BDU using a LAN cable.
- b. When the connection has been established, open the web browser (for example: Internet Explorer, Google Chrome or Firefox.) .

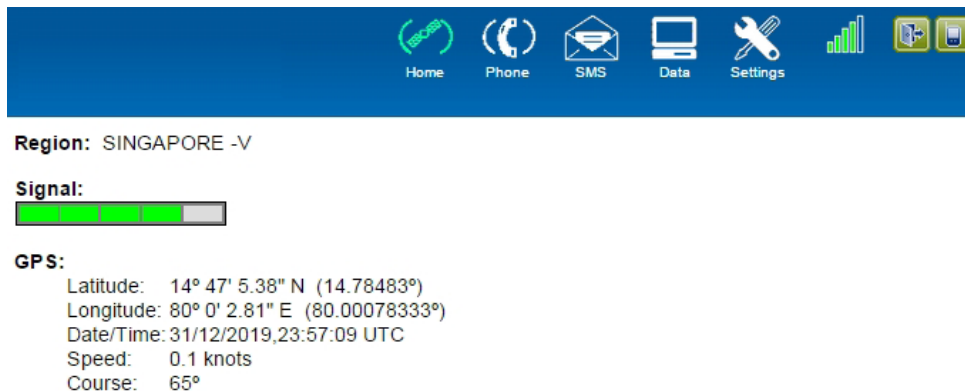


- c. Type **http://192.168.2.1/** in the **Address** field and press **Enter**. When the Login screen appear, type in **admin** in the Username field and **admin** in the password field.



- d. Click “**Login**” button.

The BDU **Web Console** will appear on your screen.



The terminal will automatically register to the network. This process will include GPS acquisition, satellite tracking and registration with the network, which will take 2 to 3 minutes. Upon successful registration, with all four BDU's status indicators lit in green, the terminal will be ready for normal operation.

6.2 Navigating the Web Console

6.2.1 Status Indicators

In **Voice** Mode, the status indicator will appear with **CS Voice** Icon:



In **Data** Mode, the status indicator will appear with **Data** Icon:



These icons indicate the status of the BDU;

- **Green** indicates the item is active.
- **Grey** indicates the item is inactive.

Status Icons



Voice Icon: indicates the Circuit Switch status (Voice calls, SMS)



Data Icon: indicates the Packet Switch information (Internet Browsing, FTP, email)



Signal Icon: indicates the signal strength of the satellite.

System Operation Mode Icons



Log Out



Radio Silence ON (meaning the ADU's transmitter is disable.)

6.2.2 Menu Icons



Below you can see all of the sub menu tabs, under each icon menu item.

Home	Phone	SMS	Data	Settings
	Phone Book	Compose	Connection	Language
	Call History	Inbox	Data Profiles	Terminal Info
		Sent	Port Forwarding	Wi-Fi
		Draft	Firewall	Tracking
			Mac Filtering	Misc
			Settings	Admin
				Modem
				About



Home Menu



Click on Home icon.

The Web Console displays the terminal information of Region, satellite's received signal strength and GPS information (Latitude, Longitude, Date/Time, Speed and Course).

In **Voice** Mode, a prefix of “**V**” will be displayed.

Region: SINGAPORE -V

Signal:



GPS:

Latitude: 14° 47' 5.38" N (14.78483°)
Longitude: 80° 0' 2.81" E (80.00078333°)
Date/Time: 31/12/2019,23:57:09 UTC
Speed: 0.1 knots
Course: 65°

In **Data** Mode, a prefix of “**D**” will be displayed.

Region: SINGAPORE -D

Signal:



GPS:

Latitude: 14° 47' 5.38" N (14.78483°)
Longitude: 80° 0' 2.81" E (80.00078333°)
Date/Time: 31/12/2019,23:57:09 UTC
Speed: 0.1 knots
Course: 65°

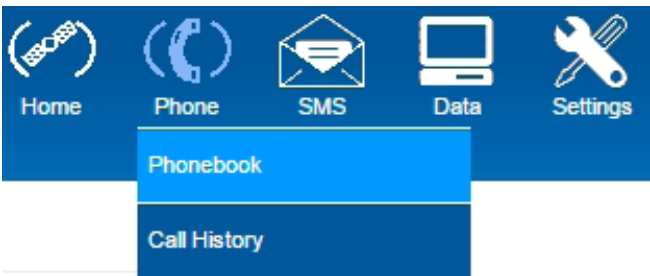


Phone Menu



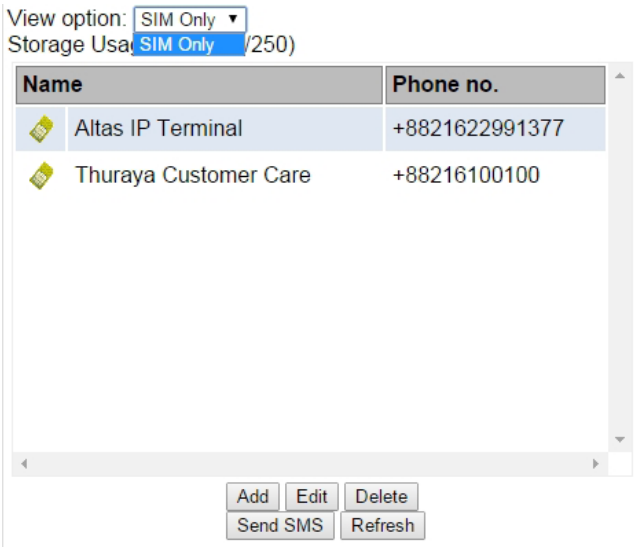
Click on Phone icon.

Phone menu provide the following options:



▪ **Phonebook**

The Phonebook entries can be stored on the SIM card.
It allows you to view, add, edit and delete entries on your Phonebook list and to send SMS messages directly from the Phonebook entries.



▪ Call History

View option: Missed Call ▾

Phone no.		Date	Time	Duration
0065	006590234980	Mon Dec 29 2014	11:13:13 AM	00:00:00
0065	006590234980	Mon Dec 29 2014	11:12:38 AM	00:00:00
0065	006590234980	Mon Dec 29 2014	11:12:00 AM	00:00:27
0065	006565427788	Mon Dec 29 2014	11:10:45 AM	00:00:34
0065	006565427788	Mon Dec 29 2014	10:24:25 AM	00:00:41
0065	006598636392	Thu Dec 18 2014	9:57:00 AM	00:00:00
00882	008821622990081	Tue Dec 16 2014	9:16:37 AM	00:00:22
00882	008821622990081	Mon Dec 15 2014	5:18:43 PM	00:01:02

Send SMS Delete Refresh

View option

The View option allows you to view the Call History entries.

From the drop-down menu, select:

View Option	Description
Dialled Call	To view the list of dialed calls only.
Received Call	To view the list of received calls only.
Missed Call	To view the list of missed calls only.
All	To view the list of the dialed, received and missed calls.

Sending SMS from the Call History list

Follow these steps to send SMS from the Call History list:

- Select the entry from the list.
- Click **Send SMS**.
- The Call History console switches over to the Compose SMS console.

Phone no.: +88212345678910 110/160

Will be reaching the port in 15 mins from now.
Appended GPS :
1.3363845,N,103.891046,E,27/08/2014,02:52:47 GMT

☐ Store a sent copy in SIM

- d. Type in the text message and click **Send**.

Deleting a Call History entry

Follow these steps to delete a Call History entry:

- Select the entry from the Call History list.
- Click **Delete**.
- Click **Ok** to confirm or click **Cancel** to abort deleting the entry.
- Click **Refresh** to refresh the Call History list.

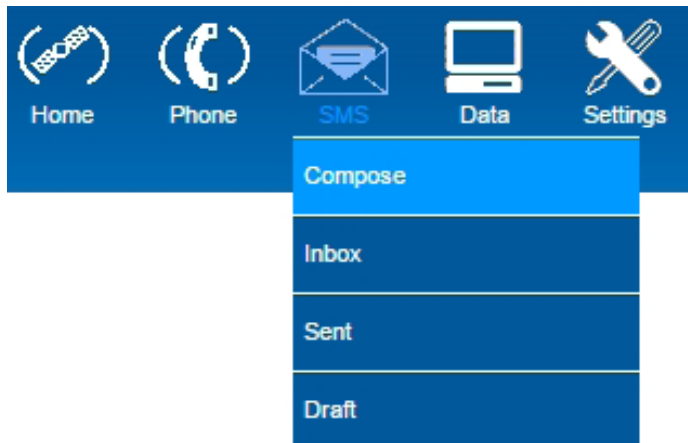


SMS Menu



Click on SMS icon.

SMS menu provide the following options:



- **Compose (Only Supported in Voice Mode)**
To compose and send text messages.
Simply enter a mobile number, type your message and click **Send**.
- **Inbox**
Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.
- **Sent**
Shows the details (Receiver information and Message) of all SMS sent.
- **Draft**
Stores unsent messages for retrieval later.

▪ Compose

Composing a New Message

Follow these steps to compose a new SMS:

- Enter the receiver's phone number in the **Phone no.** field or click the phonebook icon  if the receiver's number is listed in the Phonebook.
- Type the message in the text editor box.

Phone no.:  110/160

Will be reaching the port in 15 mins from now.
Appended GPS :
1.3363845,N,103.891046,E,27/08/2014,02:52:47 GMT

☐ Store a sent copy in SIM



Note: Message is limited to 160 characters (using 7 bit encoded default alphabets) including spaces between words. But it is limited to 70 characters per message using Unicode (UCS2) text message (such as message typed in Chinese, etc).

If the user does not need to store a copy of the sent SMS into SIM card, do uncheck "Store a copy in the SIM" checkbox.

- Click **Send** button to send the SMS.
- To save an unsent SMS, click **Save** button and the unsent SMS will be saved in **Draft**.
- To clear the typed message on the text editor, click **Clear** button.

▪ Inbox

Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.

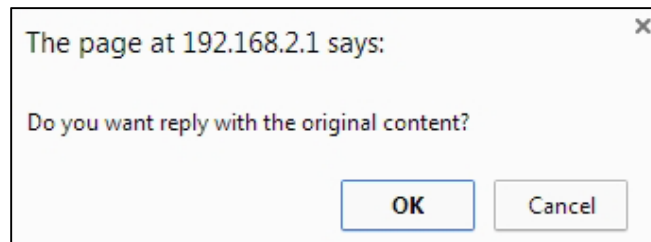
Inbox
Storage Usage: (SIM - 5/100)

☐	From	Message	Date
☐	Atlas IP Terminal	Vessel's GPS, 1.33642316,N, 103.89098716,E, 13/08/2014,08:24:10	Thu Dec 18 2014 4:23:48 PM
☐	+88216229934 72	Calling for Captain to confirm the correct route.	Thu Dec 18 2014 4:21:27 PM

Replying to a SMS

Follow these steps to reply a SMS:

- a. Click on a SMS to select it.
The selected SMS will be highlighted in light blue.
- b. Click **Reply**.
- c. Click **OK** to reply with the original contents or **Cancel** to reply without the original content.



The Inbox console switches over to **Compose** console.

- d. Enter your reply in the text editor.
- e. Click **Send** to send your reply SMS. The reply SMS will be sent to the recipient.

Forwarding an SMS

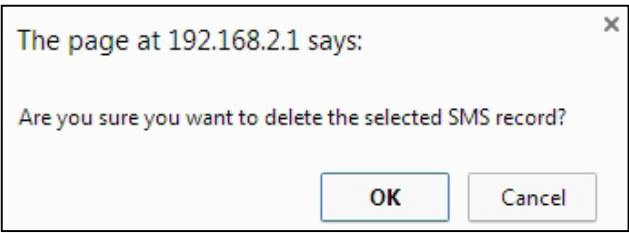
Follow these steps to forward an SMS:

- a. Click on a SMS to select it.
The selected SMS will be highlighted in light blue.
- b. Click **Forward**.
The Inbox console switches over to the Compose console.
- c. Enter the receiver's number in the **Phone No.** field.
- d. Click **Send** to forward the SMS. The SMS will be sent to the recipient.

Deleting a single SMS from the Inbox list

Follow these steps to delete a single SMS from the Inbox list:

- a. Click on a SMS to select it.
- b. Click **Delete**.
- c. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



Deleting multiple SMS from the Inbox list

Follow these steps to delete multiple SMS from the Inbox list:

- a. Select the message by checking the checkboxes beside each SMS.
- b. Click **Delete**.
- c. Click **OK** to confirm the delete, or Cancel to abort the delete.
- d. Click **Refresh** to refresh the Inbox list.

▪ **Sent**

Shows the details (Receiver information and Message) of all SMS sent.

Sent
Storage Usage: (SIM - 5/100)

☐	To	Message
☐	Atlas IP Terminal	Vessel's GPS, 1.33642316,N, 103.89098716,E, 13/08/2014,08:24:10
☐	+88216229934 72	Calling for Captain to confirm the correct route.
☐	882162299076 5	Updating the vessel's location and append the GPS position.

Resending a sent SMS

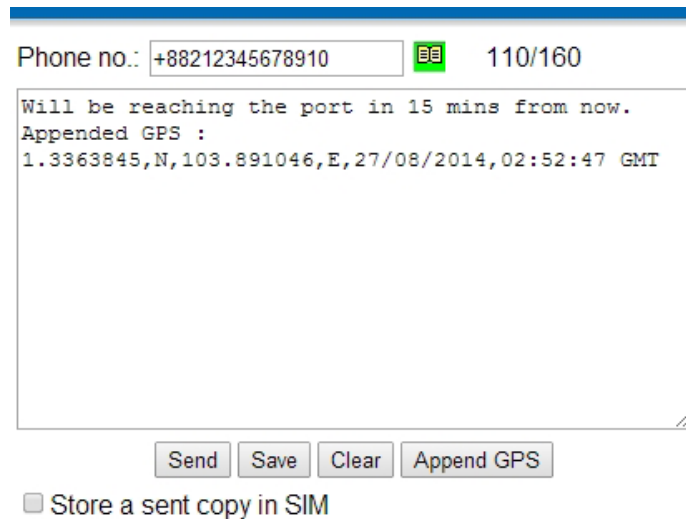
Follow these steps to resend a sent SMS (sending the same SMS to the same receiver):

- a) Click on a SMS to select it.
- b) Click **Resend**.
- c) The SMS will be sent to the recipient.

Forwarding a sent SMS

Follow these steps to forward a sent SMS to another recipient:

- a. Click on a SMS to select it.
- b. Click **Forward**.
- c. The Sent console switches over to the Compose console.



The screenshot shows the 'Compose' console for sending an SMS. At the top, there is a 'Phone no.' field containing '+88212345678910' and a status indicator '110/160'. Below this is a text area containing the message: 'Will be reaching the port in 15 mins from now. Appended GPS : 1.3363845,N,103.891046,E,27/08/2014,02:52:47 GMT'. At the bottom of the text area are four buttons: 'Send', 'Save', 'Clear', and 'Append GPS'. Below the buttons is a checkbox labeled 'Store a sent copy in SIM' which is currently unchecked.

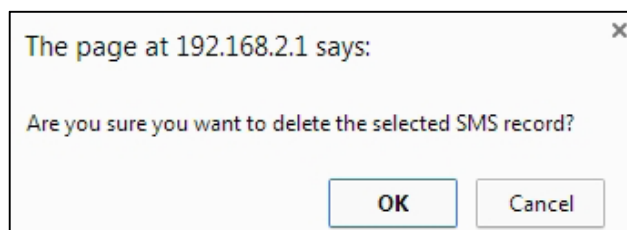
- d. Enter the receiver's number in the **Phone No.** field.
- e. Click **Send**. The SMS will be sent to the recipient.

Deleting a SMS from the Sent list

Follow these steps to delete a single SMS from the Sent list:

Click on a SMS to select it.

- a. Click **Delete**.
- b. Click OK to confirm or click Cancel to abort deleting the SMS.



Deleting multiple SMS from the Sent list

Follow these steps to delete multiple SMS from the from the Sent list:

- a. Select the message by checking the checkboxes beside each SMS.
- b. Click **Delete**.
- c. Click **OK** to confirm the delete, or **Cancel** to abort the delete.
- d. Click **Refresh** to refresh the Sent list.

▪ **Draft**

Stores SMS saved from the Compose console.

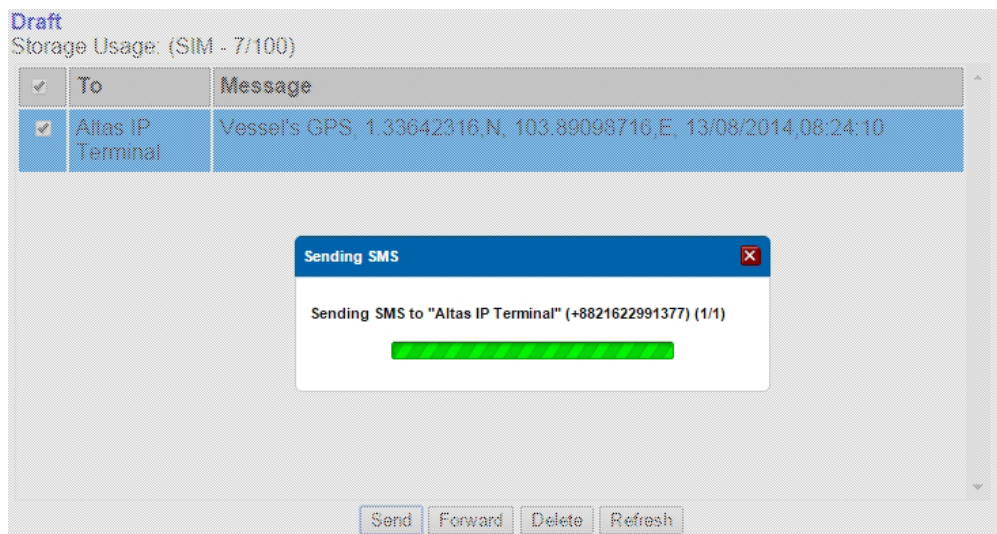
Sending a draft SMS to another recipient

Draft
Storage Usage: (SIM - 6/100)

☐	To	Message
☐	+882162299 3472	Calling for Captain to confirm the correct route.
☐	Atlas IP Terminal	Vessel's GPS, 1.33642316,N, 103.89098716,E, 13/08/2014,08:24:10

Follow these steps to send a draft SMS:

- a. Click on a SMS to select it.
- b. Click **Send**. The SMS will be sent to the recipient.



Forwarding a draft SMS to another recipient

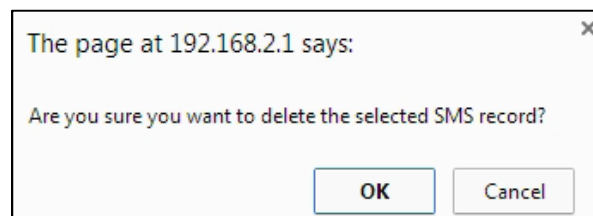
Follow these steps to forward a draft SMS to another recipient:

- Click on a SMS to select it.
- Click **Forward**.
The Draft console switches over to the Compose console.
- Enter the receiver's number in the **Phone No.** Field.
- Click **Send** to forward the SMS. The SMS will be forwarded to the recipient.

Deleting a SMS from the Draft list

Follow these steps to delete a SMS from the Draft list:

- Click on a SMS to select it.
- Click **Delete**.
- Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



Deleting multiple SMS from the Draft list

Follow these steps to delete multiple SMS from the Draft list:

- a. Select the message by checking the checkboxes beside each SMS.
- b. Click **Delete**.
- c. Click **OK** to confirm the delete, or **Cancel** to abort the delete.
- d. Click **Refresh** to refresh the Draft list.

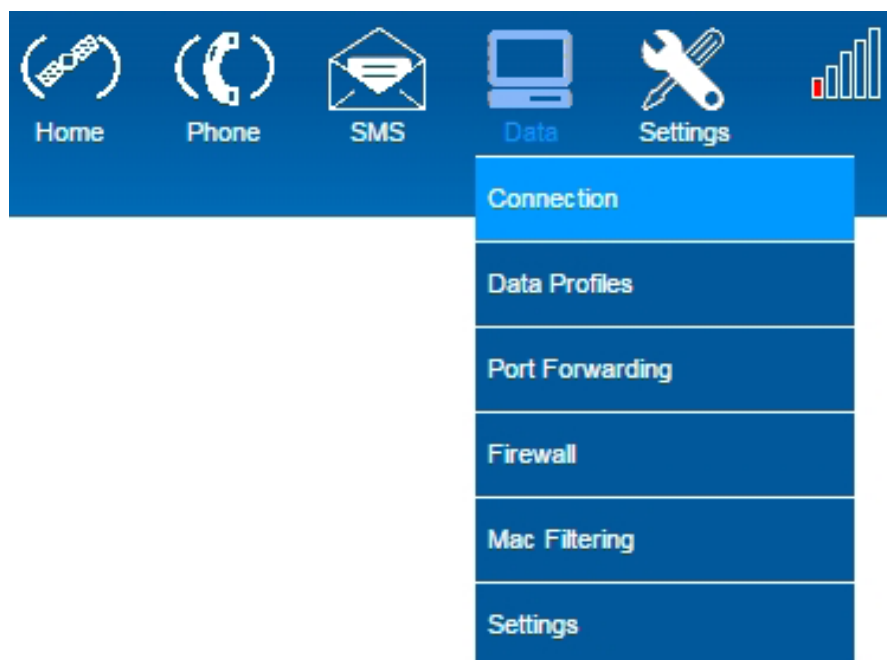


Data Menu



Click on Data icon.

Data menu provides the following options:



- **Connection**

Click “**Activate Default Profile**” to activate the PDP context



standard-vbr - 85.115.85.48 [Disconnect](#) (Standard)

APN and the assigned public IP Address details will be displayed and the user can proceed to access the Internet and use the related features.

To disconnect the data connection, click “**Disconnect**” and The PDP context will be deactivated.

▪ Data Profiles

Data profiles define the connection type.

You can select from a list of profiles to be the default primary profile and connection type. From Profile 8 to Profile 25, the user create an own customized primary profile.

Profile: *#Standard ☒ Set as default Profile Name: Standard Connection Type: ☒ Standard ☐ Streaming ☒ Always On (Auto PDP Context Activation) Access Point Name (APN): APN standard-vbr Username: Password: IP Configuration ☒ Dynamic IP Address ☐ Static IP Address Update Settings Cancel Deactivate Profile	Standard Using this connection type you will be charged for the VOLUME (kilobytes) of data used. Use this connection type for TCP/IP applications, data exchange and transfer such as Email, Internet Browsing, FTP, etc.
--	---



Note: The Standard profile is set as the default primary profile and the default connection type is standard (this is charged by the **VOLUME** [in kilobytes] of data used).

Profile Name

Change the profile name as desired.

Connection Type

Change the type of connection (“**Standard**” or “**Streaming**”)

By default the connection type will be **Standard**.

Access Point Name (APN)

The APN is required for the satellite connection. Depending on the Service Provider, follow these steps to change the Access Point Name:

- Enter the new APN in the field space provided (e.g. **standard-vbr**).
- Enter the username and password if required.

IP Configuration

By default, the **Dynamic IP Address** is selected. If using Static IP Address, then select **Static IP Address** and enter the IP Address in the space provided.

▪ Port Forwarding

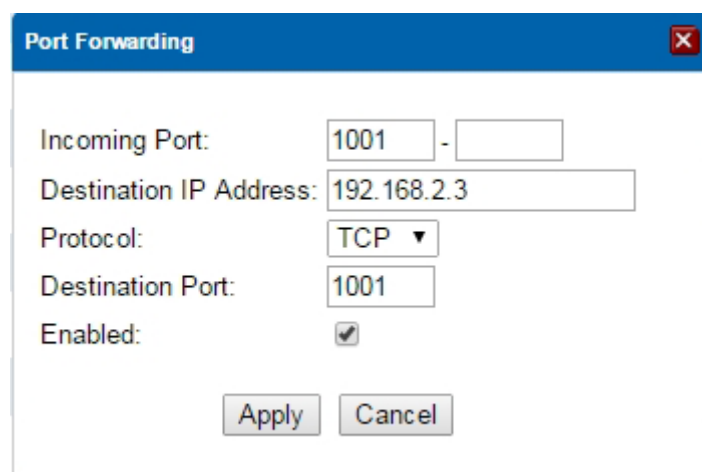
Port Forwarding is a feature for Router (multiple-user) mode.

This feature sets the terminal to direct incoming traffic on certain TCP/UDP port to a specific port on a local PC (IP Address).

Incoming Port	Protocol	Destination IP Address	Destination Port	Enabled	
1001	TCP	192.168.2.3	1001	☒	Edit Delete
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add
0	-	0.0.0.0	0	☐	Add

Follow these steps to add a new forwarding rule:

- Click **Add** button.



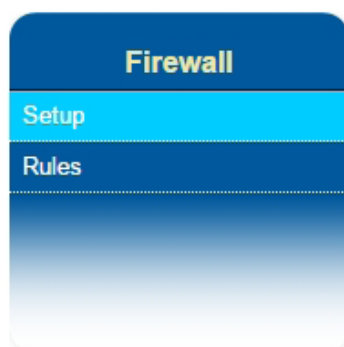
A screenshot of a 'Port Forwarding' dialog box. It has a blue title bar with a close button. The fields are: 'Incoming Port' with '1001' and an empty box; 'Destination IP Address' with '192.168.2.3'; 'Protocol' with a dropdown menu showing 'TCP'; 'Destination Port' with '1001'; and 'Enabled' with a checked checkbox. At the bottom are 'Apply' and 'Cancel' buttons.

- Enter **Incoming Port** number in the space provided.
(For example, the user is expecting HTTP traffic, the port is 1001).
- Enter the Destination IP Address.
(For example, the IP Address of the PC that is connected to the terminal).
- Select **Protocol: TCP / UDP**.(e.g. for HTTP, it will be TCP).
- Enter **Destination Port** number in the space provided (For example: listening port of the particular service (for example TCP port 80 for web server) on the PC that is connected to the terminal).
- Click **Apply** to allow the settings to take effect.

▪ Firewall

Enable Firewall Settings

- Navigate to **Data>Firewall>Setup** to enable Firewall protection.(By default, the **Firewall** is disabled.)
- Select **Enable**.
- Click **Update**.

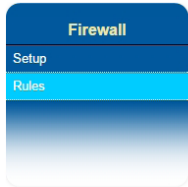


Firewall Protection Setup

Firewall Protection ☒ Enabled ☐ Disabled

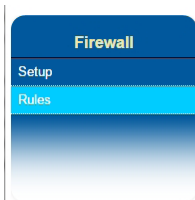
Rules

To define rules to allow or reject with selected traffic type packets.



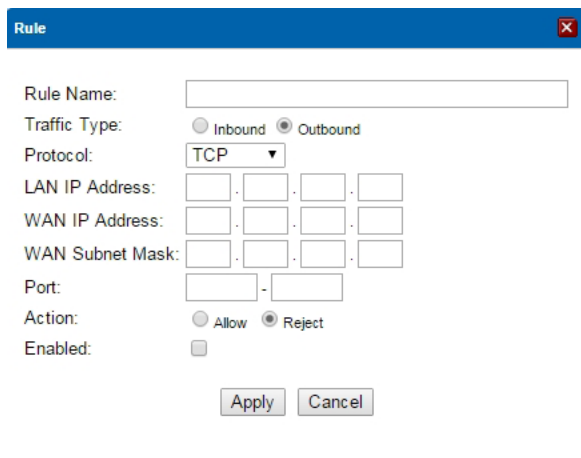
Rules

Rule Name	Traffic Type	Protocol	LAN IP Address	WAN IP Address	Port	Action	Enabled	
Default Rule	Inbound	TCP	ANY	ANY	ANY	Allow	Enabled	Edit Delete
								Add
								Add
								Add
								Add
								Add



Rules

Rule Name	Traffic Type	Protocol	LAN IP Address	WAN IP Address	Port	Action	Enabled	
Rule1	Outbound	TCP	ANY	ANY	ANY	Reject	Disabled	Edit Delete
Rule2	Outbound	TCP	ANY	ANY	990	Allow	Disabled	Edit Delete
Rule3	Outbound	TCP	ANY	ANY	443	Allow	Disabled	Edit Delete
Rule4	Outbound	TCP	ANY	ANY	80	Allow	Disabled	Edit Delete
Rule5	Outbound	TCP	ANY	ANY	5679	Allow	Disabled	Edit Delete
Rule6	Outbound	UDP	ANY	ANY	5679	Allow	Disabled	Edit Delete
								Add
								Add



Rule

Rule Name:

Traffic Type: ☐ Inbound ☒ Outbound

Protocol:

LAN IP Address: . . .

WAN IP Address: . . .

WAN Subnet Mask: . . .

Port: -

Action: ☐ Allow ☒ Reject

Enabled: ☐

Mac Filtering

Click Mac Filtering to view and select **Enabled** or **Disabled**

Reject List

All PCs/Laptops will be allowed to access the terminal except for those (MAC addresses) listed in the Reject List.

Mac Filtering: ☐ Enabled ☒ Disabled
Use: ☒ Reject List ☐ Allow List

Reject List

 [Add](#)

*Your Mac Address: **F6:55:F9:83:E9:61**

Allow List

All PCs/Laptops will be denied access to the terminal except for those (MAC addresses) listed in the Allow List. When selecting this list, at least one entry should be there to access the terminal.

Mac Filtering: ☐ Enabled ☒ Disabled
Use: ☐ Reject List ☒ Allow List

Allow List
20:6A:8A:64:61:99 [Delete](#)
 [Add](#)

*Your Mac Address: **54:EE:75:26:03:15**

▪ Setting

The selection of the **Ethernet mode** is to be used for incoming traffic connection.

Settings
Settings

Ethernet mode:

☐ Router Mode (Single User)
IP Address: . . .

☒ Router Mode (Multi-User)

Under **Ethernet mode**,

a. Router Mode (Single User)

- Enable this mode to forward all incoming traffic to a single laptop or desktop based on IP address specified by users

b. Router Mode (Multi-User)

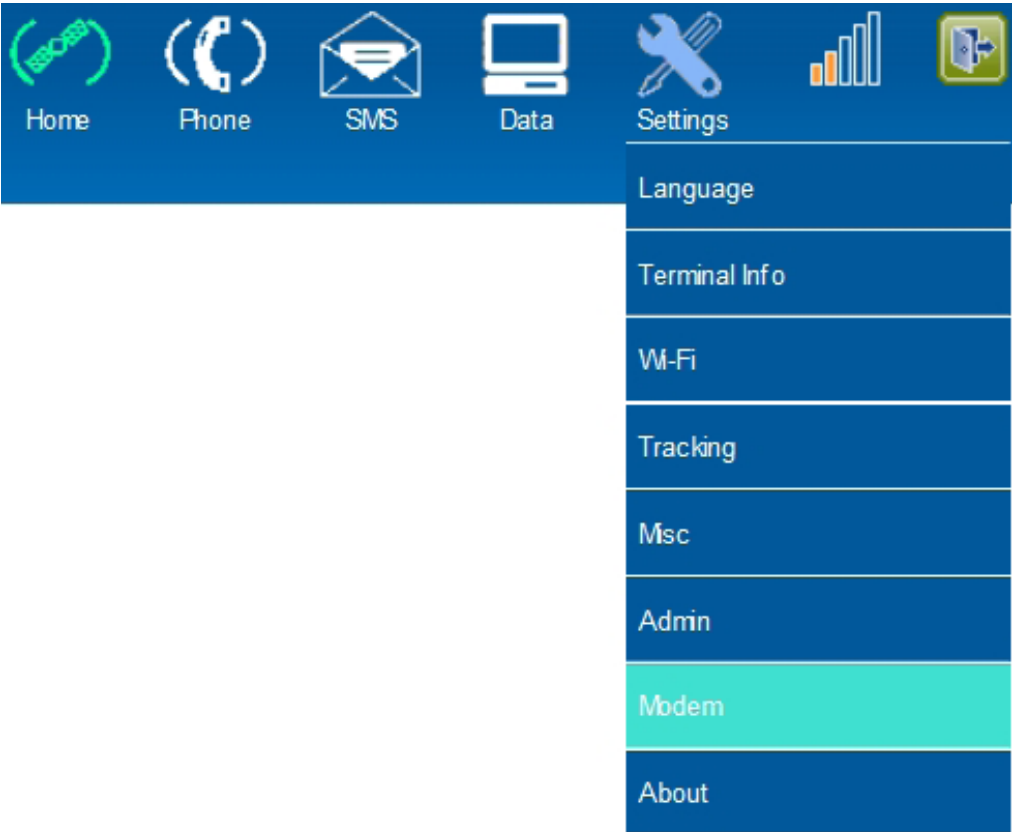
- Enable this mode for users to use the Port Forwarding to redirect incoming traffic to the intended IP addresses of different laptops or desktops for the users to have a few services



Settings Menu

Click on  Settings icon.

Setting menu provides the following options:



▪ Language

Select the desired language for the Web Console to be displayed. (English, Chinese-Simplified, Chinese-Traditional, Spanish and Vietnamese).



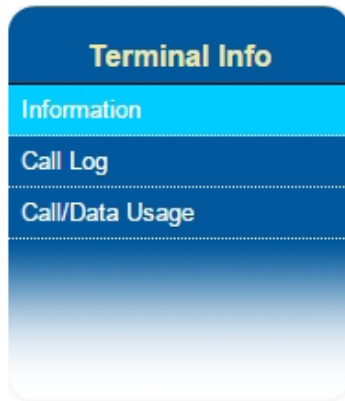
▪ Terminal Info

This tab shows general information about the terminal, Call Log and Call/Data Usage.

Information

Displays information;

- a. Software Version
- b. Hardware Version
- c. Modem Version
- d. MCU Version
- e. Model ID
- f. IMEI & IMSI Numbers
- g. Subscriber Number
- h. ADU Information (Serial Number, Model ID, Hardware and Software Version)

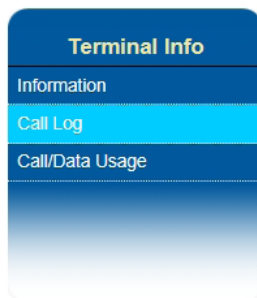


Software version:	Atlas_0.2.1.7
Hardware version:	2
Modem version:	Atlas_0.2.1.7
MCU version:	1.0.2
Model ID:	Atlas
IMEI number:	355926030004030
IMSI number:	901112112100154
Subscriber number:	+871234567
Mac Address:	F6:55:F9:83:E9:61

Call Log

Displays the call history including the voice call and data sessions.

Select **CS** under Call Log Type to display the voice call history.



Call Log Type: **CS** ▼

	Phone no.	Date/Time	Duration	
📞	006566347090	Wed Aug 12 2015, 10:50:12 AM	000:00:00:00	
📞	006566347090	Wed Aug 12 2015, 10:36:16 AM	000:00:13:19	
📞	006566347090	Wed Aug 12 2015, 10:05:25 AM	000:00:29:41	
!	+6566347090	Wed Aug 12 2015, 10:03:41 AM	000:00:00:00	
📞	006566347090	Wed Aug 12 2015, 10:02:40 AM	000:00:00:27	
📞	0065666	Wed Aug 12 2015, 10:01:04 AM	000:00:00:00	
📞	006566333	Wed Aug 12 2015, 9:59:47 AM	000:00:00:00	
!	+6566347090	Wed Aug 12 2015, 9:59:12 AM	000:00:00:00	
📞	006566347090	Wed Aug 12 2015, 9:58:20 AM	000:00:00:00	
📞	+6566347090	Wed Aug 12 2015, 9:58:02 AM	000:00:00:11	

Select **PS** under Call Log Type to display the data session history.

Terminal Info

Information

Call Log

Call/Data Usage

Call Log Type: PS

Connection Type	Date/Time	Duration	Volume (Upload/Download)	Uplink/Downlink Bitrate (kbps)	IP Address	APN
Streaming	Mon Dec 15 2014, 1:47:28 PM	000:02:11:00	55.01 MB / 54.99 MB	128 / 128	85.115.73.215	streaming-cbr
Streaming	Mon Dec 15 2014, 11:29:10 AM	000:02:17:23	54.96 MB / 54.85 MB	256 / 256	85.115.73.215	streaming-cbr
Background	Mon Dec 15 2014, 9:09:57 AM	000:02:18:27	54.25 MB / 38.86 MB	Dynamic / Dynamic	85.115.73.215	standard-vbr
Streaming	Mon Dec 15 2014, 7:54:29 AM	000:01:11:57	54.84 MB / 54.8 MB	384 / 384	85.115.73.215	streaming-cbr
Streaming	Mon Dec 15 2014, 6:57:35 AM	000:00:54:56	55.17 MB / 54.93 MB	384 / 384	85.115.73.215	streaming-cbr
Streaming	Sun Dec 14 2014, 3:34:16 PM	000:01:51:43	110.09 MB / 112.09 MB	384 / 384	85.115.73.215	streaming-cbr
Background	Sun Dec 14 2014, 3:05:21 PM	000:00:01:40	3.46 KB / 5.37 KB	Dynamic / Dynamic	85.115.73.215	standard-vbr
Background	Sun Dec 14 2014, 3:05:20 PM	000:00:00:00	0 byte / 0 byte	Dynamic / Dynamic		
Background	Fri Dec 12 2014, 5:32:13 PM	001:19:22:39	5.13 MB / 110.96 MB	Dynamic / Dynamic	85.115.73.215	standard-vbr
Streaming	Fri Dec 12 2014, 12:50:13 PM	000:03:26:53	164.36 MB / 153.88 MB	384 / 384	85.115.73.215	streaming-cbr

Call / Data Usage

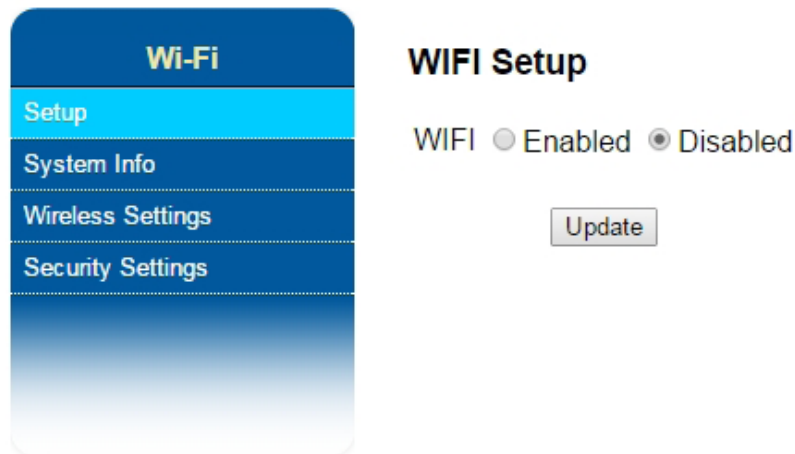
Displays the total **Call Usage** and total **Data Usage**.
Click **Clear** to reset counter for both call and data usage .

Terminal Info	Call Usage:
Information	Current Call (Incoming): 00:00:00
Call Log	Current Call (Outgoing): 00:00:00
Call/Data Usage	Total Call (Incoming): 00:00:00
	Total Call (Outgoing): 00:00:00
	Total Call Usage: 00:00:00 <button>Clear</button>
	Data Usage:
	Current Data (Upload): 0 byte
	Current Data (Download): 0 byte
	Current Data (Time): 00:00:00
	Total Data (Upload): 0 byte
	Total Data (Download): 0 byte
	Total Data Usage: 0 byte <button>Clear</button>

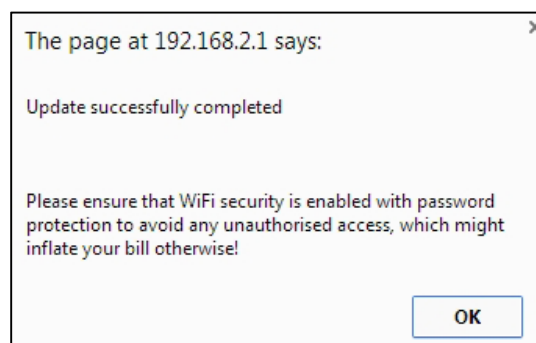
- **Wi-Fi**

By default, the **Wi-Fi** is disabled.

Setup



- Select **Enabled** to turn on the Wi-Fi module. (Go to Wireless Setting to enable Wi-Fi to be accessible by other devices.)
- Click **Update**.
- Once the Wi-Fi service is enabled, a pop-up message box indicates the Wi-Fi service is activated.



System info

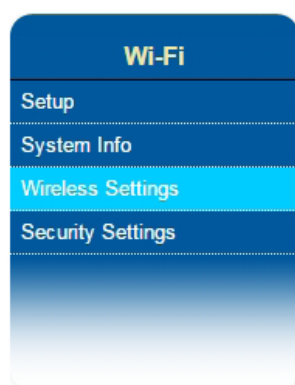
Display the information of Ethernet MAC Address, WLAN MAC Address and Software Version.



Ethernet MAC Address: AA:BB:CC:DD:EE:FF
WLAN MAC Address: FF:EE:DD:CC:BB:AA
Software version: Telnet-Version 8

Wireless Settings

- Choose ideal **Network Mode** and **Channel**.
- If required, **Network Name (SSID)** can be renamed by the user.
- Choose ideal **Channel**
- Click **Update**.



Network Mode: 802.11b ▼

Network Name (SSID): AtlasIP-020

☒ Allow SSID Broadcast

Channel: Auto ▼

Security Settings

To disable security mode, select **Disabled**.

To other security mode, follow the steps to configure the security settings of the Wi-Fi module.

- a. Select the security mode and authentication key.



Note: *There are four sets of security passwords available for your security configuration and you can only select one set of password.*

- b. Under Security Mode of **WEP**, select the **Default Key** to enable the desired password from **Key**.

The screenshot shows the 'Wi-Fi' settings menu on the left with 'Security Settings' selected. The main area displays the 'Security Mode' set to 'WEP'. Below it, 'Authentication Type' is set to 'Open Key', 'Default Key' is set to '1', and there is an empty 'Key' field. An 'Update' button is at the bottom. Below the form, a 'WEP Key' section explains the character requirements for 64-bit and 128-bit encryption.

Security Mode:
Authentication Type:
Default Key:
Key:

WEP Key
For 64-bit encryption - You can enter either 5 ASCII characters or 10 hexadecimal digits (any combination of 0-9, a-f, A-F, empty string is not permitted).
For 128-bit encryption - You can enter either 13 ASCII characters or 26 hexadecimal digits (any combination of 0-9, a-f, A-F, empty string is not permitted)

- c. Under Security Mode of **WPA/WPA2 - Personal**, select the **Encryption Type** and key in desired password in **Passphrase**.

The screenshot shows the 'Wi-Fi' settings menu on the left with 'Security Settings' selected. The main area displays the 'Security Mode' set to 'WPA2 - Personal'. Below it, 'Encryption Type' is set to 'Auto', and there is an empty 'Passphrase' field. An 'Update' button is at the bottom.

Security Mode:
Encryption Type:
Passphrase:

▪ Tracking

Settings

- a. Select **Disabled** if you do not need GPS reporting.
- b. Select **Enabled** if you need GPS reporting.
- c. Select either **IP Data** or **SMS** mode.
- d. Key in the desired **Frequency** in seconds. (The time interval to update the server.)
- e. Key in **Server Phone Number** (Voice Mode only).
- f. Key in **Server IP Address** (Data Mode only).
- g. Key in **Server Port number** (Data Mode only).
- h. **Server Connection Type** is fixed to TCP (Data Mode only).

- i. Key in **Distance Interval**.
- j. Key in **Speed Limit (Alarm)**.
- k. Key in **3 Authorized Phone Numbers** and **Emergency Phone Numbers** (SMS mode only).
- l. Key in number of Retries when the alert fails to send out due to unexpected error.
- m. Key in desired seconds in **Resend Frequency** and **Maximum Number of Tries**..

Tracking

Settings

Geo Fence

Emergency Text

GPS Reporting:

☐ Enabled ☒ Disabled

Mode:

IP Data ▼

Tracking ID:

000000

Frequency:

1800

second(s)

Server Phone Number:

Server IP Address:

Server Port:

0

Server Connection Type:

TCP ▼

Distance Interval:

0

m

Speed Limit (Alarm):

0

km/h

Authorized Phone Number (1/3):

Authorized Phone Number (2/3):

Authorized Phone Number (3/3):

Emergency Phone Number (1/3):

Emergency Phone Number (2/3):

Emergency Phone Number (3/3):

Emergency:

Resend Frequency:

60

second(s)

Maximum Number of Tries:

9999

Update

Geo Fence

- a. There are two ways to enter latitude/longitude:
 - i. Degrees, minutes, seconds.
 - ii. Decimal degrees.
- b. Select the desire latitude/longitude format.
- c. Click **Add**.
- d. Select **Trigger Type**:
 - i. In
 - ii. Out
 - iii. In/Out

- e. Select the type of Geo Fence:
 - i. Circle (1 points, radius)
 - ii. Rectangle (2 points)
 - iii. Polygon (minimum 3 points. maximum 10 points)
- f. Key in the Latitude, Longitude and other values, depending on the type of Geo Fence. Click **Apply** to confirm.

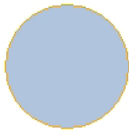
Tracking

Settings

Geo Fence

Emergency Text

Latitude/Longitude view format: ☒ dddmm.mmmm ☐ ddd.dddddd

Enabled	Trigger Type	Type of Geo Fence		
☐	In	Circle	Latitude: 112 Longitude: 10332 Radius: 300 m	Edit Delete Apply 
☐	In	Rectangle	Latitude1: 112 Longitude1: 10332 Latitude2: 123 Longitude2: 10354	Edit Delete Apply 
				Add Delete Apply Add Delete Apply

Emergency Text

Tracking

Settings

Geo Fence

Emergency Text

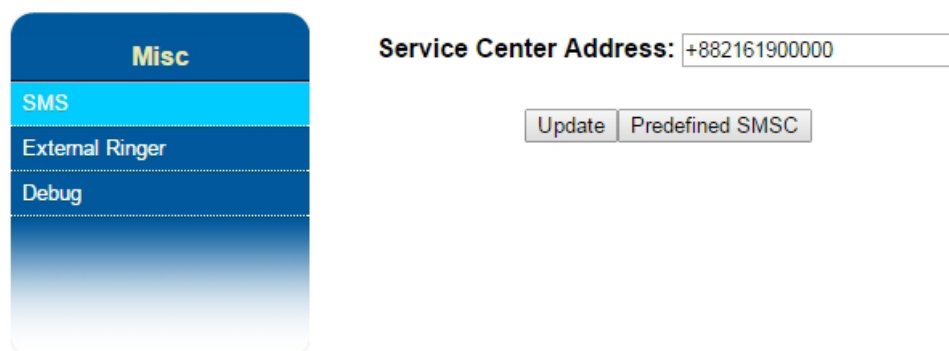
8/110

SOS HELP

Update

- **Misc**

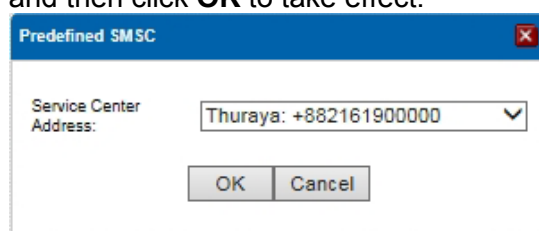
SMS



The screenshot shows a vertical menu on the left with the following items: **Misc** (highlighted in blue), SMS, External Ringer, and Debug. To the right of the menu, the text "Service Center Address:" is followed by a text input field containing "+882161900000". Below this field are two buttons: "Update" and "Predefined SMSC".

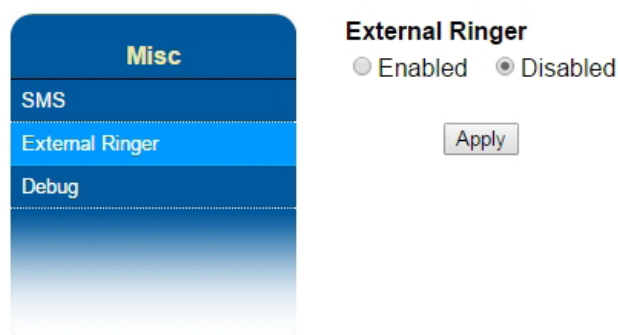
The Service Centre Address has been predefined with SMSC contact number and it can be modified with the required contact number, depending the Service Provider.

Alternatively, click **Predefined SMSC**. Select the desired service centre address and then click **OK** to take effect.



The screenshot shows a dialog box titled "Predefined SMSC" with a close button (X) in the top right corner. Inside the dialog, there is a label "Service Center Address:" followed by a dropdown menu showing "Thuraya: +882161900000" with a downward arrow. At the bottom of the dialog are two buttons: "OK" and "Cancel".

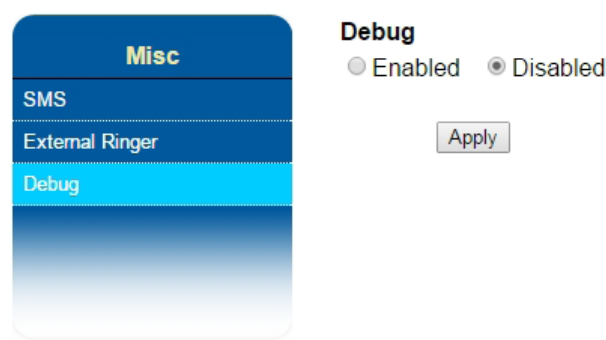
External Ringer



The screenshot shows the same vertical menu as before, but now "External Ringer" is highlighted in blue. To the right of the menu, the text "External Ringer" is followed by two radio buttons: "Enabled" (which is unselected) and "Disabled" (which is selected). Below these radio buttons is an "Apply" button.

Click **Enabled** to activate the external ringer (or buzzer) when there is an incoming call. The external ringer's wires are connected to Pin 9 and Pin 10 of the BDU GPIO Output Port.

Debug



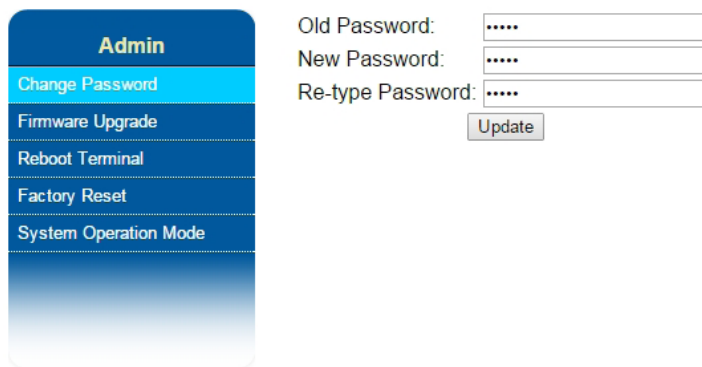
Click **Enabled** to enable the log file.

▪ Admin

Change Password

Follow these steps to change the Web Console Login Password:

- Enter the old password in the **Old Password** field.
- Enter the new password in the **New Password** field.
- Re-enter the new password in the **Re-type Password** field.
- Click **Update**.
- The Web Console login password is now changed.



The image shows a screenshot of the 'Admin' menu on the left, with 'Change Password' highlighted. To the right is the 'Change Password' form. It contains three input fields: 'Old Password:', 'New Password:', and 'Re-type Password:', each with a masked password (dots). Below the fields is an 'Update' button.

Firmware Upgrade

Firmware upgrade is to update the BDU with the latest firmware. Please refer to your respective distributor for your firmware download.



Warning:

DO NOT abort the upgrading process or unplug the power of the BDU during the firmware upgrade process at any time. Doing so will corrupt the existing firmware loaded onto the BDU.

Follow these steps to upgrade the firmware for the BDU:

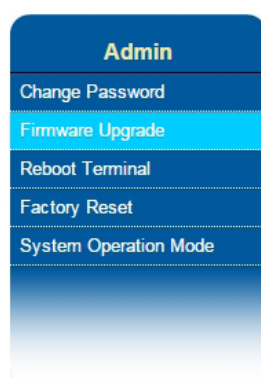
- Download or acquire the new firmware from your respective distributor and save it in your computer's hard drive.

Note:

Make sure the BDU is switched on and connected to the desktop/laptop computer using the LAN cable.

- Select **Firmware Upgrade**.

Read the Disclaimer message carefully before proceeding with the Firmware Upgrade.



File to upload: No file chosen

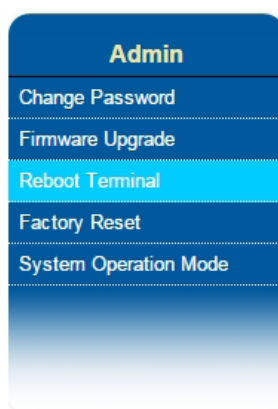
Disclaimer

Please be informed that firmware upgrading is done at your own risk and the equipment manufacturer will not be held responsible for any possible malfunction or damage to the system due to upgrading the firmware.

If you encounter any problems or have any questions, please contact the equipment distributor for technical support

- c. Browse to the location of the new firmware, select a correct file (*.bin) and click “**Upload**”.
- d. Firmware upgrade will take 1 minute to complete.

Reboot Terminal



Click on the button to reboot the Terminal:

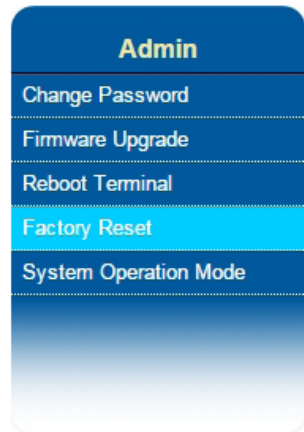
Click **Reboot** to reboot the terminal. Refresh the browser to update the Web Console page after reboot.

Factory Reset

To perform a Factory Reset, enter the security code “**admin**” and click **Factory Reset**.

Note:

If the Web Console Login Password has been changed, then the security code will be updated and reflected on the Web Console Login Password.



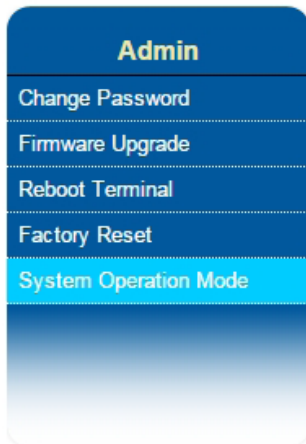
The screenshot shows a vertical menu titled 'Admin' with the following options: Change Password, Firmware Upgrade, Reboot Terminal, Factory Reset (highlighted in blue), and System Operation Mode. To the right of the menu, there is a 'Security code:' label followed by a text input field, and a 'Factory Reset' button below it.



Warning: All the settings and user data (Call History, Call/Data Usage, etc.) of the BDU will be cleared and reset to the default settings.

System Operation Mode

There are 2 operational modes; **Data** or **Voice** which is used for IP data and CS voice respectively. Select the desired mode and then click **Update Settings**.



The screenshot shows the 'Admin' menu with 'System Operation Mode' highlighted. To the right, under the heading 'System Operation Mode:', there are two radio button options: 'Data' (unselected) and 'Voice' (selected). Below these options is an 'Update Settings' button. A note below the button states: '(Note: this might take up to a few minutes)'.

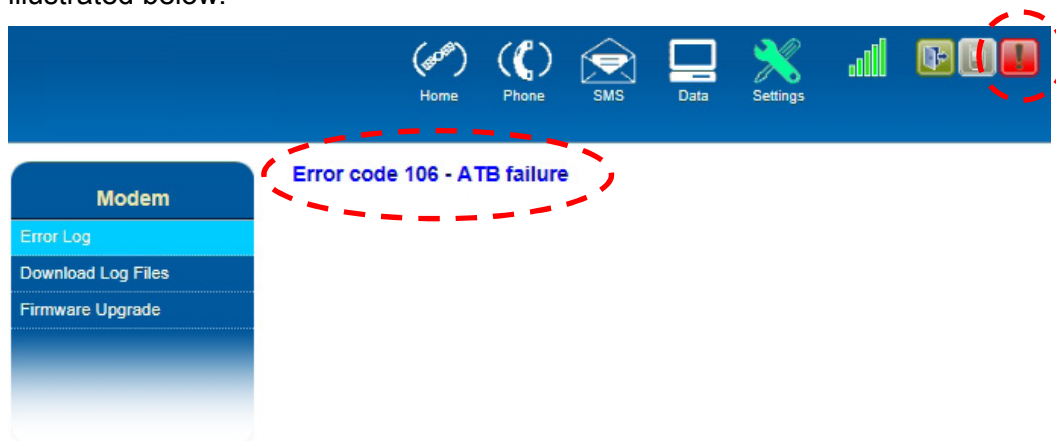


Warning: Setting Data or Voice mode will take at least 2 minutes for the terminal to take effect. During the period of setting Data to Voice mode in effect, the user will not be able to make voice call using primary handset.

▪ Modem

Error Log

The Error Log will display the error code number with its short description as illustrated below.



Refer to Chapter 9 Error Codes for more information in the remedial actions or solutions.

Download Log Files

The Log Files can be compressed into a single archive file.

Modem
Error Log
Download Log Files
Firmware Upgrade

The device's log files will be compressed into a single archive file. This process takes several minutes to complete.

Number of Log Files:	10
Total Log File Size (uncompressed):	72.35 MB.
Estimated Log Archive Size (compressed):	5.24 MB.
Actual Log Archive Size (compressed):	0
Elapsed time:	00:00:00

Create Log Archive

Click **Create Log Archive** and the process of the compressing the log files into a single archive file will take several minutes to complete.

Modem
Error Log
Download Log Files
Firmware Upgrade

The device's log files will be compressed into a single archive file. This process takes several minutes to complete.

Number of Log Files:	10
Total Log File Size (uncompressed):	72.35 MB.
Estimated Log Archive Size (compressed):	5.24 MB.
Actual Log Archive Size (compressed):	458,752 bytes.
Elapsed time:	00:00:16

Create Log Archive

Please wait while the log archive file is built.....

About 8.3%

After completing the creation of the log archive file, click **Download Log Archive** and save it as your preferred location.

Modem
Error Log
Download Log Files
Firmware Upgrade

The device's log files will be compressed into a single archive file. This process takes several minutes to complete.

Number of Log Files:	10
Total Log File Size (uncompressed):	70.71 MB.
Estimated Log Archive Size (compressed):	5.12 MB.
Actual Log Archive Size (compressed):	5.38 MB.
Elapsed time:	00:04:07

Create Log Archive

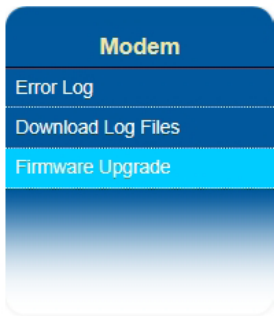
Download Log Archive

Log Archive has been created. Compressed file size: 5,637,410 bytes (5.38 MB.).
To receive the archive, click the 'Download Log Archive' button above.

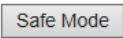
100%

The compressed log archive file is very useful for the Service Provider to recommend a solution if possible.

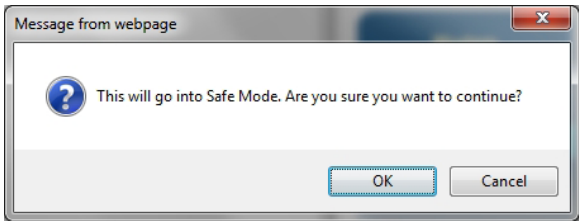
Firmware Upgrade



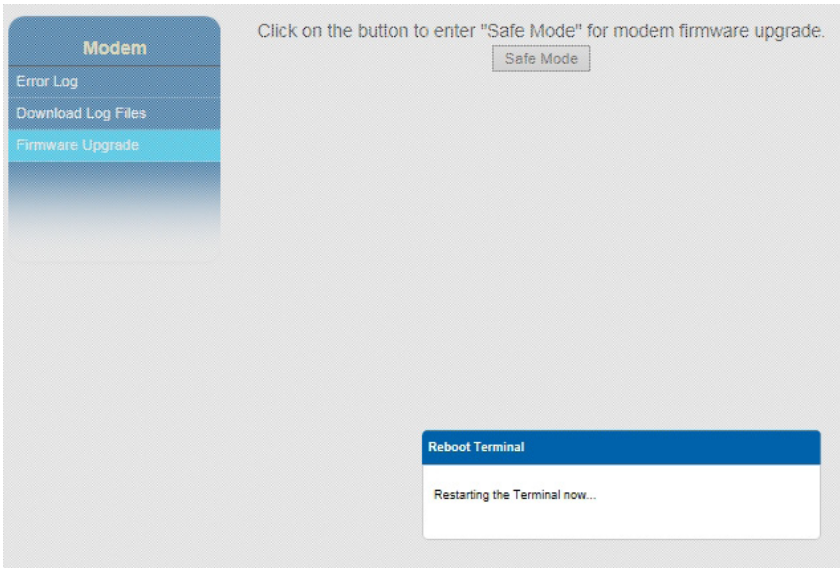
Click on the button to enter "Safe Mode" for modem firmware upgrade.



Click **Safe Mode** and then **OK** to enter Safe Mode.



The terminal will restart and enter into the Safe Mode environment.



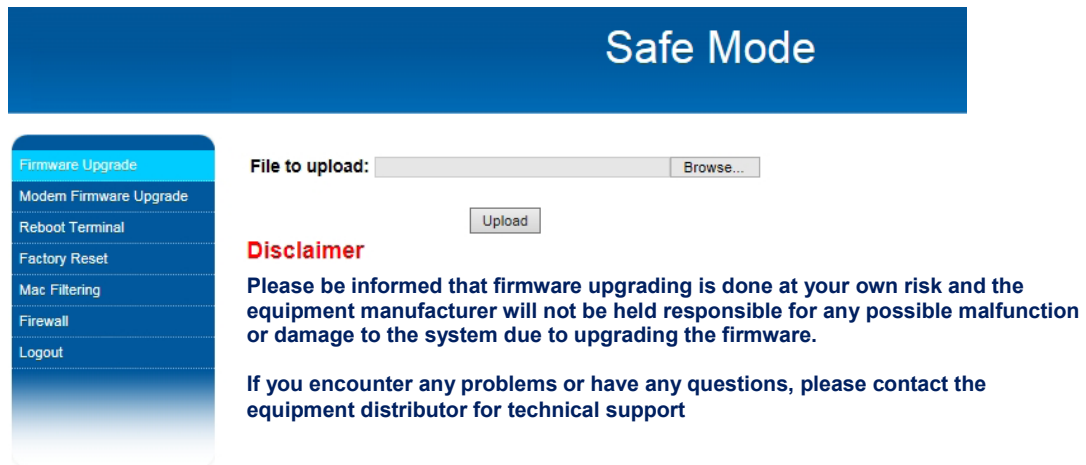
Refer to Chapter 7 Entering Safe Mode Environment.

7 ENTERING SAFE MODE ENVIRONMENT

Firmware Upgrade

The firmware upgrade is similar as **Setting Admin ► Admin ► Firmware Upgrade** and it is only applicable for the application firmware.

Browse for correct file (*.bin) and then click **Upload**.



The screenshot shows a web interface titled "Safe Mode" in a blue header. On the left is a sidebar menu with options: "Firmware Upgrade" (highlighted in blue), "Modem Firmware Upgrade", "Reboot Terminal", "Factory Reset", "Mac Filtering", "Firewall", and "Logout". The main content area has a "File to upload:" label followed by a text input field and a "Browse..." button. Below this is an "Upload" button. A red "Disclaimer" section follows, containing two paragraphs of text. The first paragraph states that firmware upgrading is done at the user's own risk and that the equipment manufacturer will not be held responsible for any possible malfunction or damage to the system due to upgrading the firmware. The second paragraph advises that if the user encounters any problems or has any questions, they should contact the equipment distributor for technical support.

Modem Firmware Upgrade

The modem firmware upgrade is especially for the built-in modem which requires its firmware to be upgrade. Choose **Modem Firmware Upgrade** and click **Choose File**.

Browse the file (*.tar) before clicking **Update Firmware**. Follow the instructions till the Device Status shows the **Modem Upgrade Successful** and a pop-up message will be shown to reboot the terminal.

Safe Mode

Firmware Upgrade

Modem Firmware Upgrade

Reboot Terminal

Factory Reset

Mac Filtering

Firewall

Logout

Step 1: Select Firmware Update file:

Browse...

Update Firmware

Upload Status: Idle

Total size to upload:

0 bytes

* File Chunks are merged into the patch file on the modem when upload completes.

Install Status: Idle.

Compressed Patch File:	(will calculate uncompressed size.)		
Decompressed Files:	0 bytes in 0 files.		
Firmware Update:	Will begin shortly.		
Device Status:	Up.		

Messages From the Modem:

Reboot Terminal

Click **Reboot** for the terminal to restart.

Safe Mode

Firmware Upgrade

Modem Firmware Upgrade

Reboot Terminal

Factory Reset

Mac Filtering

Firewall

Logout

Click on the button to reboot the Terminal:

Reboot

Factory Reset

Click **Factory Reset** with the security code “**admin**” for the terminal to carry out the factory reset.

The factory reset will clear all the settings and user data of the BDU and reset it to the default settings.

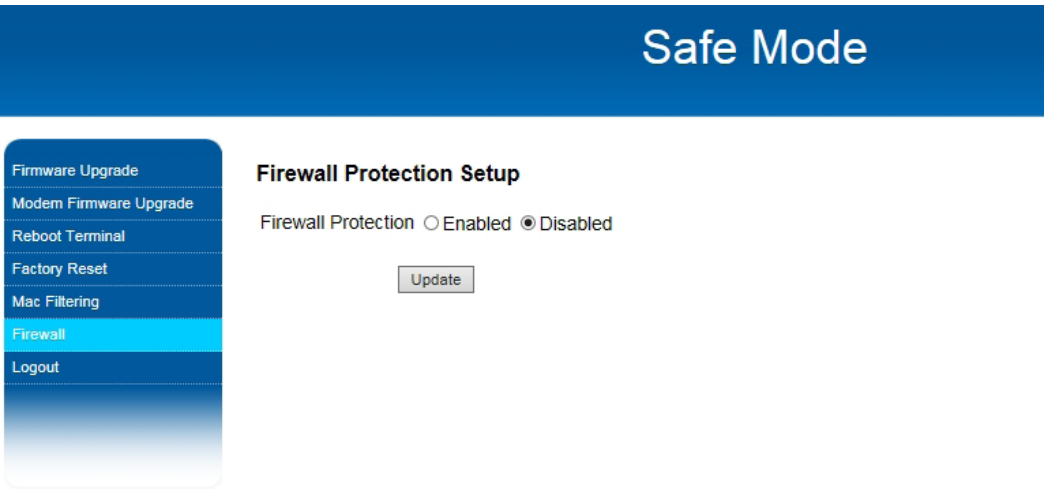
The screenshot shows the 'Safe Mode' interface. On the left is a vertical menu with options: Firmware Upgrade, Modem Firmware Upgrade, Reboot Terminal, Factory Reset (highlighted in blue), Mac Filtering, Firewall, and Logout. To the right of the menu, there is a 'Security code:' label followed by a text input field containing 'admin'. Below the input field is a 'Factory Reset' button.

Mac Filtering

The screenshot shows the 'Safe Mode' interface. On the left is a vertical menu with options: Firmware Upgrade, Modem Firmware Upgrade, Reboot Terminal, Factory Reset, Mac Filtering (highlighted in blue), Firewall, and Logout. To the right of the menu, the title 'Mac Filtering' is displayed. Below the title, there is a label 'Mac Filtering' followed by two radio buttons: 'Enabled' and 'Disabled' (which is selected). Below the radio buttons is an 'Update' button.

Click **Enabled** or **Disabled** and then **Update**.

Firewall



Click **Enabled** or **Disabled** and then **Update**.

Logout

To log out from the Web Console.

8 USING ALERT BUTTON

An Alert Button is easily to be found on the top, right bottom of the BDU and it is used for triggering an emergency alert.



Before using the Alert Button, the pre-configuration in both Data and Voice Modes is to be set up under the tracking page. On the Web Console, select **Settings** and then click **Tracking**. (Refer to Settings Menu and look for Tracking on the settings)

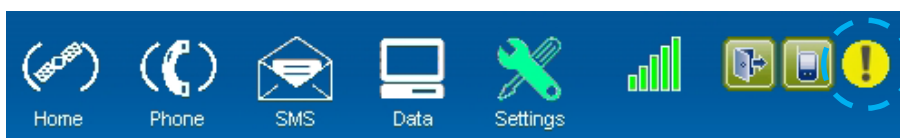
Once the pre-configuration is set up, the Alert Button function is ready to use.

Lift up the Alert Button cover, press and hold it for at least 4 seconds. The Alert Button will then be illuminated to indicate that it is active. Additionally, the alert button icon will be blinking on the Web Console's indicator.



Note:

The illumination of Alert Button can only be disabled via the Web Console.



The pre-defined message appended with the GPS location will be sent out in the following modes:

- In **Voice** Mode, the message will be sent via SMS.
- In **Data** Mode, the message will be sent via IP Data*.



Note:

*Alert button via Data Mode requires the subscription of Backend Tracking Service. Without the backend server and leaving the backend server IP address empty, the illuminated Alert Button will **disable after 5 seconds**.*

In order to disable the Alert Button, click **Turn Off Alarm** button.


Home


Phone


SMS


Data


Settings








Turn Off Alarm

GPS Reporting:☒ Enabled ☐ Disabled

Mode:

IP Data ▾

Tracking ID:**EF0001**

Frequency:

1800

second(s)

Server Phone Number:

Server IP Address:

Server Port:

0

Server Connection Type:

TCP ▾

Distance Interval:

0

m

Speed Limit (Alarm):

0

km/h

Authorized Phone Number (1/3):

Authorized Phone Number (2/3):


Home


Turn Off Alarm

GPS Reporting:☒ Enabled ☐ Disabled

Mode:

IP Data ▾

Tracking ID:**EF0001**

Frequency:

1800

second(s)

Server Phone Number:

Server IP Address:

Server Port:

0

The page at 192.168.2.1 says:
Update successfully

OK

9 TROUBLESHOOTING

Antenna / Satellite Signal Level

Symptoms	Descriptions / Remedial Actions
Low Signal Strength Bar on Web Console	• Check any obstruction such as the hull or monkey bridge of the vessel that may block the ADU's line of sight. • Check any interference signal from other electronics devices that are close to the ADU. • Check to ensure that the antenna cable is properly secured. • Depending on the antenna's location on the vessel, the vessel's route may cause the ADU's line of sight to be blocked by any structure of the vessel, depending on the elevation of the satellite.

Data Connection

Symptoms	Descriptions / Remedial Actions
Unable to active Primary PDP context	• Ensure you are using a valid APN. • Ensure that the satellite signal strength is good. • Ensure that the BDU is set as Data Mode. • Ensure your SIM card supports PS services. • Ensure your prepaid credit is not exhausted.
Unable to access internet after successfully Primary PDP context activation	• Ensure proper PC/laptop Ethernet settings. • Ensure no firewall/proxy settings are preventing access to the BDU. • Ensure that the PC/laptop is configured to obtain IP address automatically (DHCP).
"Always On" feature is not working	• Ensure feature is enabled via Web Console. • A standard background connection has to be manually activated for the first time after enabling this feature.

PoE LAN Port (RJ45)

Symptoms	Descriptions / Remedial Actions
No LAN indication	• Ensure that the Ethernet Cable is plugged into the PoE LAN port (RJ45) or the standard LAN port (RJ45) properly. • Check to ensure that the Ethernet Port on your PC / Laptop is working fine.

Unable to acquire IP address. PC shows "Limited connectivity"	• Try to release and reconnect the Ethernet Cable to LAN port. • Try to reboot the BDU. • Try to restart your PC/Laptop.
Unable to ping the BDU	• Ensure that the LAN indication LED is active. • Ensure that the IP address of the BDU is set correctly. • Make sure that there is no firewall or proxy settings in your PC/laptop that prevent access to the BDU.

Primary Handset

Symptoms	Descriptions / Remedial Actions
No display on Primary handset	• Check the DC power is supplied into the BDU. • Check the primary handset is properly inserted to the HANDSET port.
Unable to make outgoing call	• Ensure the terminal is set as Voice Mode. • Ensure a correct number format is being dialled. • Hang up and retry to make the call.
No audio during incoming / outgoing call	• Ensure the Primary Handset connector is inserted into the handset port properly. • Hang up and retry the call again.

SIM Card

Symptoms	Descriptions / Remedial Actions
" REGISTERED " LED is red.	• Ensure that a correct Thuraya SIM card is used. • Ensure that a SIM card is properly inserted into SIM Card slot. • Switch off the BDU, retry by re-inserting the SIM card into SIM Card Slot and then powering up the BDU.

Terminal (BDU) fails to power up

Symptoms	Descriptions / Remedial Actions
No light appear on BDU LEDs.	• Ensure the power switch on the BDU's front panel is at "On" position. • To reset the circuit breaker on the BDU's front panel by depressing the lever of the circuit breaker inward fully. • Check to ensure that the input DC power to the BDU will have at least +24VDC, 10A or +12VDC, 20A.

Web Console

Symptoms	Descriptions / Remedial Actions
Unable to access Web Console	• Ensure that there is no problem with the Ethernet connectivity. • Ensure that IP address is entered correctly. • Try to refresh the browser.
Unable to login	• Ensure that correct username and password are used (Password and username are case sensitive). • Ensure that you do not open more than the maximum Web Console sessions allowed. • Retry by closing and reopening the web browser.
Web page does not seem to be updated or there are unexpected errors occurred.	• Refresh the web page. • Update the web browser to the latest version and retry.

10 ERROR CODES

Code Number	Description	Remedial Actions / Solutions
0	No error.	No action required. The BDU is functioning properly.
1	Failed to read IMEI	The BDU failed to read the IMEI. Please restart the BDU. If the problem persists, contact your Service Provider.
2	Illegal ME	The terminal is not accepted by the network.
3	IMEI not accepted	The network does not allow emergency calls from this IMEI.
101	Invalid antenna model	Check the correct antenna unit with its label "Antenna is only for use with Atlas IP BDU".
102	HPA disabled	The ADU transmitter is powered off. Please restart the BDU.
103	HPA thermal alarm	The ADU transmitter has overheated. It may power off to prevent hardware damage. Please allow the system to cool down by powering off for a short time.
104	HPA fan fault	The fan inside the ADU has reported a problem. Please restart the BDU. If the problem persists, the ADU may need replacement.
105	HPA unknown fault	The ADU transmitter has reported an unknown error code. If the problem persists, the antenna may need replacement.
106	ATB failure	Check the antenna cable connections are secured at both ADU and BDU antenna ports.
107	Antenna communication problem	Check the antenna cable connections are

		secured at both ADU and BDU antenna ports. Restart the BDU.
108	Calibration failure	Check the antenna cable connections are secured at both ADU and BDU antenna ports. Restart the BDU.
201	No SIM card in primary slot	Verify that the SIM card is present inside the BDU's SIM card slot. SIM card may be inserted wrongly. Remove SIM card and ensure it is inserted properly according to its oriented symbol on the BDU front panel. SIM Card contacts may be dirty. Clean the SIM card contact with a dry cloth. If the problem persists, replace the SIM card with a known good SIM card otherwise please return the BDU to your Service Provider for service.
203	SIM communication problem	Power down the BDU and try again.
204	SIM Locked	The SIM card is locked. Enter the PUK to unlock the SIM card.
205	SIM Missing file	SIM card was incorrectly programmed with missing required field(s). Please contact your Service Provider.
301	Illegal MS	The subscriber information is rejected or the SIM card is not producing correct authentication information. Please contact the Service Provider.
302	PLMN not allowed	Network connection failure due to PLMN which is not allowed. Please contact your Service Provider.
303	Roaming not allowed	You are using an authorised SIM card from a carrier that does not have a roaming agreement with your Service Provider. Please contact the Service Provider.

304	IMSI unknown HLR	The subscriber information is not recognized by the network. Please contact your Service Provider.
305	IMSI unknown VLR	The subscriber information is not on the network's roaming list. Please contact your Service Provider.
306	Service not supported	Network connection failure due to service option which is not supported. Please contact your Service Provider.
307	Service not subscribed	Verify the correct settings in the web console and contact your Service Provider to activate authorised service.
308	Network detached mobile	Verifying the settings on the web console. Restart the BDU and try again. If the problem persists, please contact your Service Provider.
309	GPRS not allowed	Verify the correct settings in the web console and contact your Service Provider to activate authorised service.
310	Service not allowed	Verify the correct settings in the web console and contact your Service Provider to activate authorised service.
311	Identity cannot be derived	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
312	Location area not allowed	Network connection failure due to the terminal which is not allowed in the location area. Please contact your Service Provider.
313	Temporary registration failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
314	General registration failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.

315	Registration retries exhausted	Network re-connection failure. Restart the BDU if the problem persists.
401	Signal lost	Make sure no obstruction is blocking satellite signal and the ADU has a clear sky view in the direction of the satellite.
403	No GPS	Make sure no obstruction is blocking satellite signal and no object is placed over the ADU. Wait for 5 minutes for the GPS position to be updated. If the problem persists, restart the BDU.
404	Old GPS	A new GPS fix is obtained during the connection process, superseding the old fix. The terminal will reacquire the connection. If the problem continues and the new connection cannot be re-established, please contact your Service Provider.
501	LLC or SMDCP failure	Network connection failure caused by LLC or SMDCP failure. Restart the BDU. If the problem persists, please contact your Service Provider.
502	Unknown PDP type	Network connection failure. Restart the BDU. If the problem persists, please contact your Service Provider.
503	User authentication failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
504	PDP Option is not supported.	Network connection failure because the service option is not supported. Please contact your Service Provider to activate authorised service.
505	NSAPI already used	Network connection failure because the

		service is already in use for this subscriber. Restart the BDU. If the problem persists, please contact your Service Provider.
506	PDP deactivated by network	Network connection failure or the network may be down. Please contact your Service Provider.
507	PDP retries exhausted	Network connection failure or the network may be down. Please contact your Service Provider.
508	Missing or unknown APN	Network connection failure due to the missing or invalid of APN, Please contact your Service Provider to the correct network settings.
509	QOS rejected	Network connection failure due to rejected QOS by the network. If the problem persists, please contact your Service Provider.
510	PDP insufficient resources	Network connection failure due to insufficient resources. If the problem persists, please contact your Service Provider.
511	PDP reactivation required	Verify the correct settings in the web console and contact your Service Provider to activate authorised service.
513	PDP transaction id in use	Network connection failure due to a transaction ID. If the problem persists, please contact your Service Provider.
514	PDP not subscribed	Verify the correct settings in the web console and contact your Service Provider to activate authorised service.
515	PDP activation rejected	Network connection failure due to unknown cause.

		If the problem persists, please contact your Service Provider.
516	PDP temporarily unavailable	Network access temporarily unavailable. Please wait for the terminal to reacquire a connection within 3 to 5 minutes.. If the problem persists, contact your Service Provider.
601	Invalid position	Network service is not available due to invalid GPS position. Verify the ADU has a clear sky view in the direction of the satellite. If the problem persists, contact your Service Provider.
602	Invalid position for beam	Registration is delayed or a handover is in progress. Please wait for the terminal to re-register within 1 to 3 minutes. If the problem persists, contact your Service Provider.
603	Lack of resources	Network connection failure due to insufficient resources. If the problem persists, please contact your Service Provider.
604	Wait for streaming channel	Network connection delayed due to resource requirement. Please wait 1 minute for resource allocation.
605	Non availability of service	Network service is not available. Please contact your Service Provider.
606	QOS not satisfied	Quality of service requested cannot be satisfied at this time. Please try again later, or configure a lower bit rate or best effort service.
607	Access barred	The service option is not available in the current spot beam. The BDU will attempt to

		find a more suitable signal automatically.
		If this message persists, please contact your Service Provider.

11 GLOSSARY

AC	Alternating Current
ADU	Above Decks Unit
APN	Access Point Name
ATB	Antenna Tracking Board
BDU	Below Decks Unit
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
FTP	File Transfer Protocol
GPS	Global Position System
GPIO	General Purpose Input / Output
GPRS	General Packet Radio Service
HPA	High Power Amplifier
HLR	Home Location Register
ID	Identity
IP Data	Internet Protocol Data
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Equipment Identity
LAN	Local Area Network
LED	Light Emitting Diode
LNA	Low Noise Amplifier
LLC	Logical Link Control
MS	Mobile Subscriber
NAT	Network Address Translation
NSAPI	Network Service Access Point Identifier
PAT	Port Address Translation
PoE	Power Over Ethernet
PLMN	Public Land Mobile Network
PDP	Packet Data Protocol
QOS	Quality of Service
SIM	Subscriber Identity Module
SNDCP	Sub Network Dependent Convergence Protocol
VLR	Visitor Location Register