

Terminal Web User Interface (WUI)

Operation Manual

Document # WUI-OM Version 1_4

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1. Revisions & Approvals

Revision History

Release	Date	Author	Description
Ver 1.0	February 12, 2020	Kenneth Grossman	Initial revision
Ver 1.1	April 22, 2020	Kenneth Grossman	<ul style="list-style-type: none"> Section 9.2.2 added that Bundle 2 is currently not supported Added Appendix A – Preset file parameters description and reference to Appendix A in section 6.2.1 Terminal Status
Ver 1.2	May 27, 2020	Kenneth Grossman	<ul style="list-style-type: none"> Added section 2.1 (supported browsers), modified figure 2-1, added System Alerts icon to figure 5-1, added row 10 to Table 5-1, added note to section 7.1, added section 7.5 (System) Added Gyro Calibration section to the System BIT
Ver 1.3	October 26, 2020	Tal Fischler	<ul style="list-style-type: none"> Added O3B feature Added Advanced window
Ver 1.4	December 14, 2020	Tal Fischler	<ul style="list-style-type: none"> Updated switch configuration GS-950/751 modems Updated setup chapters for GS-950 and GX-751 Updated Operation modes chapter Added BUC Mission status page Changes in terminology

Approvals History

Approved by	Date	Name	Signature
CEO	February 13, 2020	Kfir Benjamin	See hard copy
Eng. Manager	April 30, 2020	Yotam Alfandary	See hard copy

2. Introduction

Get SAT satellite terminals utilize a dedicated Web User Interface (WUI) for user-friendly terminal management, monitoring and control.

The GetSAT terminal web user interface enables:

- Defining terminal parameters
- Displaying real-time status and terminal indications
- Manual search and control of the terminal
- Terminal troubleshooting

2.1. Minimum browser versions supported

- Chrome version > 64
- Firefox version > 58
- Edge version > 18

2.2. Audience

This Web User Interface (WUI) guide is intended for operators of Get SAT terminals. It is assumed that:

- The Get SAT system is installed correctly with all its cabling in place, and the system is working properly according to the installation manual. The system has been correctly configured.
- The operator received a prior Get SAT Web User Interface training.
- The operator knows how to login to the system and has a valid username and password).

2.3. Document Description

This manual covers all Get SAT systems that utilize the Web User Interface. The specific terminal version is indicated, if applicable.

The manual covers multiple terminal configurations and describes those configurations without specifying a specific configuration. When the manual indicates information that does not exist in your terminal, it means it does not include that feature/application.

WUI features will automatically appear if your terminal supports those features.

2.4. List of Abbreviations

The following abbreviations and acronyms are used in this document.

Table 2-1: List of Abbreviations

Abbreviations	Description
ADS	Antenna Diversity Solution (see the Dual SAT installation manual)
BIM	Broadband Interface Module
BIT	Built In Test
BUC	Back Up Converter
GPS	Global Positioning System
GX	Global Xpress
IP	Internet Protocol
LAN	Local Area Network
LED	Light Emitting Diode
RF	Radio Frequency
RMA	Return Merchandise Authorization
Rx	Receive
SA	Spectrum Analyzer
SAT	Satellite
SW	Software
Tx	Transmit
WUI	Web User Interface

3. Safety Precautions

3.1. Caution Statements

CAUTION statements in this manual are used before operation procedures, practices or conditions that are essential to the protection of personnel, equipment or property. CAUTION statements are stated at the relevant step and when the step is repeated (if applicable).

Before starting any task, any CAUTION statements in the text for that task should be reviewed and understood.

NOTES with relevant information may precede or follow applicable text.

The following is a CAUTION statement:

CAUTION

Highlights an essential operational procedure, practice, condition, statement etc., which if not strictly observed, could result in damage to, or loss of use of equipment or loss of mission effectiveness.

The following is a **Note**:

Note: Highlights information relevant to an essential operational or maintenance procedure, condition, or statement.

3.2. General Safety Precautions

Safety precautions help to ensure personal safety and protect the device from damage. Always be alert and exercise good judgment.

- Perform only the procedures explicitly described in the documentation for this device.
- Make sure that only authorized service personnel perform other system services.

4. Web User Interface (WUI) Login

4.1. Requirements and Preparations

To access the GetSAT WUI make sure that you have a PC with one of the following Internet browsers: Internet Explorer 9, Mozilla Firefox, or Google Chrome.

Note: *For the best user experience, it is recommended to use Google Chrome.*

To enter the GetSAT WUI do the following steps:

1. Connect the Terminal's management port to the PC using an Ethernet cable.
2. The connected PC must be on the same subnet address as the terminal:
For example, for a default terminal IP address 192.168.1.3,
 - Computer IP address needs to be: 192.168.1.X (X can be 4 up to 254)
 - Subnet mask: 255.255.255.0
3. Open a web browser, and then type the following terminal address at the address line: 192.168.1.3 or your terminal IP address.
4. The Main WUI will start.

4.2. Login Screen

The Login Screen enables to log into the GetSAT WUI with one of the following accounts:

- **Viewer** – Can see all statuses windows and can download configurations. No password is required to login. Just press “Enter”, and WUI will start.
- **Operator** - Enables advanced configuration and performing actions on the terminal. Mostly used by operators. The Operator password is protected. The password is “oper”, all in lowercase letters.
- **Administrator** – Enables maintenance and configuration. Used by the service provider or trained personal. The Administrator password is protected. The password is “admin”, all in lowercase letters.

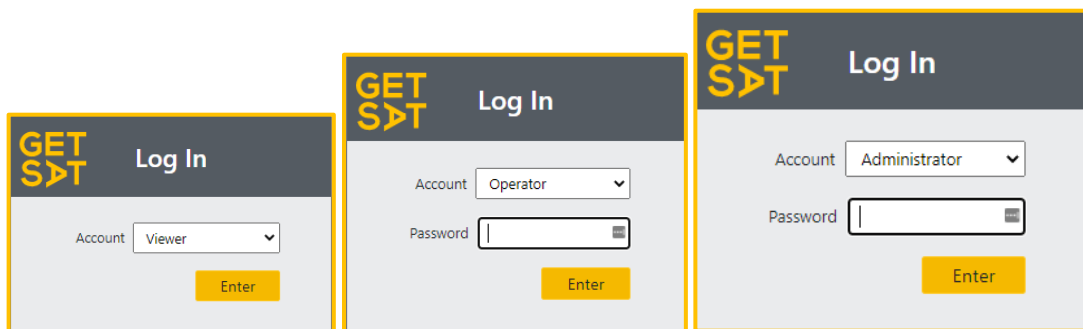


Figure 4-1: Login Screen – User, Technician and Administrator

To connect to the WUI, choose Viewer and press Enter (see Figure 4-2).

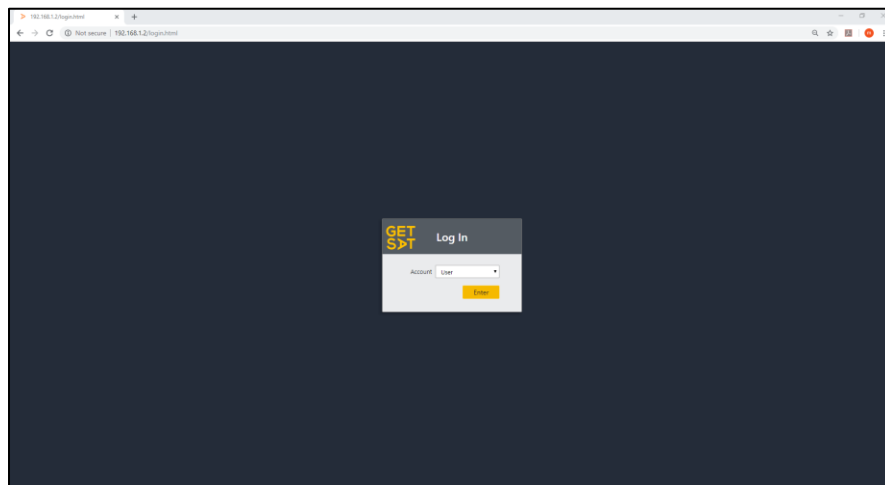


Figure 4-2: WUI Login

5. Main Window

5.1. Main Window Overview

After logging in, the main WUI dashboard is displayed. A detailed explanation of each section of the Main Window is described below.



Figure 5-1: Main Window

Table 5-1: Main Window Areas

No.	Item	Description
1.	Side Menu	Navigates through the different interface windows
2.	Elevation Indicators	Antenna elevation graphic display. The top gauge represents the IMU angle; the bottom gauge represents the mechanical position.
3.	Operation Mode	Chooses the operation mode: GetSAT – touch button to lock on the satellite. Manual – places the terminal in position mode Scan – places the terminal in a signal scan round
4.	Manual Control and Status	Manual angle controls, LED indicators, shows system status
5.	Azimuth Indicators	The top gauge represents the IMU (compass) look angle. The bottom gauge represents the mechanical position of the antenna in relation to the front I/O terminal panel. The internal arrow (white-on-black background) is stationary. It shows mechanical azimuth “0” relative to north. The external arrow (white-on-orange) shows the antenna panel direction relative to north. When the Compass Alignment LED is lit GREEN, the system is tracking the satellite and the values displayed in Gauge 5 are accurate.
6.	System Alerts icon	The icon is displayed when there are System Alerts. Hover with the mouse cursor over the icon to see a summary of the existing alerts. To see full details of the alerts, click Status, then System.
7.	User ID Panel	Shows the current user connected to the interface and allows logout to change the user. It also allows “soft” reboot of the terminal.
8.	Mechanical Azimuth	The arrow shows where the antenna is located relative to the terminal's mechanical “0”. The numerical value displayed is shown by the arrow.
9.	Rx/Lock Signal	Indicates quick configuration and status
10.	Tx control	Indicates quick configuration and status of the BUC

5.2. Side Menu Overview

The side menu provides an easy way to navigate in the WUI. The side menu remains open and accessible even when other, lower-level windows are open. For example, clicking Main while any other window is open, reopens the Main window.

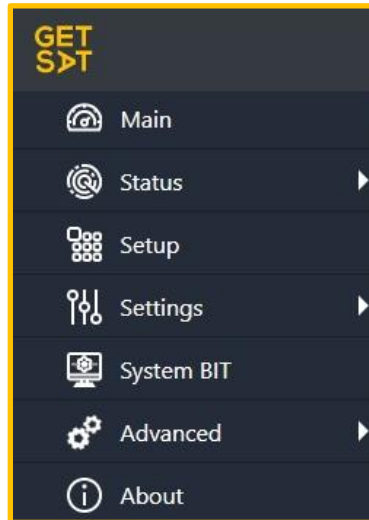


Figure 5-2: Side Menu

Table 5-2: Main Window - Side Menu

Topic Name	Description
Main	Shows the Main Window
Status	Provides advanced status/information of the terminal dependent on the mode of operation (ADS, GX, standalone, etc.
Setup	Terminal configuration including current setup.
Settings	Provides access to advanced system configuration settings.
System BIT	System Built-In Test.
Advanced	Password Mgmt.
About	Displays system information such as serial number, device type and release versions.

6. Operation Modes

6.1. Overview

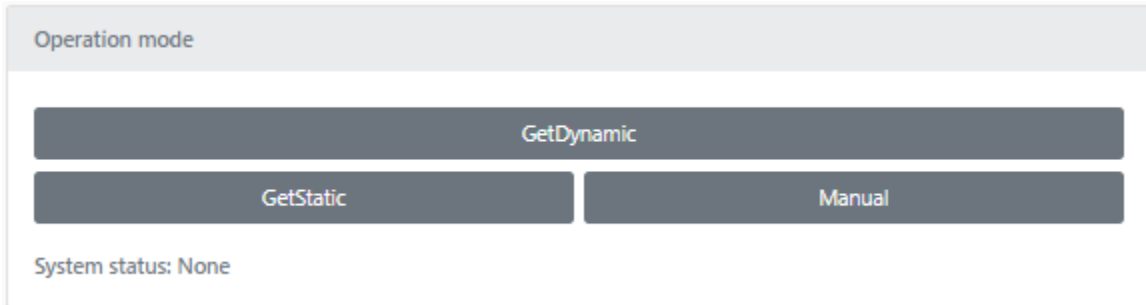


Figure 6-1: Operation Mode Area

A terminal has three operation modes:

- **Manual:** The antenna points to its last position. System Status changes to mode "position." In this mode, moving the antenna is done by using the Manual Mode Angle Control Buttons.
- **GetStatic:** on fixed position the terminal searches for a signal until found. When a signal is found, the terminal points towards the signal and stops tracking.
- **GetDynamic:** Fully automatic mode. Searches for a signal until found. When a signal is found, the system status moves to track mode. If the signal is lost, the system searches for the signal until it is found again.

Notes:

- Before GetStatic or GetDynamic modes can be used, the terminal must go through a proper setup process, where all parameters have been properly set.
- GetStatic or GetDynamic modes have additional parameters that operate in the background. These parameters are meant to protect the system from misuse.
 - Number of scans that a signal is not found (set to 10 by default)
 - Break time before another scan cycle starts (set for 5 min by default)
- When selecting a mode, the mode button color turns ORANGE and the Operation Mode Status shows the actual system mode (system status).

The various system statuses available and their description are as follows:

Table 6-1: System Status

Status Message	Operation Mode	Description
None	None	No operation. The antenna is powered up, however, no action is being taken.
Position	Manual	The antenna points to an angle that is displayed by the gauges. In this mode, the user can move the antenna manually.
	GetStatic	The system is locked on a signal, on fixed position. "Rx Status" and "Compass Aligned" status LEDs are GREEN. "Tx Status" is GREEN only if the "Tx On/Off" button is enabled.
Scan	GetStatic, GetDynamic	The antenna searches for a signal (operations are indicated by pressing Scan or when the system is in Scan Mode searching for the signal).
Track	GetDynamic	The system is locked on a signal, in tracking mode. "Rx Status" and "Compass Aligned" status LEDs are GREEN. "Tx Status" is GREEN only if the "Tx On/Off" button is enabled.

6.2. Manual Angle Control and Status

This function allows viewing the terminal status and terminal antenna manual control from the Main Window. This function includes the following:

6.2.1. Terminal Status

Note: The terminal status window contains information that depends on the terminal and can be different from terminal to terminal. Some functions are available in certain terminals and configurations that are not available in others.

The Terminal Status window (Figure 6-2) includes the following information:

- Sat Polarization – indication of the polarization to the satellite and the configuration of the terminal
- Calculated Skew
- GPS status – 3D means that GPS is available with the coordinates indicated.
- GX mode (when operating on the Inmarsat network)
- - LM
- - Aero
- - Modem not connected or other type of modem.
- Presets – the chosen configuration for the terminal (not available in all configurations) – See Chapter 17 for a description of the Preset file parameters
- Link downtime (not available in all configuration)

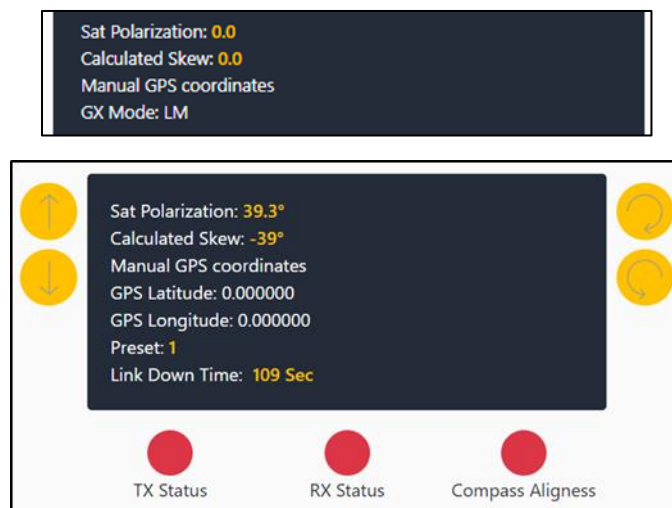


Figure 6-2: Main Window – Terminal Status

6.2.2. LED Indicators

The LED indicators display a quick system function overview.

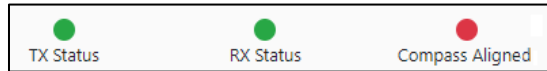


Figure 6-3: Main Window – LED Indicators





Table 6-2: Main Window – LED Indicators Description

LED Name	Description	
Tx Status	Green	Tx ON: System is transmitting
	Red	Tx OFF: System is not transmitting
Rx Status	Green	System is locked on the configured signal
	Red	System is NOT locked on the configured signal
Compass Aligned	Green	System compass is aligned. Azimuth gauge 0 degree means North.
	Red	System compass is not aligned. (The compass aligns when the first signal lock occurs.)

6.2.3. Manual Angle Controls

Manual angle controls are enabled in Manual Operation mode only. Each button click moves the antenna 1° in the selected direction (up or down).

Table 6-3: Manual Angle Controls

Button	Description	
	Elevation	Up
	Elevation	Down
	Azimuth	Clockwise, compared to mechanical "0"
	Azimuth	Counterclockwise compared to mechanical "0"

6.3. Rx/Lock Signal

The Rx/Lock Signal window provides a quick overview of configuration and statuses from the Main Window. The bottom screen area shows the frequency, the top shows reception strength.

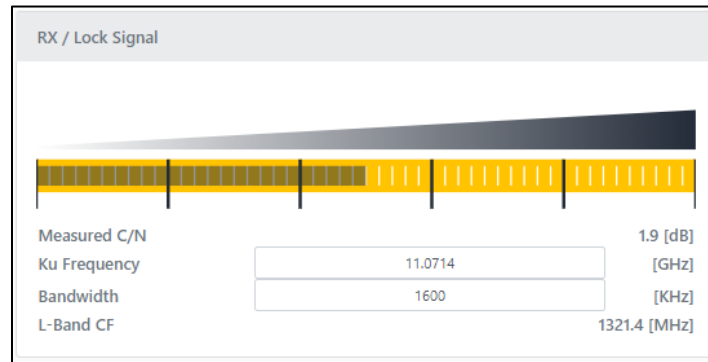


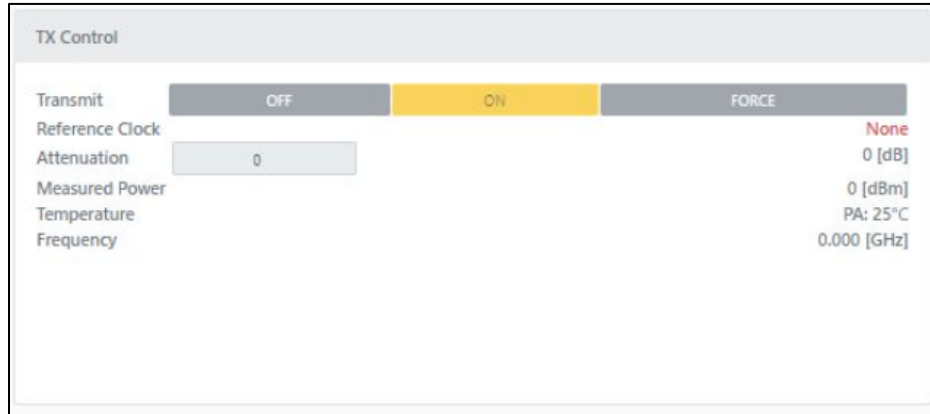
Figure 6-4: Main Window – Rx/Lock Signal

Table 6-4: Main Window – Rx/Lock Signal Description

Item	Description
C/N Bar – Measured C/N	Displays the received signal's measured power.
Ka Frequency	Sets the receive/track signal frequency (in GHz). Enabled only in Manual mode (text box is white).
Bandwidth	Sets the receive/track signal bandwidth (in kHz). Enabled only in Manual mode (text box is white).
L-Band CF	L-band center frequency of the Rx/Lock Signal (in MHz).

6.4. Tx Control

The TX control area enables modifications or shows real-time indications of system BUC operation.



The screenshot shows the 'TX Control' window with the following controls and readouts:

- Transmit:** A button group with 'OFF' (grey), 'ON' (yellow), and 'FORCE' (grey).
- Reference Clock:** A dropdown menu currently set to 'None'.
- Attenuation:** A numeric input field set to '0'.
- Measured Power:** A readout showing '0 [dBm]'.
- Temperature:** A readout showing 'PA: 25°C'.
- Frequency:** A readout showing '0.000 [GHz]'.

Figure 6-5: Tx Control

Table 6-5: Main Window – Tx Control

Item	Description
Transmit	Sets the Transmit mode to on/off/force (not available in AMIP/BMIP operation). NOTE: Using force mode forces the terminal to transmit in standalone mode and might be a safety hazard.
Reference Clock	Status indicator on the 10/50MHz clock from the modem to the BUC
Attenuation	Sets the Transmit Attenuation (not available in AMIP / BMIP operation)
Measured power	BUC output power reading
Temperature	BUC temperature
Frequency	The transmit frequency configured

7. Side Menu > Status

7.1. GX / OpenAmip

Note: This window is displayed only when a modem that supports this protocol is connected to the terminal.

The GX window appears only in the OpenAMIP mode of operation and displays the modem parameters, modem front panel status and OpenAMIP messages. In addition, it represents the modem LED indicators (only available in GS-751 and GS-950 modems and modems specific with BIM information messages).

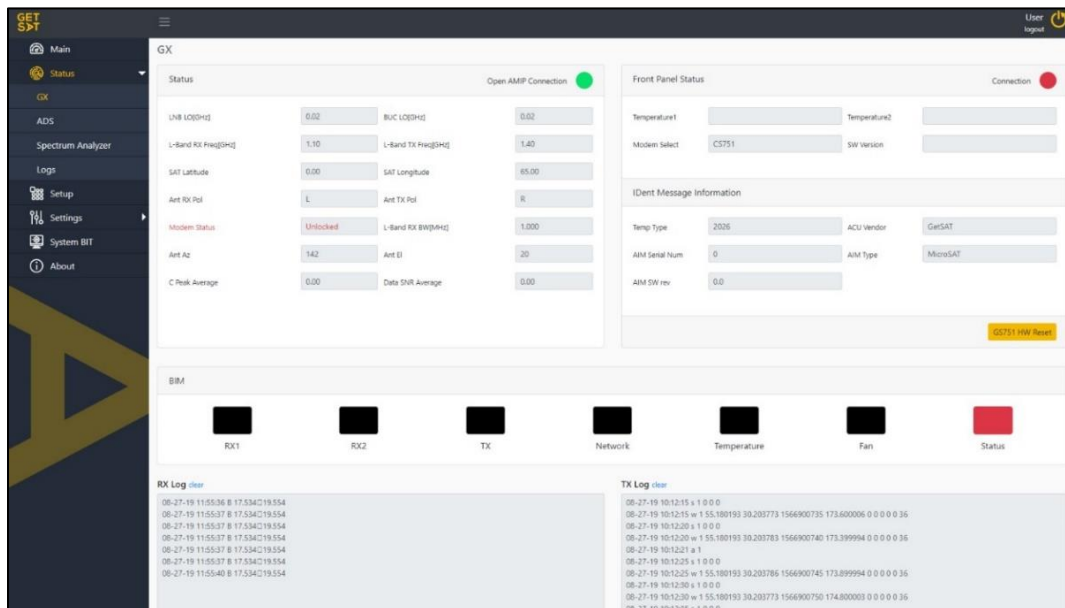


Figure 7-1: GX / OpenAMIP

7.1.1. Status lights



Figure 7-2: GX window status lights

- **Status** - indication of OpenAMIP connection to the modem
- **Front Panel** – indication of connection to GS-751 or GS-950

7.1.2. Status area indications

The Status area includes the following parameters:

- LNB LO – configured by modem in OpenAMIP mode
- BUC LO – configured by modem in OpenAMIP mode
- L-Band Rx Frequency – configured by modem in OpenAMIP mode
- L-Band Tx Bandwidth – configured by modem in OpenAMIP mode
- SAT Latitude – configured by modem in OpenAMIP mode
- SAT Longitude – configured by modem in OpenAMIP mode
- Antenna Rx Polarization – configured by modem in OpenAMIP mode
- Antenna Tx Polarization – configured by modem in OpenAMIP mode
- L-Band Rx BW [MHz] – configured by modem in OpenAMIP mode
- Modem Status – Locked/Unlocked, reported by modem in OpenAMIP mode
- Antenna Azimuth – calculated Antenna azimuth look angle according to SAT position and terminal location.
- Antenna Elevation – calculated Antenna elevation look angle according to SAT position and terminal location.
- C Peak Average – received from Terminal
- Data SNR Average – received from Terminal

7.1.3. Front panel area

The front panel section is available when using GS-751 & GS-950 products from GetSAT. The status section includes the following parameters:

- Temperatures
- SW version of the Front Panel
- Modem identification (751 or 950)

7.1.4. iDent message information

The iDent message information area displays key information about the identification messages that transfer different terminal parameters to the modem.

- TermType – Determines eligibility on the Inmarsat network. This number must match the Inmarsat approved number.
- AIM type – terminal type connected (MicroSAT, MilliSAT, etc.)

7.1.5. BIM

The Broadband Interface Module (BIM) section reports the LED status of the GS751 or GS950 modems.

7.1.6. Rx/Tx log area

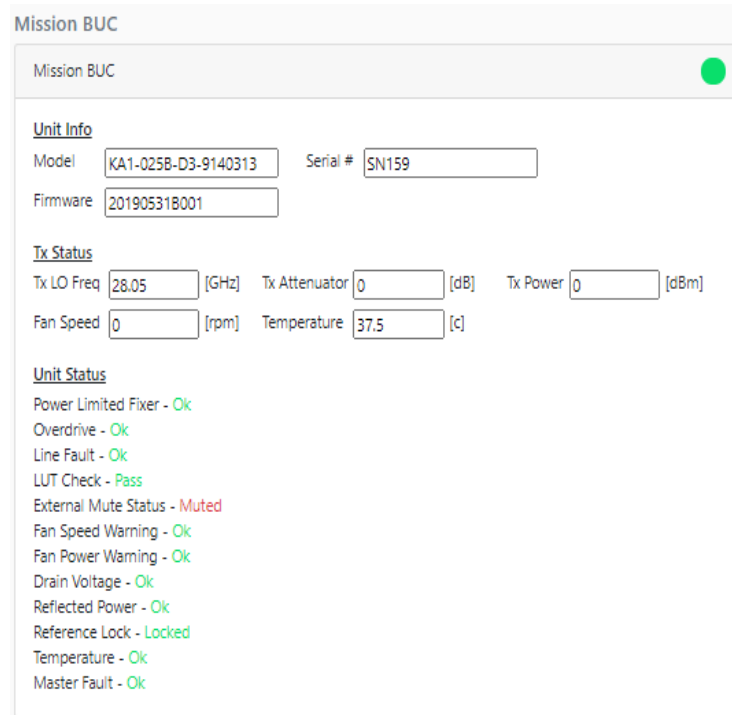
OpenAMIP is the protocol of communication between the modem and the terminal. Key information can be found on the RX / TX logs that explain modem / terminal real-time status.

- Rx log – messages sent by the modem and received by the terminal:
 - "A" – Alive msg
 - "F" – the Find command tells the terminal to scan. The same msg also contains polarization, frequency and sat location data.
 - "L00" – Modem is not locked.
 - "L10" – Modem is locked but the terminal is not allowed to transmit.
 - "L11" – Modem is locked and the terminal is allowed to transmit.
 - "K" – Skew angle received by the modem.
- Tx log – messages sent by the terminal and received by the modem:
 - "A" – Alive msg
 - "W" – Terminal reports GPS information
 - "S10" – Terminal is locked and ready to transmit
 - "S11" – Terminal is locked and transmitting

7.2. BUC

7.2.1. Mission BUC status

The Mission BUC status page is enabled only if a Mission BUC is used (external or integrated).



Mission BUC

Mission BUC ●

Unit Info

Model: KA1-025B-D3-9140313 Serial #: SN159

Firmware: 20190531B001

Tx Status

Tx LO Freq: 28.05 [GHz] Tx Attenuator: 0 [dB] Tx Power: 0 [dBm]

Fan Speed: 0 [rpm] Temperature: 37.5 [c]

Unit Status

Power Limited Fixer - Ok

Overdrive - Ok

Line Fault - Ok

LUT Check - Pass

External Mute Status - Muted

Fan Speed Warning - Ok

Fan Power Warning - Ok

Drain Voltage - Ok

Reflected Power - Ok

Reference Lock - Locked

Temperature - Ok

Master Fault - Ok

Figure 7-3: Mission BUC status page

- Unit Info: BUC model, Serial number, and Firmware.
- Tx Status:

Tx LO Freq : BUC local oscillator frequency. If no BUC is present, no value will be present in this field.

Tx Attenuator: Show the BUC's attenuation, the number next to the bar displays the current configured attenuation in dB.

Tx Power: BUC's measured output power in dBm. When OFF, measured power should be less than 0dbm.

FAN Speed: Indicates the fan RPM.

Temperature: BUC's measured temperature in Celsius of the BUC.
- Unit Status: Indicates the unit status of operation and alarms.

7.3. Antenna Diversity Solution (DualSAT ONLY)

Note: This window is displayed only when a DualSAT configuration is configured.

The Antenna Diversity Solution (ADS) window appears only when a terminal is configured to work in ADS mode and shows the status of the two terminals (Main and Secondary) as well as the status of the modem. Information presented in this window is similar to what has been explained in section 5.1.

The setup window section explains how to configure the terminals for ADS operation.

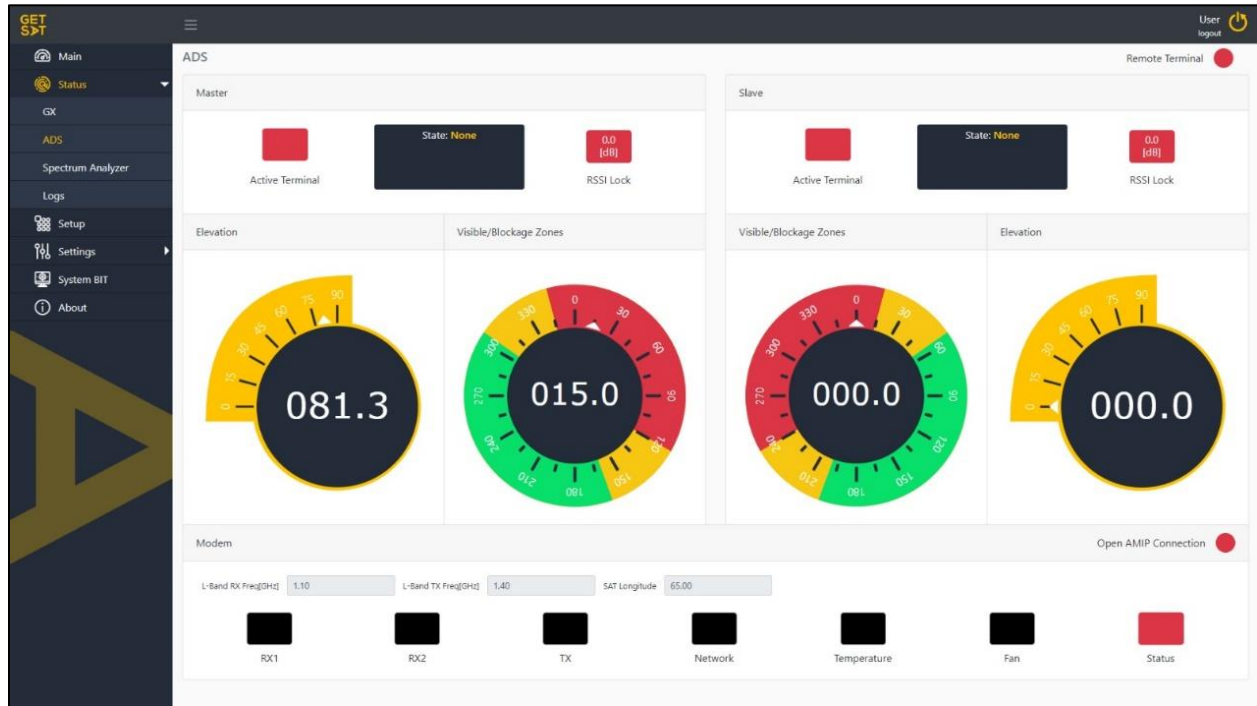


Figure 7-4: ADS

7.4. O3B

Note: This window is displayed only when an O3B network is selected during setup configuration.

The O3B window appears only when a terminal is configured to work in O3B mode and shows the status of the terminal tracking. The O3B status window shows information about O3B satellites constellation and enables the user to update **SDB** (System Data Broadcast) files to the terminal. This window is not needed when operating with GEO satellites.

The O3B window is divided into several sections:

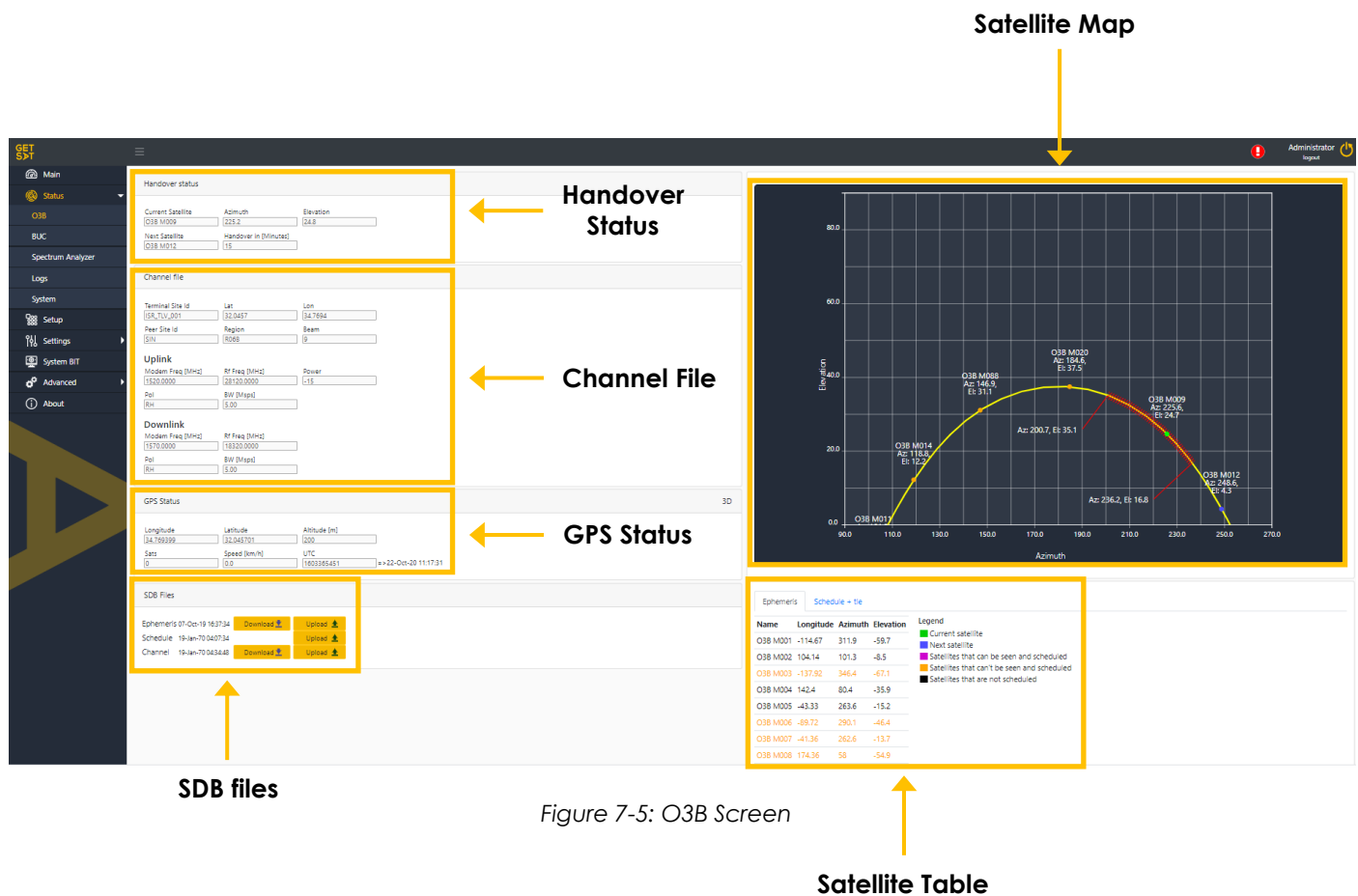


Figure 7-5: O3B Screen

7.4.1. Handover Status

Shows the time left for the next handover satellite.

Current Sat: The current locked satellite the terminal has to track.

Azimuth: The calculated azimuth angle pointing to the current satellite.

Elevation: The calculated elevation angle pointing to the current satellite.

Next Satellite: The next locked satellite the terminal has to track.

7.4.2. SDB Files

The **SDB** (System Data Broadcast) files are the Ephemeris, Schedule, and Channel files.

- **Ephemeris** – This data is used by the GPS receivers to estimate location relative to the satellites and thus position on earth.
- **Schedule** – This file contains data about scheduled satellites found in orbit.
- **Channel** – This files contains satellites data (Freq, Long, Lat, Polarization).

7.4.3. Channel File

Displays data from Channel file uploaded to the WUI.

7.4.4. GPS Status

Acquiring GPS is necessary to the terminal to calculate satellites positions and to calculate the pointing angles (Azimuth and elevation).

Longitude: Terminal longitude position comes from the GPS.

Latitude: Terminal latitude position comes from the GPS.

Altitude: Terminal Height above sea level, comes from the GPS.

Status: GPS lock status (3D is when the GPS is locked properly)

Speed: The Terminal's on the move Speed in km/h

UTC: UTC time in seconds

7.4.5. Satellite Table

The Satellite table displays the Ephemeris and Schedule + tle.

The operator can scroll between these two options and see the following information:

At the Ephemeris tab, all satellites in orbit will appear.

At the Schedule + tle, all scheduled satellites will appear.

The "Legend" explains, according to colors, the status of the desired satellite.

Ephemeris

Schedule + tle

Name	Longitude	Azimuth	Elevation
O3B M001	-146.81	257.4	-10.9
O3B M002	81.68	32.7	-58.8
O3B M003	-160.38	266.5	-20.1
O3B M004	126.03	32.7	-58.8
O3B M005	-65.79	164	26
O3B M006	-112.19	229	13.1
O3B M007	-63.82	161.1	25.6
O3B M008	151.89	299.9	-48.2
O3B M009	-16.02	110	-3.4
O3B M010	104.18	359.7	-62.3
O3B M011	80.78	33.9	-58.4
O3B M012	-41.05	132.1	13.9
O3B M013	31.42	78.6	-34.8

Legend

Current satellite

Next satellite

Satellites that can be seen and scheduled

Satellites that can't be seen and scheduled

Satellites that are not scheduled

Ephemeris

Schedule + tle

#	Satellite	Time	Sat Long	Step Time
00	M088	16:20:39	-003.029	24
01	M020	16:44:39	-000.484	24
02	M009	17:08:39	-002.416	24
03	M012	17:32:39	-003.450	24
04	M007	17:56:39	-002.225	24
05	M018	18:20:39	-002.334	24
06	M006	18:44:39	-002.587	24
07	M015	19:08:39	-002.667	24
08	M003	19:32:39	-002.783	24
09	M017	19:56:39	-002.131	24
10	M008	20:20:39	-002.507	24

Legend

Current satellite

Next satellite

Satellites that can be seen and scheduled

Satellites that can't be seen and scheduled

Satellites that are not scheduled

Figure 7-6: Satellite table

7.4.6. Satellite Map

The Satellite map displays the status of the satellites relative to the terminal and the current satellite on which the terminal is locked on.

The Red mark represents the area where the terminal follows the satellite on which it is locked according to Azimuth and Elevation.

The yellow arc presents only the scheduled satellites that the terminal can see, i.e., above Elevation 0.

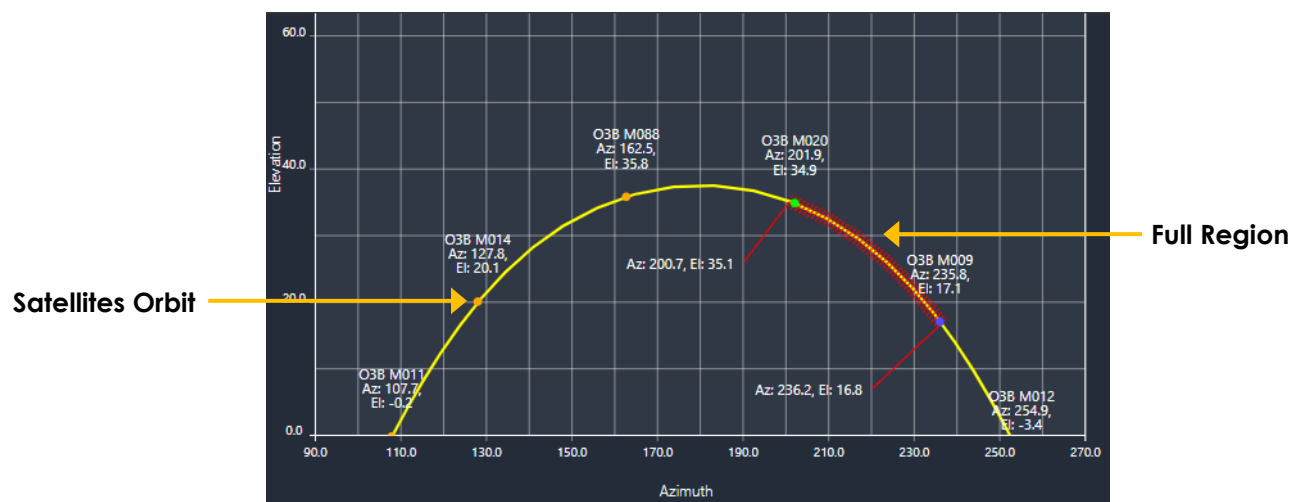


Figure 7-7: Satellite map screen

7.5. Spectrum Analyzer (SA) Window

Shows the signal strength received from the satellite and additional settings. Note that changing settings is only available in Operator and Admin mode.

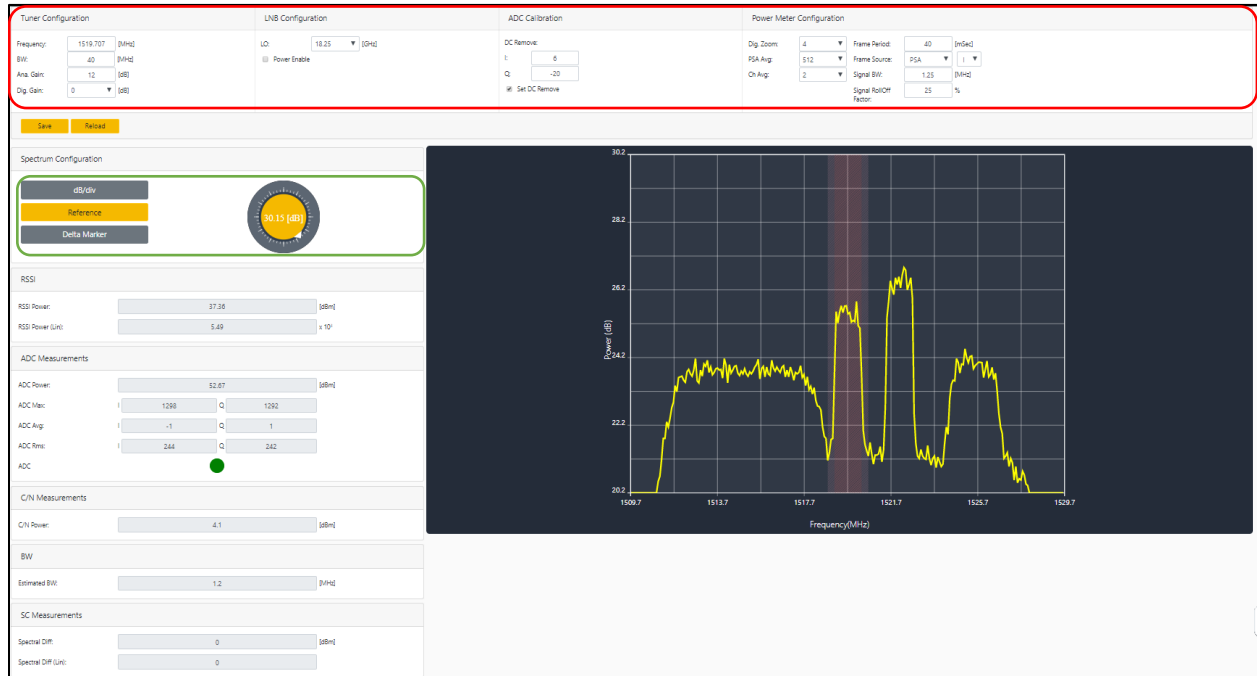


Figure 7-8: Spectrum Analyzer

Note: Modifying technician parameters in the SA window may create terminal tracking and other performance issues. Consult a Get SAT-authorized support representative before making any changes in the SA window.

Only the parameters in the Green area can be changed without consulting a Get SAT support engineer.

7.6. Logs

System logs and telemetry readings are recorded and saved in the Terminal for thirty days and can be downloaded at any time.

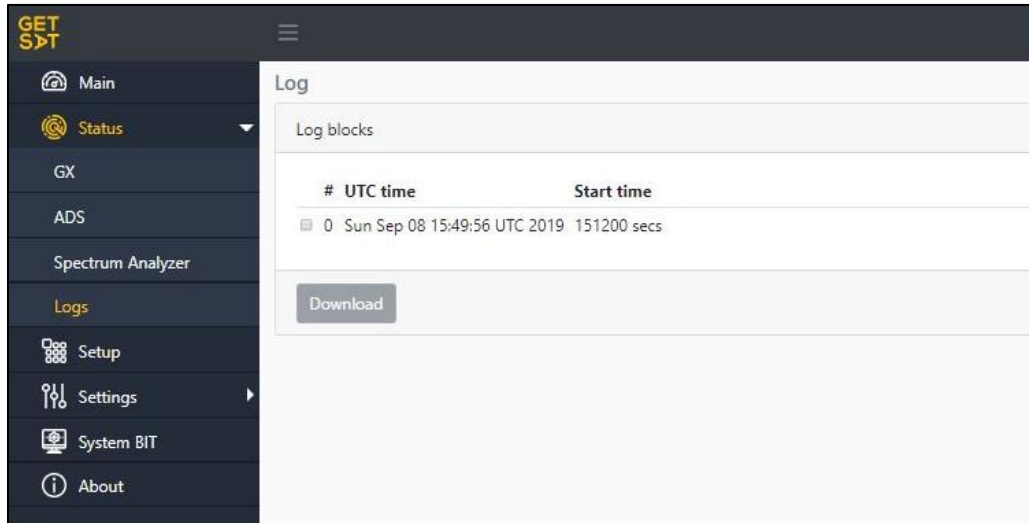


Figure 7-9: Logs

7.7. System

System Alerts are displayed in the lower area of the System window. This option is displayed only if the user logged in with Technician and Administrator privileges. Technicians and Administrators can clear the window of alerts by clicking Reset. If the reason for the alert was not resolved, the alert may appear again to call attention to the issue.

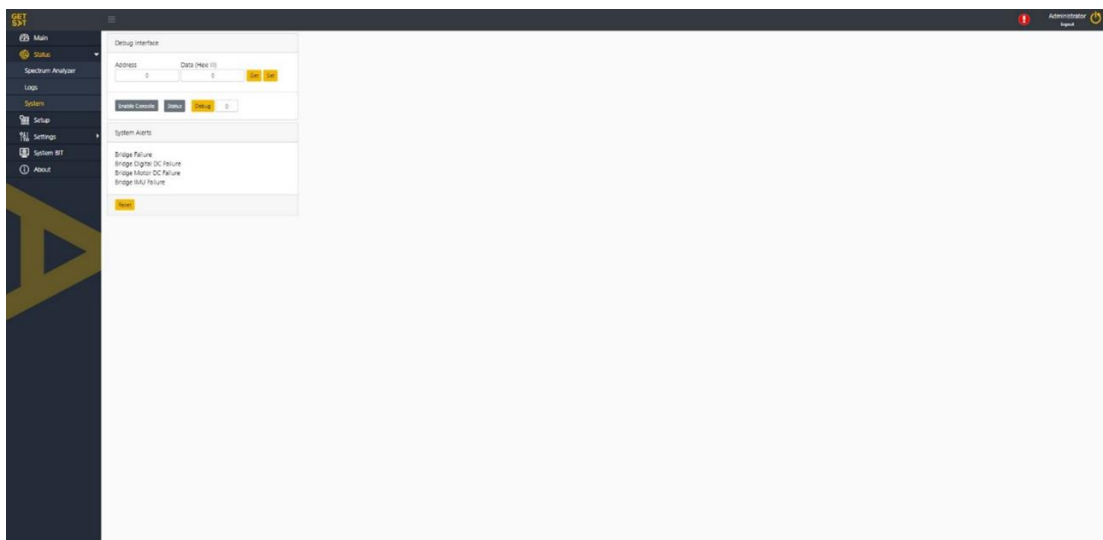


Figure 7-10: System > System Alerts

Note: The upper window area is for internal use by system administrators.

8. Side Menu > Setup

This section details multiple setup options in addition to those in the installation manual. Performing the setup without the right HW / installation setup can cause improper configuration of the terminal and performance issues.

Note: The right side of the setup menu shows the configuration data that has been set for the terminal. Review the information carefully to identify any mismatch to the desired configuration.

8.1. Standalone mode – MicroModem

Setup

Network

Network Type GEO

Modem Type MicroModem

Location

Satellite Coordinates

Orbital Position 56.5 E

System Coordinates

☒ GPS ☐ External GPS ☐ Manual

Please note that currently there is no GPS reception.

Enter backup GPS coordinates

Latitude 31.9 N

Longitude 34.78 E

Internal GPS Status: 1 Lat. 0.000 Long. 0.000

Track Signal Setup

Frequency 19.9382 [GHz]

L-Band 950-1950 [MHz]

(Center Frequency) KA: 19.2 - 21.2 [GHz]

Signal BW 25.641 [MHz]

Signal Roll Off 25 [%]

Track Signal

Signal L-Band Frequency is 1688.200 [MHz] With LO (18.25) [GHz]

Selected Rx Band is 19.2 [GHz] - 20.2 [GHz]

Signal RollOff BW is 6.41 [MHz]

Please Make Sure Your Modem signal is in range.

Transmit Setup

Tx Mode TX OFF

(Center Frequency) KA: 29 - 31 [GHz]

TX Frequency 30 [GHz]

GEO SAT TX Setup:

Transmit L-Band Frequency is 1 [GHz]

Automatic acquisition

GetSAT mode

☒ GetDynamic (On the Move)

☐ GetStatic (On the Pause)

☐ Automatic Satellite Acquisition after PowerUp

< Back Finish

Figure 8-1: Setup – Standalone MicroModem


8.2. Standalone mode – GX 751 setup


Setup

Network

Network Type GX

Modem Type GS-751

 The IP for OpenAmip will be set to 192.168.1.3@5001(TCP) after pressing "Finish".

 The IP for BIM will be set to 192.168.1.3@161(UDP) after pressing "Finish".

☐ ADS Enabled

☒ Primary Terminal ☐ Secondary Terminal

Automatic acquisition

GetSAT mode

☒ GetDynamic (On the Move)

☐ GetStatic (On the Pause)

< Back

Finish

Figure 8-2: Setup – Standalone Inmarsat GX (GS-751 Modem)

8.3. Standalone mode – GS 950 / OpenAMIP setup

Network

Network Type

GEO

Modem Type

GS-950

ⓘ

Please note GS-950 modem is not detected.

☐ OpenAMIP Enabled

Terminal IP

192

168

1

3

OpenAmp Port

5001

☐ ADS Enabled

☒ Primary Terminal
 ☐ Secondary Terminal

Location

Satellite Coordinates

Orbital Position

0

W

System Coordinates

☐ GPS
 ☐ External GPS
 ☒ Manual

Latitude

31.9034

N

Longitude

34.7902

E

Internal GPS Status: 3

Lat: 31.903

Long: 34.790

Antenna Pointing:

Azimuth: 232.741

Elevation: 37.144

Skew Angle: -42.507

Track Signal Setup

Frequency

20.14

[GHz]

L-Band

950-1950

[MHz]

(Center Frequency) KA: 19.2 - 21.2 [GHz]

Signal BW

28

[MHz]

Signal Roll Off

30

[%]

Track Signal

Signal L-Band Frequency is 1890.000 [MHz] With LO (18.25) [GHz]

Selected Rx Band is 19.2 [GHz] - 20.2 [GHz]

Signal RollOff BW is 8.4 [MHz]

Please Make Sure Your Modem signal is in range.

Transmit Setup

Tx Mode

TX OFF

(Center Frequency) KA: 29 - 31 [GHz]

TX Frequency

30

[GHz]

GEO SAT TX Setup:

Transmit L-Band Frequency is 1 [GHz]

Figure 8-3: Setup – Stand Alone GS-950 Modem

Note: Make sure your option file on the modem has the right IP address and port for the antenna.

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Proprietary Information


8.4. G-MODMAN 780 / OpenAMIP setup


Setup


Network


Network Type GX

Modem Type G-MODMAN-780

 The IP is going to change to 192.168.1.5 after pressing "Finish".

 The IP for Kermit: will be set to 192.168.1.5@1649(TCP) after pressing "Finish".

 The IP for OpenAmip will be set to 192.168.1.5@5001(TCP) after pressing "Finish".

 The IP for OpenBmp will be set to 192.168.1.5@6001(UDP) after pressing "Finish".

Automatic acquisition

GetSAT mode

☒ GetDynamic (On the Move)

☐ GetStatic (On the Pause)

< Back Finish

Figure 8-4: Setup – G-MODMAN 780 Modem

8.5. ADS (Dual SAT) GX 751 setup

To set up the terminals properly in DualSAT mode, make sure the XML files are loaded into the terminal. For reference files, you can use the ones provided with the terminal if you do not have your own.

Note I: Pay extra attention when configuring ADS. In ADS mode, two terminals are connected to one another. The terminals default IP standalone is 192.168.1.3. Connecting them to one another results in an IP conflict and blocks the address to the terminal.

Note II: The following is the default configuration of the terminals in ADS (DualSAT):

- Main terminal IP: 192.168.1.3
- Secondary terminal IP: 192.168.1.9

Note III: To configure the terminals, connect each one separately. Follow the setup instructions as detailed below. After configuration is completed, connect the terminals to one another.

Note IV: ADS (DualSAT) XML files are an essential part of operation. Make sure that the XML files are properly loaded (first-time loading or after a software upgrade). Each XML file needs to be loaded to its respective terminal (Main / Secondary). For generic ADS XML files, use the ones provided with the software package or contact GetSAT Support.

Note V: After configuration is completed, make sure that your terminals are set properly in the ADS tab blockage zone area.

8.5.1. ADS (DualSAT) GX-751 Main terminal Setup

Setup

Network

Network Type

GX

Modem Type

GS-751

⚠

Please note GS-751 modem is not detected.

⚠

The IP for OpenAmp will be set to 192.168.1.3@5001(TCP) after pressing "Finish".

⚠

The IP for BIM will be set to 192.168.1.3@161(UDP) after pressing "Finish".

⚠

Please make sure you setup the second terminal as well.

☒ ADS Enabled

☒ Primary Terminal
 ☐ Secondary Terminal

Finish

Figure 8-5: Setup – ADS (Dual SAT) GX-751 Main terminal Setup

Load the relevant XML files, if needed.

Packages				
Software Package Management				
Bundle Number	Bundle Version	Release Date	Bundle Status	Bundle Actions
Factory Default	Release 4.2.0.0	11-26-2019 14:29:00	Valid	<div>Activate</div> <div>Upload</div>
Bundle 1	Release 4.32.0.0	02-03-2020 11:23:00	Active	<div>Activate</div> <div>Upload</div>
Bundle 2	Release - - - -		Empty	<div>Activate</div> <div>Upload</div>
Configuration Management				
Name	Description	Version	Actions	
General	General Configuration	1.0	Download	Upload
Terminal	Terminal Configuration	1.0	Download	Upload
Application	ADS		Download	Upload

Figure 8-6: Setup – ADS (Dual SAT) GX-751 Main terminal XML Upload

8.5.2. ADS (DualSAT) GX-751 Secondary terminal Setup

Setup

Network

Network Type
GX

Modem Type
GS-751

Please note GS-751 modem is not detected.

The IP is going to change to 192.168.1.9 after pressing "Finish".

The IP for OpenAmp will be set to 192.168.1.9@5001(TCP) after pressing "Finish".

The IP for BIM will be set to 192.168.1.9@161(UDP) after pressing "Finish".

☒ ADS Enabled
☐ Primary Terminal ☒ Secondary Terminal

Finish

Figure 8-7: Setup – ADS (Dual SAT) GX-751 Secondary terminal Setup

Load the proper XML file, if necessary.

Packages					
Software Package Management					
Bundle Number	Bundle Version	Release Date	Bundle Status	Bundle Actions	
Factory Default	Release 4.2.0.0	11-26-2019 14:29:00	Valid	Activate	Upload
Bundle 1	Release 4.32.0.0	02-03-2020 11:23:00	Active	Activate	Upload
Bundle 2	Release - - - - -		Empty	Activate	Upload
Configuration Management					
Name	Description	Version	Actions		
General	General Configuration	1.0	Download	Upload	
Terminal	Terminal Configuration	1.0	Download	Upload	
Application	ADS		Download	Upload	

Figure 8-8: Setup – ADS (Dual SAT) GX-751 Secondary terminal XML Upload

8.6. ADS (DualSAT) GS 950 Setup

To set up the terminals properly in DualSAT mode, make sure that the XML files are loaded into the terminal. You can use the reference files provided with the terminal if you do not have your own.

Note I: Pay extra attention when configuring ADS. In ADS mode, two terminals are connected to one another. Since the terminal default IP (192.168.1.3) is for standalone mode, connecting them to one another results in an IP conflict and blocks the terminal address.

Note II: The following is the default configuration of the terminals in ADS (DualSAT):

- Main terminal IP: 192.168.1.3
- Secondary terminal IP: 192.168.1.9

Note III: To configure the terminals, connect to each one separately. Follow the setup instructions as detailed below. After configuration is completed, connect the terminals to one another.

Note IV: ADS (DualSAT) XML files are an essential part of operation. Make sure the XML files are properly loaded (for first-time loading or after a software upgrade). Each XML file needs to be loaded to its respective terminal (Main / Secondary). For generic ADS XML files, please use the ones with the provided software package or contact GetSAT Support.

Note V: After configuration is completed, make sure that your terminals are set properly in the ADS tab blockage zone section.

8.6.1. ADS (DualSAT) GS-950 Main terminal Setup

Setup

Network

Network Type: GEO

Modem Type: GS-950

Please note GS-950 modem is not detected.

Please make sure you setup the remote terminal as well.

☒ OpenAMIP Enabled

Terminal IP: 192 168 1 3

OpenAmip Port: 5001

☒ ADS Enabled

☐ Primary Terminal ☐ Secondary Terminal

Secondary IP: 192 168 1 9

Transmit Setup

Tx Mode: TX OFF

< Back Finish

Figure 8-9: Setup – ADS (DualSAT) GS-950 Main terminal Setup

Load the proper XML file, if necessary.

Packages					
Software Package Management					
Bundle Number	Bundle Version	Release Date	Bundle Status	Bundle Actions	
Factory Default	Release 4.2.0.0	11-26-2019 14:29:00	Valid	Activate	Upload
Bundle 1	Release 4.32.0.0	02-03-2020 11:23:00	Active	Activate	Upload
Bundle 2	Release - - - - -		Empty	Activate	Upload
Configuration Management					
Name	Description	Version	Actions		
General	General Configuration	1.0	Download	Upload	
Terminal	Terminal Configuration	1.0	Download	Upload	
Application	ADS		Download	Upload	

Figure 8-10: Setup – ADS (DualSAT) GS-950 Main terminal XML Upload

8.6.2. ADS (DualSAT) GS-950 Secondary terminal Setup

Setup

Network

Network Type GEO

Modem Type GS-950

Please note GS-950 modem is not detected.

Please make sure you setup the remote terminal as well.

☒ OpenAMIP Enabled

Terminal IP 192 168 1 3

OpenAmip Port 5001

☒ ADS Enabled

☐ Primary Terminal ☒ Secondary Terminal

Primary IP 192 168 1 9

Transmit Setup

Tx Mode TX OFF

< Back Finish

Figure 8-11: Setup – ADS (DualSAT) GS-950 Secondary terminal Setup

Load the proper XML file, if necessary.

Packages				
Software Package Management				
Bundle Number	Bundle Version	Release Date	Bundle Status	Bundle Actions
Factory Default	Release 4.2.0.0	11-26-2019 14:29:00	Valid	Activate Upload
Bundle 1	Release 4.32.0.0	02-03-2020 11:23:00	Active	Activate Upload
Bundle 2	Release - - - -		Empty	Activate Upload
Configuration Management				
Name	Description	Version	Actions	
General	General Configuration	1.0	Download	Upload
Terminal	Terminal Configuration	1.0	Download	Upload
Application	ADS		Download	Upload

Figure 8-12: Setup – ADS (DualSAT) GS-950 Secondary terminal XML Upload

9. Side Menu > Settings

Terminal settings are configured using three windows:

- Networking
- Packages
- Blockage Zones

9.1. Networking

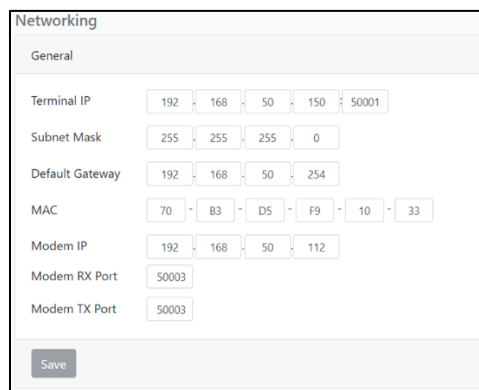
The Networking Window shows the network settings in one window. Settings are “read only” and cannot be modified in this window.

9.1.1. Networking Window

In this window, the user can change the IP settings of the terminal.

Notes:

- In GX (GS-751) mode, the IP address must be 192.168.1.3. Otherwise, the terminal does not communicate with the modem.
- When working with an OpenAMIP device other than the GS-751, this IP address is the one that communicates with the OpenAMIP modem.
- In order to communicate with the terminal, the computer IP must be on the same subnet.
- The options in the window change depending on the terminal configuration.



The screenshot shows the 'Networking' window with a 'General' tab. It contains several input fields for network configuration:

Field	Value
Terminal IP	192 . 168 . 50 . 150 . 50001
Subnet Mask	255 . 255 . 255 . 0
Default Gateway	192 . 168 . 50 . 254
MAC	70 . 83 . D5 . F9 . 10 . 33
Modem IP	192 . 168 . 50 . 112
Modem RX Port	50003
Modem TX Port	50003

A 'Save' button is located at the bottom left of the window.

Figure 9-1: Settings – Networking Window

9.2. Packages

9.2.1. Packages Overview

The Packages Window allows managing the terminal's software versions and configuration. To change settings in the Packaging window, the logged user must have administrator permission.

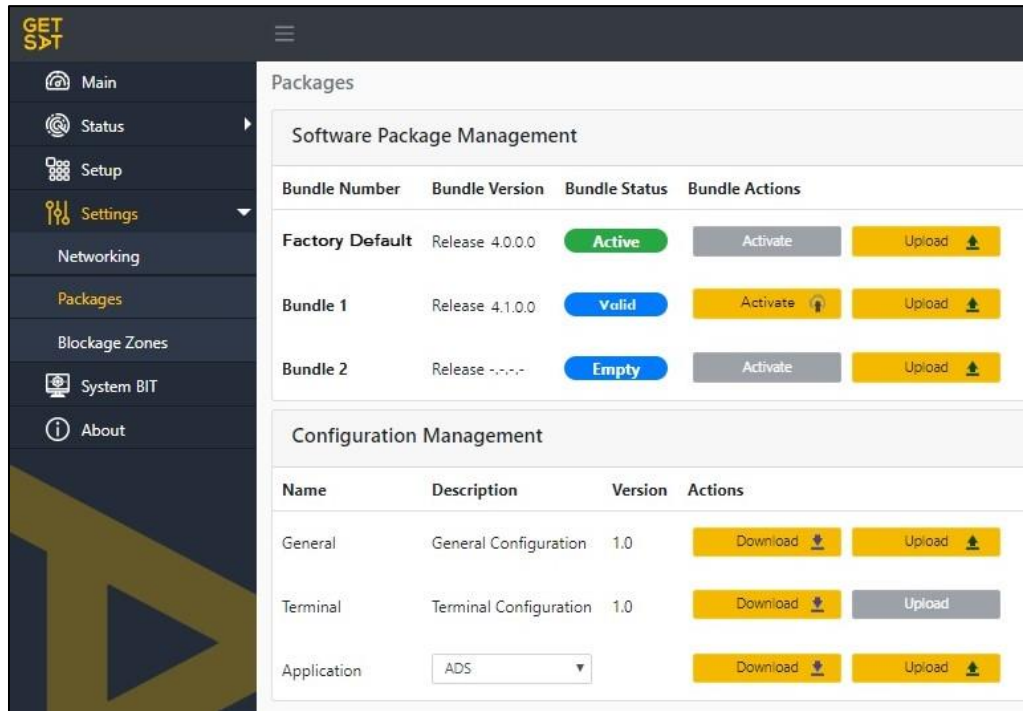


Figure 9-2: Settings – Packages Window

Table 9-1: Main Window – Tx Control

Item	Description
Bundles	Different SW packages can be any approved software package provided by GetSAT.
General	General XML file with its complete configuration settings
Terminal	Terminal specific identification
Application	Pre-loaded and application specific (in this case an ADS configuration)

9.2.2. Software Package Management

The Software Package Management area allows reviewing and configuration of the software:

- The Terminal allows maintaining up to three different software versions.
- The different images can have the following statuses:
 - **Active** – current image that the system is booted from
 - **Valid** – valid image that is available for boot
 - **Invalid** – broken image
 - **Empty** – empty image slot
- Uploading a new image is done using the Upload button. The Upload button allows choosing different software and uploading it to the selected slot (if the selected slot is already taken by Valid or Invalid software, the uploaded software replaces the existing version). Software upgrade procedure section [9.2.4](#).

Note: The upload process can be canceled only during the first stage of the upload (while the software is being uploaded to the terminal). The second stage of the upload process includes burning the software to non-volatile memory. Interrupting the burning process while it is being performed is strictly prohibited.

CAUTION

The factory default image can only be used by a support engineer authorized by GetSAT and should not be replaced under any circumstance.

CAUTION

Do not cut off system power supply while the software upload is in process. Doing so can damage the system!

9.2.3. Configuration Management

The Configuration Management area allows managing terminal configuration files:

- To download a system configuration, click Download. To upload, click Upload.
- To download the current terminal identification, click Download. To upload a terminal configuration, click Upload.
- To download a specific application configuration, click Download. To upload, click Upload.

Note: Download/upload configuration/application applies only to the active image.

9.2.4. Software Upgrade Procedure

CAUTION

The procedure below is only for versions 4.2 and above. For any version below 4.2, contact your GetSAT-authorized support engineer.

1. Login to the WUI.
Note: If burning the factory default, you must login as administrator. Burning the factory default must be first approved by GetSAT support.
2. Check which software bundle is activated. If the factory default is activated, proceed with the upgrade procedure. It is important for the next step to verify that the proper general configuration file is being used.
3. Save the General configuration file, terminal configuration file, and ADS configuration file (.xml) from the current running version, on your computer
4. Upgrade the factory default bundle to version 4.2 if you have a lower version. If the factory default is on version 4.2 or higher, do not change anything.
5. Note again that the right software bundle is activated.
6. If you upgraded the factory default, load the saved (action #3) general configuration file while the activated software bundle is the factory default.
7. Restart the terminal.
8. Upgrade Bundle 1 with the new software version.
9. Activate bundle 1.
10. **Load the previous saved general configuration file (action #3), while making sure bundle 1 is activated.**
11. Restart the terminal.

9.3. Blockage Zones

Note: The Blockage Zones function is not applicable to every terminal and configuration. See the relevant installation manual and ICD to make sure your terminal supports the ADS function and understand how to configure the terminals for ADS operation, including the settings of proper blockage zones and mounting the terminals properly.

The blockage zone window contains two sections:

- ADS
- Blockage zones

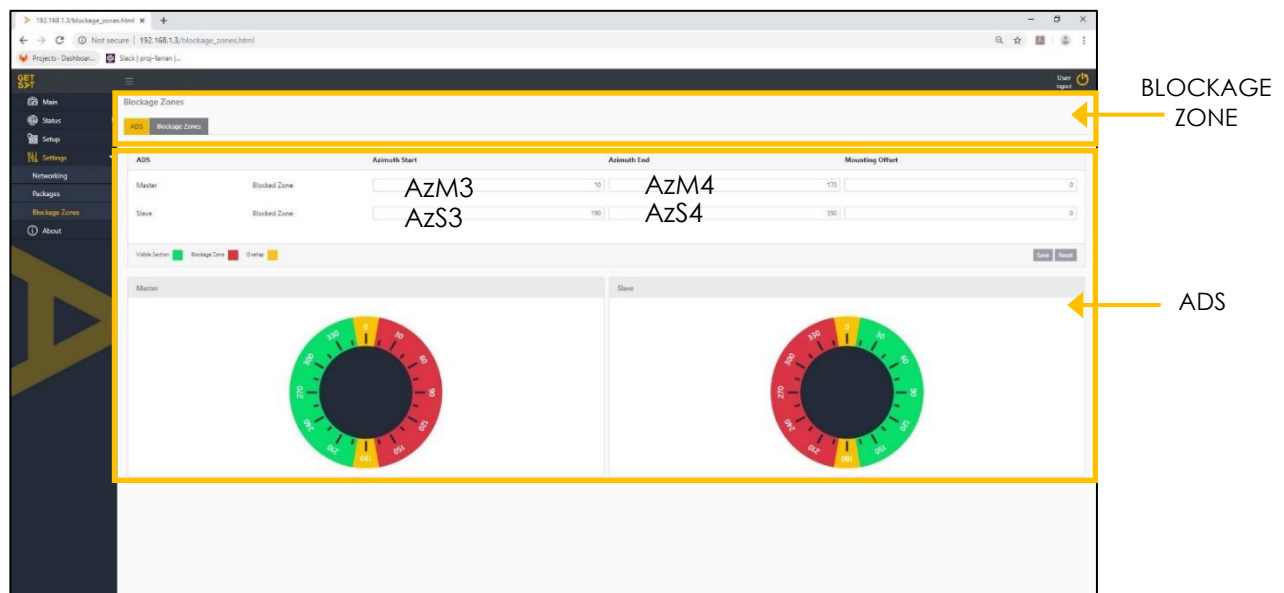


Figure 9-3: ADS Tab

9.3.1. ADS (DualSAT) Section

Note: Access each terminal through its specific IP: 192.168.1.3 for Main and 192.168.1.9 for Secondary.

This tab enables defining Blocking Zones for an ADS configuration. It is here that Blockage Zones are defined when two DualSAT terminals work together.

To define Blockage Zones, enter the Blockage Zone Azimuth Start and Azimuth End values for the Main, and click Save.

The system automatically calculates Blockage, Overlap and Tx/Rx zones for the Main Terminal and Secondary Terminals. The system creates a mirror image of the Main for the Secondary Terminal so that the two terminals can work in tandem. It is unnecessary to enter elevation, since the DualSAT solution is intended for open-air systems where no elevation blockages are present.

9.3.2. Blockage Zones Representation – ADS (DualSAT)

Figure 9-4: Blockage Zones

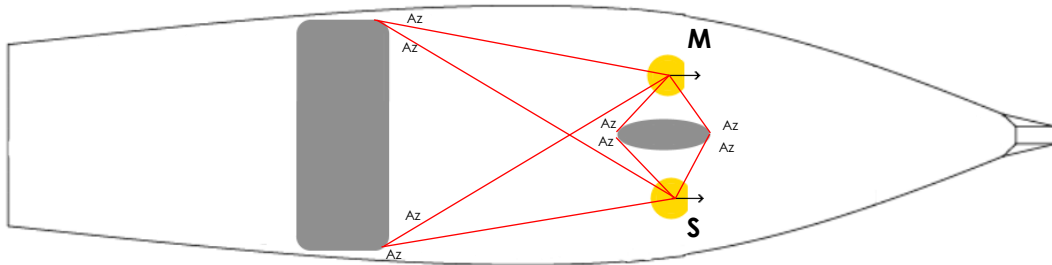


Figure 9-5: Azimuth Blockage zones representations

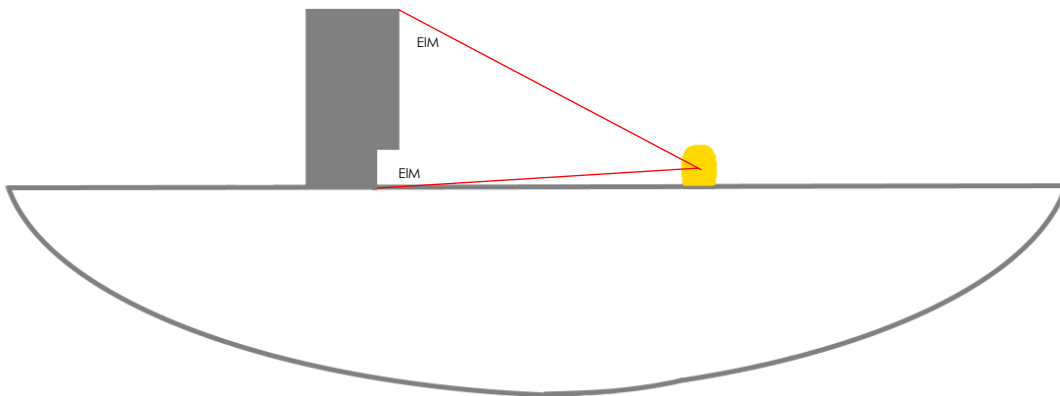


Figure 9-6: Elevation Blockage zones representations

9.3.3. Blockage Zone Section

The Blockage Zone window allows configuring up to five blockage zones for a specific terminal:

- Blockage zones are defined by mechanical azimuth boundaries (azimuth values are integers between 0 – 359).
- Blockage zones can either be enabled or disabled.
- Configured blockage zones are applied by clicking Save.
- Reverting to the last configured blockage zones is done by clicking Reset.

The lower window area shows a graphic representation of the configured blockage zones:

- Each blockage zone has its own color according to the index.
- Blockage zones can be displayed separately or all together according to user preferences.

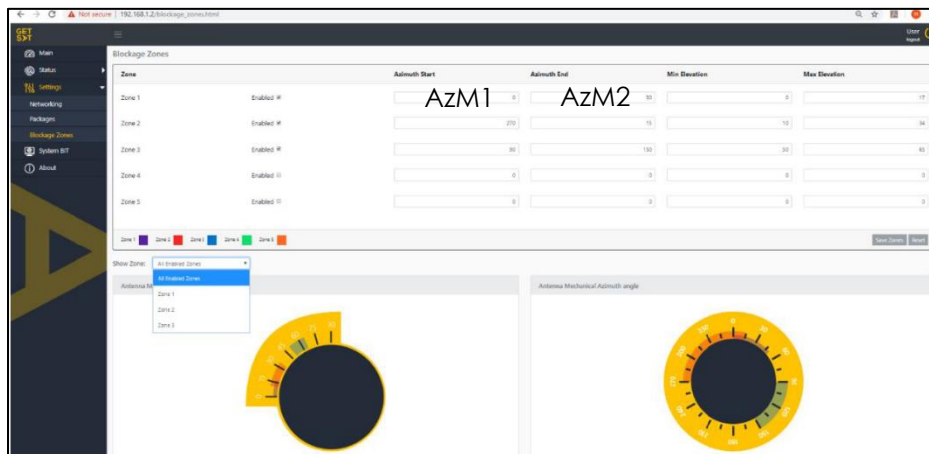


Figure 9-7: Blockage Zones

9.3.4. Ideal Scenario

In the WUI, the representation of the two terminals is such that one is represented as the 'Main' and the other is represented as the 'Secondary'. The two terminals are shown as two circles representing the terminals' Azimuth.

See DualSAT

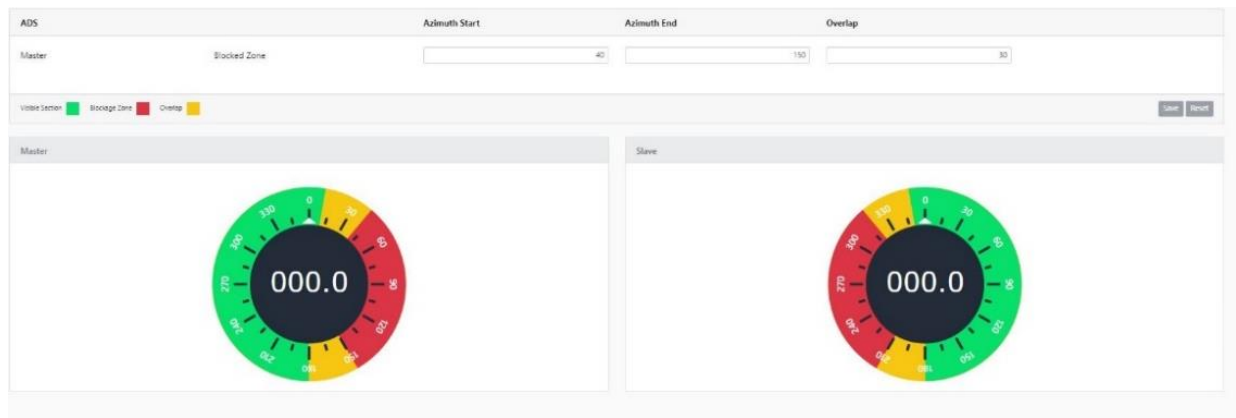


Figure 9-8: WUI showing 2 Terminals and their Blockage zones

For more information on how to define Blockage Zones & Offset, see DUALSAT ICD [Determining Offset and Blockage Zones](#).

9.3.5. Configuration sample 1: Ideal Scenario

In the following diagram, an obstruction blocks the Main Terminal line-of-sight at 45° to 70°. The obstruction blocks the Secondary Terminal at 280° to 305°. Record these values for entry during configuration of the Terminals in the Get SAT Web UI.

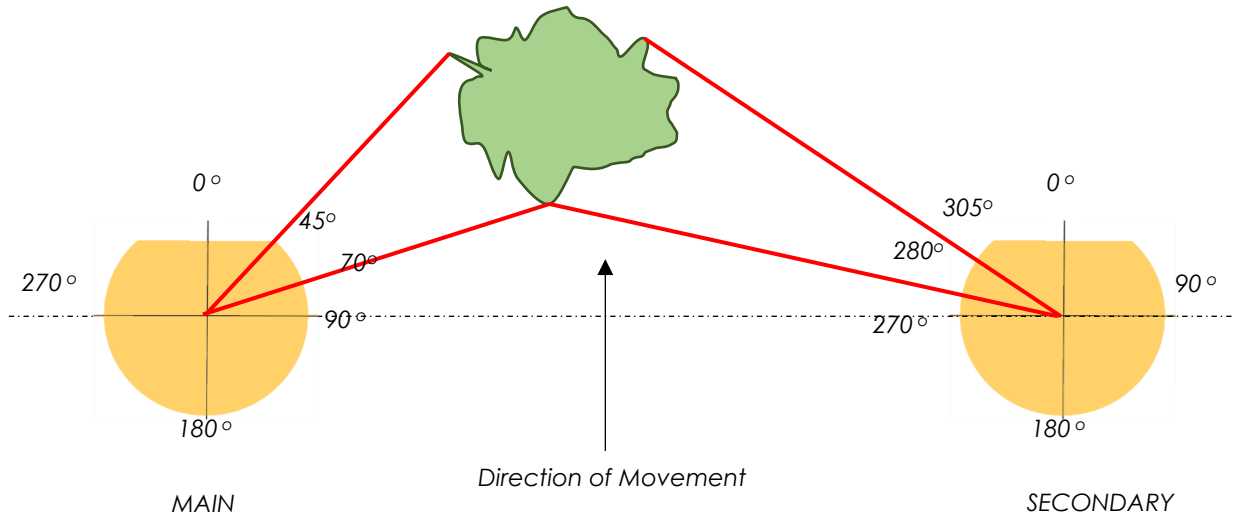


Figure 9-9: Obstruction example 1

Table 9-2: Values to enter in WUI example 1

Parameter	Value
Azimuth Start Main	45 °
Azimuth End Main	70 °
Azimuth Start Secondary	280 °
Azimuth End Secondary	305 °
Offset Main	0 °
Offset Secondary	0 °

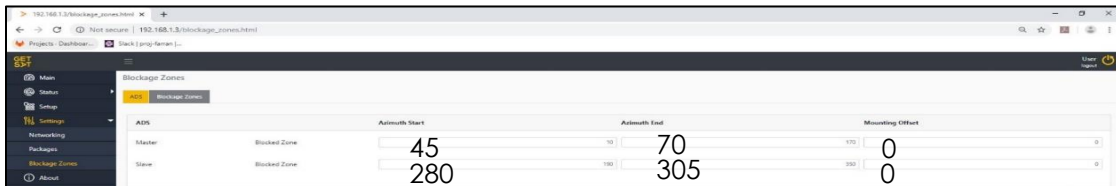


Figure 9-10: ADS Tab Configuration sample 1

9.3.6. Configuration sample II- Ideal Scenario

In the following example, the resulting angles are, 45° - 130° in the Main terminal and 235° - 305° in the Secondary terminal.

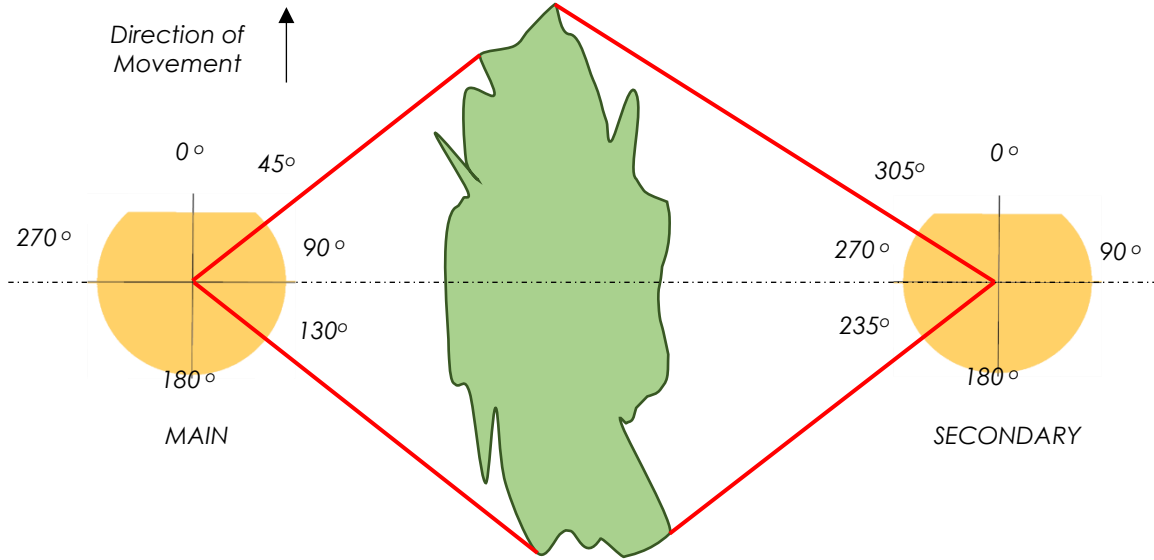


Figure 9-11: Obstruction example 2

Table 9-3: Values to enter in WUI example 2

Parameter	Value
Azimuth Start Main	45°
Azimuth End Main	130°
Azimuth Start Secondary	235°
Azimuth End Secondary	305°
Offset Main	0°
Offset Secondary	0°



Figure 9-12: ADS Tab Configuration sample II

9.3.7. Configuration sample III- Non-Ideal Scenario and using offset

In the following diagram, an obstruction blocks the Main Terminal line of sight at 225° to 270°. The obstruction blocks the Secondary Terminal at 180° to 230°. Record these values for entry during configuration of the Terminals in the Get SAT Web UI. Pay attention to the terminals' Offset in relation to the platform's Direction of Movement.

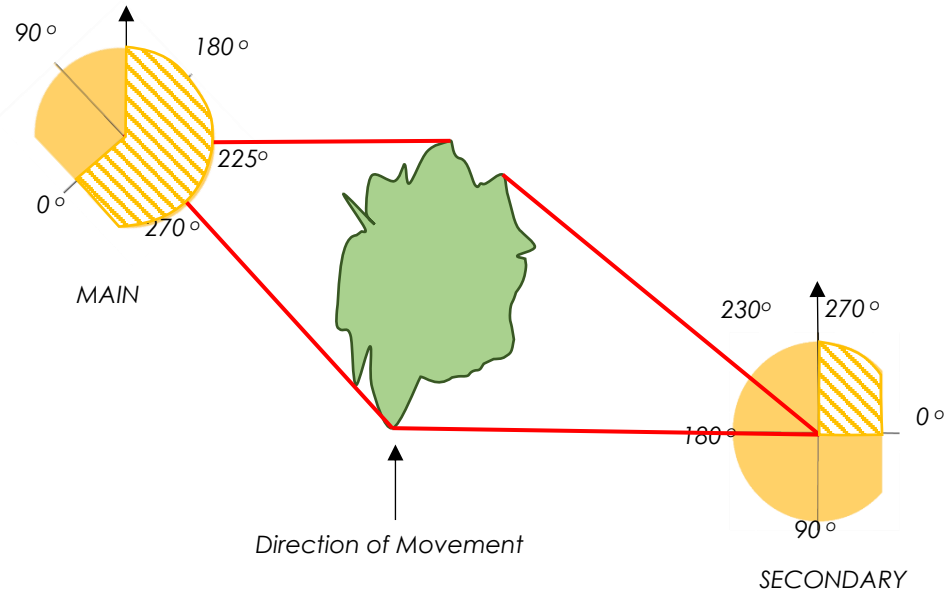


Figure 9-13: Non-Ideal Scenario example 1

Table 9-4: Ideal Scenario Values to enter in WUI

Parameter	Value
Azimuth Start Main	225°
Azimuth End Main	270°
Azimuth Start Secondary	180°
Azimuth End Secondary	220°
Offset Main	225°
Offset Secondary	90°

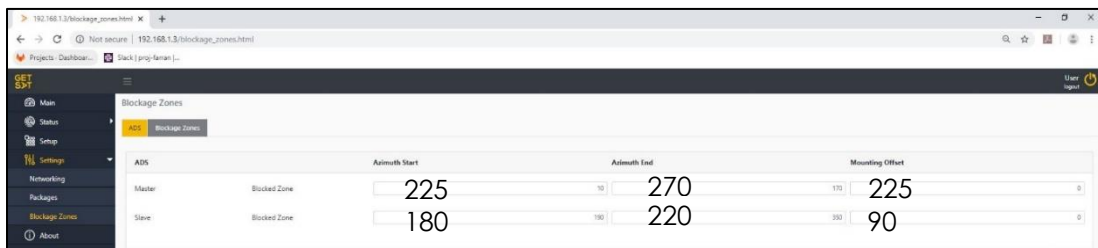


Figure 9-14: ADS Tab Configuration sample III

10. System BIT Window

The system Built-In Test (BIT) window consists of two tests, a system BIT that allows the user to get system diagnostics for troubleshooting purposes, and a Gyro Calibration test.

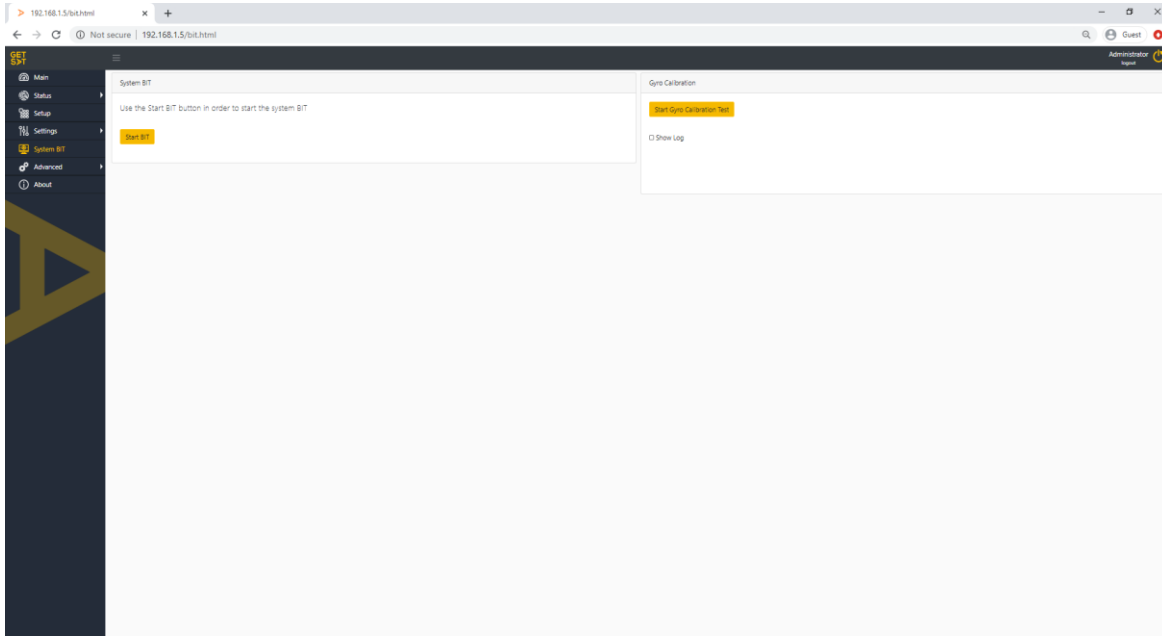


Figure 10-1: System BIT Main Window

10.1. System BIT

Press 'Start BIT' to commence BIT diagnostic, use the results to further troubleshoot any issue.

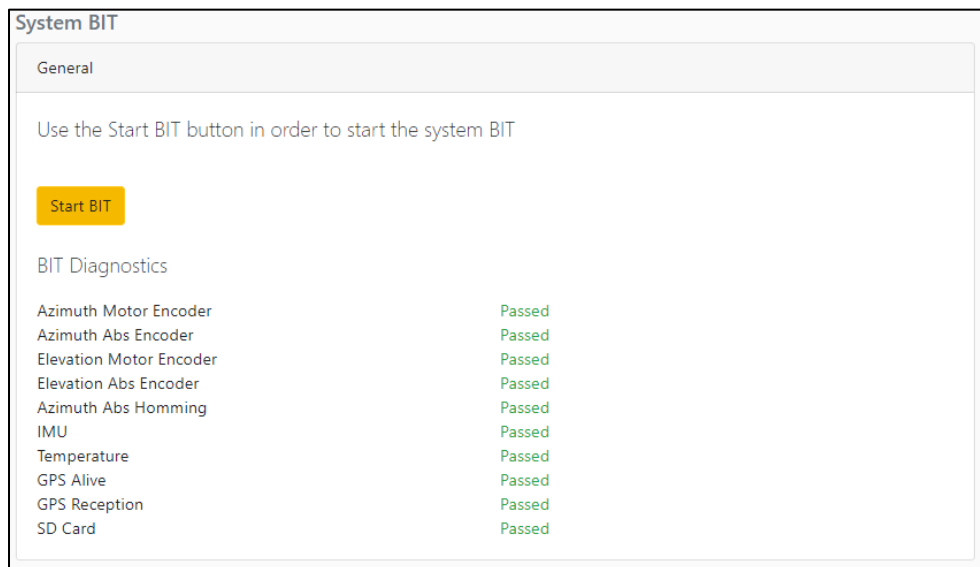


Figure 10-2: System BIT Window

Table 10-1: Built-in Tests

BIT Diagnostic Test	Description
Az Motor Encoder	Rotates the terminal while verifying that the motor encoder values change
As Abs Encoder	Rotates the terminal while searching for the home position and that the values are consistent.
EI Motor Encoder	Elevates the terminal verifying that motor values change
EI Abs Encoder	Elevates the terminal between the min/max allowed elevation values and verifies that value arrives in the expected time limit
Az Abs Homing	Verifies whether the home position was found in the AZ sensor
Temperature	Verifies whether temperature sensors are working
IMU	Verifies whether the IMU is alive and sending data
GPS Alive	Verifies whether the GPS controller is alive
Reception	Checks if GPS lock exists

10.2. System Gyro Calibration Test

Before calibrating the Gyro, Press the 'Start Gyro Calibration Test', this will test if the gyro needs to be calibrated – indicated by a 'Pass' / 'Fail' annotation.

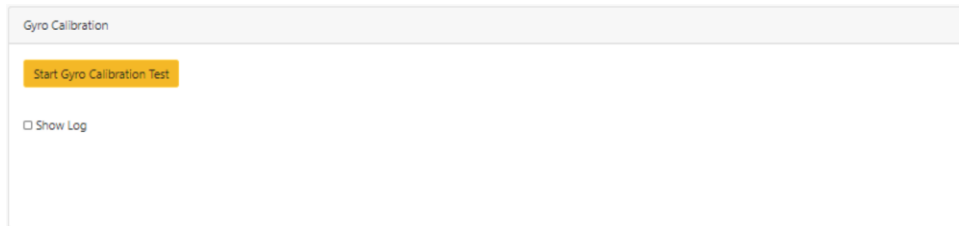


Figure 10-3: Gyro Calibration Test Window

Checking the 'Show Log' check box will present the below information during the test. The test should last for a few seconds.



Figure 10-4: Gyro Calibration Test Failed

NOTE: if the test lasts more than 30 sec and the bar does not seem to be moving, turn Off the power to the system and turn it On again.

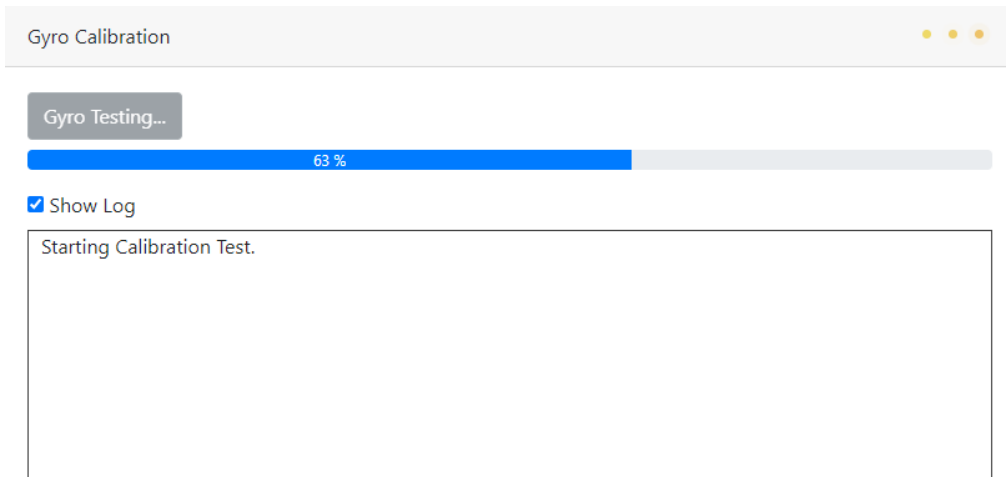


Figure 10-5: Gyro Testing progress Bar

A Failed Test will open a new option, 'Start Gyro Calibration'.

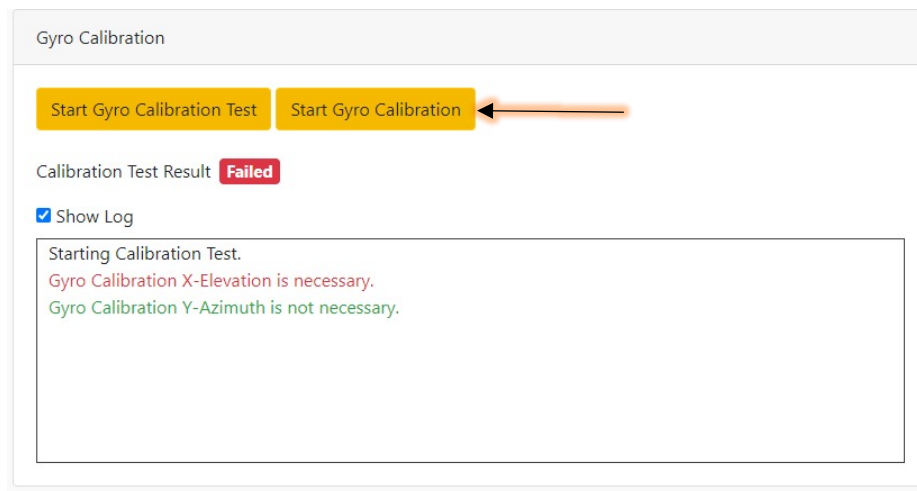


Figure 10-6: 'Start Gyro Calibration' Button

Before attempting to calibrate the gyro, make sure you comply with the following conditions:

- The System is energized
- The System is on a flat leveled surface
- If the System is mounted on a platform, make sure the vessel is not moving (e.g. – conducting the calibration on a boat in the sea might result in incorrect calibration – make sure to calibrate the System when in a Drydock)
- The System is not currently used for an active satellite link

If you comply with all the above press the 'Start Gyro Calibration' Button.

The screenshot shows a web interface for gyro calibration. At the top, there are two buttons: 'Start Gyro Calibration Test' and 'Gyro Calibration...'. Below the buttons is a progress bar showing '16 %'. Under the progress bar is a checkbox labeled 'Show Log' which is checked. Below the checkbox is a log area containing the text: 'Checking X-Elevation...' and 'Checking Y-Azimuth...'.

NOTE: the calibration process should last for about 2-3 min.

The screenshot shows a window titled 'Gyro Calibration'. Inside the window, there is a yellow button labeled 'Start Gyro Calibration Test'. Below the button, the text 'Calibration Result' is followed by a green box containing the word 'Succeeded'. Below this is a checkbox labeled 'Show Log' which is checked. Below the checkbox is a log area containing the text: 'Checking X-Elevation...', 'Checking Y-Azimuth...', 'X-Elevation Calibration succeeded.', and 'Y-Azimuth Calibration succeeded.'.

Figure 10-7: successful Calibration Window

11. Advanced Window

At the Advanced window under the Password Mgmt tab, the user can modify the "Operator" password.

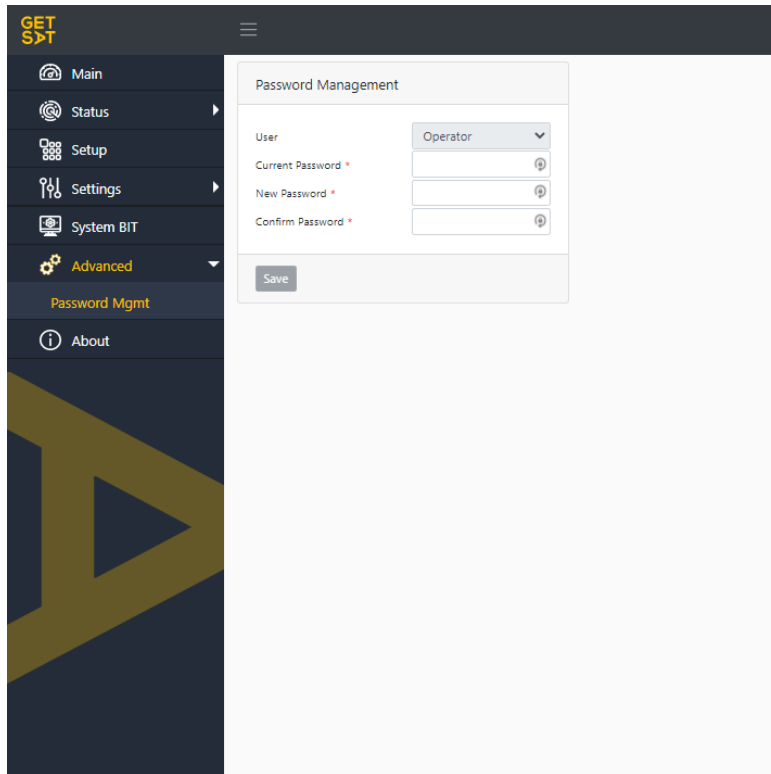


Figure 11-1: Password Mgmt.

12. About Window

12.1. Overview

The About Window displays general system information and the release version.

The window shows reports about the system boot process and software versions installed. The information displayed in the window depends on the login permission level of the user (Viewer, Operator or Administrator). Different terminals might have additional information dependent on terminal type and configuration

12.2. About Window

About			
GUI Version	4.3.0 ffa1df0c	Release	255.0
Device ID	01:2020:005	Device Type	NanoSAT_H-KA
ASRC Version	1.0.0 12664a2		
MicroTracker[F]	255.0.0 48815f3	Boot	A
Mega Bridge	255.0.1 8310a1d	Boot	A
Move Control	0	BUC	0

Figure 12-1: About Window

Table 12-1: About Window Description

Field Name	Field Description
Device ID	System serial number
Device Type	MilliSAT, DualSAT, GX
WUI Version	WUI application release number
Release	System firmware official release number
MicroTracker (ACU)	Shows installed firmware and software version
Active/Double Bridge	Shows installed firmware and software version
Move Control	Shows installed software version
BUC	Shows installed software version and S/N
Megabridge	Shows installed firmware and software version.
ASRC Version	ASRC board version

13. GS-950/751 Modem Quick Overview

The following section provides basic knowhow for logging into the GS-950/GS-751 and understand basic information on the link status and quality. For additional advanced options please refer to the iDirect CX-751 and 950 manuals.

1. Connect the personal computer (PC) LAN port to the modem MGMT Port using an Ethernet cable.
2. Launch the Web browser of choice.
3. On the address bar, enter the IP address of the satellite router into the address field – 192.168.1.1 (default IP address, unless changed). The log-in screen is displayed.

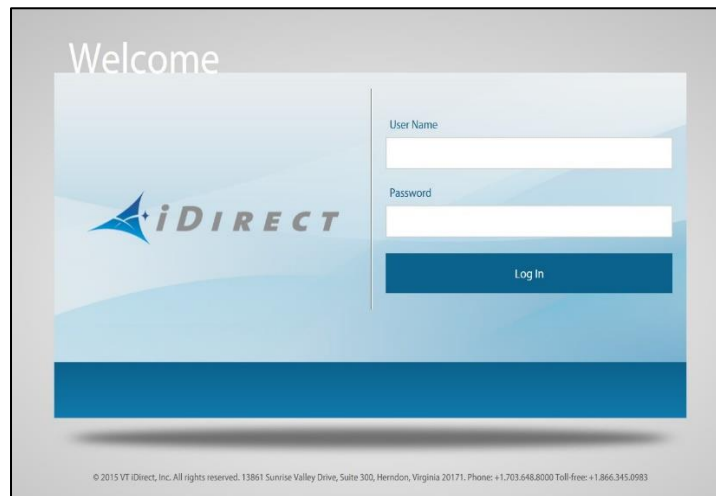


Figure 13-1: Modem WUI Log-In Screen

4. Enter the Username and Password as follows (case sensitive):
 - Username – admin
 - Password –iDirect123! or iDirect or P@55w0rd! unless changed
5. Click Login

14. BUC Calibration Process

BUC calibration is an important process when working with GS-751 in standalone or ADS mode.

The process is such that with the OpenBMIP protocol, it communicates to the BUC directly and calibrates the power output from the modem for optimal operation.

Note I: *The calibration process must be performed manually or automatically in each of the following events:*

- Change in cable length (user manual intervention)
- Change between modems and terminals
- ADS (DualSAT) mode
- If suspected transmit power occurs

Note II: *The calibration process for a single terminal may take up to 10 minutes from modem startup. In DualSAT mode, it can take up to 20 minutes.*

Note III: *If the modem has failed to calibrate, manual intervention may be needed. This is described below.*

14.1. Manual BUC Calibration

The following steps can be taken in order to manually calibrate the BUCs in the cases listed in previous section.

1. Connect the personal computer (PC) LAN port to the modem MGMT Port using an Ethernet cable.
2. Launch the Web browser of choice.
3. On the address bar, enter the IP address of the satellite router into the address field – 192.168.1.1 (default IP address, unless changed). The log-in screen is displayed.

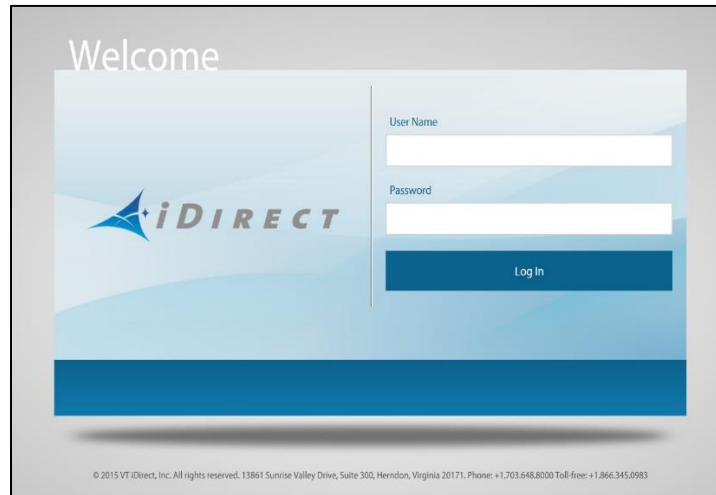


Figure 14-1: Modem WUI Log-In Screen

4. Enter the Username and Password as follows (case sensitive):
 - Username – admin
 - Password – unless changed iDirect123! or iDirect or P@55w0rd!

5. Click Login. The Web User Interface dashboard is displayed.
6. On the menu bar, go to details.....BUC
7. On the BUC page, click on one touch commissioning.

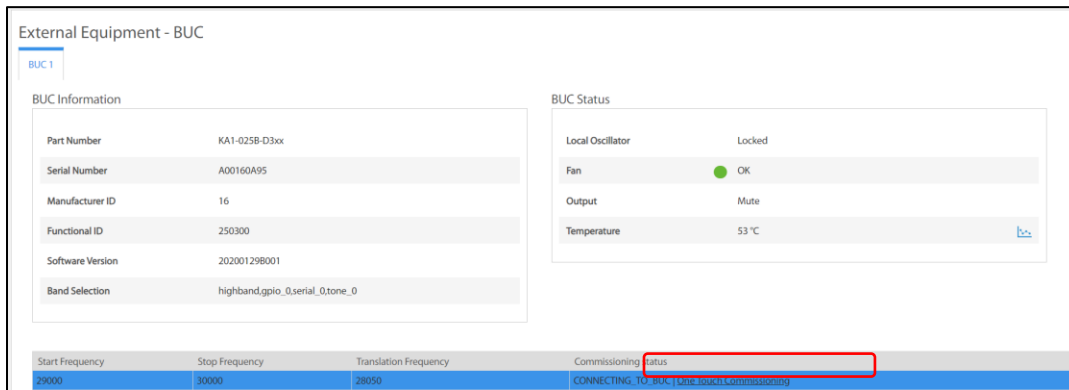


Figure 14-2: BUC information window

8. Click Start.

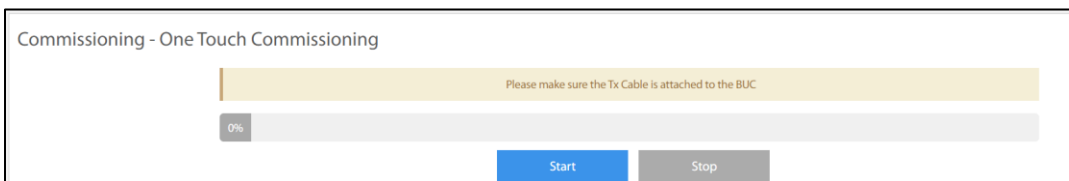


Figure 14-3: BUC calibration window



Figure 14-4: BUC calibration process

9. Process should start

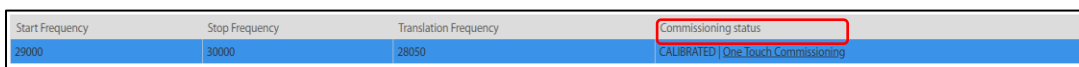


Figure 14-5: BUC calibration completed

Note I: In ADS mode, only the BUC of the Main terminal shows progress. The Secondary terminal does not show progress and progress can only be viewed in the modem SSH window.

Note II: in the case where the **Secondary Terminal** did not calibrate, disconnect the terminals from one another, and connect them via an Ethernet switch just for the calibration process.

15. Switch Configuration

Built into the **GS-751** and **GS-950** is an 8-port managed switch. The switch is configured by the modem and terminal to allow the proper routing in order to get DHCP and internet access for the users.

Once a user is connected to the **DATA** port of the modem with the desired PC / Other device, it should automatically receive the DHCP IP Address according to the modem configuration.

If DHCP not received, assuming that the link is OK, do the following steps to configure the switch properly.

15.1. GS-751 configuration

1. Connect the personal computer (PC) LAN port to the modem **MGMT** Port using an Ethernet cable.
2. Launch the Web browser of choice.
3. On the address bar, enter the IP address of the satellite router into the address field – 192.168.1.7. The log-in screen is displayed.

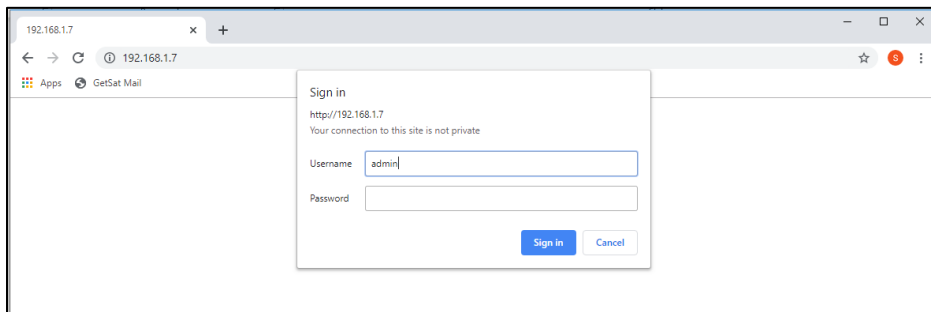


Figure 15-1: Switch login page

4. Enter the Username and Password as follows (case sensitive).
 - Username – admin
 - Enter password
 - Click Sign In.

5. The following image describes a correct configuration of the **GS-751** switch:

Connect Tech Inc.
Embedded Computing Experts

Global VLAN Configuration

Allowed Access VLANs: 1-4095
Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
2	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
3	Access	3896	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	3896	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
6	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
7	Hybrid	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
8	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	

LAN Interface - IP Configuration VLANs

IP Interface

IP Address: 10.96.11.41
Subnet Mask: 255.255.255.248

DHCP Config

DHCP Mode: ☐ DHCP Mode
Lease Range Start:
Lease Range End:
Lease Time:
Primary DHCP:
Secondary DHCP:
Default Gateway:

The right VLAN should fill this up

Figure 15-2: Switch configuration

- The red boxes represent the VLAN that needs to be taken to match the modem VLAN configuration.
- Follow the modem login instruction in section [12](#)
- Use the menu bar of the modem to go to the IP & Configuration. After the correct VLAN is displayed compare to the one configured on the switch. They should match.

15.2. GS-950 configuration

1. Connect the personal computer (PC) LAN port to the modem **MGMT** Port using an Ethernet cable.
2. Launch the Web browser of choice.
3. On the address bar, enter the IP address of the satellite router into the address field – 192.168.1.7. The log-in screen is displayed.

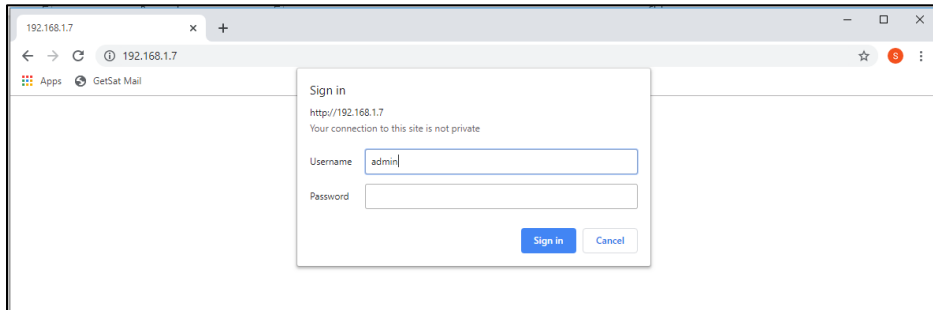


Figure 15-3: Switch login page

4. Enter the Username and Password as follows (case sensitive).
 - Username – admin
 - Enter password
 - Click Sign In.

5. The following image describes a correct configuration of the **GS-950** switch:

Connect Tech Inc.
Embedded Computing Experts

Global VLAN Configuration

Allowed Access VLANs: 1-4095
Ethertype for Custom S-ports: 88A8

Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
2	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
3	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
6	Trunk	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4095	
7	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
8	Hybrid	3896	C-Port	<input type="checkbox"/>	Tagged and Untagged	Tag All	3896	

Save Reset

LAN Interface - IP Configuration VLANs

VLAN 1 (ADMIN) VLAN 3896 VLAN 3899 VLAN 3927

IP Interface

IP Address: 10.96.11.41
Subnet Mask: 255.255.255.248

DHCP Config

DHCP Mode
Lease Range Start
Lease Range End
Lease Time
Primary DHCP
Secondary DHCP
Default Gateway

The right VLAN should fill this up

Figure 15-4: Switch configuration

- The red boxes represent the VLAN that needs to be taken to match the modem VLAN configuration.
- Follow the modem login instruction in section [12](#)
- Use the menu bar of the modem to go to the IP & Configuration. After the correct VLAN is displayed compare to the one configured on the switch. They should match.

16. Troubleshooting

16.1. General Troubleshooting

The following section serves as a generic knowledge base. Some specific cases where issues might occur are described and potential solutions for them offered.

No	Symptom	Description	Solution
1	Cannot access the WUI	When browser is opened WUI not loading up	Check that your computer is on the same subnet and the computer can communicate with the terminal by ping command.
2	Link not closed	In standalone mode the link is not closed at the hub	Check the reference clock status on the WUI (transmit section). Check your transmit power. Check your BUC LO config.
3	BUC transmission going up and down / Turning ON and OFF	There is not enough voltage/current for the system	Connect the system to an appropriate power supply
4	The BUC is not responding	When configuring the terminal to the "other modem," the BUC information in the main window does not appear	Enter Setup and change the BUC definition according to the desired system
5	GPS is not working	There is no data from the GPS	Remove any obstacles that may be obstructing the antenna
6	System powers up on GS-751 / 950 but nothing happens	Modem does not send a search command until it receives the GPS location. BUC calibration is in process.	Wait for the terminal to receive GPS data. Verify on main window Refer to the BUC calibration process in this manual
7	The system is not finding the signal after the full setup process	The system keeps scanning for signals	Run full setup from the beginning and make sure that all parameters are correct (frequency, bandwidth, etc.)
8	Losing signal slowly	The system loses the signal after a short tracking duration	Consult a GetSAT support engineer for the Gyros calibration process
9	DHCP problem	Computer connected to GS-751/950 does not receive DHCP	Reboot the modem / Terminal Refer to the Switch configuration overview in this manual
10	GS-751/950 not logging into network	Processing of the link acquisition is stuck on Detect	Check modem provisioning with your service provider
11	SA shows a flat line	SA doesn't show any signal and the noise floor is very low	LNB does not receive any power. Consult a GetSAT support engineer

16.2. Dual SAT Troubleshooting

The following section serves as a specific knowledge base for ADS (DualSAT). Several specific cases are described where issues might occur and a potential solution for them is offered.

No	Symptom	Solution	Description
1	Main does not turn on.	Make sure the modem is powered on.	The Main receives its power from the modem. If the modem is turned off, the Main cannot turn on.
2	The Secondary keeps searching after the system is powered on.	Wait for the Main to receive GPS data.	The modem does not set the satellite parameters until it gets the GPS data from the Main. In this case, the Secondary would keep turning while the Main would remain idle.
3	The Secondary becomes idle when the Main is in follow mode.	Wait for the Secondary to receive GPS data.	If the Main acquired the GPS but the Secondary did not, the Secondary would become idle as soon as it becomes the active antenna. The system "wakes up" as soon as the Secondary receives its GPS data.
4	System powers up but nothing happens	BUC calibration	BUC calibration is in process. Refer to the BUC calibration section in this manual
5	Switching takes a long time	Check system installation	In ADS mode, systems must be mechanically aligned. <i>Refer to the DUALSAT Installation Manual, Leveling Terminals chapter (7.5)</i>
6	Main Terminal Fail	Connect IFL to Ethernet	See section below for two options. For more details see the installation manual.

16.2.1. Main Fail Troubleshooting

Option 1 Steps:

1. Disconnect all cables from the Main.
2. Connect IF Cables from the Secondary to the Modem as seen in the figure below.
3. Connect the Modem MGMT and Secondary ETH to a switch. Connect the switch to the PC.
4. Access the WUI through 192.168.1.9.
5. Configure the system as standalone (uncheck ADS in Setup screen) – click Finish.

Note: The Terminal will now be accessible through 192.168.1.3

6. Enter Modem WUI through 192.168.1.1.
7. Press the Commissioning Tab. Click One Touch Commissioning and then Start.

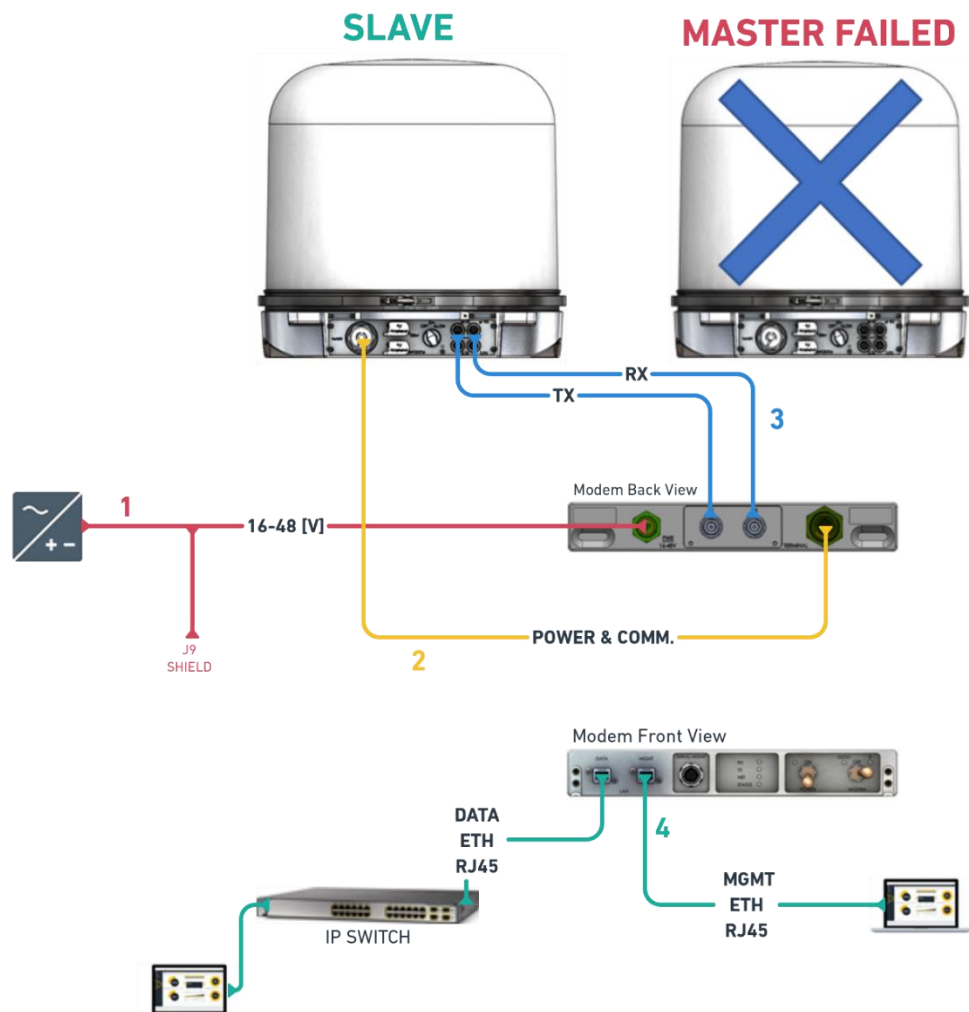


Figure 16-1: Main Fail Troubleshooting – Option 1

Option 2 Steps:

1. Disconnect all cables from the Main.
2. Connect the IF Cables from the Secondary to the Modem as seen in the figure below.
3. Connect the Modem to the Secondary using item (5).
4. Access the WUI through 192.168.1.9.
5. Configure the system as standalone (uncheck ADS in the Setup screen) – click Finish.

Note: The Terminal will now be accessible through 192.168.1.3.

6. Enter the Modem WUI through 192.168.1.1.
7. Press the Commissioning Tab. Click One Touch Commissioning and then Start.

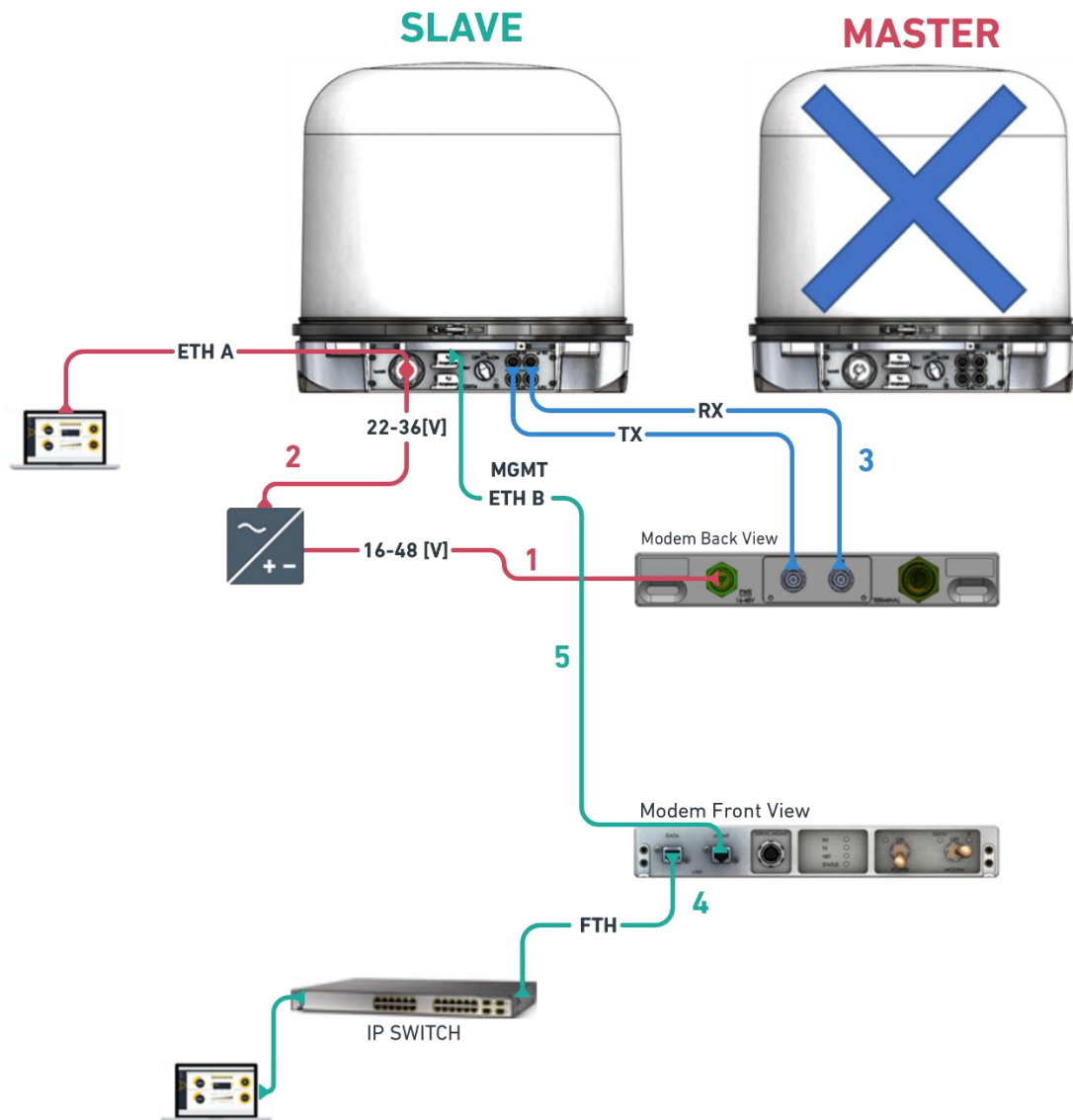


Figure 16-2: Switch configuration – Option 2

17. Appendix A – Terminal Preset XML Parameters

This appendix includes the following:

- Terminal Configuration Parameters Description – section 16.1
- Modem Configuration Parameters Description – section 16.2
- Typical Preset File for Getsat's Nano-H – section 16.3
- Empty Template Preset File – section 16.4

17.1. Terminal Configuration Parameters Description:

17.1.1. Location

17.1.1.1. Sat location

- Orbital position: [in degrees]

17.1.1.2. Terminal location

- Position method
 - None - 0
 - Manual - 1
 - Geo - 2
 - O3b - 3
 - Gx aero - 4
- Longitude: [in degrees]
- Latitude: [in degrees]

17.1.2. Terminal Rx configuration

- Frequency: [In Mhz]
- Lband:[In Mhz]
- Bandwidth: [In Mhz]
- Rolloff: [in percent]
- Rx poltilt_Hnv: value ranges 0-1

17.1.3. Terminal Tx configuration

- Frequency: [In Mhz]
- Lband: [In Mhz]
- Tx poltilt_Hnv: N.A.
- bucType: to configure the specific BUC (values ranges 0-6)
 - Buc other - 0
 - Buc wavelab - 1
 - Buc insystem - 2

- Buc mission - 3
- Buc atom - 4
- Buc mission bmip - 5
- Buc get sat - 6
- Tx mode: configure if the BUC is transmit or not (values ranges 0-2)
 - Tx off - 0
 - Tx on - 1
 - Tx force on - 2

17.2. Modem Configuration Parameters Description

17.2.1. Modem Rx configuration

17.2.1.1. Symbol rate

- Receive path symbol rate [in SPS]
- For TX in CW Mode Value is 0

17.2.1.2. Stream mode

- For Rx in dvbs2 Mode Value is 1.
- For Rx in VLSNR Mode Value is 3.

17.2.1.3. Frequency: [in KHz]

17.2.2. Modem Tx configuration

17.2.2.1. Symbol rate

- Transmit path symbol rate [in SPS]
- For TX in CW Mode Value is 1.

17.2.2.2. Stream mode

- For TX in CW Mode Value is 0.
- For TX in dvbs2 Mode Value is 1.
- For TX in VLSNR Mode Value is 3.

17.2.2.3. Frequency: [in KHz]

17.2.2.4. Attenuation

- Transmitter attenuator. 0-47 db. In 1 db steps.
- Values 0-47.

17.2.2.5. Ext attenuation

- Transmitter extended attenuator. 0-12 db. In 0.5 db steps.
- Values 0-24.

17.2.2.6. Pls

5	QPSK 1/4 64800
17	QPSK 1/2 64800
19	QPSK 1/2 16200

17.2.2.7. Tx mute

- 0 – Not mute
- 1 – Mute
- 2 – TX On RX Lock

17.3. Typical Preset File for Nano-H

```
<?xml version="1.0" encoding="utf-8"?>
<PresetCollection xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<TerminalPresetsConfiguration>

<Preset id="1">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="17" />
    <TerminalLocation positionMethod="2" longitude="31.4" latitude="34.4" />
  </Location>
  <TerminalRxConfiguration frequency="20193.9" lBand="1893.9" bandwidth="2"
rolloff="20" rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="29497" lBand="1997" txPoltilt_HnV="0"
bucType="6" txMode="1" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="35000000" streamMode="1" frequencyKHz="0"
/>
  <ModemTxConfiguration symbolRate="10000000" streamMode="1" frequencyKHz="0"
attenuation="15" extAttenuation="0" pls="19" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="2">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="63" />
```

```

    <TerminalLocation positionMethod="2" longitude="31.4" latitude="34.4" />
  </Location>
  <TerminalRxConfiguration frequency="19906.85" lBand="1606.85" bandwidth="0.5"
rolloff="20" rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="29167.5" lBand="1667.5" txPoltilt_HnV="0"
bucType="0" txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="570000" streamMode="1"
frequencyKHz="1606850" />
  <ModemTxConfiguration symbolRate="380000" streamMode="1"
frequencyKHz="1667500" attenuation="15" extAttenuation="0" pls="19" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="0">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"
attenuation="0" extAttenuation="0" pls="0" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="0">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>

```

```
<ModemConfiguration>  
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />  
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"  
attenuation="0" extAttenuation="0" pls="0" txMute="0" />  
</ModemConfiguration>  
</Preset>  
</TerminalPresetsConfiguration>  
</PresetCollection>
```

17.4. Empty Preset File

```
<?xml version="1.0" encoding="utf-8"?>
<PresetCollection xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<TerminalPresetsConfiguration>

<Preset id="0">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"
attenuation="0" extAttenuation="0" pls="0" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="0">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"
attenuation="0" extAttenuation="0" pls="0" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="0">
```

```

<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"
attenuation="0" extAttenuation="0" pls="0" txMute="0" />
</ModemConfiguration>
</Preset>

<Preset id="0">
<TerminalConfiguration>
  <Location>
    <SatLocation orbitPosition="0" />
    <TerminalLocation positionMethod="0" longitude="0" latitude="0" />
  </Location>
  <TerminalRxConfiguration frequency="0" lBand="0" bandwidth="0" rolloff="0"
rxPoltilt_HnV="0" />
  <TerminalTxConfiguration frequency="0" lBand="0" txPoltilt_HnV="0" bucType="0"
txMode="0" />
</TerminalConfiguration>
<ModemConfiguration>
  <ModemRxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0" />
  <ModemTxConfiguration symbolRate="0" streamMode="0" frequencyKHz="0"
attenuation="0" extAttenuation="0" pls="0" txMute="0" />
</ModemConfiguration>
</Preset>
</TerminalPresetsConfiguration>
</PresetCollection>

```

18. WARRANTY

GET SAT WARRANTS THAT THE PRODUCTS, MATERIALS, INFORMATION AND SERVICES ARE FREE OF ANY MATERIAL DEFECT AND MATERIAL WORKMANSHIP AT THE TIME OF SHIPMENT. WARRANTY SHALL TERMINATE 12 MONTHS AFTER DATE OF SHIPMENT. GET SAT SPECIFICALLY DISCLAIMS ANY WARRANTY OF AVAILABILITY, ACCURACY, RELIABILITY USEFULNESS, ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE AND ANY CONDITION OR WARRANTY ARISING FROM COURSE OF PERFORMANCE, DEALING OR USAGE OF TRADE. Without limiting the generality of the foregoing, Get Sat does not warrant that the Products or in any update will meet the requirements of any third party, including yours, or that the operation of Get Sat will be uninterrupted or error free or free from other program limitations. Any promises or obligations made to any third party, including to you, that are not expressly stated in these Terns, are not Get Sat's promises obligations.

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19. SUPPORT

To obtain Return Merchandise Authorization (RMA) or request technical support for any Get SAT product, please send us an email to:

support@Get SAT.com or call us at: +972-76-5300700, +1-571-501-5150

19.1. RMA Process

Prior to shipping equipment for repair, the following steps must be completed:

- Step1: Contact Get SAT support team and request that a technical support representative to help troubleshooting the problem over the phone.
- Step 2: If the problem requires shipping the equipment back to the factory for repair, an RMA form must be filled out. The Get SAT support team can provide an RMA form. Shipping approval must be in writing.