THURAYA
SPACE42

THURAYA MBH

- Value proposition
- Features and functionality
- Applications

Product Offering

Thuraya Mobile Broadband Hotspot [MBH]

Value proposition

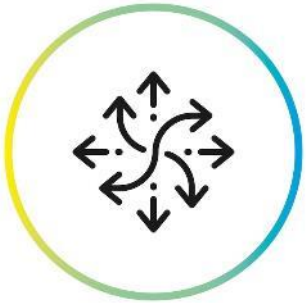
01

Most desirable

Unrivaled features at its price point compared to competitors in its category

02

Multipurpose



Works for both Maritime & Land vehicular segments – **Most convenient to buy and sell**

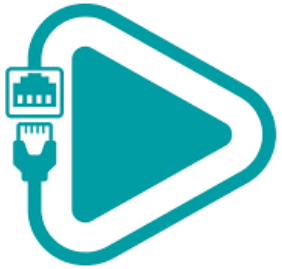
03

The best alternative

Game-changing data plans compared to competitors – a much-needed alternative for service providers and system integrators without compromising quality

04

Easy to setup



All inclusive package options with Plug and play functionality

05

Easy to use

Designed for both LAN with WIFI capabilities in one unit, with programming **like a home router**

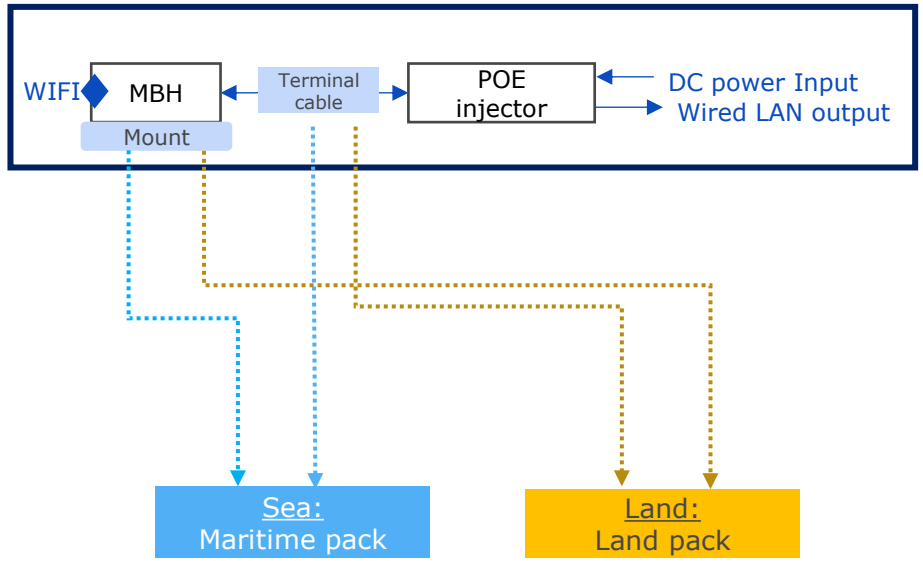
What’s in the box?

Easy to order for both Maritime & Land vehicular setups

Main device

Thuraya MBH pack

- MBH terminal
- POE external power supply with DC power cable assembly
- USB memory (Contains usermanual)
- Quick start guide
- Warranty card



Accessory Pack choices

Maritime pack

- POE cable 25m
- Pole mount kit

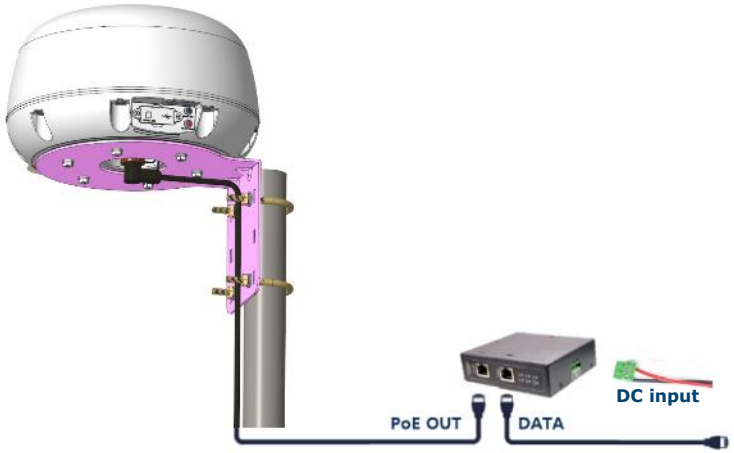
Land pack

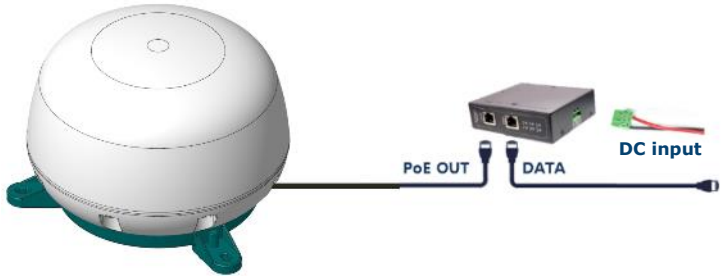
- POE cable 6m
- Mag mount kit

Product description

Functionality & Specs

- **Functionality**:
  - Designed to be an entry level satellite data product for both Maritime and vehicular setups
  - Built in WIFI and router capabilities
  - Secure Web MMI access using Laptop, PC, Smart devices access with Multi-level login credentials
  - 3rd party integrations
    - Remote*: Tracking, geofencing, distress alert, remote configuration
    - Local: Integrate with 3rd party products onboard via API
- **High level specs**:
  - Service: Standard IP – 300/100kbps
  - IP rating: IP 67 & IP 68
  - Weight & Dimensions: 3.30kg & 301×181 mm (Ø X H)
  - Data output: 1 port (@PoE injector)
  - Input power: 12 ~36 Vdc [>50W] (@PoE injector)
- **Warranty**: 12 months
- **Compliance**: CE, UKCA, RoHS, REACH, ITU GMPCS-MoU, Thuraya certified.





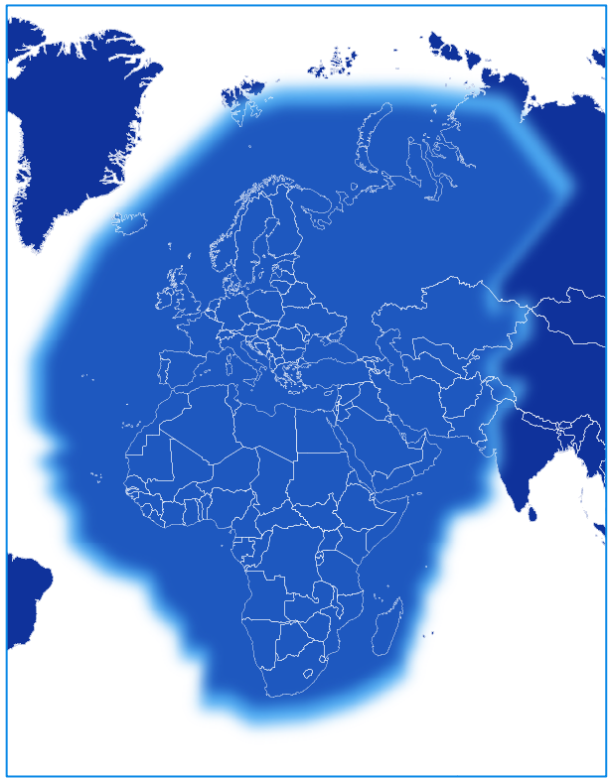
* To be developed with 3rd party server – Eg: Thuraya SatTrack

Service

Designed to work seamlessly

Existing coverage

Next generation –T4

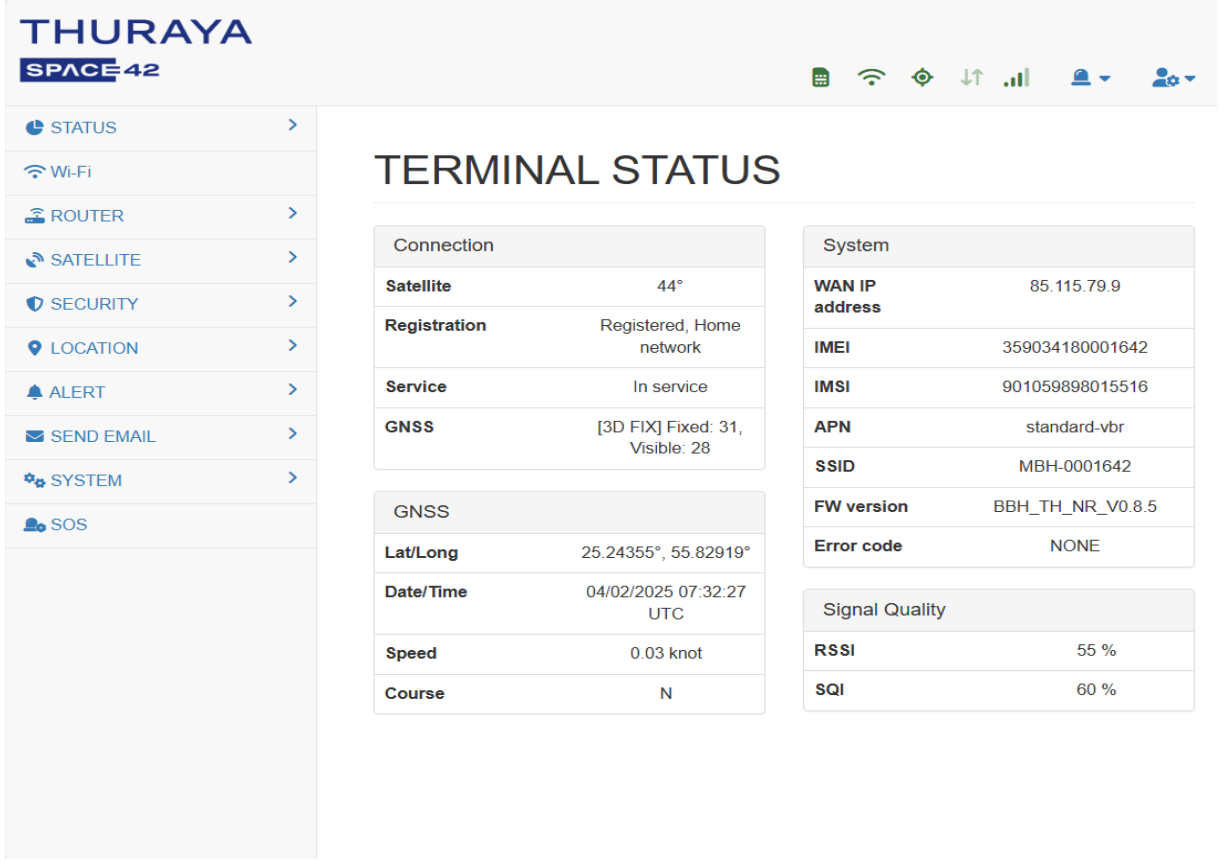


The above coverages is shown for reference purposes only

Web MMI summary

Use your latest web-browser

- Modem status
- Satellite connection management
- WAN and LAN router configuration and connected devices overview
- Access-level management
- Firewall management
- Distress alert
- Track and monitor configuration
- Logs
  - Track and geofence
  - System
- Traffic statistics
- Device sim pairing configuration
- Remote and Local access management



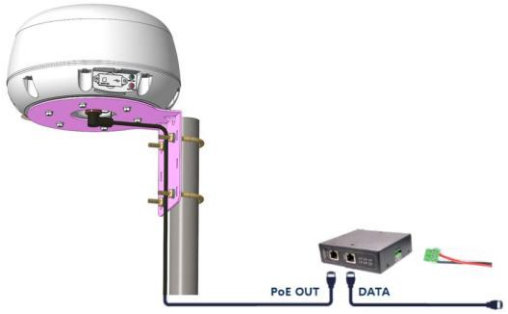
Web menu status indicators

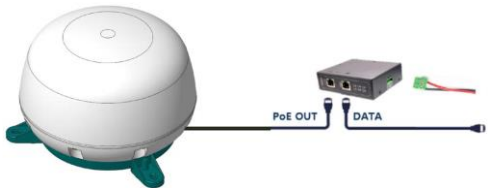
Meaningful information in one screen

Status Indicators	Description	Status Indicators	Description
	System logout		Restricted Zone
	Reboot		Radio Silence Zone
	Admin account		SIM Present
	Operator account		SIM not present
	User account		SIM Blocked
	Wi-Fi ON		SIM Pairing Lock
	Wi-Fi OFF		SIM PIN required
	SOS		Incompatible PoE
	SOS Start		SAT Up/Downlink Traffic
	SOS Stop		No Signal
	SOS ON		Weak Signal
	Configuration required		Fair Signal
	GNSS 3D Fix		Good Signal
	GNSS No Fix		Best Signal

Typical quick start setup

- Step 1: Install the product along with relevant accessory



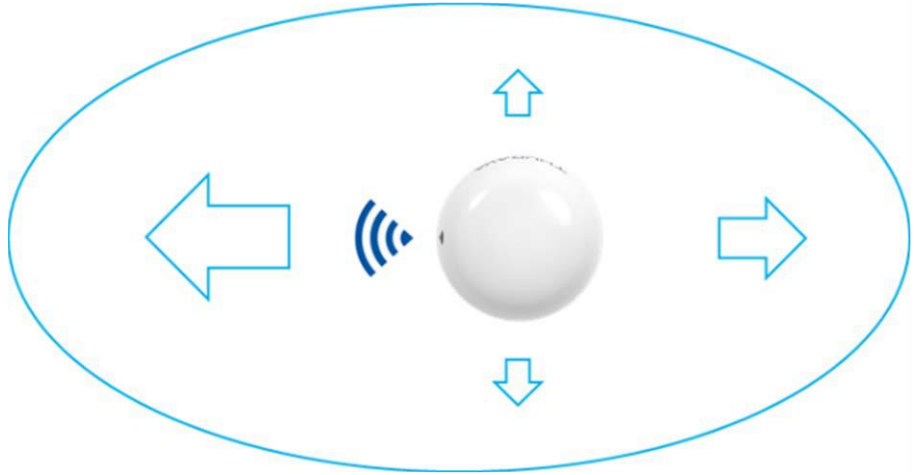


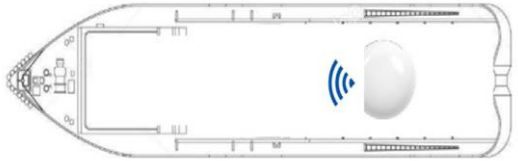
- Step 2: Power up MBH and ensure to connect to a regulated power supply within the operating power rating.
- Step 3: Connect to 192.168.64.1 web interface [WIFI or LAN (PoE – data out)] using laptop or Smart phone/tablet with latest web browser [Chrome, Safari, IE].
- Step 4: Login using admin credentials [Username – admin, Password – admin].
- Step 5: Register to the network. By default, the setup is plug and play for always ON connectivity.

WIFI signal range

Directional Guide Featuring Wi-Fi Icon

- The signal strength of the Wi-Fi varies depending on the direction, so it is important to pay attention to the direction when installing the BBH-01.
- As shown in the following figure, the signal quality is best in the direction of the Wi-Fi mark and worst at +/- 90 degrees. Install the product with the Wi-Fi mark facing in the direction where the user will be located.
- Based on trials, the unobstructed range in the optimal direction would be approx. 20m -> 30m





Smart visual indicators without logging in to the device

Multi-color LED indicators

UPPER LED

Power and Network

LOWER LED

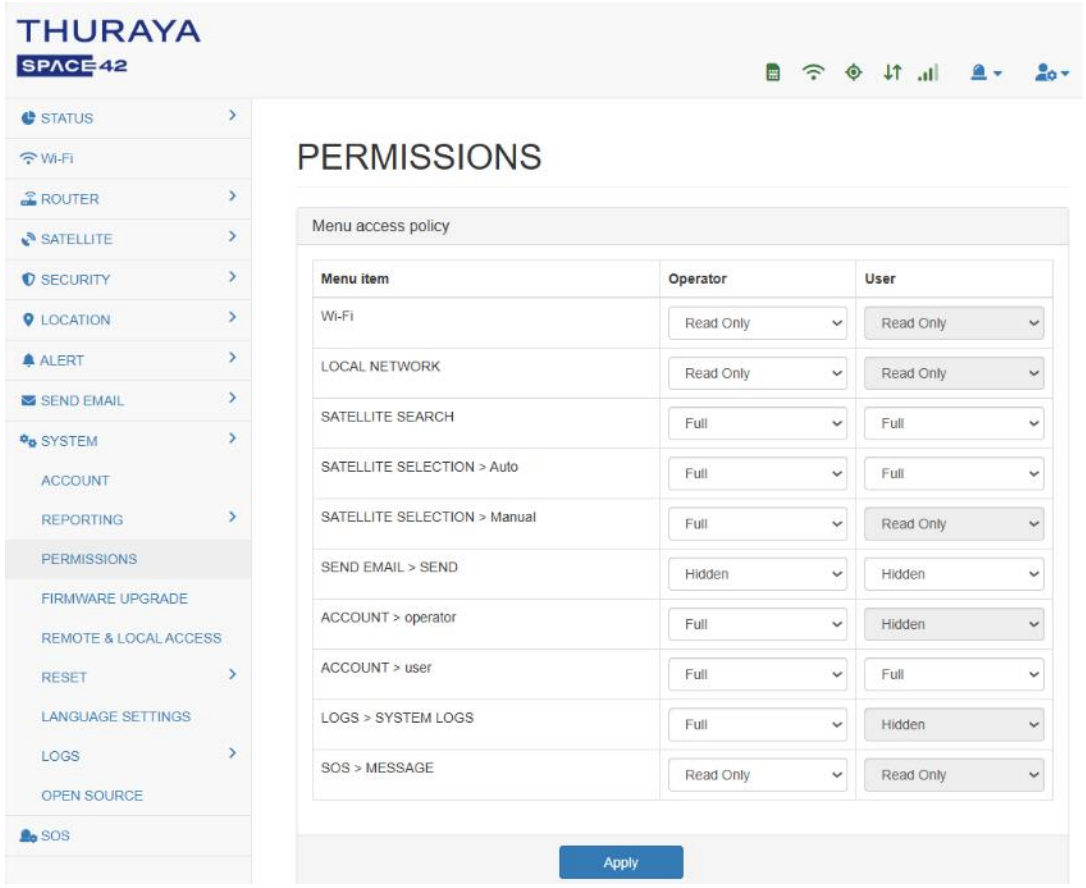
Wi-Fi and GNSS

LED operation	Conditions
Red blinking	PoE Injector is incompatible.[1]
Orange blinking	NO SIM card[2]
Green blinking	Searching network
Red and Green blinking alternatively	Registration rejected[3]
Green	In service

LED operation	Conditions
Green blinking	Wi-Fi is on and GNSS is not fixed
Green	Wi-Fi is on and GNSS is fixed
Orange blinking	Wi-Fi is off and GNSS is not fixed.
Off[1]	PoE Injector is incompatible[1] or Wi-Fi is off and GNSS is fixed[2]

Multi-level access & permission management

Flexibility offered for the admin to define custom access policy

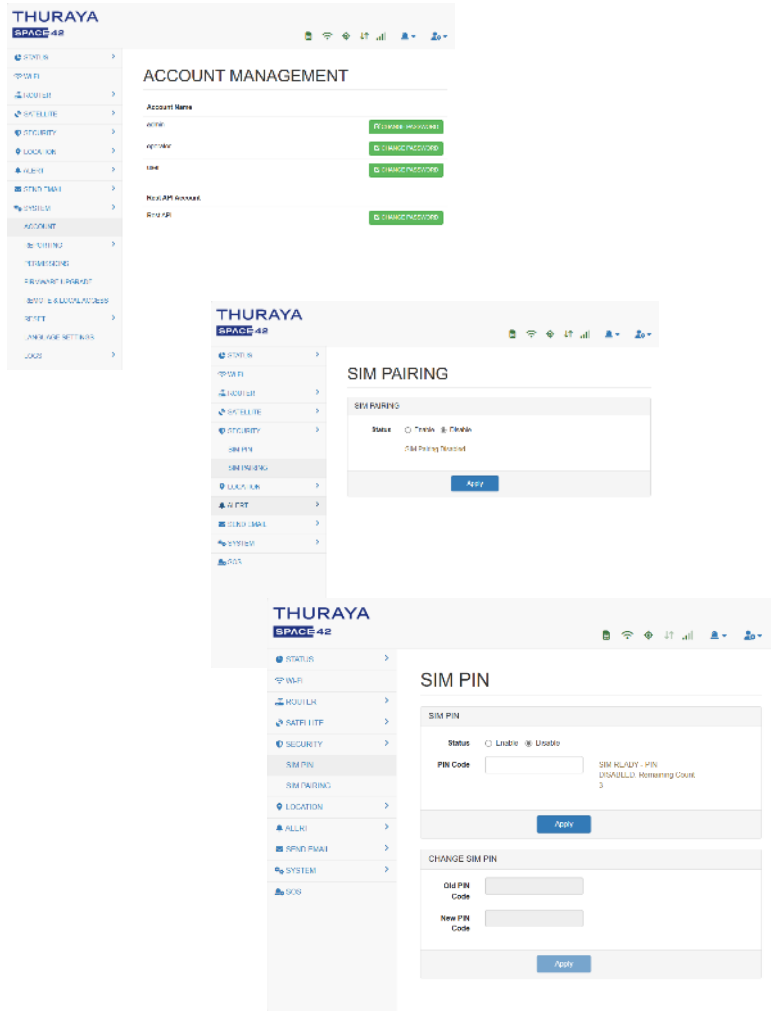


- 3 levels of users:
  - Admin – controls the full system
  - Operator – has lesser permissions than admin
  - User – Restricted access
- Built-in flexibility to change permissions:
  - With the admin account, you can change the default access permissions for operator and user for each page menu.
  - Example: Admin can allow the operator can change WIFI SSID name and password

Security features

Key menus

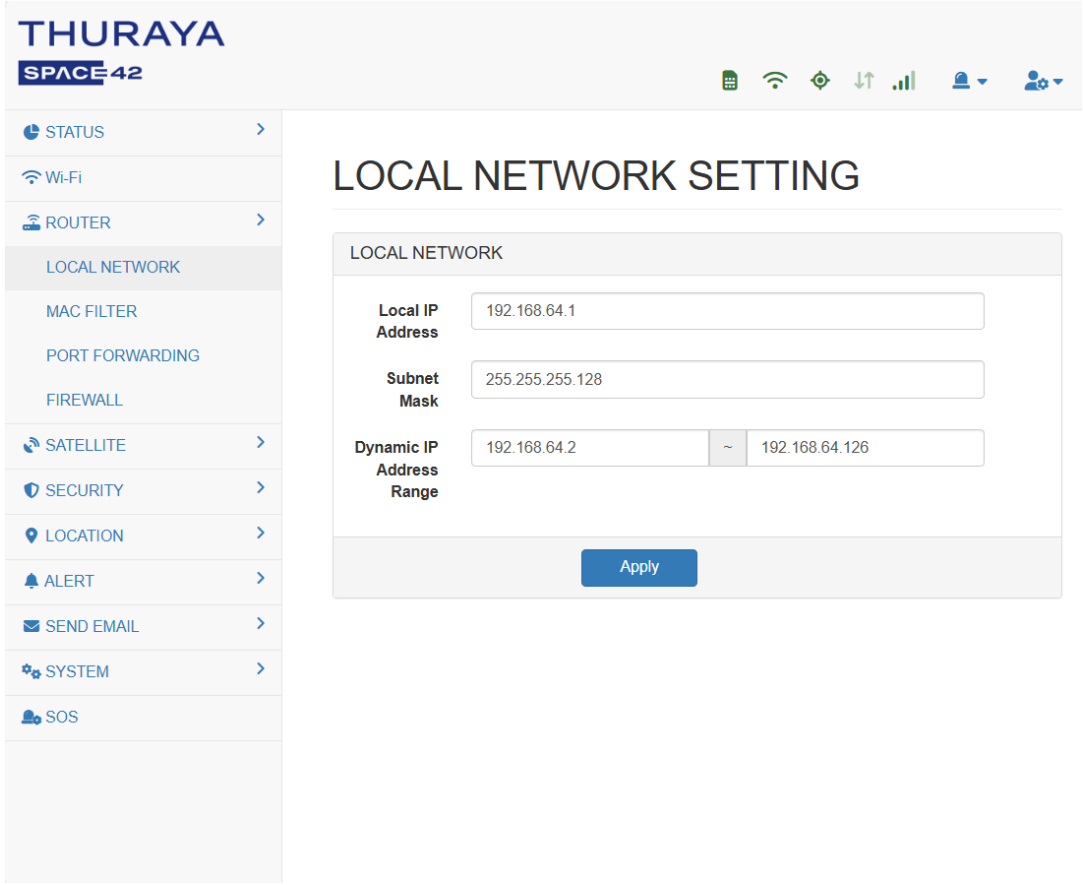
1. MBH Web-login account management:
   - The admin can change the password of each account.
   - The Rest API Account password for remote access control can only be changed from the admin account.
2. SIM pairing:
   - This feature allows the device to be functionally locked with a specific SIM-card in admin account. If you insert another SIM card that is not paired with the terminal, then you shall need to enter the special PIN security code to use the terminal.
   - If the code is changed from the default value, kindly ensure to memorize or save the code in a register.
3. SIM PIN:
   - Enabling this feature requires the user to input the correct SIM PIN upon powering on the device to allow access to satellite services.
   - If the wrong SIM PIN code is entered more than 3 times, you will be directed to the SIM PUK entry screen.
   - To unlock the SIM PIN Code, you need to enter the SIM PUK code. If the wrong SIM PUK code is entered more than 10 times, the SIM will be blocked.



Router capabilities

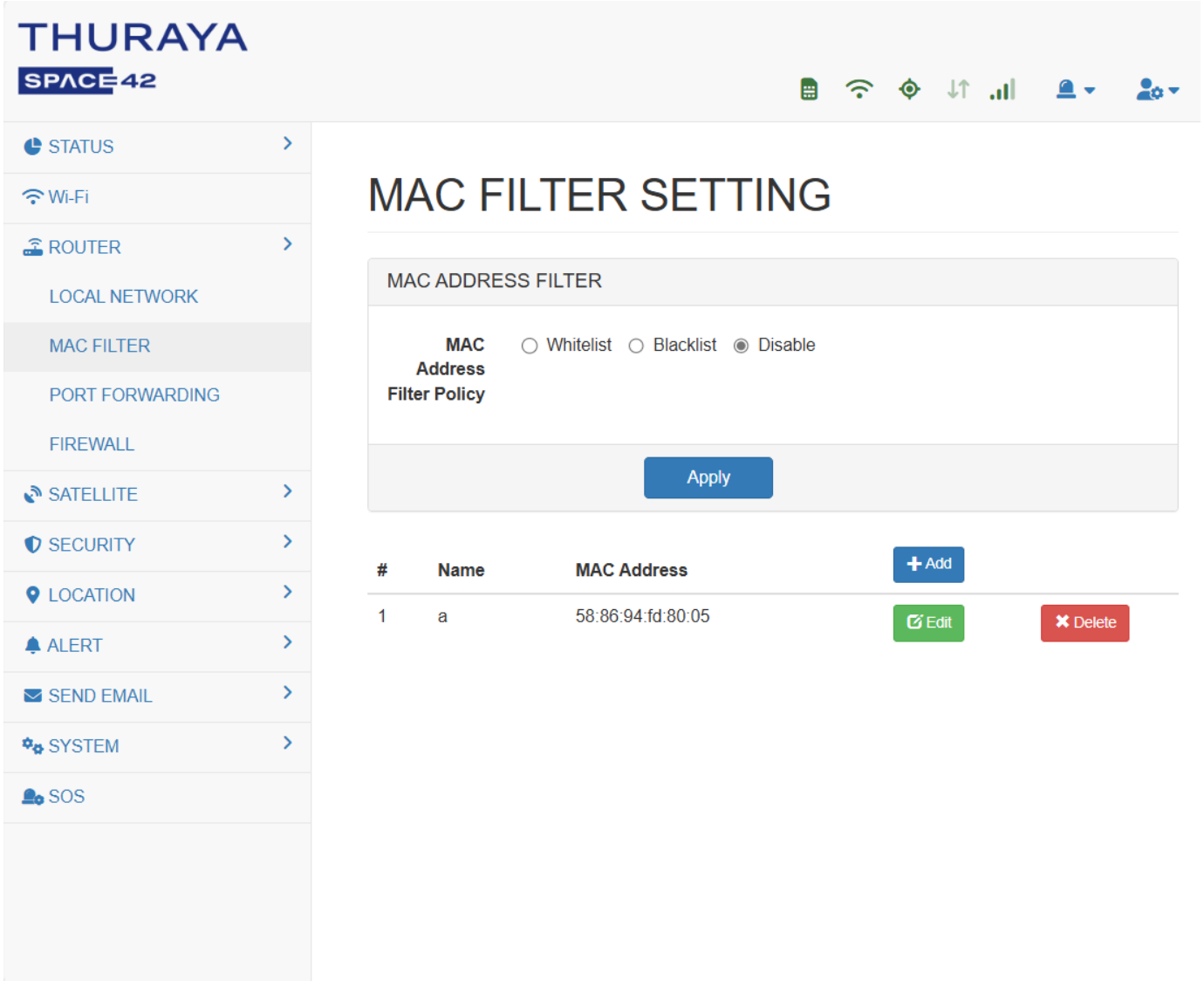
Local network management

1. Device web-login management:
   - This displays the terminal's local IP address and allows you to change it.
   - The default IP address is 192.168.64.1
2. DHCP Management
   - This displays the terminal's dynamic IP address range and allows you to change it.
   - The default range is from 192.168.64.2 to 192.168.64.126



Router capabilities

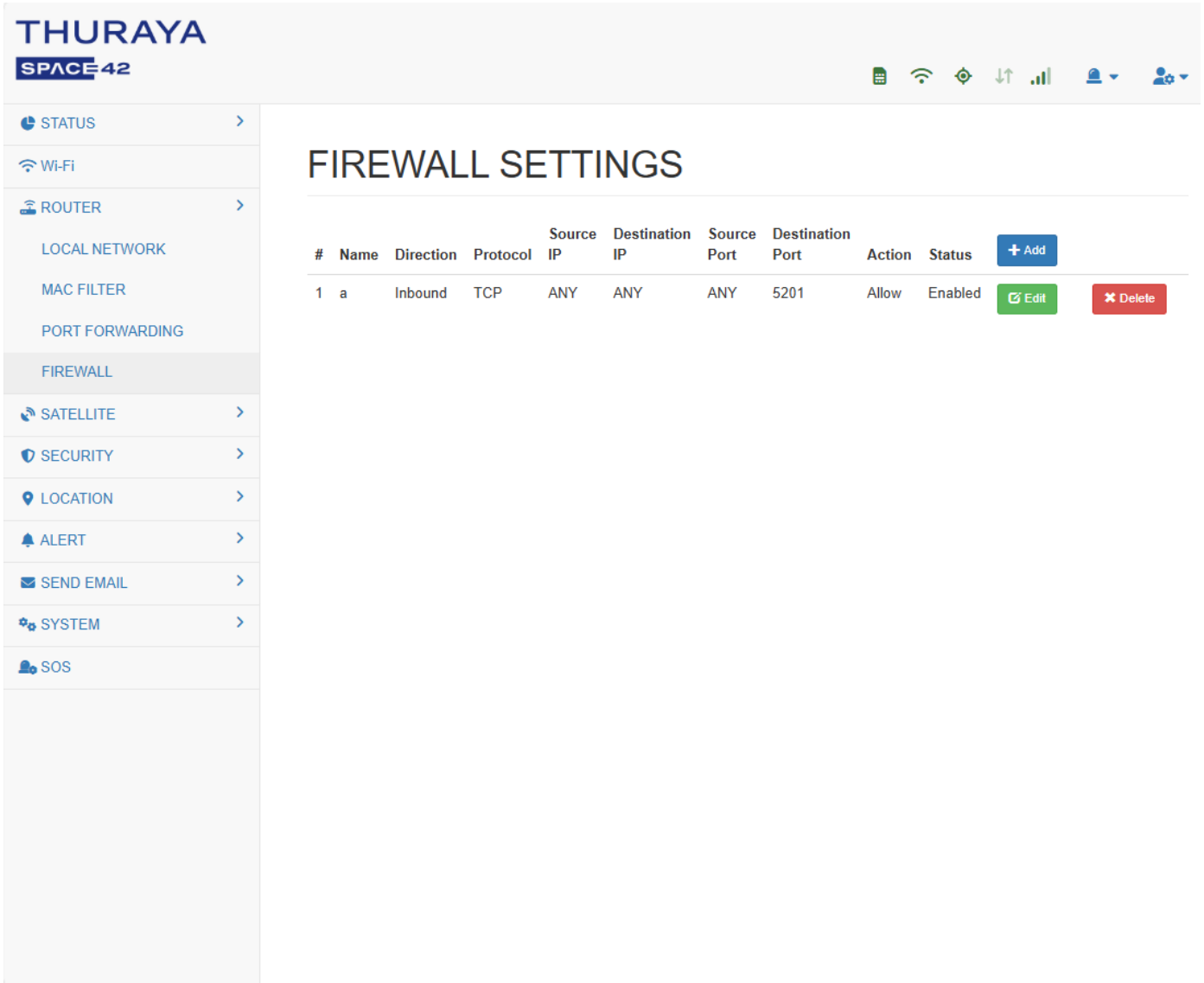
MAC filter



- MAC filtering allows you to restrict terminal access for devices specified in the Whitelist or Blacklist by their MAC addresses.
- Example:
  - Restrict only 1 authorized user device to connect
  - Restrict MBH service to be used only with a 3rd party device like Data management device.

Firewall capabilities

Standard

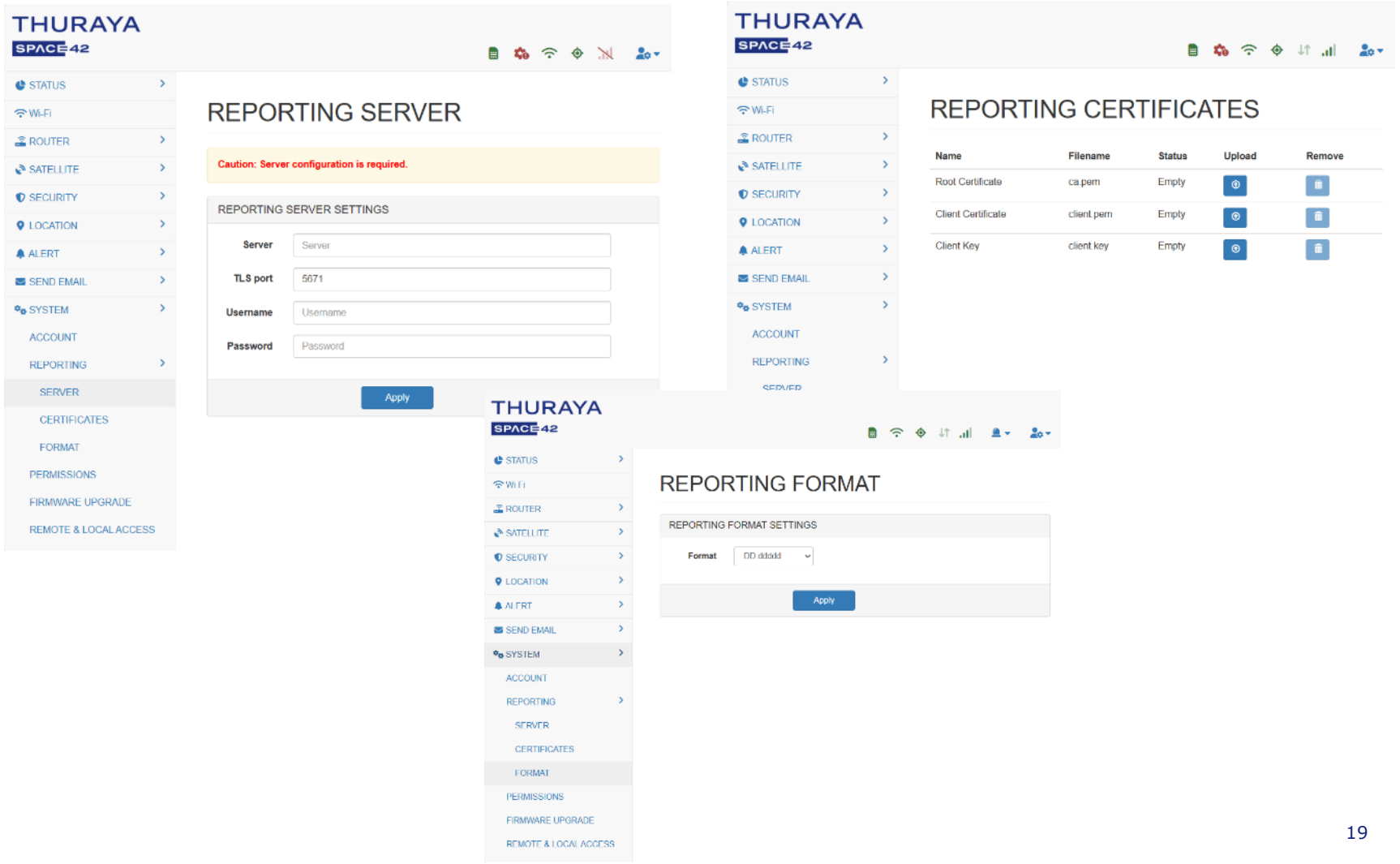


- The firewall settings configured applies to the data traffic from and to the **satellite network**
- It does not apply the local area network (POE data port and Wi-Fi connections).
- The admin can define the inbound and outbound policies to allow and/or deny TCP/UDP traffic

Integration to 3rd party servers

Reporting – Distress alert, Tracking, Geofencing, Terminal alert

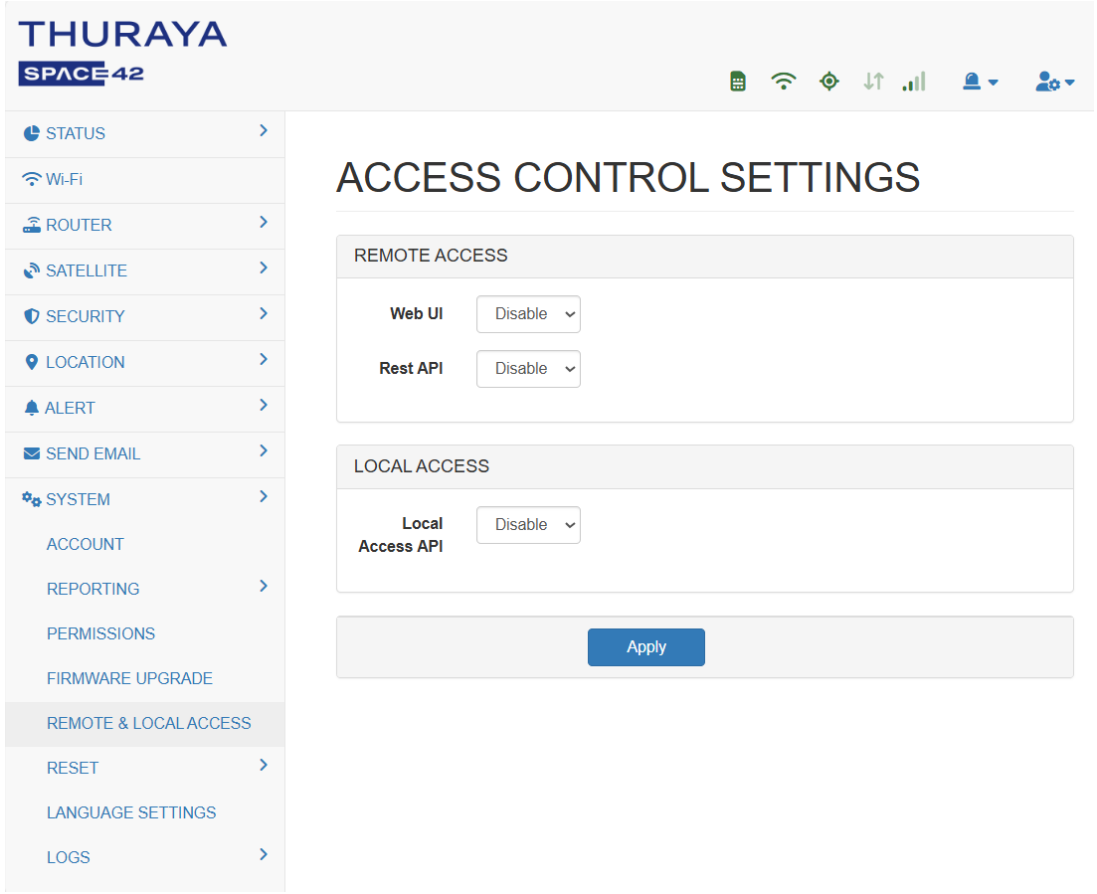
- You can configure server settings such as the server IP or Domain Name, TLS port number, username, and password for sending Reporting messages
- Step 1: Configure reporting server details
- Step 2: Upload latest and correct server certificate to ensure uninterrupted reporting
- Step 3: Choose the reporting format that was chosen during server application design



Remote & Local access for 3rd party integrations

Remote: OTA configuration /Web menu access; Local: 3rd party devices

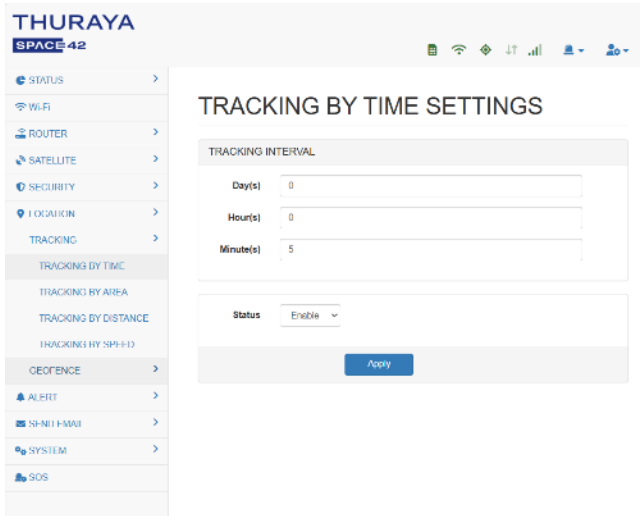
- Configure the access control as per requirement
- Remote access:
  - Remote access is possible via the Web UI and REST API.
  - When the Web UI is enabled, you can use a web browser to access remotely.
  - On the Home screen, enter the displayed WAN IP address as shown below.
  - Type https://"WAN IP address":55380/ in the Address field and press Enter.
- Local access:
  - Local access to the BBH-01 is available via TCP communication using an Ethernet or Wi-Fi interface.
  - The terminal operates as a TCP server, and the 3rd party operates as a TCP client.
  - The connection TCP ports are 20000 for AT Command and 21000 for NMEA data

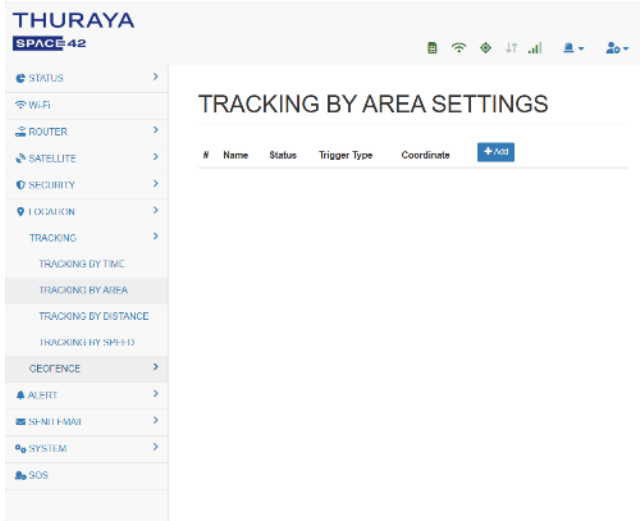


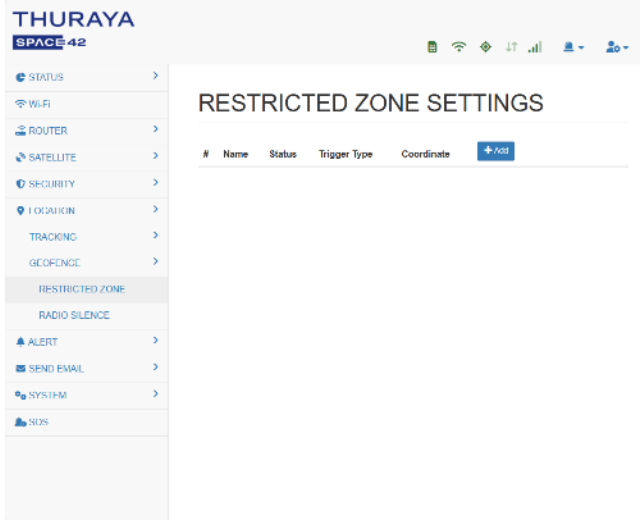
Location services for 3rd party integrations

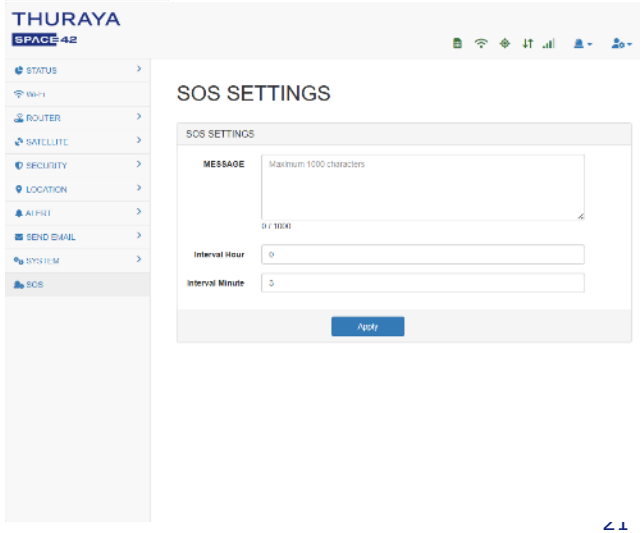
Tracking, Geofencing & Distress Alert

- Tracking:
  - There are four types of tracking available – By time, area, distance, and speed.
  - In order to access this menu, you will need to login using admin account credentials
- Geofencing:
  - There are two types of geo fencing available – Restricted zone and radio silence.
  - You can configure up to 10 polygons for the restricted zone with 3 to 50 geo-coordinates and for radio silence with 3 to 100 geo-coordinates.
- Distress Alert / SOS:
  - Send an SOS to pre-determined recipients by clicking the SOS Start button from the SOS icon in the status bar.
  - When SOS is activated, the SOS ON icon is displayed in the status bar.
  - To deactivate SOS, simply click the SOS Stop button from the SOS icon in the status bar.





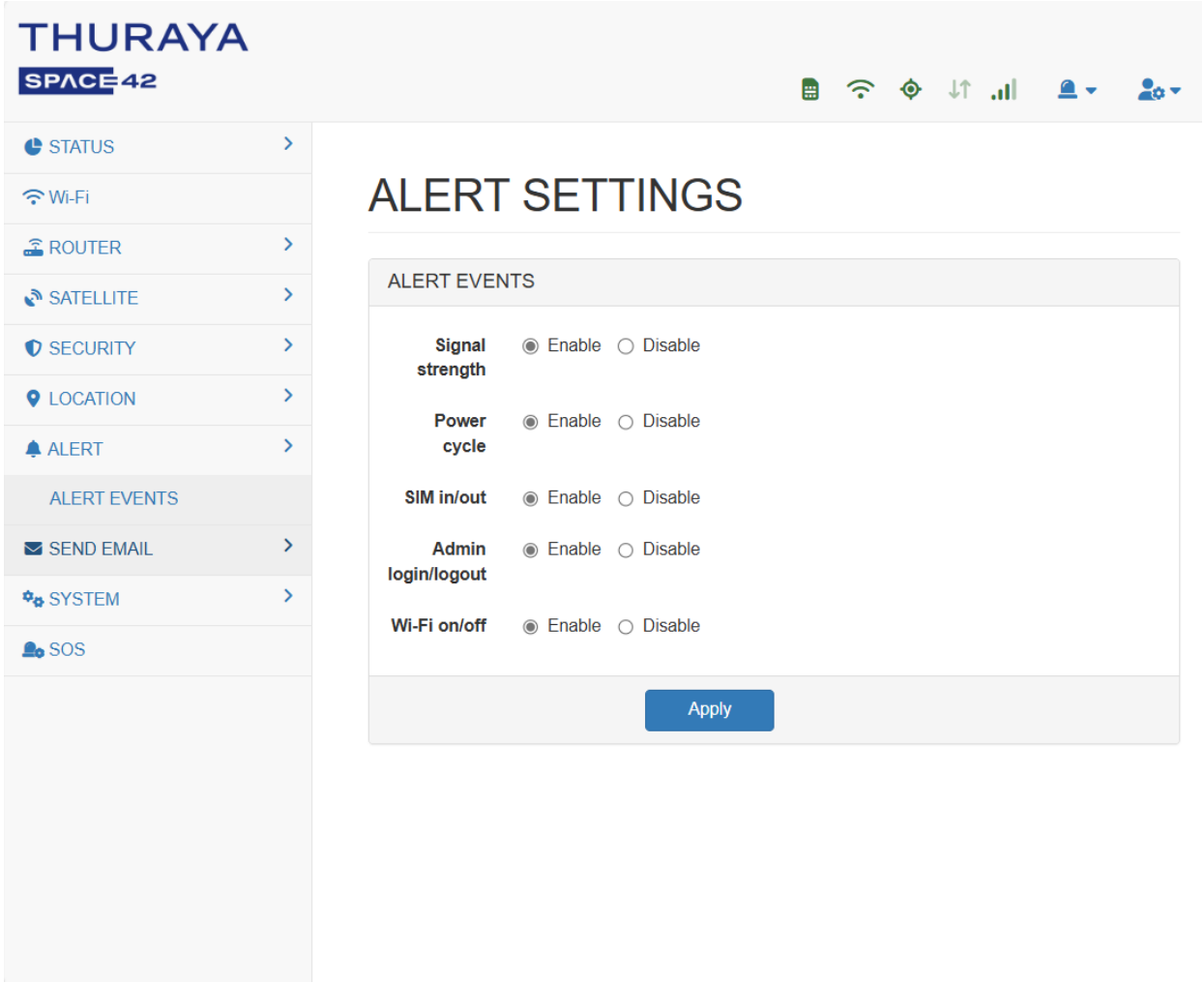




Alert reporting for 3rd party integrations

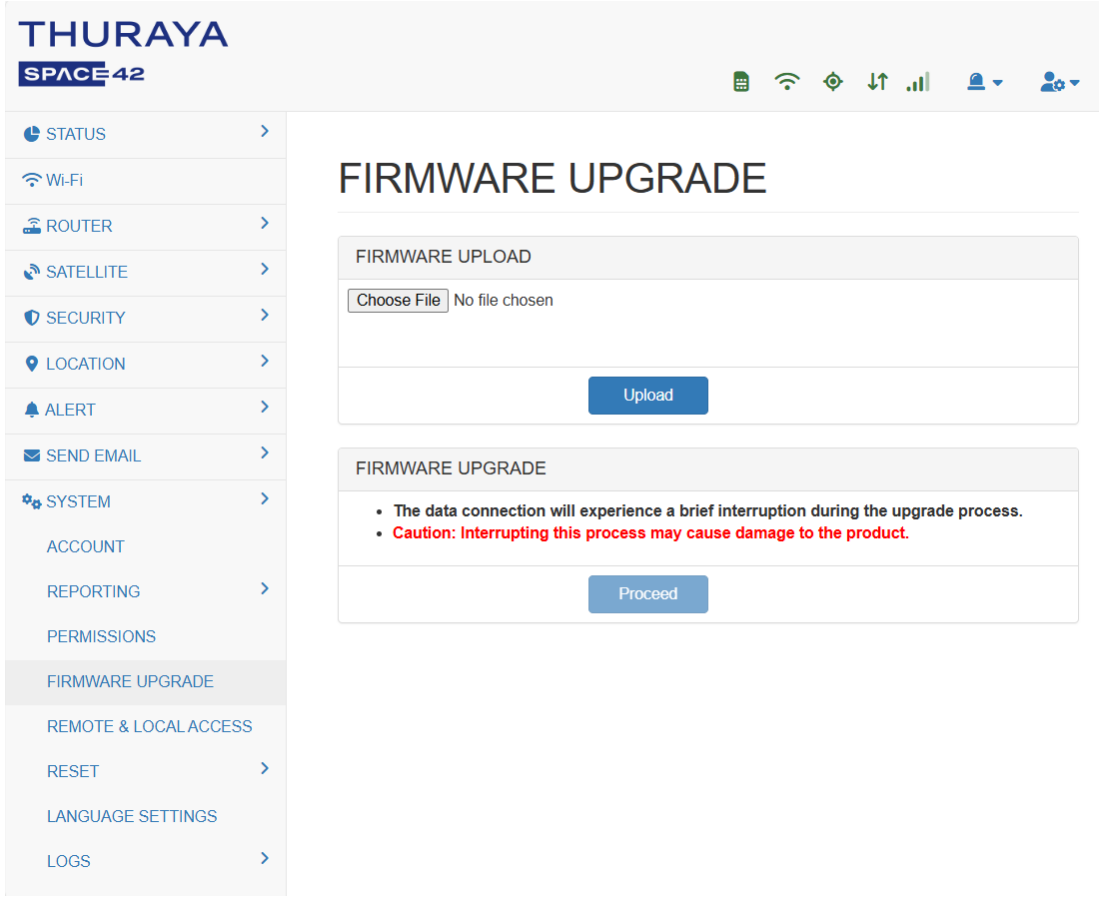
Choose your terminal alert preferences

- You can enable/disable some useful trigger levels to be sent as a notification alert from the device to the message using admin account.
- Changes in the status of the below functions are configured as events on the terminal and the status can be reported to the server from any of its previous states.
  - Signal strength
  - Power cycle
  - SIM IN/OUT
  - Admin login/logout
  - Wi-Fi On/Off



Firmware upgrade

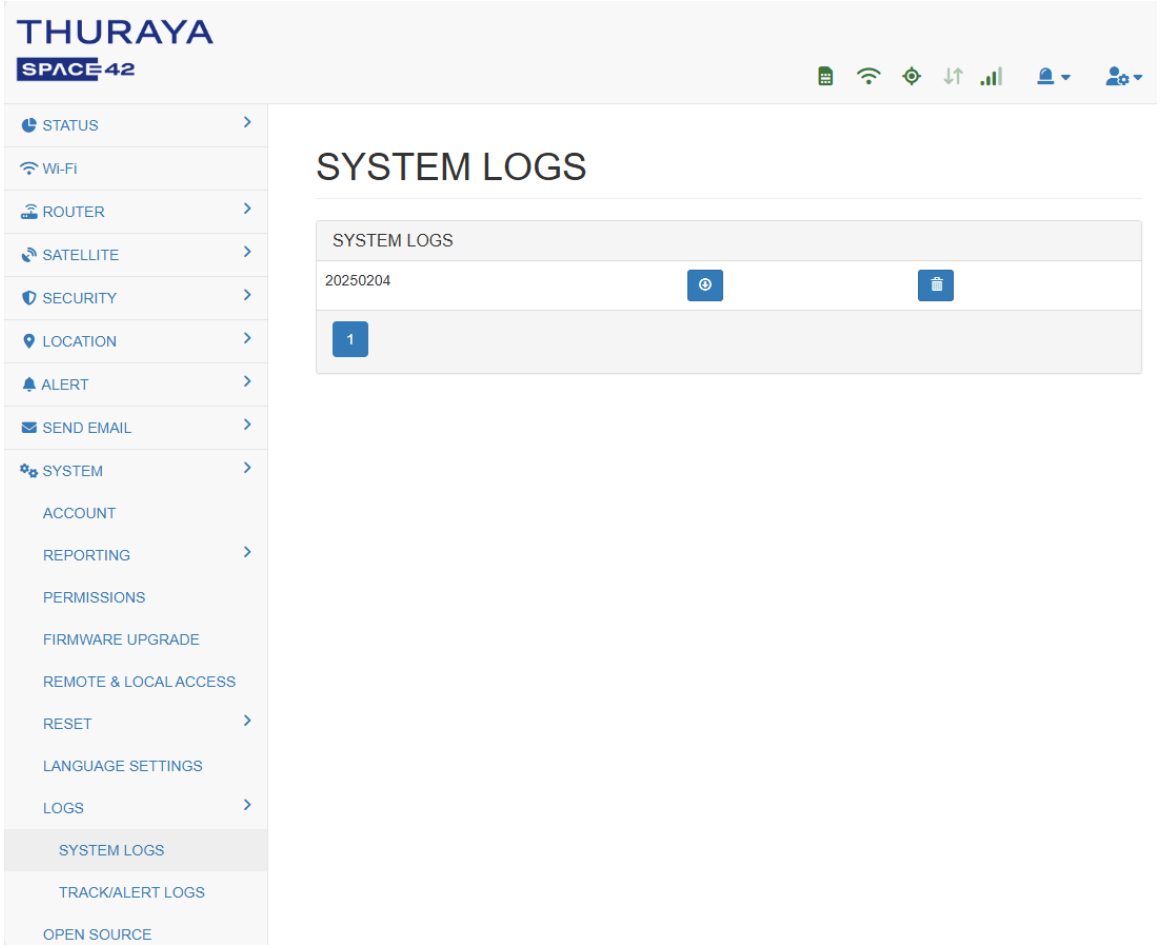
Upload and proceed



- To upgrade the firmware, select and upload the firmware file. Then, click the "Proceed" button.
- A progress bar will appear, indicating the status of the firmware upgrade.

System logs

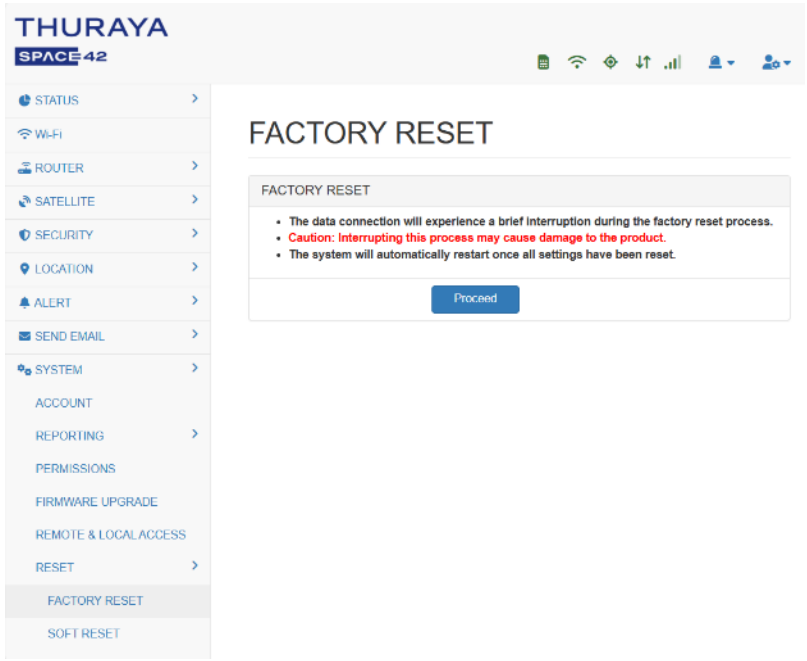
For troubleshooting purposes

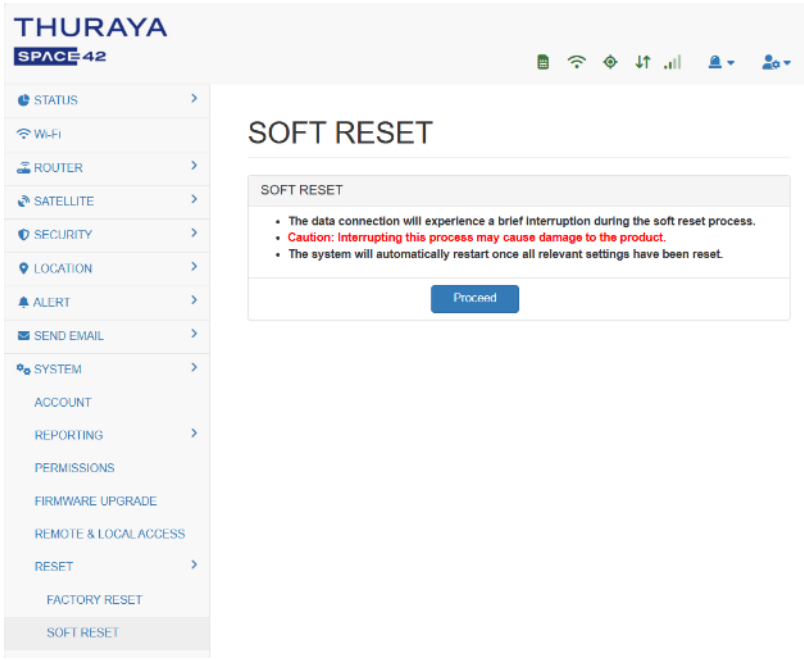


- It allows you to check the terminal's operational status, can be downloaded and deleted by date.
- The system logs are stored for up to 90 days, and any logs older than 90 days are automatically deleted.

RESET – Factory reset & Soft reset

- Factory reset: Restores the settings as they were when the terminal was delivered. You will lose your custom settings like certificates, configurations and logs saved on the terminal.
- Soft reset: Allows you to restore the terminal without losing certain settings, such as certificates. You will lose your custom settings like configurations and logs saved on the terminal.

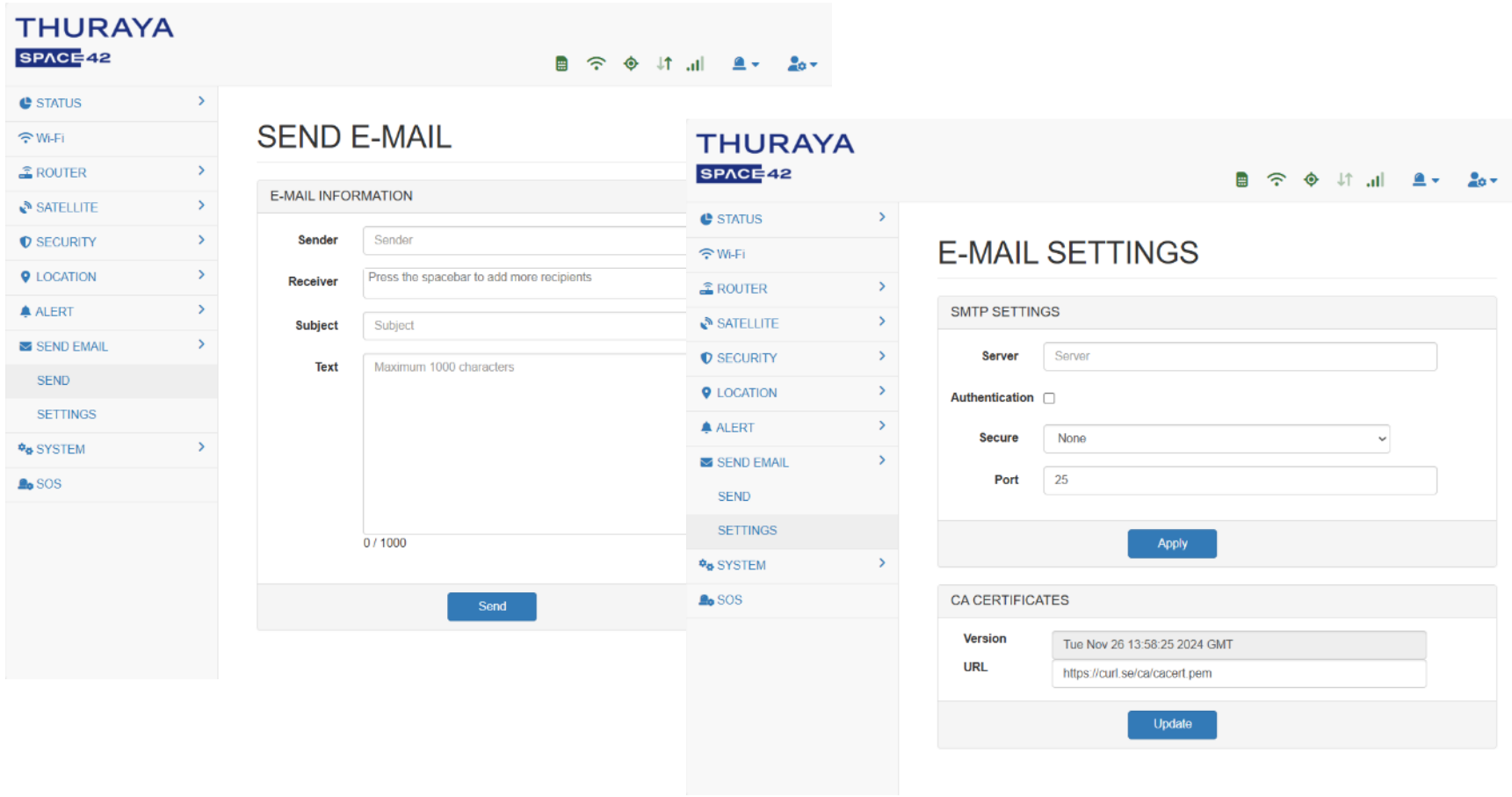




Send email

Worst-case scenario backup communication for the client

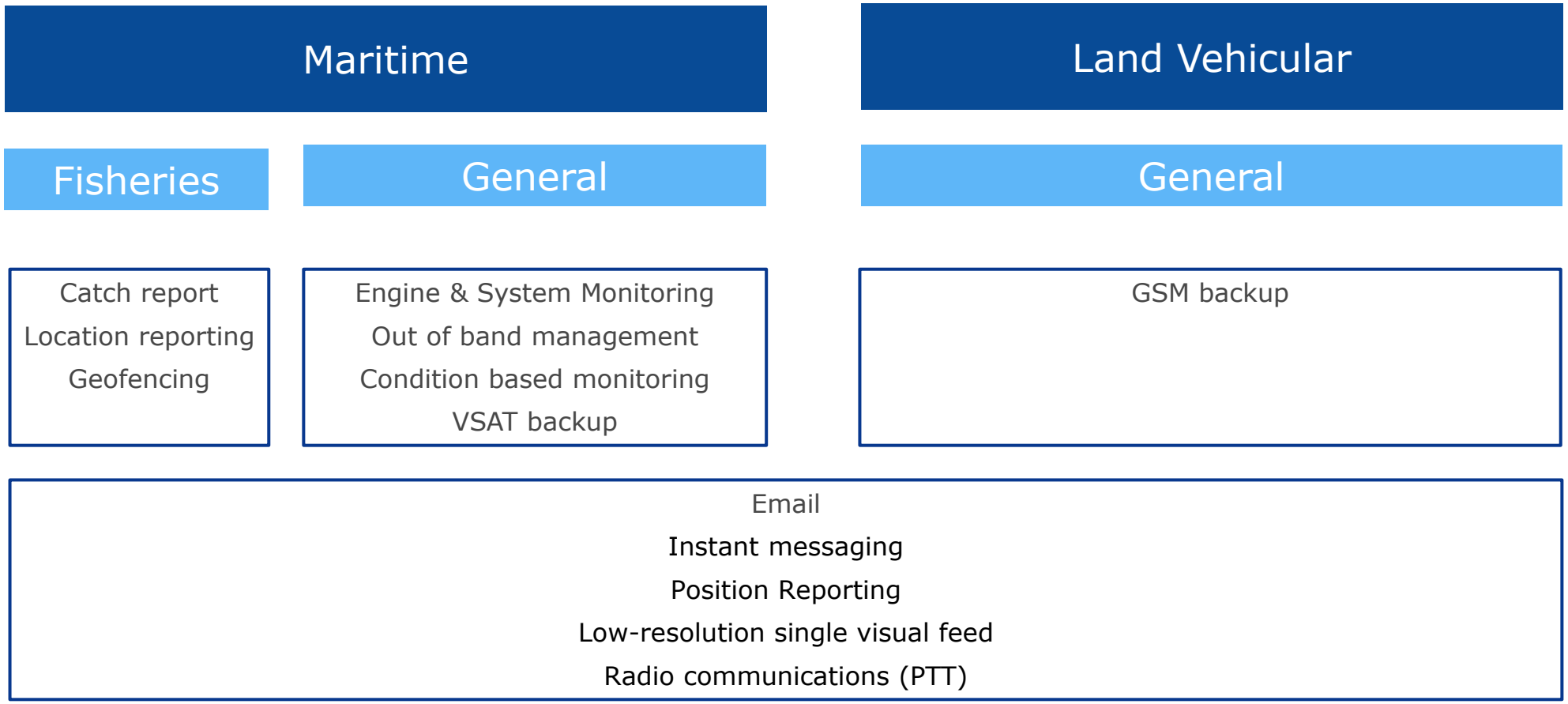
- This feature is a “send only” feature and is available as a backup to only send text emails to an email server.
- For this feature to work, it is important to program the email settings correctly. Ensure to seek advice from your IT department to use this functionality.
- The terminal’s unique IMEI is automatically inserted at the beginning of the Subject line and sent.



Applications

Market requirement for critical comms

Typical applications for an **entry level data solution**



Thuraya MBH key target markets

Segments

	Maritime		Land Vehicular	
Civil Government	• Coastal boats • Fisheries • Ferries	 	• Ambulance • Border patrol • Search & rescue	 
Energy	• Offshore vessels • Tug-boats • Jack-up barges/Rigs	 	• Petrochem carrier • Remote site inspection	 
Transportation	• Hopper barges • Regional merchant • Crew boats	 	• Enterprise Logistics • Cross- Border Trucking	 
Leisure	• Private yachts • Tour boats	 	• Safaris • Individual Travelers/ trekkers	
NGO			• Rapid Deployment • Security Missions	

USE CASES

- Primary mode for small boats
- Critical comms - COTM
- VSAT backup

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