Thuraya IP Commander Terminal Operating Instructions

Document revision 3

SRT Wireless, LLC, Sunrise, FL 33323

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For technical support, please contact: *TechServicesSupport@srtrl.com*

Training Videos: http://www.srtwireless.net/ip-commander/ip-commander-support/

Change Summary

Revision	Date	Change Description
1	10/19/2021	Initial Release
2	03/16/2022	Added Handset to Control the Modem
3	08/24/2022	Updated Troubleshooting table

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Safety Information

For your safety and protection, read this entire user guide before you attempt to use the **Thuraya IP Commander**. In particular, read this safety section carefully. Keep this safety information where you can refer to if necessary.

Warning Symbols

This section introduces the various types of warnings used in this document to alert you to possible safety hazards.

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

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

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

Warnings for the Thuraya IP Commander

WARNING: Do not stand at the side or top of the Antenna

This device emits radio frequency energy when in the transmit mode. To avoid injury, do not place head or other body parts at the side or top of the Thuraya antenna when system is operational. Maintain a distance of one meter away from those areas of the Thuraya antenna.

WARNING: In the vicinity of blasting work and in explosive environments

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

WARNING: Antenna

The antenna cable carries DC power. Always power the IP Commander down prior to connecting or disconnecting the antenna cable from either the Thuraya antenna or the IP Commander.

Keep a clear line-of-sight to the satellite. Preferably, avoid all obstructions within three meters of the Thuraya antenna. Obstructions less than 150 mm (six inches) in diameter can be ignored beyond this distance.

Do not locate the antenna close to interfering signal sources or receivers. It is recommended that no other antennas be located within three meters of the Thuraya antenna. If there is other equipment installed near the Thuraya IP Commander, it is recommended to operate all equipment simultaneously and verify there is no co-interference.

WARNING: General

Handle your Thuraya IP Commander device with care. The Thuraya antenna is weather resistant per IEC 60529 IP56; however, do not submerge the unit. Avoid exposing the Thuraya IP Commander to extreme hot or cold temperatures outside the range -25 ºC to +55 ºC.

Avoid placing the IP Commander device close to open flames or any source of heat.

Changes or modifications to the IP Commander device not expressly approved by SRT Wireless, LLC could void your authority to operate this equipment.

Only use a soft damp cloth to clean the IP Commander device.

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

WARNING: Qualified Service

Do not attempt to disassemble the Thuraya antenna or IP Commander device. The unit does not contain consumer-serviceable components. Only qualified service personnel may install or repair equipment.

WARNING: Accessories

Use SRT Wireless LLC approved accessories only. Use of non-approved accessories may result in loss of performance, damage to the IP Commander, fire, electric shock or injury.

WARNING: Connecting Devices

Never connect incompatible devices to the Thuraya IP Commander. When connecting the Thuraya IP Commander to any other device, read this User Manual for detailed safety instructions.

DANGER: Pacemakers

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

- *Maintain a distance of 20 cm from the Wi-Fi antenna and your pacemaker;*
- *Maintain a distance of one meter from the Thuraya antenna front and sides and your pacemaker;*
- *Refer to your pacemaker product literature for information on your particular device.*

If you have any reason to suspect that interference is taking place, turn off your Thuraya IP Commander immediately.

DANGER: Hearing Aids

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

DANGER: Electrical Storms

Operation of the Thuraya IP Commander during electrical storms may result in severe personal injury or death.

1. Introduction

Thank you for purchasing the **Thuraya® IP Commander**[1] terminal, a product of **SRT Wireless, LLC**, and hereinafter referred to as the **IP Commander.**

The IP Commander gives you instant access to the Internet anywhere you can "see" a Thuraya satellite in Europe, the Middle East, India, Africa, Asia, and Oceania. With the addition of a multi-port switch, you can use your IP Commander to set up a small network for wired devices, as well as wireless connections through its standard WiFi system. With its flexible power connections, you can operate your IP Commander far away from landlines, electrical power outlets, and wireless services.

1. Provide AC or DC power from a vehicle, a high-capacity battery, generator, or commercial power.

2. Set up the Thuraya SpaceCom antenna so it has a clear view of the sky, and connect to the IP Commander.

3. Connect the IP Commander to any computer or local area network that supports standard TCP/IP connectivity, either via Ethernet wiring, or secure WiFi[2].

A special jack has also been provided to connect a Thuraya handset to support voice operation directly from the IP Commander terminal.

[1] Sophisticated satellite terminal, permitting relatively high-speed data communications over a satellite.

[2] The IP Commander WiFi system supports open (unencrypted) networks, as well as WPA-PSK (TKIP), WPA2-PSK (AES), and WPA-PSK (TKIP) + WPA2-PSK (AES) encryption types.

Product Specifications

Item	Specifications
Standards	IEEE[1] 802.3, 802.3u, 802.11 b/g, Thuraya[2] Satellite Terminal
Ports/Buttons	One 10/100 RJ-45 Ethernet Port, one Thuraya handset port, one DC power input port, one antenna connector, one Thuraya SpaceCom antenna port, power/reset button
Cabling type	UTP CAT 5 or better
Data Rate	Up to 384 kbps (Thuraya), up to 54 Mbps (WiFi)
Transmit Power	16 dBW ± 1 dBW (Thuraya with Antenna), 15 dBm (WiFi) (PRELIMINARY)
GL Services	Supported
Indicators	SUP, ON, ACT, SAT, GPS, ANT, LAN
Dimensions (L x W x H)	IP Commander: 12.35 in (314 mm) x 6.00 (152 mm) in x 2.50 in (64 mm)
Unit Weight	IP Commander: 6.5 lb (2.95 kg)
Power	100 VAC to 240 VAC, 50 Hz to 60 Hz, or 10 VDC to 34 VDC, 55 watts, maximum
Certifications	Per IEC IP66, KI10
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Operating, Storage Humidity	Per IEC IP66
Shock and Vibration	Per IEC K10 Per MIL-STD-810G Method 514.6, Procedure I, Category 24 Per MIL-STD-202G Method 214A, Test Condition B (7.6grms)

Table 1-1. Specifications

Minimum Requirements for PC (fixed or laptop)

- Web browser: Microsoft Internet Explorer, Firefox, or Safari
- Network: Ethernet or WLAN (802.11 b/g/n)
- 100 MB free disk space

[1]The Institute of Electrical and Electronics Engineers is a professional association headquartered in New York City that is dedicated to advancing technological innovation and excellence. It has about 425,000 members in about 160 countries, slightly less than half of whom reside in the United States.
[2]Thuraya is an international mobile satellite services provider based in the United Arab Emirates. The company operates in more than 160 countries across Europe, the Middle East, North, Central and East Africa, Asia and Australia. With more than 350 roaming partners worldwide, Thuraya is the only mobile satellite operator that offers GSM roaming services over mobile networks.

Land Antenna Specifications

Based on proven concepts for automatic satellite search and continuous pointing using a stabilized platform with two degrees of freedom.

Item	Description
Overall Height, complete radome, no mounting	4.53 in (115 mm)
Maximum Diameter	10.83 in (275 mm)
Weight with radome, no mounting	4.63 lb (2.1 kg)
Operational Temperature	-30°C to +55°C
Storage Temperature	-40°C to +85°C
Additional infrared flux density	Max 500W/m^2
Ingress protection category	IP56 when correctly mounted
Turning Rate	60 deg/sec
Turning Rate Acceleration	25 deg/sec^2
Maximum EIRP	13.5 dBW
Minimum G/T	> -16 dB/K
Junction Box TX input level nom.	31 dBm
RX Gain incl. cable and junction box	7.0 dB to 9.0 dB
Antenna Gain	10 dBi approx.
Antenna Polarization	LHCP
LNA Gain	12 dB ± 1 dB (excluding cable loss)
Transmit Gain	10 dBi ± 1 dB (including cable loss)
Supply Voltage to Power Supply	10 VDC to 32 VDC
Coaxial cable loss	3.5 dB fixed
Coaxial cable connector	TNC
Mounting	Magnetic mounting kit supplied, factory assembled to antenna
Random Vibration	1.05 g rms with the following spectral density: 5-20 Hz: 0.02 G2/Hz 120-150 Hz: -3 dB/octave
Single Frequency Vibration	5-10 Hz with amplitude 2.54 mm 10-15 Hz with amplitude 0.76 mm 15-25 Hz with amplitude 0.40 mm 25-33 Hz with amplitude 0.23 mm

Table 1-2. Land Antenna Specifications

2. Your New IP Commander System

Open the packing case and review the packing list to confirm the contents. The system is shipped in a custom shipping box, which contains a Thuraya® IP Commander radio, a **SpaceCom**[1]® antenna with a 10-foot (3 meter) RF cable, a wired Thuraya handset, two WiFi antennas, Ethernet (RJ-45) cable, a DC power cable, an AC power supply, and documentation/product licensing media.

Figure 2-1. Thuraya IP Commander Components

A ruggedized Pelican® case (optional at extra cost) makes it easy for mobile users to safely transport their IP Commander system wherever it needs to go. See Figure 2-2.

[1] Manufacturer of terrestrial antennas used for satellite communication.

Figure 2-2. IP Commander System Shown in Optional Pelican Case

Front Panel Controls

Figure 2-3. Thuraya IP Commander Terminal

Item	Description
❶ **WiFi Antenna Port (SMA[1])**	Connect a WiFi antenna to permit use as a wireless access point.
❷ **SpaceCom Antenna Port**	Connects SpaceCom satellite antenna to the IP Commander.
❸ **Handset Connector**	Connects a specially-configured Thuraya telephone handset for making calls from the IP Commander.
❹ **Power Input**	Connects to AC to DC Power Supply, or a vehicular power cable.
❺ **RJ-45 (Ethernet) Connector**	Connects the IP Commander to a local area network.
❻ **Status Indicator Panel**	Seven indicator lights show system status. **SUP**: Power supply is connected **ON**: IP Commander is powered on **ACT**: Activity on the satellite link **SAT**: Satellite antenna status **GPS**: GPS status **ANT**: Transmit antenna status **LAN**: Local Area Network status
❼ **Power/Reset Button**	**Power On:** Quickly press and release. **Power Off:** Press and hold for 3-4 seconds. **Reset:** Press and hold for 20 seconds to revert all settings to factory default.

Table 2-1. IP Commander Terminal Connections

[1] SMA (SubMiniature version A) connectors are semi-precision coaxial RF connectors developed in the 1960s as a minimal connector interface for coaxial cable with a screw type coupling mechanism. The connector has a 50 Ω impedance. It is designed for use from DC to 18 GHz.

Equipment Setup

1. Carefully attach the "rubber duck" whip antenna to the SMA connector (item ❶). The antenna is hinged, which permits you to orient it vertically.

> ***NOTE:*** *The SMA connector is very fragile. Tighten connector "finger tight." Do not use tools to tighten.*

2. Uncoil the 20-foot (6.1-meter) RF cable. Connect one side to the TNC connector on the IP Commander (item ❷ above). Connect the other side to the TNC connector on the Thuraya SpaceCom antenna. Place the antenna outside with a full view of the sky.

3. Connect the handset (cable removed from photo for clarity) to the handset port on the IP Commander (item ❸ above).

4. Connect the locking end of the RJ-45 Ethernet cable to the IP Commander (item ❺ above), and the other to your network (switch, router, or a computer).

5. Connect the locking end of the power supply to the IP Commander (item ❹ above). Connect the AC power cord (removed from photo for clarity) to the power supply and plug into a standard wall outlet (100-240 VAC, 50/60 Hz).[1]

6. Briefly press the power button (item ❼ above) to power up the unit.

Figure 2-4. Hook-up Diagram (numbering same as above)

[1] An automotive-style DC power cord is also provided with the IP Commander. It has the same locking connector as the AC/DC power supply.

Thuraya Handset Operation

Figure 2-5. Thuraya Handset Configured for Use With IP Commander

A Thuraya-compatible handset is provided. It is designed to plug into the IP Commander front panel (item ❸ in Figure 2-3). In order to make calls, the IP Commander must be configured for voice operation. See "*Web Configuration Tool*" on page 14

Other than being plugged into the IP Commander, this handset operates exactly the same as any other basic Thuraya-compatible handset.

Use the Handset to Control the Modem

You can also use the Thuraya handset to perform some basic operations on the IP Commander. With the handset connected to the handset connector (item ❸), press one of the keypad combinations as shown below, followed by the **Send** (OK) button. For example, to reboot the IP Commander, press the # key three times, followed by the number **7**, or ###**7**, and **Send** (OK).

Command	Function
General Function	
###V (###8 on keypad)	Switch from **IP Mode** to **Voice Mode**
###G (###4 on keypad)	Enter **GmPRS Mode** (not currently available)
###D (###3 on keypad)	Switch from **Voice Mode** to **Data, Standard Mode, Auto Connect** (IP Mode)
###R (###7 on keypad)	Reboot IP Commander
Change Modes (Quick Boot)	
###3	Data Standard Mode
###31	Data Profile 1
###32	Data Profile 2
###33	Data Profile 3
###34	Data Profile 4
Start and Stop PDP context (billable data)	
###2	Toggle activate/deactivate
###20	Deactivate
###21	Activate

Table 2-2. Remote Control IP Commander from Handset

Handset Status Display

Profile and Status (+ active/- inactive/* streaming)

E.g. *UAE-D1+* indicates profile 1 is active and it is not streaming

E.g. *UAE-D3** indicates profile 3 is active and it is streaming

E.g. *UAE-D4-* indicates profile 4 is selected but it is not active

Install SIM Card

Your IP Commander has two **SIM**[1] card slots, one designated as *Secondary* and the other as *Primary*. Both are installed into slots behind a metal plate on the left side of the IP Commander enclosure. Below are the instructions for installing the SIM card.

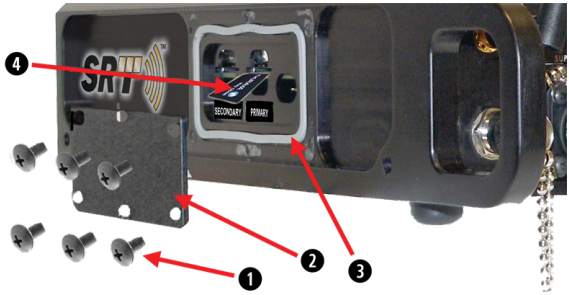

Figure 2-6. Steps to Install SIM Card

Item	Procedure
❶ **Remove six screws from access panel**	See Figure 2-6. Using a cross-point screwdriver, remove the six screws holding the side access panel in place.
❷ **Remove access panel**	Remove panel and put in a safe place.
❸ **Remove gasket if necessary**	If the gasket remains completely in place, don't remove it. If it does come loose, set aside.
❹ **Install Primary SIM card**	With the access panel removed, there are three openings on the side of the IP Commander enclosure. The Primary SIM card goes into the far right-hand slot (closest to the front of the unit), labeled **Primary**. The SIM card receptacle is spring-loaded. Push until you feel it lock into place. To remove, press until you feel the card unlock, then remove.

Table 2-3. Open Access Panel and Install Voice and IP SIM Cards

Item	Procedure
❸ **Replace gasket**	See Figure 2-6. Carefully place gasket into the slot from which it was removed. Gasket must be completely inside the slot with no overhang.
❷ **Replace access panel**	Place the access panel over the area from which it was removed. Align the screw holes in the panel with the ones on the enclosure.
❶ **Insert and tighten screws**	Insert the screws into the appropriate holes. Tighten hand tight to ensure the plate is properly aligned. Tighten the rest of the way down with a cross-point screwdriver. Do not over-tighten!

Table 2-4. Close and Secure the Access Panel

[1] A subscriber identity module or subscriber identification module (SIM) is an integrated circuit that securely stores the international mobile subscriber identity (IMSI) and the related key used to identify and authenticate subscribers on mobile telephony devices (such as mobile phones and computers).

Computer and Local Area Network Configuration

Your local area network (**LAN**[1]) can be set up for wired, wireless, or both. Without going into great detail, local area network setup is exactly the same as you might do with a wired/wireless router. Along with full 802.11 b, g, and n WiFi support, wired networks are supported with full **DHCP**[2] (dynamic host control protocol) services. In other words, as long as your PC is set up to connect to a network using DHCP. This means you can connect hubs, switches, and any number of peripherals (printers, other PCs, etc.) to the network, beginning with the Ethernet port on the IP Commander.

Ethernet Switches and Hubs

By connecting the designated input port of a five-port Ethernet **hub**[3] to the Ethernet (**RJ-45**[4]) connector on the IP Commander front panel, four TCP/IP compatible network devices, such as printers and computers, can be added to the network. The devices should configure themselves using the IP Commander DHCP server functions.

> ***NOTE:*** *Bandwidth on the IP Commander satellite link is limited to a maximum of 384* ***kbps***[5] *uplink and 444 kbps downlink. Please avoid streaming large files (movies, etc.) through the satellite, as the connection will quickly saturate, slowing down the network for you, and any other users that may be sharing your satellite connection via the local area network.*

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[1]A local area network (LAN) is a computer network that user interconnects computers in a limited area such as a home, school, computer laboratory, or office building using network media. The defining characteristics of LANs, in contrast to wide area networks (WANs), include their smaller geographic area, and non-inclusion of leased telecommunication lines.

[2]The Dynamic Host Configuration Protocol (DHCP) is a standardized networking protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services. With DHCP computers request IP addresses and networking parameters automatically from a DHCP server, reducing the need for a network administrator or a user from having to configure these settings manually.

[3]A network switch (sometimes known as a switching hub) is a computer networking device that is used to connect devices together on a computer network. A switch is considered more advanced than a hub because a switch will only send a message to the device that needs or requests it, rather than broadcasting the same message out of each of its ports.

[4]The 8 position 8 contact (8P8C) connector is a modular connector commonly used to terminate twisted pair and multi-conductor flat cable. These connectors are commonly used for Ethernet over twisted pair, registered jacks and other telephone applications, RS-232 serial using the EIA/TIA 561 and Yost standards, and other applications involving unshielded twisted pair, shielded twisted pair, and multiconductor flat cable.

[5]A kilobit per second – kbit/s, kbps, or kb/s – is a unit of data transfer rate equal to: 1000 bits per second, or 125 bytes per second

Computers

In order to communicate with the IP Commander, and to become a member of the IP Commander network, computers must be set up to be able to receive network configuration information from the DHCP server on the IP Commander device. There are differences in configuration between Microsoft® Windows 7, and Apple® OS X®, which are described below.

> ***NOTE:*** *The only web browsers that have been tested are Microsoft Internet Explorer, versions 7 and newer.*

Microsoft Windows 7

1. Click the **Start** button and select **Control Panel**.
2. In the Control Panel, click **Network and Sharing Center**.
3. In the Network and Sharing Center, click **Local Area Connection**.
4. In the Local Area Connection Status page, click **Properties**.
5. In the Local Area Connection Properties page, make sure the box next to *Internet Protocol Version 4 (TCP/IPv4)* is checked. Highlight *Internet Protocol (TCP/IPv4)*, and then click the **Properties** button.
6. In the Internet Protocol Version 4 (TCP/IPv4) Properties page, select the radio button for **Obtain an IP address automatically**, and then click the **OK** button.
7. Click the **Close** button to complete the PC configuration.

Microsoft Windows 10

1. In the Search Bar at the bottom left of the screen, search for and select **Ethernet settings**.
2. In the Ethernet settings page, click **Change adapter options**.
3. In the Network Connections page, right-click the Ethernet Adapter that is connected and select **Properties**.
4. In the Ethernet Properties page, make sure the box next to *Internet Protocol Version 4 (TCP/IPv4)* is checked. Highlight *Internet Protocol (TCP/IPv4)*, and then click the **Properties** button.
5. In the Internet Protocol Version 4 (TCP/IPv4) Properties page, select the radio button for **Obtain an IP address automatically**, and then click the **OK** button.
6. Click **Close** to complete the PC configuration.

Apple® OS X® (version 10.6.8 and newer) with the Apple Safari Browser

> ***NOTE:*** *While this configuration has not been tested by SRT Wireless, there is no obvious reason why this configuration should not work just as well as a Microsoft Windows installation.*

Unless your Apple computer was configured with a static IP address, the default network configuration is DHCP.

1. Connect an Ethernet cable between the computer and the Ethernet port on the IP Commander (or through an Ethernet switch, which in turn is connected to the IP Commander).

2. Launch your preferred web browser and select a known web URL. If it displays within a reasonable amount of time, the network connection has been successfully established.

3. Web Configuration Tool

The following section describes the IP Commander internal web functionality, which permits you to view status, and perform minor system configuration. This also presumes that you have already connected a computer to the IP Commander Ethernet port, and that both devices are powered-up.

Connect to the IP Commander Web Server

Launch your preferred web browser. Enter the URL `http://192.168.1.254` (the default IP address of the IP Commander). A login screen is displayed.

The default login is `admin`, and the default password is `admin`. Please change the administrator's password to something more secure as soon as possible. See *"Change Password"* on page 26 for detailed instructions.

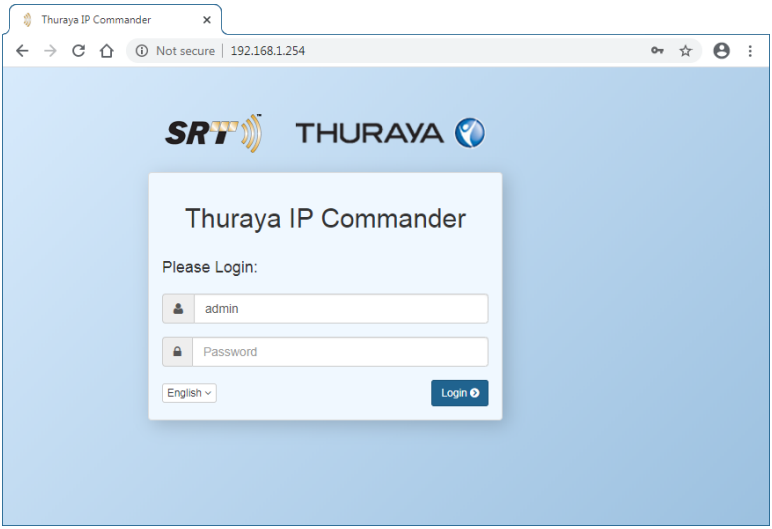

Figure 3-1. Login Screen

Control Panel

All IP Commander control functions are accessed from the *Control Panel*, located at the far left side of the screen. Click the button to the right of the circled numbers. See Figure 3-2 below.

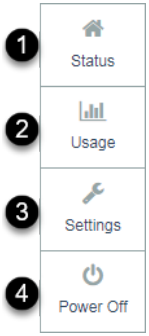

Figure 3-2. IP Commander Control Panel

Item	Description
❶ **Status**	Set of six tiles that display operational status and operating parameters of various parts of the IP Commander system: Connection Status, Connection Information, Satellite Status, Modem Status, Antenna Status, and GPS Status.
❷ **Usage**	Two tiles that display usage information for the IP Commander system: Usage Since Power-On and Usage Since Reset.
❸ **Settings**	The main Settings panel provides buttons for selecting Basic and Network parameters for the IP Commander system. BASIC: Restart, Modem Information, Change Password, Edit APNs, and Streaming Profiles. NETWORK: LAN, DHCP Server, WiFi, Port Forwarding, and Remote Management.
❹ **Power Off**	Powers off the modem.

Table 3-1. IP Commander Control Panel Descriptions

Status Panel

After a successful login, the **Status** Panel displays. This screen is used to confirm the current device mode and provide a control to change device modes (Standard Data, Voice / SMS, or Streaming Data).

The Status screen offer additional information on the performance and general health of the IP Commander: Satellite, Modem, Antenna, and GPS. The following few pages describe the tiles within the Status screen.

Connection

The top portion of the Status Panel is dedicated to Connection operations and information. The different tiles are described below in Figure 3-3 and Table 3-2.

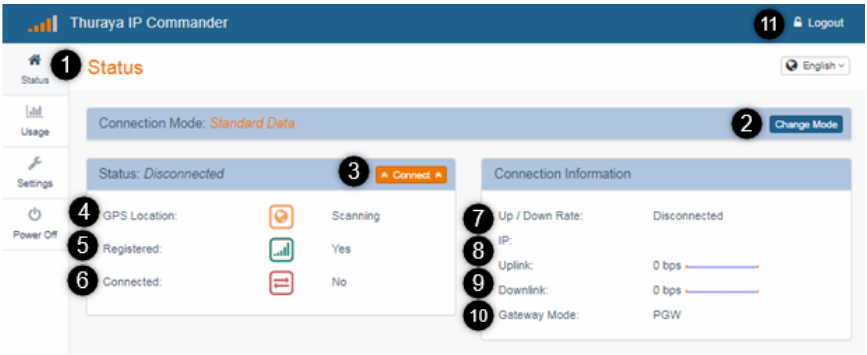

Figure 3-3. Status Panel - Connection

Item	Description
❶ **Connection Mode**	Connection Mode displays the currently-selected mode: Standard Data, Voice / SMS, or Streaming Data.
❷ **Change Mode**	Click this button to display the Connection Mode options, and then select the desired mode. See *"Connection Mode"* on page 18 for details.
❸ **Status**	This tile displays whether the IP Commander is connected in Data mode. If not, click the **Connect** button to establish a data connection. This button is not displayed during Voice / SMS mode.
❹ **GPS Location**	This field displays the system's current GPS latitude and longitude.
❺ **Registered**	When registered in Voice mode, the system is able to send and receive voice calls and messages. In Data mode, the system is able to acquire a data channel and start a session that supports IP traffic.
❻ **Connected**	When connected in Voice mode, the system is either on a call or in the process of sending / receiving a message. When connected in Data mode, you have Internet access.
❼ **Up / Down Rate**	In Data mode, this displays the requested upload and download maximum bandwidths.
❽ **IP**	The IP address for the device that it received from the satellite network.
❾ **Uplink / Downlink**	The amount of data being transferred in both directions are shown both numerically and in graphical form. Note that these are continuously being updated to show the most recent usage for both voice and data modes.
❿ **Gateway Mode**	PGW (connected to the Primary Gateway/Packet Mode), Voice (connected to the Primary Gateway/Voice Mode), and Disconnected (not connected to a Gateway).
⓫ **Logout**	Logs out of the web session used to configure the IP Commander terminal.

Table 3-2. Connection Status Descriptions

Connection Mode

Click the **Change Mode** button (item ❶ in Figure 3-3) to display the Connection Mode options, as shown in Figure 3-3. Click the desired mode: **Standard Data**, **Voice / SMS**, or **Streaming Data**. Refer to *Settings > "Streaming Profiles"* on page 27 for more information on streaming.

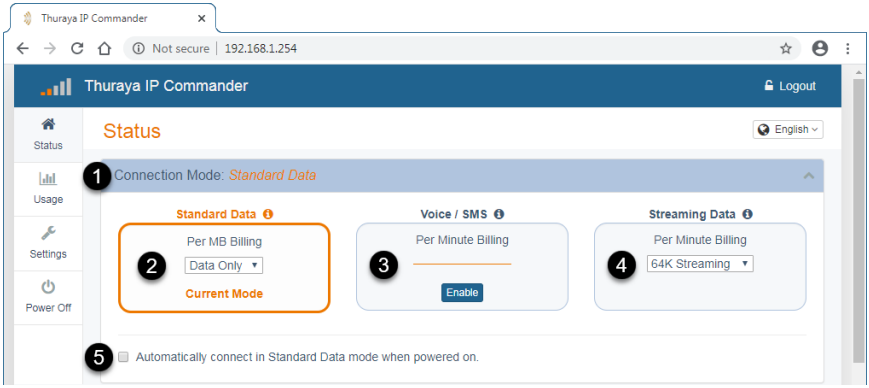

Figure 3-4. Connection Mode Details

Item	Description
❶ **Connection Mode**	Displays the currently-selected mode: Standard Data, Voice / SMS, or Streaming Data.
❷ **Standard Data**	Click to highlight and select Standard Data mode. "Standard Data" is displayed in the Connection Mode field (item ❶ above). Click the drop-down to select the desired option: Data Only or Refill (apn).
❸ **Voice / SMS**	Click to highlight and select Voice / SMS mode. "Voice / SMS" is displayed in the Connection Mode field (item ❶ above). Click the **Enable** button to allow per-minute billing for this feature when the system is sending or receiving a voice call. Check your Thuraya service plan to verify how inbound and outbound SMS messages are billed.
❹ **Streaming Data**	Click to highlight and select Streaming Data mode. "Streaming Data" is displayed in the Connection Mode field. Click the drop-down to select one of the streaming profiles that were configured in *Settings* > *BASIC* > *Streaming Profiles*, as described on page 27.
❺ **Automatically connect... Checkbox**	Check the box to enable automatic reconnection in Standard Data mode whenever the modem powers up.

Table 3-3. Connection Mode Descriptions

Satellite and Modem Status

Scroll down the Status panel to view tiles for Satellite and Modem Status.

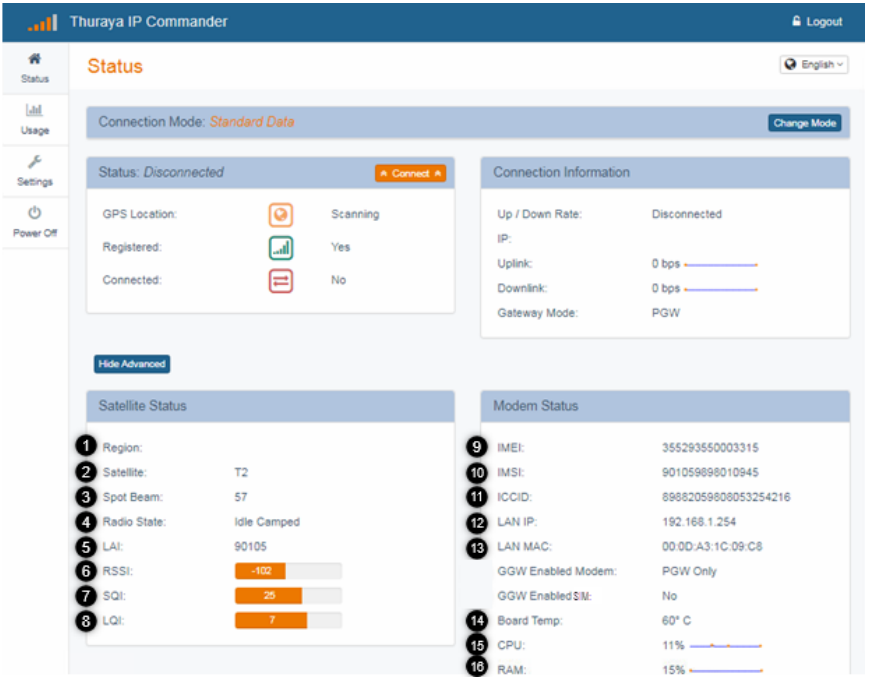

Figure 3-5. Status Panel - Satellite and Modem

Item	Description
❶ **Region**	The regional locale identifier of the modem's location or GPS position, e.g. UAE. These values are configured by Thuraya.
❷ **Satellite**	Thuraya; T2 or T3
❸ **Spot Beam**	Unique number identifying a specific geographic area within a satellite's broadcast area.
❹ **Radio State**	Status of the current satellite network connection: BCCH Search, Idle Camped, RACH Circuit, RACH Packet, Packet, Voice / SMS.
❺ **LAI**	Location Area Index. The first 3 digits are the mobile country code and the last 2 are the mobile network code.
❻ **RSSI**	The Received Signal Strength Indication is a measurement of the power present in the received satellite radio signal expressed in dBm.
❼ **SQI**	The Signal Quality Indicator is an estimate of the ratio of the desired signal power to the noise and interference power in the received radio signal.
❽ **LQI**	The Link Quality Indicator is the amount of reserve link margin, with respect to the target signal quality.

Item	Description
❾ **IMEI**	The International Mobile Station Equipment Identity is a unique number used to identify a specific cell phone or terminal.
❿ **IMSI**	The International Mobile Subscriber Identity is a fixed format number used to identify a mobile satellite subscriber.
⓫ **ICCID**	This is a globally unique serial number that identifies the SIM card.
⓬ **LAN IP**	This is the LAN software address that can be configured in *Settings >NETWORK > LAN*, as described on page 29.
⓭ **LAN MAC**	This is the fixed hardware address assigned by the modem's manufacturer.
⓮ **Board Temp**	This is the internal temperature of the modem.
⓯ **CPU**	This is the CPU usage percentage, shown in both numeric and graphical form. Note that this value is continuously being updated to show the most recent usage for both voice and data modes.
⓰ **RAM**	This is the RAM usage percentage, shown in both numeric and graphical form. Note that this value is continuously being updated to show the most recent usage for both voice and data modes.

Table 3-4. Satellite and Modem Status Descriptions

Antenna and GPS Status

Scroll down to the bottom of the Status panel to view tiles for Antenna and GPS Status. See Figure 3-6 and Table 3-5 for details.

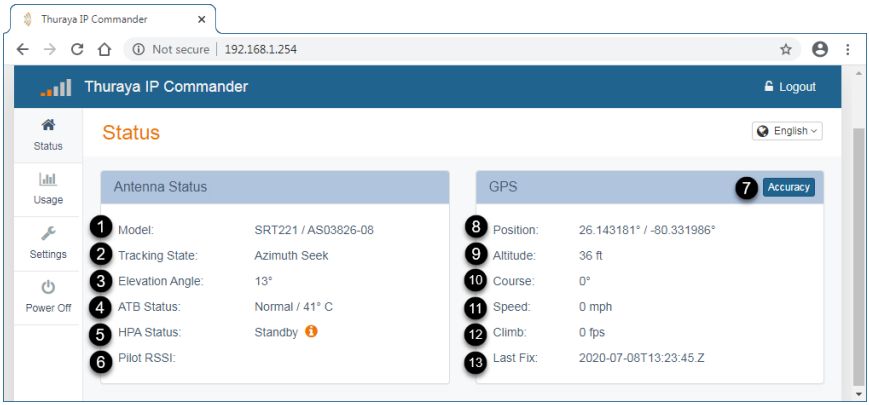

Figure 3-6. Status Panel - Antenna and GPS

Item	Description
❶ **Model**	This is the antenna model number.
❷ **Tracking State**	This is the tracking state provided by the antenna.
❸ **Elevation Angle**	This is the angle between the antenna beam pointing direction, directly towards the satellite, and the local horizontal plane.
❹ **ATB Status**	Status of the Antenna Tracking Board. States could be normal or error count.
❺ **HPA Status**	This is the status of the High Power Amplifier, as provided by the antenna.
❻ **Pilot RSSI**	Relative Signal Strength (RSSI) of the signal that was used by the antenna to find the satellite.
❼ **GPS Accuracy**	Shows the range that the system has seen for each item, similar to standard deviation but in +/- notation. For example, for altitude, it could show +/- 30 ft.
❽ **Position**	Current GPS latitude and longitude in degrees
❾ **Altitude**	Current altitude in feet
❿ **Course**	Course angle in degrees
⓫ **Speed**	Speed in mph
⓬ **Climb**	Climb rate in feet per second
⓭ **Last Fix**	Time and date stamp of last GPS fix

Table 3-5. Antenna and GPS Status Descriptions

GPS Accuracy

Click the **Accuracy** button (item ❼ in Figure 3-6) to display GPS Status accuracy. This displays the range that IP Commander has seen for each item, similar to standard deviation but in +/- notation. Click **Hide Accuracy** to remove accuracy notation. See Figure 3-7 .

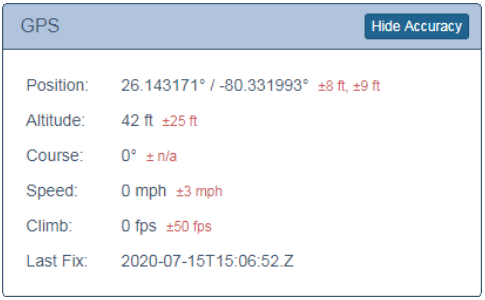

Figure 3-7. Accuracy Displayed in GPS Tile

Usage Panel

The Usage panel provides information on IP Commander activity data amounts, voice time, and number of messages sent and received. This information is presented in two separate tiles: since power-on and since the last reset.

Click the **Reset** button to return all values to zero.

Please note that the usage information may differ from carrier billing due to calculation differences.

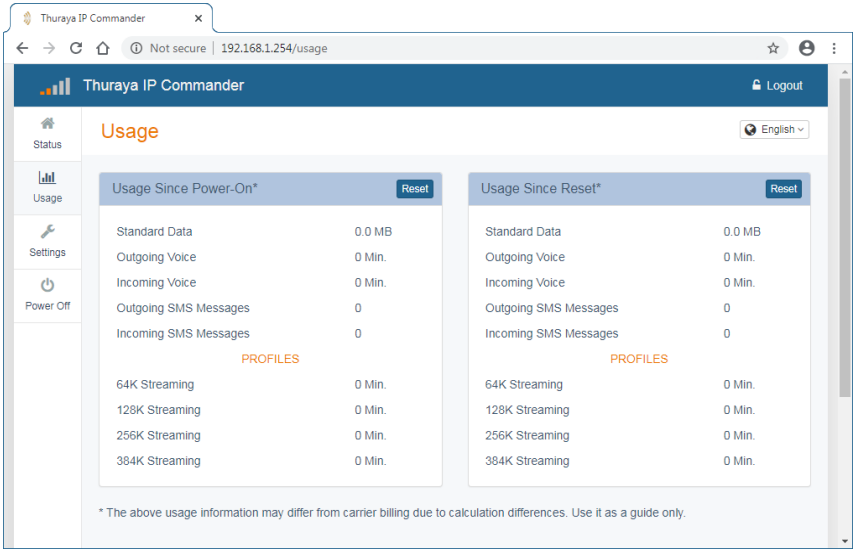

Figure 3-8. Usage Panel

Settings Panel

The main Settings panel provides buttons for selecting Basic and Network parameters for the IP Commander system. BASIC: Restart, Modem Information, Change Password, Edit APNs, and Streaming Profiles. NETWORK: LAN, DHCP Server, WiFi, Port Forwarding, and Remote Management.

Click a button to display a separate panel for the selected function.

Also available are MAINTENANCE settings, which include Upgrade and Download firmware, as well as Factory Reset. These are considered Advanced parameters. To view the Maintenance settings, click the **Show Advanced** button. To hide the Maintenance settings, click the **Hide Advanced** button.

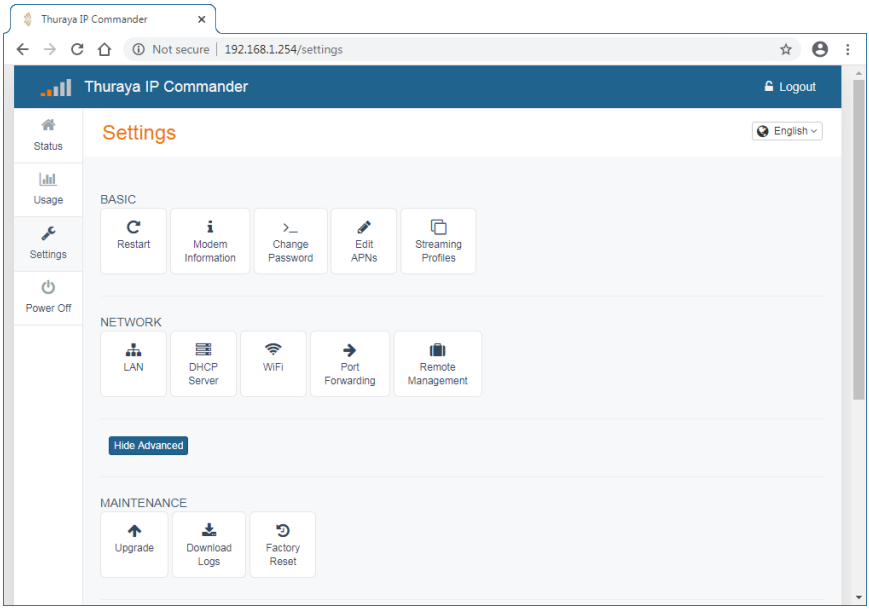

Figure 3-9. Settings Main Panel

BASIC Settings

Restart

The IP Commander modem needs to be restarted after some configuration actions, such as enabling (or disabling) the Hotspot.

To restart the IP Commander modem:

1. Go to the *Settings* panel.
2. Under the BASIC group, click the **Restart** button.
3. When the reboot complete screen is displayed, click **OK**. The login screen is displayed.
4. In the login screen, enter *Username* and *Password* to log back into the *IP Commander* device.

Modem Information

The About Modem panel displays identification and version information about the IP Commander Modem and Antenna. This page is not editable.

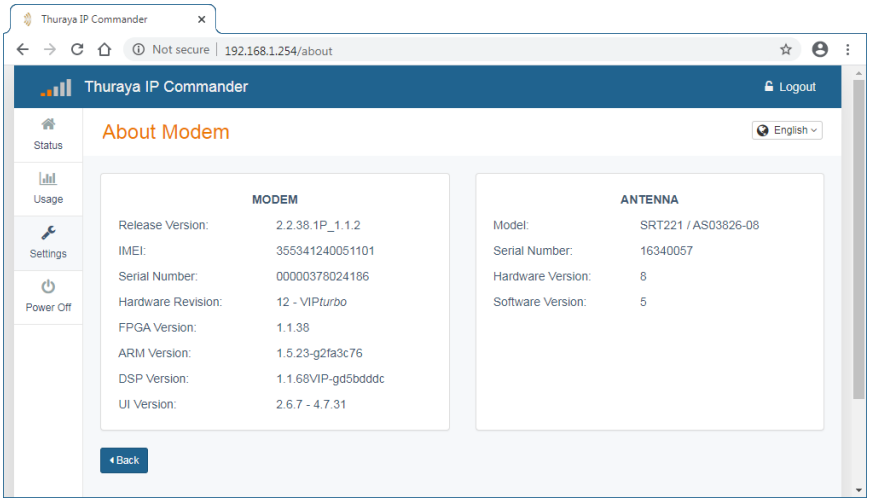

Figure 3-10. Settings Panel - About Modem

Change Password

One of the first things you should do when you set up your IP Commander is to replace the default password (`admin`) with something more secure. This is easily accomplished by bringing up the Change Password function. The new password should be at least eight characters long, containing upper and lowercase letters, numbers, and punctuation marks.

> ***CAUTION:*** *When you change the default password (strongly recommended), make certain a copy of the new password is kept in a secure place. If the new password is lost or forgotten, your IP Commander may need to be returned to the factory or an authorized representative for repair.*

1. Go to the *Settings* panel.
2. Under the BASIC group, click the **Change Password** button. The Change Password panel displays.

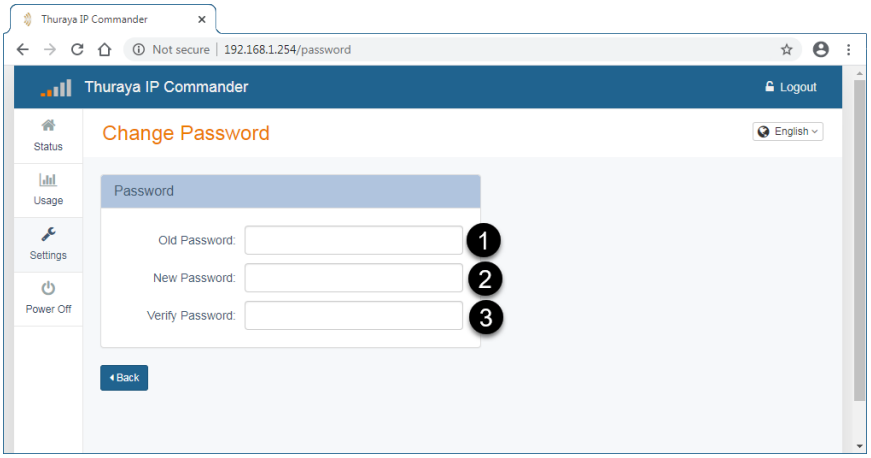

Figure 3-11. Settings Panel - Change Password

3. Type the current password (`admin` if it has never been changed) into the *OLD password* field (❶).
4. Type the new password into the *New Password* field (❷).
5. Type the new password once more, into the *Verify Password* field (❸).
6. The new password is now in effect.

Edit APNs

Your service provider establishes billing methods and rate, as well as the **APN**[1] (Access Point Name), which is displayed in the *Standard Data* field. See below. However, you can provide a user-friendly name for the Access Point by entering it in the *Custom APN* field.

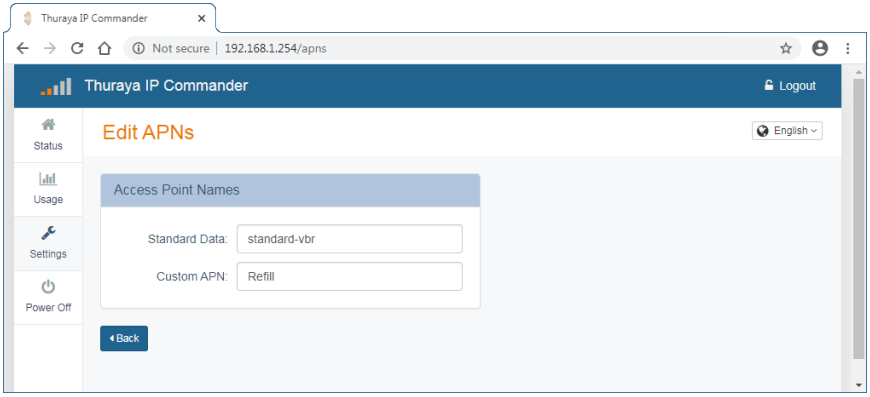

Figure 3-12. Settings Panel - Edit APNs

WARNING: Editing the Standard Data APN

Changing the "Standard Data" APN to any other string, unless authorized by Thuraya or one of its representatives, can make Standard Data mode unusable.

Streaming Profiles

Eight **Connection Profiles** have been provided for running the IP Commander in different operating modes. Using these profiles permit you to quickly go from, for example, a high-bandwidth multimedia streaming environment to reduced bandwidth that is suitable for basic telephone communications. Alternately, you can edit most of these profiles for your own requirements for more efficient use of your IP Commander device. You can set different data rates depending upon your needs. Your service provider establishes billing methods and rate, as well as the **APN**[2] (Access Point Name). Alternately, you can make use of the eight profiles.

Figure 3-13 and Table 3-6 describe the profiles that you can quickly switch to. To change profiles, click the tile for the profile you want to use (*Profile 1, Profile 2*, etc.).

[1]Access Point Name. This is an authentication setting that allows your device to connect to various services available on the Thuraya network.
[2]Access Point Name. This is an authentication setting that allows your device to connect to various services available on the Thuraya network.

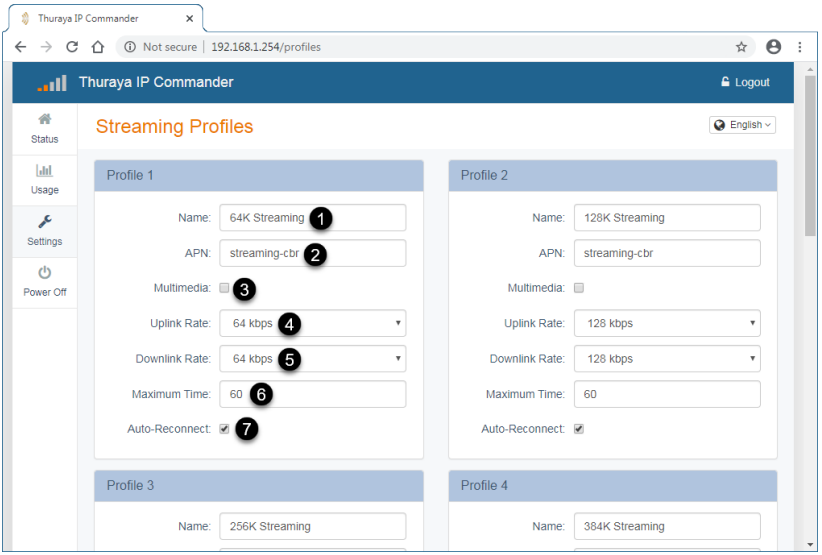

Figure 3-13. Settings Panel - Streaming Profiles

Item	Description
1 **Name**	The IP profile name is user defined; you can edit the name.
2 **APN**	The Access Point Name is assigned by Thuraya and is used to determine your network usage rate.
3 **Multimedia**	Click the checkbox to enable.
4 **Uplink Rate**	Use the dropdown to select from *16, 32, 64, 128, 256,* or *384* Kbps
5 **Downlink Rate**	Use the dropdown to select from *16, 32, 64, 128, 256,* or *384* Kbps
6 **Maximum Time**	The time, in minutes, after which the modem will disconnect . This is a precaution to protect you from running up the bill if accidentally left connected in Streaming mode.
7 **Auto-Reconnect**	Check the box to enable reconnection in Standard mode when the Maximum Time has expired.

Table 3-6. Streaming Profiles Settings Descriptions

WARNING: Editing the APN

Changing the APN to any other string, unless authorized by Thuraya or one of its representatives, can make Streaming Data mode unusable.

NETWORK Settings

LAN

Configure your wired network by clicking *Settings >NETWORK > LAN*.

Figure 3-14. Settings Panel - LAN

Item	Description
❶ **Your IP Address**	This is the IP of the computer controlling the IP Commander.
❷ **Modem's IP Address and Subnet Mask**	This IP address (192.168.1.254) and Subnet Mask (255.255.255.0) are default values set by Thuraya, and are the IP address and subnet mask of the modem itself. To access these web pages, you only need to enter http://192.168.1.254 from your web browser connected to the LAN side of the modem.
❸ **Automatic DNS**	The checkbox, when checked, contacts Thuraya's domain name server to get IP addresses for the primary and secondary Domain Name Server, and populates those addresses in designated fields as shown in item ❹.
❹ **Primary / Secondary DNS**	These addresses are usually provided by Thuraya, and can be automatically assigned if you check the checkbox shown in item ❸. The DNS server looks up and automatically translates easy for humans to understand alphanumeric addresses, like web URLs, into machine-friendly IP addresses (i.e., numbers).
❺ **WAN IP Address**	This is IP the address on the Thuraya side of the connection. This address is automatically provided by Thuraya and is not modifiable. When offline, the IP address is displayed as 0.0.0.0.
❻ **Route Mode**	Select either the NAT radio button or the IP Passthrough radio button. Use the NAT (Network Address Translation) radio button for normal operation (using DHCP and Network Address Translation to move across the firewall). IP Passthrough disables the firewall and network address translation, effectively placing you on the WAN side of the modem. This should normally be avoided due to the potential security issues from bypassing the firewall. Your IT manager and the company that sold you the IP Commander device should be able to help you configure the WAN Settings Connection Mode in a manner most appropriate to your needs.

Table 3-7. LAN Settings Descriptions

DHCP Server

Use these settings to configure the Dynamic Host Configuration Protocol Server parameters. See Figure 3-15 and Table 3-8 for details.

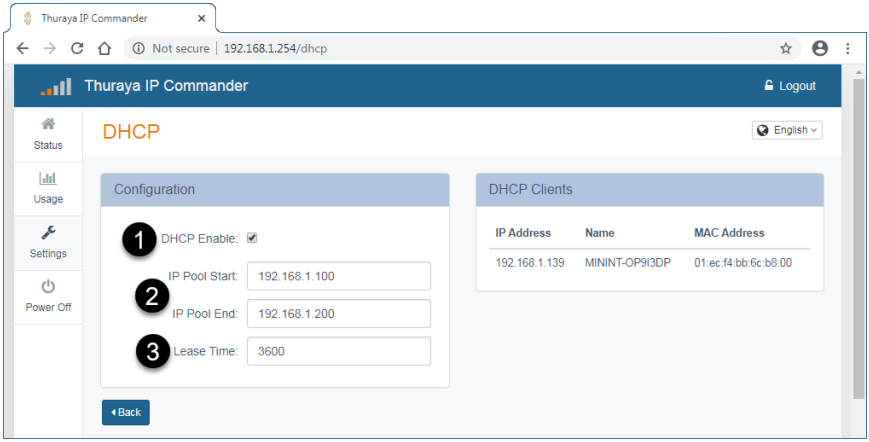

Figure 3-15. Settings Panel - DHCP

Item	Description
❶ **DHCP Enable**	Your IP Commander has a DHCP (Dynamic Host Configuration Protocol) server, which assigns IP addresses to devices connected to its local area network. You have the option of turning it on and off. There are two reasons you might want to disconnect your DHCP server: 1. All network devices have been configured with static IP addresses. 2. You are connected to an existing local area network which also has DCHP services. Even if your devices have been assigned static IP addresses, if you wish to add more devices to this same network, the easiest way to bring them in is to enable the DCHP server. Ensure that the static IP addresses fall above and/or below the addresses shown in the IP Pools fields (item ❷). In other words, if the DHCP address range goes from 192.168.1.100 to 192.168.1.200, you can assign static IP addresses beginning with 192.168.1.2 through 192.168.1.99. Additional static IP addresses can be assigned within the range of 192.168.1.201 through 192.168.1.253.
❷ **IP Pools Start/End**	By assigning a range of IP addresses to be used by the DHCP server, addresses outside this range can be manually assigned to devices when required.
❸ **Lease Time (in sec)**	The IP addresses assigned to devices on the LAN by the DHCP server are renewed/refreshed at predetermined periods of time. This default is 3600 seconds, or once per hour.

Table 3-8. DHCP Settings Descriptions

WiFi

Your wireless network is configurable as easily as any consumer WiFi device. There are only four settings and a checkbox, enabling or disabling the WiFi function. See Figure 3-16 and for details.

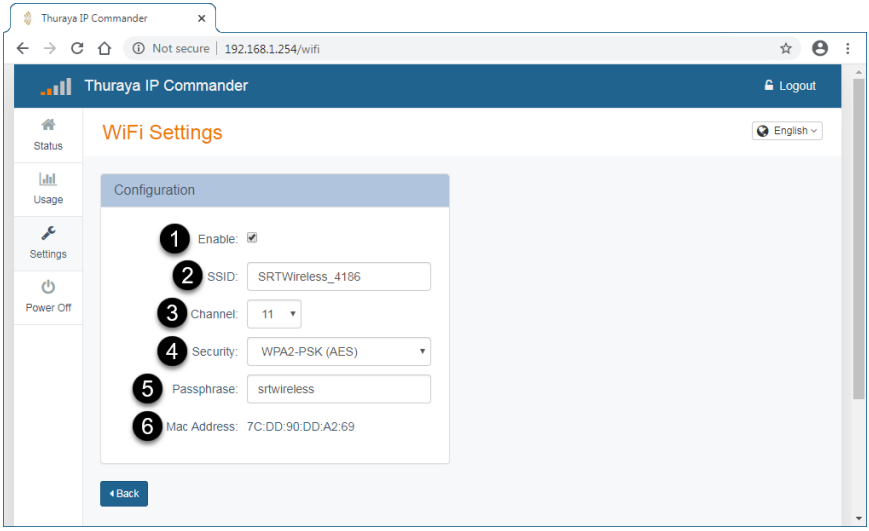

Figure 3-16. Settings Panel - WiFi

Item	Description
1 **Enable**	Enables and disables the wireless functions of the Thuraya IP Commander. If you disable the WiFi hotspot, a confirmation popup is displayed.
2 **SSID**	User-assigned name of the WiFi network.
3 **Channel**	WiFi channel (selectable to a single channel in the 2.4 GHz radio band) on which the IP Commander operates.
4 **Security**	Activates one of three data encryption standards (or Open): • WPA-PSK (TKIP) • WPA2-PSK (AES) • WPA-PSK (TKIP) + WPA2-PSK (AES)
5 **Passphrase**	This passphrase is only needed for users accessing the IP Commander device wirelessly (the Passphrase field is only displayed when one of the three encryption types is selected). The passphrase should be at least eight characters long, containing upper and lowercase letters, numbers, and punctuation marks.
6 **Mac Address**	Displays the MAC Address of your WiFi device.

Table 3-9. WiFi Settings Descriptions

Port Forwarding

Port Forwarding enables the ability to allow data traffic to pass through specified ports. In other words, you can selectively open "ports" on your firewall to make specific services running on your LAN available to outside (Internet) access, while keeping the bulk of your LAN invisible to the Internet. For example, when your IP Commander modem has Remote Access enabled, port: 41912 is opened to grant access, with proper authentication, to authorized individuals who are accessing the IP Commander from the Internet.

This function is also used to permit individuals on the LAN side of the firewall to host Internet gaming services, as well as the ability to host a website accessible to Internet users. To further limit data traffic to specified ports, you can also assign port numbers to the local (LAN) side of the firewall. Configuring a port on the LAN side of the network (Local Port) permits specific traffic to be directed to a specific network device.

In this example, traffic coming in to the IP Commander's WAN connection (from the Thuraya satellite) through port 5004 is *only* forwarded to port 6000 on a LAN device with the IP address 192.168.120. Conversely, traffic from port 6000 on a network device with an IP address of 192.168.1.120 passes through the firewall to a network device on the internet using port 5004.

Ports can be opened individually, or in ranges.

To create a New Forward Rule, click the **Add Rule** button (item ❶ in Figure 3-17 below).

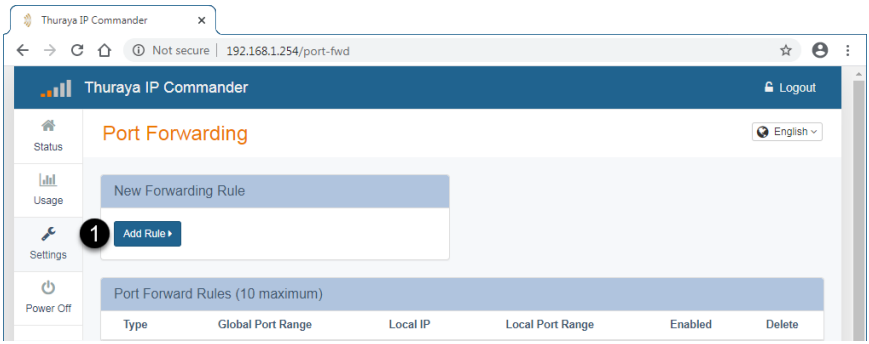

Figure 3-17. Port Forwarding - Add Rule

The New Forward Rule page is displayed, as shown in Figure 3-18 below. Complete the fields as described in Table 3-10, and then click **Submit**. The new rule appears in the Port Forwarding Rules portion of the screen. See Figure 3-18 and Table 3-10 for details.

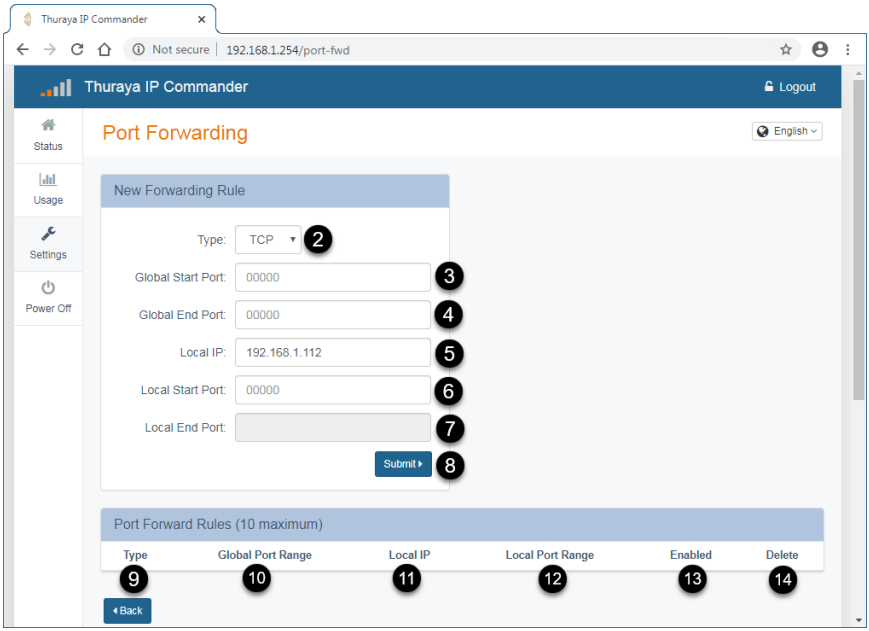

Figure 3-18. Port Forwarding - New Forwarding Rule

Item	Description
1 **Add Rule (from Figure 3-17)**	Click to open a dialog to add a new rule.
2 **Type**	Use the drop-down to select the service type: TCP = TCP/IP UDP = UDP
3 **Global Start Port**	The starting port number of the range you are opening to the Internet. Can be used to assign a single port (Start: 80, End: 80), or a range (Start: 500, End: 600).
4 **Global End Port**	The ending port number of the range you are opening to the Internet. Can be used to assign a single port (Start: 80, End: 80), or a range (Start: 500, End: 600).
5 **Local IP**	IP Address of a designated computer on your Local Area to which traffic from the Internet is being routed.
6 **Local Start Port**	The starting port number of the range you assign to a computer (or computers in more complicated setups), thereby limiting specific types of traffic from the Internet to devices on your LAN. For example, adding port :80 to the local computer's IP address limits incoming and outgoing traffic to http (web) traffic.
7 **Local End Port**	The ending port number of the range you assign to a computer (or computers in more complicated setups), thereby limiting specific types of traffic from the Internet to devices on your LAN. For example, adding port :80 to the local computer's IP address limits incoming and outgoing traffic to http (web) traffic.

Item	Description
❽ **Submit**	Click to add this Port Forwarding Rule to your list of forwarded ports (up to a maximum of ten).
❾ **Type**	Related to item ❷ above, this displays the selected service type: TCP = TCP/IP; UDP = UDP.
❿ **Global Port Range**	Related to items ❸ and ❹ above, this displays he port numbers you are opening to the Internet (Start to End).
⓫ **Local IP**	Related to item ❺ above, this displays the IP Address of a designated computer on your Local Area to which traffic from the Internet is being routed.
⓬ **Local Port Range**	Related to items ❻ and ❼ above, this displays the port numbers assign to your computer(s) (Start to End).
⓭ **Enabled**	Shows whether this rule is enabled.
⓮ **Delete**	Click to remove this rule from the Port Forwarding Rules list.

Table 3-10. Port Forwarding Rules Descriptions

Additional rules, up to a total of ten, can be assigned to devices connected to the LAN. When you have completed setting up the rule, click the **Submit** button (item ❽ in Figure 3-18), and then that rule is moved to the *Port Forwarding Rules* portion of the screen. At this point you can write another rule.

NOTE: *Computers being set up to use Port Forwarding should be configured with static IP addresses, as IP addresses being controlled by the DHCP server could change unexpectedly, disrupting communications.*

You can temporarily disable any saved rule by deselecting *Enabled* (item ⓭) corresponding to the rule you want to disable. The listing remains, and can be re-enabled by reselecting *Enabled*.

To delete a saved rule, select *Delete* (item ⓮) at the far right of the saved rule listing.

Remote Management

If your modem is inaccessible, or if you are unable to access the modem hardware directly, you can remotely manage the modem over the satellite connection, through the Remote Management tool.

With Remote Management enabled, it is possible to fully administer (manage the Status, Network Configuration, Wireless Settings, Firewall, etc., settings) your IP Commander modem via the Internet.

In order to do so, the **Enable Remote Management** checkbox must be checked, and the modem must be connected to the Thuraya satellite.

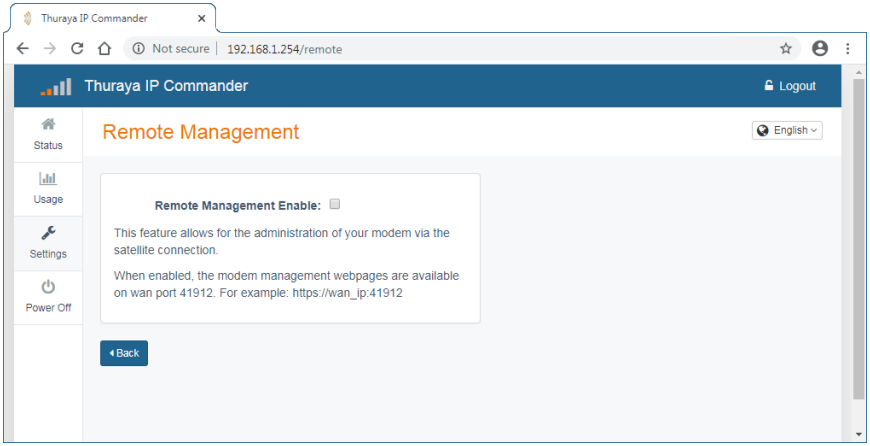

Figure 3-19. Settings Panel - Remote Management

If you do not already have a strong password for your modem, this is a good time to set one up. To prevent access by undesirable individuals, your password should contain a combination of upper and lower case letters, numbers, and punctuation marks. It should be at least ten to fifteen characters long, because if a hacker guesses your password and takes control of your modem, you will not be able to remotely regain control of it, nor will you be able to reset it remotely. Additionally, you may be responsible for any charges for use of the modem. See "*Change Password*" on page 26 for details.

Once you have changed to a strong password, check the **Remote Management Enable** checkbox. The modem requires a restart before Remote Management is enabled (or disabled).

Once Remote Management is enabled, a message is displayed on the Remote Management web page, advising you of the modem's connection status, and that when connected, provides the URL (Uniform Resource Locator) of your IP Commander modem that would be used to access it from the Internet (http://*WAN-IP-Address*:41912).

> ***CAUTION:*** *Your administrative password may need to be strengthened to prevent unauthorized access to the administrative settings on your IP Commander modem. Your password can be changed by following the steps described in See "Change Password" on page 26.*

When Remote Management is enabled, the WAN IP address and port (http://*WAN-IP-Address*:41912) are displayed (see red arrow in above). When Remote Management is disabled, the IP address display reverts to 0.0.0.0.

MAINTENANCE Settings

Upgrade

Your Thuraya IP Commander device may require updates to its internal operating system from time to time. An **Upgrade** function has been provided to make this task easy to perform.

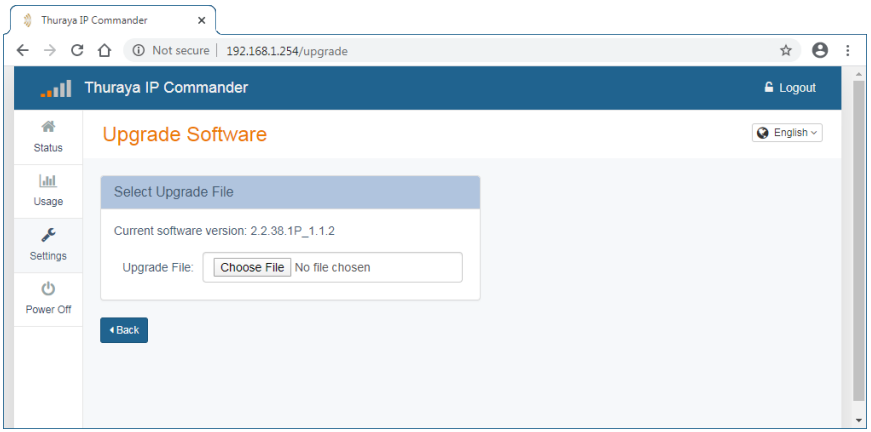

Figure 3-20. Settings Panel - Upgrade

To upgrade the software:

1. Obtain the update file from Thuraya or SRT Wireless in whatever method it is provided (web download, ftp, optical media, etc.).

2. Connect to the IP Commander and log into the web browser (`http://192.168.1.254` with login and password of `admin`, (unless you have changed the password to something more secure.

3. Click **Settings > MAINTENANCE > Upgrade** to access the screen (see Figure 3-20).

4. Click the **Choose File** button. This opens a standard file dialog box. Navigate to the location of the firmware update file on your computer and select.

5. Click **OK**. The upgrade is performed.

Download Logs

The IP Commander stores system logs, which can be a very useful troubleshooting aid in the event of a system fault. These files can be downloaded to your local PC.

To download the log files:

1. Click **Settings > MAINTENANCE > Download Logs** to access the screen (see Figure 3-21).

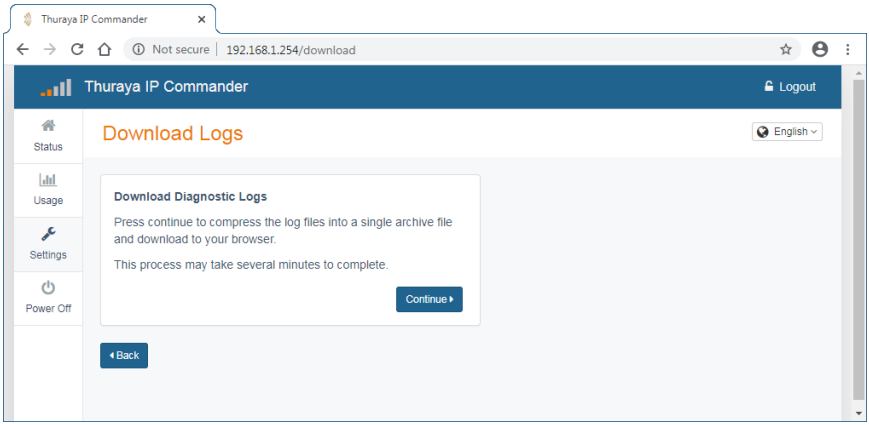

Figure 3-21. Settings Panel - Download Logs

2. Click the **Continue** button. The Log Files screen is displayed.

3. When the **Create Log Archive** button is clicked, an archive file is built, gathering all the logs, and compressing them into a single downloadable file.

4. When the Log Archive file is built, the compressed file size is displayed, and instructions for downloading are provided.

Factory Reset

Select Factory Reset to replace all user-selected Settings with the factory-defined default values.

4. Agency Compliance Statements

This section provides information related to agency approvals and other special notices.

Declaration of Conformity

We,

SRT Wireless, LLC

of

1613 NW 136th Ave, Sunrise, FL 33323, USA

declare under our sole responsibility that the product

Thuraya IP Commander Modem

to which this declaration relates, is in conformity with the following standards and/or other normative documents.

For article 3.1(a), Health and Safety of the User:

IEC 60950-1

For article 3.1(b), Electromagnetic Compatibility:

EN 301 489-17, EN 301 489-20, EN 300 328, EN55022-B

For article 3.2, Effective Use of the Spectrum Allocated:

EN 300 328

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

RoHS-2 Directive 2011/65/EU

The European Union (EU) Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU restricts the use of certain hazardous substances in electrical and electronic equipment.

Unless otherwise noted, all products, assemblies, and sub-assemblies manufactured by SRT Wireless and its sub-contractors are compliant with this directive.

Identification mark:	The equipment will also carry the Class 2 equipment identifier:
CE	

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

SRT Wireless, LLC, 1613 NW 136th Ave, Sunrise, FL 33323

John R. Russell
Vice President and Chief Operating Officer, SRT Wireless, LLC

	23 September 2015

FCC Statements

FCC Part 15.19 Warning Statement- (Required for all Part 15 devices)

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

FCC Part 15.21 Warning Statement

NOTE: THE **GRANTEE** IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC Part 1.1310 & 2.1091 RF Exposure Statement

To Satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of **58 cm** or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

EU WEEE (Waste Electrical and Electronic Equipment) Directives

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

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

For addition information, contact SRT Wireless at: www.srtrl.com.

5. FAQs

The following are some frequently asked questions about the Thuraya IP Commander:

Q *On the first initial boot up, in what mode does the IP Commander power up?*

A The first time you power your system on, it will boot up in Standard Data Mode.

Q *Where do I activate my SIM card?*

A It must be activated by an authorized Thuraya service provider. The SIM card may provide voice services, data services, or both.

Q *Are there yearly maintenance fees associated with the system?*

A No.

Q *How am I billed?*

A See your service plan.

Q *Do I have to wait until all status indicator lights turn green to use the **IP Commander**?*

A Not all lights have to be green but you should wait for the following combination before using the **IP Commander**:

- **Sup**-green (power supply is connected)
- **On**-green (**IP Commander** is powered on)
- **Act**-flashing red/off (activity on the satellite link)
- **Sat**-green (Satellite antenna status)
- **GPS**-green (GPS status)
- **Ant**-flash red/green or solid green is fine (show transmit antenna status)
- **LAN**-green if you're connected to a network; off if not connected (local area network status)

Q *What should my RSSI be in order to achieve optimal voice and data performance?*

A In order to achieve optimal voice and data performance you should have a RSSI range between -105 and -95.

Q *Does it matter where the antenna is placed on top of the vehicle?*

A Antenna placement on the vehicle should ensure that the antenna has clear line-of-sight to the satellite.

Q *Why do I need to change my connection profiles?*

A Profiles are changeable to reflect the data use plan that you purchased.

Q *When is it okay to power up and power down the **IP Commander**?*

A The antenna cable carries DC power. Always power the ***IP Commander*** down prior to connecting or disconnecting the antenna cable from either the antenna or the ***IP Commander***.

Training Videos

SRT Wireless has produced some training videos to help you set up your new Thuraya IP Commander device.

Please follow the links shown below on *YouTube.com*.

- *How to set up the IP Commander (https://youtu.be/PRI423fW77Q)*
- *How to Change Modes from the Handset (https://youtu.be/_0ZcIDUccX4)*

6. Troubleshooting

Problem	Possible Cause	Possible Solution
Terminal does not turn on.	• Power switch not on	• Ensure the power switch is on the ON position and the indicator LED is on.
	• Blown AC or DC line fuse	• Remove fuse and check. • Refer to this guide's installation and operation section.
	• Insufficient current available from power source	• Ensure the DC power source has sufficient current to supply the Thuraya IP Commander.
No connection to the Web page.	• No interface connection between the Thuraya IP Commander and the computer.	• Ensure there is a WLAN or Ethernet connection between the terminal and computer, see User Guide
	• Your computer is configured with an IP address in the wrong subnet.	• Check the IP configuration settings on your computer, or enable DHCP or use a static IP address in the same subnet as the UT local IP address.
	• The cable is not properly connected.	• Connect the cable.
Thuraya IP Commander does not obtain a GPS fix.	• Thuraya antenna's location limits visibility of 3 or more GPS satellites.	• Move the Thuraya antenna to a location where there are few obstructions such as trees or tall buildings, so that as much as possible of the sky is visible.
None of the above solutions resolve the problem.	• Thuraya IP Commander may have a hardware or software fault, and needs to be re-booted	• Remove power. Wait 30 seconds. Reconnect the DC power and turn on the Thuraya IP Commander.
No signal or weak signal from the Thuraya satellite.	• The view to the satellite is blocked	• Make sure the antenna has a clear view in all directions.
	• The antenna cable is not properly connected	• Check that both ends of the cable are connected properly according to the guidelines in the Installation manual, or check that no connectors are damaged.

Problem	Possible Cause	Possible Solution
256 kbps or 384 kbps streaming does not work.	• The elevation angle to the satellite is too low • There is not enough free bandwidth for a 256 kbps or 384 kbps streaming connection	• 256 kbps and 384 kbps streaming is normally not available in areas with low elevation. • If there is too much traffic on the network, it may not be possible to assign a 256 kbps or 384 kbps streaming session. You may try a streaming profile with a lower bit rate or a best effort connection instead.
The web interface cannot be accessed.	• The browser is configured to use a proxy server • You have entered a wrong IP address • You are connected using a VPN	• For Microsoft Internet Explorer, select Tools → Internet Options → Connections → LAN Settings and uncheck "Use a proxy server for your LAN". • Check the IP address and re-enter it. • Close down your VPN connection.
A phone connection cannot be established.	• The handset cable is not properly connected. • The cable type or connector type is not correct	• Connect the cable. • For information on the correct type of connector and cable, refer to the installation manual.
A LAN connection cannot be established.	• The Ethernet cable is not properly connected	• Connect the cable.
Cannot register for voice.	• SIM card issues	• Check that the SIM card is in its proper slot and that it is currently active with your service provider • Check that the SIM card is provisioned for voice
Cannot register for IP.	• SIM card issues	• Check that the SIM card is in its proper slot and that it is currently active with your service provider • Check that the SIM card is provisioned for data

Problem	Possible Cause	Possible Solution
Cannot connect for IP service.	• SIM card issues , Profile settings	• Check to ensure the SIM card is provisioned for IP service with your service provider, and check that the profile settings match with your billing agreement. A per-megabyte plan should set streaming to disabled.

Table 6-1. IP Commander Troubleshooting Chart

Error Codes

These error codes are displayed on the **Thuraya** handset, which connects to the front panel of the **IP Commander** device.

Number	Short Name	Remedial solutions by SRTW
0	No error	No action required. The BDU is functioning properly.
1	Failed to read IMEI	The BDU failed to read the IMEI. Please restart the BDU If the problem persists, contact your service provider.
2	Illegal ME	This hardware is not accepted by the network.
3	IMEI not accepted	The network does not allow emergency calls from this IMEI.
101	Invalid antenna model	Verify that the correct antenna model is connected.
102	HPA disabled	The antenna transmit is powered off. Please restart the BDU.
103	HPA thermal alarm	The antenna transmitter has overheated. It may power off to prevent hardware damage. Please allow the system to cool down by powering off for a short time.
104	HPA fan fault	The fan inside the antenna has reported a problem. Please restart the BDU. If the problem persists, the antenna may need service or replacement.
105	HPA unknown fault	The antenna transmitter has reported an unknown error code. If the problem persists, the antenna may need service or replacement.
106	ATB failure	Check the antenna cable connections are secured at both ADU and BDU antenna ports.
107	Antenna communication problem	Check the antenna cable connections are secured at both ADU and BDU antenna ports. Restart the BDU.
108	Calibration failure	Check the antenna cable connections are secured at both ADU and BDU antenna ports. Restart the BDU

Number	Short Name	Remedial solutions by SRTW
201	No SIM card in primary slot	Verify that the SIM card is present inside the BDU's SIM card slot. SIM card may be inserted incorrectly. Remove SIM card and ensure it is inserted properly according to its oriented symbol on the BDU font panel. SIM Card contacts may be dirty. Clean the SIM card contacts with a dry cloth. If the problem persists, replace the SIM card with a known good SIM card otherwise please return the BDU to your Service Provider for service.
203	SIM communication problem	Power down the BDU and try again.
204	SIM Locked	The SIM card is locked. Depending on the SIM card's lock state, enter the PIN or PUK to unlock the SIM Card.
205	SIM Missing file	SIM card was incorrectly programmed with missing required field(s). Please contact your Service Provider.
301	Illegal MS	The subscriber information is rejected or the SIM card is not producing correct authentication information. Please contact your Service Provider.
302	PLMN not allowed	Network connection failure due to PLMN which is not allowed. Please contact your Service Provider.
303	Roaming not allowed	You are using a SIM card from a carrier that does not have a roaming agreement with your Service Provider. Please contact the Service Provider.
304	IMSI unknown HLR	The subscriber information is not recognized by the network. Please contact your Service Provider
305	IMSI unknown VLR	The subscriber information is not on the network's roaming list. Please contact your Service Provider
306	Service not supported	Network connection failure due to service option which is not supported. Please contact your Service Provider.

Number	Short Name	Remedial solutions by SRTW
307	Service not subscribed	Verify the correct settings in the web console and contact your Service Provider to activate authorized service.
308	Network detached mobile	Verifying the settings on the web console. Restart the BDU and try again. If the problem persists, please contact your Service Provider.
309	Data Service Not Allowed	Please contact your service provider to activate service.
310	Service Not Allowed	Please contact your service provider to activate service.
311	Identity cannot be derived	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
312	Location area not allowed	Network connection failure due to the terminal which is not allowed in the location area. Please contact your Service Provider.
313	Temporary registration failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
314	General registration failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
315	Registration retries exhausted	Network re-connection failure. Restart the BDU if the problem persists.
318	GW Mode/SIM Misconfiguration	Invalid Gateway Mode Configuration.
401	Signal lost	Make sure no obstruction is blocking satellite signal and the ADU has a clear sky view in the direction of the satellite. If the problem persists, restart the BDU.
402	Pilot tracking	Make sure no obstruction is blocking satellite signal and the ADU has a clear sky view in the direction of the satellite
403	No GPS	Make sure no obstruction is blocking satellite signal and no object is placed over the ADU. Wait for 5 minutes for the GPS position to be updated. If the problem persists, restart the BDU.

Number	Short Name	Remedial solutions by SRTW
404	Old GPS	A new GPS fix is obtained during the connection process, superseding the old fix. The terminal will reacquire the connection. If the problem continues and the new connection cannot be re-established, please contact your Service Provider.
501	LLC or SNDCP failure	Network connection failure caused by LLC or SNDCP failure. Restart the BDU. If the problem persists, please contact your Service Provider.
502	Unknown PDP type	Network connection failure. Restart the BDU. If the problem persists, please contact your Service Provider.
503	User authentication failure	Network registration failure. The BDU will retry automatically. If the problem persists, please contact your Service Provider.
504	PDP Option not supported	Network connection failure because the service option is not supported. Please contact your Service Provider to activate authorized service.
505	NSAPI already used	Network connection failure because the service is already in use for this subscriber. Restart the BDU. If the problem persists, please contact your Service Provider.
506	PDP deactivated by network	Network connection failure or the network may be down. Please contact your Service Provider.
507	PDP retries exhausted	Network connection failure or the network may be down. Please contact your Service Provider.
508	Missing or unknown APN	Network connection failure due to the missing or invalid of APN, Please contact your Service Provider to the correct network settings.
509	QOS rejected	Network connection failure due to rejected QOS by the network. If the problem persists, please contact your Service Provider.

Number	Short Name	Remedial solutions by SRTW
510	PDP insufficient resources	Network connection failure due to insufficient satellite resources. If the problem persists, please contact your Service Provider.
511	PDP reactivation required	Verify the correct settings in the web console and contact your Service Provider to activate authorized service.
512	PDP feature not supported	Network connection failure because the service option is not supported. Please contact your Service Provider to activate authorized service.
513	PDP transaction id in use	Network connection failure due to transaction ID. If the problem persists, please contact your Service Provider.
514	PDP not subscribed	Verify the correct settings in the web console and contact your Service Provider to activate authorized service.
515	PDP activation rejected	Network connection failure due to unknown cause. Verify the correct settings in the web console. If the problem persists, please contact your Service Provider.
516	PDP temporarily unavailable	Network access temporarily unavailable. Please wait for the terminal to reacquire a connection within 3 to 5 minutes. If the problem persists, contact your Service Provider.
517	General PDP failure	Network connection failure due to unknown cause. If the problem persists, please contact your Service Provider.
601	Invalid position	Network service is not available due to invalid GPS position. Verify the ADU has a clear sky view in the direction of the satellite. If the problem persists, contact your Service Provider.
602	Invalid position for beam	Registration is delayed or a handover is in progress. Please wait for the terminal to reregister within 1 to 3 minutes. If the problem persists, contact your Service Provider.

Number	Short Name	Remedial solutions by SRTW
603	Lack of resources	Network connection failure due to insufficient resources. If the problem persists, please contact your Service Provider.
604	Wait for streaming channel	Network connection delayed due to resource requirement. Please wait 1 minute for resource allocation.
605	Non availability of service	Network service is not available. Please contact your Service Provider.
606	QOS not satisfied	Quality of service requested cannot be satisfied at this time. Please try again later, or configure a lower bit rate or best effort service.
607	Access barred	The service option is not available in the current spot beam. The BDU will attempt to find a more suitable signal automatically. If this message persists, contact your Service Provider.

Table 6-2. Error Codes