



Blue Sky Network



SKYLINK[®] USER GUIDE

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SkyLink

User Guide

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ABOUT THIS USER GUIDE

Thank you for purchasing the SkyLink® device! This easy-to-read user guide is organized based on the steps needed to log in to and navigate the SkyLink Device Interface for singular device use. To manage a fleet of devices, please see the SkyLink Cloud Services User Guide.

We sincerely hope that SkyLink enhances your ability to monitor and configure your assets anywhere in the world. Please continue to read on or choose a starting point from the list below:

- [Connecting to the SkyLink device WiFi](#)
- [Changing your SkyLink device name and/or WiFi password](#)
- [Managing your device's Firewall Profiles](#)
- [Updating SkyLink firmware](#)
- [Using your SkyLink device: making calls, connecting to the internet, and more](#)
- [Troubleshooting](#)

ABOUT SKYLINK

Introduction to SkyLink

SkyLink by Blue Sky Network is the inaugural Iridium Certus® 100 mid-band solution for land mobile, IoT, maritime, and aviation markets. This small-form, multi-stack hardware is designed for any fixed-mount, portable, or mobile application and offers a range of service configurations.

Key features include:

- Remote device management
- Sensor/engine diagnostics
- Network services (VPN, IP, MQTT)
- IP65 Certified
- Health monitoring
- Data analytics/edge computing
- SkyRouter integration
- FCC Part 15 & 25 Certified

Compatibility and System Requirements

To access the SkyLink Device Interface, you will need 1) an internet connection and 2) a recent version of a web browser that supports HTML5.

The SkyLink Device Interface has been tested with the following recommended browsers:

- Google Chrome (Mac/Windows)
- Mozilla Firefox (Mac/Windows)
- Safari (Mac)
- Microsoft Edge (Windows)

GETTING STARTED

Connecting to Device WiFi

A label containing a QR code with a WiFi access point can be found on the back panel of your SkyLink Data Gateway. An extra label can also be found in the device's box. It is recommended that a widescreen device (e.g., laptop, PC, or tablet) be used for the initial configuration.



After properly installing and powering on the device (please see the SkyLink Installation Guide), you can connect to WiFi through one of two ways:

Option 1: Use a mobile device or tablet to scan the QR code. Your phone/tablet will then be automatically connected to the WiFi. **NOTE:** If using a cellular device, it may be helpful to first switch into airplane mode before connecting to the SkyLink WiFi.

Option 2: Use the WiFi SSID and password found on the label.

Connecting to the Network through Ethernet

If using an ethernet cable with your SkyLink device, simply plug it into the appropriate power source (e.g., a wall) and your device will automatically be configured via DHCP.

A Note to Mobile Users

We recommend the following configurations to help optimize mobile device usage with SkyLink.

Note: For quicker network troubleshooting, ensure VPNs are disabled when using SkyLink in any of the default firewall modes (see the [Connection Manager](#) screen for more information on firewalls).

APPLE/IOS

Navigate to *Settings > Wi-Fi > SkyLink Wi-Fi network*> click the circular *information icon*. From here, you can make these changes:

Low Data Mode > On

- This saves cellular and WiFi usage and disables some of the background app updates.

Private Wi-Fi Address > Off

- This prevents the iOS device from becoming a “new device” every 24 hours and allows SkyLink to map data usage back to individual devices. You can disable this feature on your own networks when you want to track individual devices.

Limit Address Tracking > Off

- This may help prevent problems using the mail feature.

Settings > Top banner with your account name (i.e., Apple ID) > iCloud > Private Relay

- If needed, this configuration will disable the Private Relay feature.

ANDROID

Navigate to *Settings > Connections > SkyLink Wi-Fi network* > press the *gear icon*. From here, you can make these changes (you may need to click the “View more” drop-down arrow):

Metered > On

- This saves cellular and WiFi usage and disables some of the background app updates.

Privacy > Device MAC address

- This turns off private MAC addresses, allowing SkyLink to map data usage to devices.

SKYLINK DEVICE INTERFACE

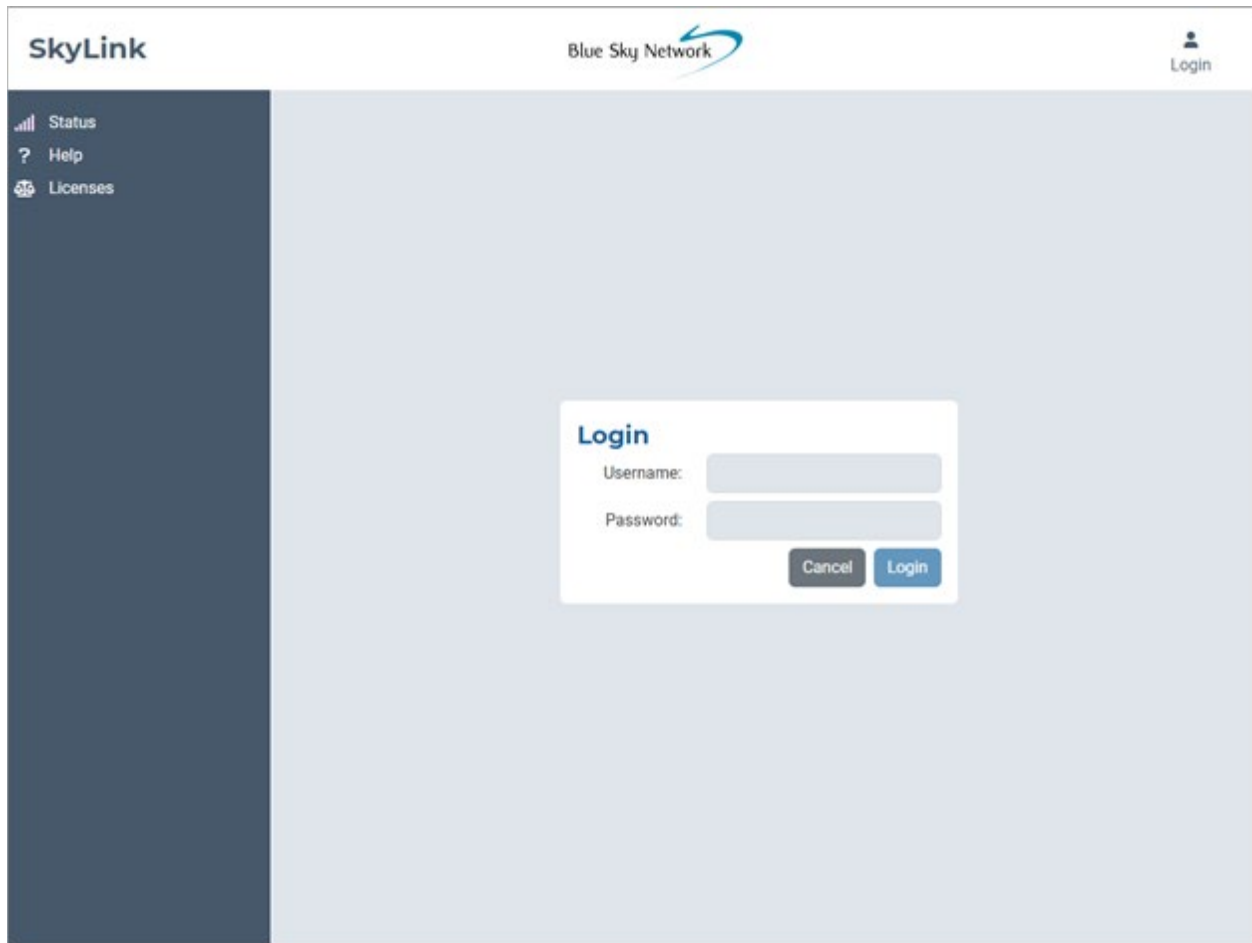
To connect to the SkyLink Device Interface, open a web browser, type the below IP address into the address bar, then press 'Enter' on your keyboard.

SkyLink IP address: 192.168.111.1

You will then be directed to the SkyLink Device Interface login screen. If this is your first time logging in, use the default information below to view, configure, and manage your device settings.

The default username and password are both 'admin.'

Click the 'Logout' button located on the top right-hand corner when you are ready to exit.



Overview

The tabs on the left-hand side of each screen allow you to easily find important device information and make configurations. In order, they are:

- [Status](#)

Configuration:

- [General Settings](#)
- [Connection Manager](#)
- [Network](#)
- [Firewall](#)
- [Remote Management](#)
- [Serial to IP](#)
- [SNMP](#)
- [Voice Extensions](#)
- [Accessories](#)
- [Plugins](#)

Data & Tools:

- [Calls](#)
- [Diagnostics](#)
- [System Log](#)
- [Advanced](#)

Other:

- [Help](#)
- [Licenses](#)

The following sections describe each screen's information and configuration options.

Status

After logging into the SkyLink Device Interface, you will be directed to the Status screen, where you will find information about the system and satellite, cellular, and internet data usage.

The screenshot displays the SkyLink Status page. On the left is a navigation menu with options: Configuration (General Settings, Connection Manager), Network, Firewall, Remote Management, Serial to IP, and SNMP. The main content area is divided into four sections: System Information, Satellite, Cellular, and Wired Internet. Each section includes signal status, route information, and a usage table for 24 hours, 7 days, and a month. A 'Note' at the bottom states: 'Usage tables are an estimate for reference and not associated with actual billing. Minimum sessions are rounded to 5,000 bytes.'

System Information

Serial Number: 0000-0016	Sat. IMEI: 300058060001420	Cell. IMEI: 861364040178400
Model: SkyLink 5100	Sat. SIM: 8988169771000295445	Cell. SIM: 89883030000052347330
Versions: SYN267 REV F / 2.37-240417-1956	Sat. Temp.: 31.0°C	CPU Temp.: 55.0°C
Capabilities: Voice & Data Gateway	Location: 32.77148, -117.15341	WiFi SSID: DragonsInc
System Time: 2024/4/17 21:54:45 UTC	Asset Tag: 54321 tseT	

Satellite

Signal: N/A Route: Tertiary
On Net: 0%

	Bytes Sent	Bytes Received
24 hrs	4,994	90
7 days	5,038	120
Month	414,782	523,615

Cellular

Signal: -100 dBm Route: Secondary
On Net: 0% Network: T-Mobile

	Bytes Sent	Bytes Received
24 hrs	5,400	84
7 days	5,584	112
Month	133,659	242,568

Wired Internet

Signal: N/A Route: Primary, Active
On Net: 100%

	Bytes Sent	Bytes Received
24 hrs	4,436,892	7,641,940
7 days	7,049,473	19,720,375
Month	17,597,150	171,845,864

Note: Usage tables are an estimate for reference and not associated with actual billing. Minimum sessions are rounded to 5,000 bytes.

Current SkyLink hardware / firmware versions can be found here. See the [Diagnostics](#) screen for the current 9770 Certus modem firmware version.

'On Net' is the current percentage of data that has crossed the interface. It is calculated by adding satellite and cellular usage totals and dividing that number of bytes by the interface's number of bytes.

SYSTEM INFORMATION

These three columns contain identifying information about your SkyLink device, such as its serial and model number, current hardware and firmware versions, and capabilities. It also includes satellite and cellular IMEI/SIM card numbers and current temperatures.

SATELLITE, CELLULAR, & WIRED INTERNET

Find signal strength and data usage information for the Iridium satellite system, cellular modem, and internet here. Each section has a table with your device's data usage across a 24 hour, 7 day, and first-of-the-month period.

General Settings

This screen allows you to make configurations such as renaming your SkyLink device, changing the Wi-Fi password, and turning your satellite, cellular, and WiFi capabilities on and off. Click 'Reboot' at the bottom of the screen to restart your device, if needed.

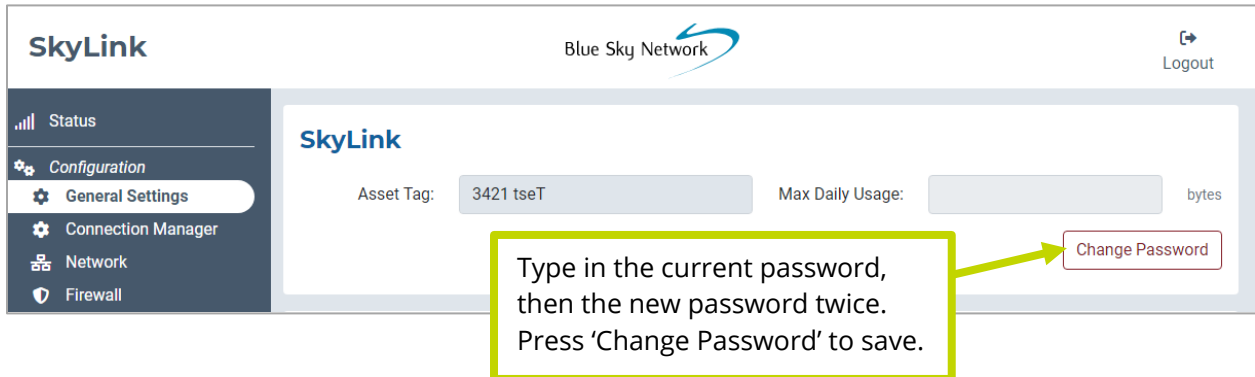
*****Remember to click the 'Save' button in the bottom right-hand corner to apply any changes.*****

The screenshot shows the 'General Settings' page for a SkyLink device. The interface is divided into a sidebar and a main content area. The sidebar contains navigation links for Status, Configuration (with sub-links for General Settings, Connection Manager, Network, Firewall, Remote Management, Serial to IP, SNMP, Voice Extensions, Accessories, and Plugins), Data & Tools (Calls, Diagnostics, System Log, Advanced), Help, and Licenses. The main content area is titled 'SkyLink' and includes the Blue Sky Network logo and a Logout button. It features several configuration sections: 'Asset Tag' (54321 tseT) and 'Max Daily Usage' (bytes) with a 'Change Password' button; 'Satellite' settings with 'Satellite Enabled' and 'Data Enabled' toggles; 'WiFi' settings with fields for SSID (TestSSID), Mode (5 GHz), Country (USA), Channel (Auto), Security (WPA2-PSK), and Password, plus a QR code and 'Scan to Connect' text; and 'Cellular' settings with fields for APN (em), Username (Optional), Password (Optional), IMEI (861364040178400), SIM (89883030000052347330), and Network (T-Mobile). At the bottom, there are 'Reboot', 'Cancel', and 'Save' buttons. A yellow callout box highlights the QR code with the text: 'Use this QR code to connect to the device's WiFi (e.g., in case you are using an ethernet port, need to share it with someone, or have updated the password)'.

SKYLINK

Edit your device name in the Asset Tag field and set a maximum limit for the SkyLink device's daily data usage in the Max Daily Usage field.

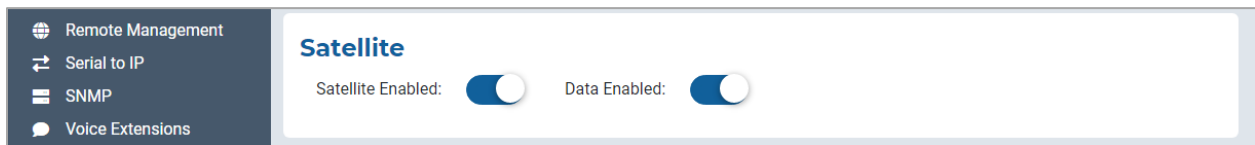
NOTE: Iridium QoS (also called Iridium secondary data flows) are not supported on Certus 100; therefore, Blue Sky Network cannot offer per-stream priorities or VLANs over the Iridium link.



The screenshot shows the SkyLink configuration page. On the left is a navigation menu with options: Status, Configuration (General Settings, Connection Manager, Network, Firewall), and Logout. The main content area shows 'Asset Tag: 3421 tseT' and 'Max Daily Usage: [input field] bytes'. A yellow box highlights the 'Change Password' button with the text: 'Type in the current password, then the new password twice. Press 'Change Password' to save.'

SATELLITE

The toggle slider on the left allows you to turn satellite capabilities on and off. Once your satellite and cellular SIM cards are activated, you can freely switch back and forth between the two. The right-hand slider will enable or disable data transferring.



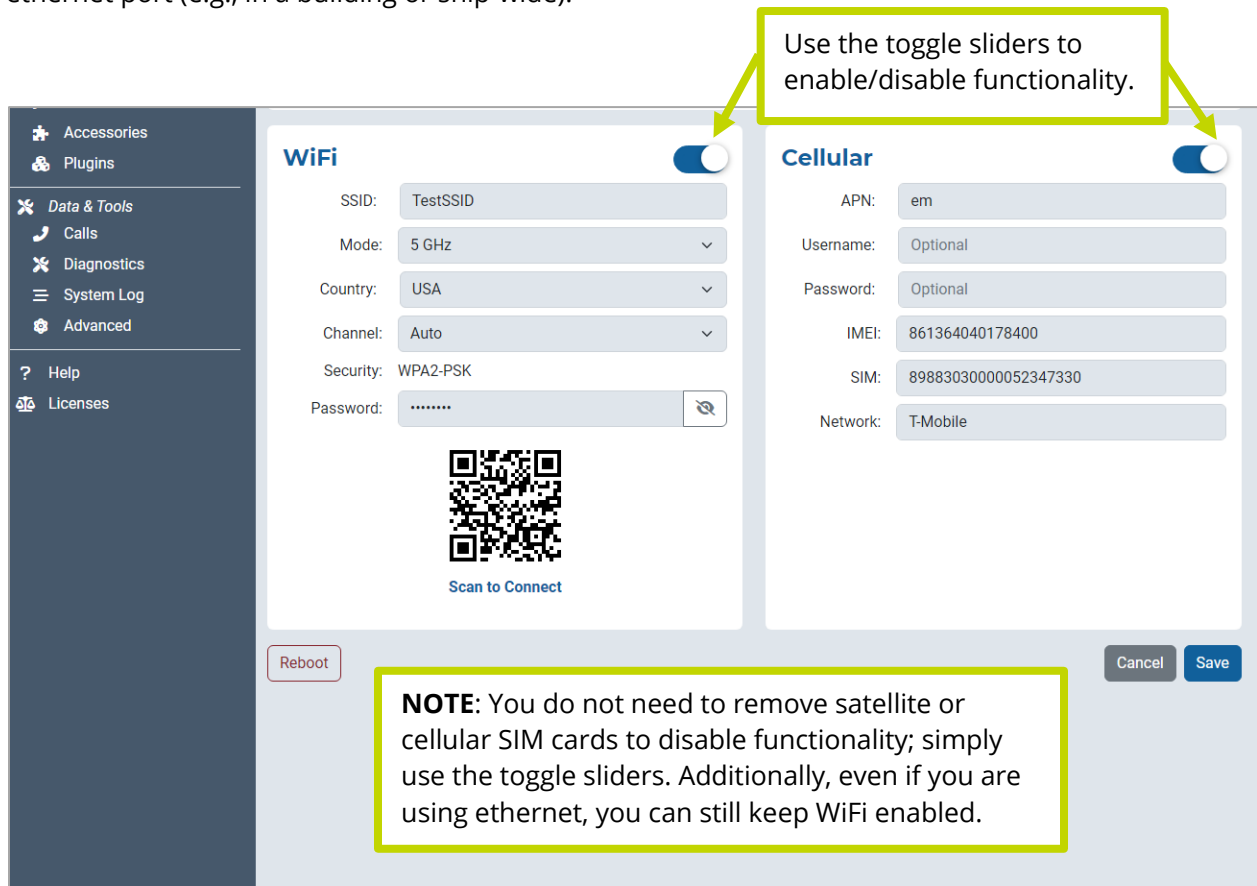
The screenshot shows the Satellite configuration page. On the left is a navigation menu with options: Remote Management, Serial to IP, SNMP, and Voice Extensions. The main content area shows 'Satellite' with two toggle sliders: 'Satellite Enabled' and 'Data Enabled', both of which are currently turned on.

NOTE: Satellite internet connection supports messaging apps, IoT data transfer, and mobile-optimized web surfing (visit Iridium.com/mobile for a list of mobile-optimized sites). It is not intended for general web browsing or high bandwidth applications.

WIFI & CELLULAR

Once you are connected to the SkyLink device's WiFi, and cellular capabilities are enabled, you can use your personal device to browse any website and use all of your applications.

The default mode (out-of-box) is 'all internet OFF'—users must explicitly enable internet access. You also have the option to keep the built-in WiFi disabled and connect your own WiFi to an existing ethernet port (e.g., in a building or ship-wide).



Use the toggle sliders to enable/disable functionality.

NOTE: You do not need to remove satellite or cellular SIM cards to disable functionality; simply use the toggle sliders. Additionally, even if you are using ethernet, you can still keep WiFi enabled.

The WiFi section allows you to edit the SSID, Mode, Channel, and randomly generated Password fields. It also contains a scannable QR code for automatic connectivity. When set to 2.4GHz, the Mode field will default to the radio channel with the strongest WiFi signal, and you can select among 11 channels. Changing it to 5GHz will provide you with a new set of channels to choose from.

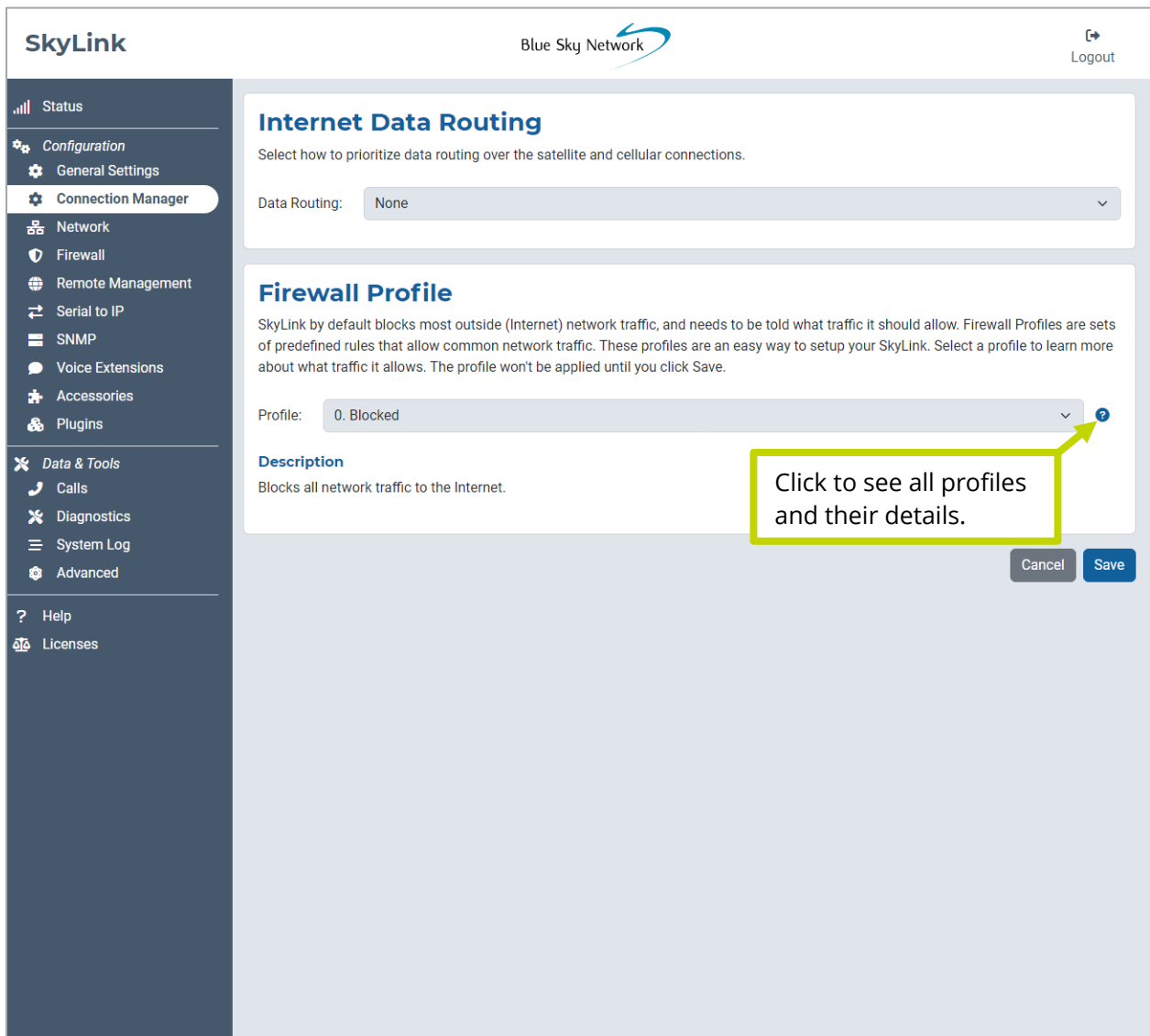
In the Cellular section, you can fill in the optional Username and Password fields. **NOTE:** Some carriers require these fields to be completed. Please contact your carrier if you have questions.

Connection Manager

In the top section, the drop-down menu allows you to prioritize data routing (Satellite Only, Cellular Only, Cellular then Satellite). Changes are applied immediately.

Under the Firewall Profile section, enable or disable applications from connecting to the internet by choosing from a list of predefined rules. View the current profile, including its description and affiliated apps, here. Use the drop-down menu to choose between profile options and click 'Save.'

NOTE: When using the Firewall Profile, complete functionality may not be available on all apps (e.g., WhatsApp messaging will be unblocked, but not WhatsApp voice calling). These restrictions can be unblocked by creating a custom rule on the [Firewall](#) screen. You can also try making configurations in the app itself or reach out to your corporate MDM platform.



Network

This screen provides options to configure your network settings. Use the LAN section to change the gateway or internal IP address on your network and set primary and secondary DNS addresses.

The DHCP section allows you to choose your lease validity (from 5 minutes to 1 year) and configure a range of IP addresses that you would like to use. The toggle slider enables and disables DHCP.

Click 'Connected Devices' in the bottom section to define a static DHCP lease for an existing device, or press 'Add' to manually define a new one. A MAC address, IPv4 address, and hostname are required. Once created, click the blue pencil icon to edit.

LAN

IP Address: 192.168.111.1
 Network Mask: 255.255.255.0
 Primary DNS: 8.8.8.8 Secondary DNS: 1.1.1.1

DHCP

DHCP Range Start: 192.168.111.50 DHCP Range End: 192.168.111.200
 Lease Validity: 3 days

Static DHCP Leases

MAC Address	IPv4 Address	Hostname	Tag	Comment	Actions
B8:90:47:8C:57:A4	192.168.111.93	bsntestiphone11			

Connected Devices

Connected Devices

Vendor	Host Name	MAC Address	IP Address	Expiration Time	Last Seen	
		C2:D5:5A:C5:42:47	192.168.110.1		2024/4/17 20:29:50 UTC	
		C2:D5:5A:C5:42:47	192.168.110.2		2024/4/17 20:29:51 UTC	
		C2:D5:5A:C5:42:47	192.168.111.1		2024/4/17 20:29:50 UTC	
Apple, Inc.		F0:18:98:F0:22:48	192.168.111.81	2024/7/16 20:15:53 UTC	2024/4/17 20:52:44 UTC	
Apple, Inc.	bsntestiphone11	B8:90:47:8C:57:A4	192.168.111.93	2024/6/7 10:00:54 UTC	2024/4/17 20:52:44 UTC	

Firewall

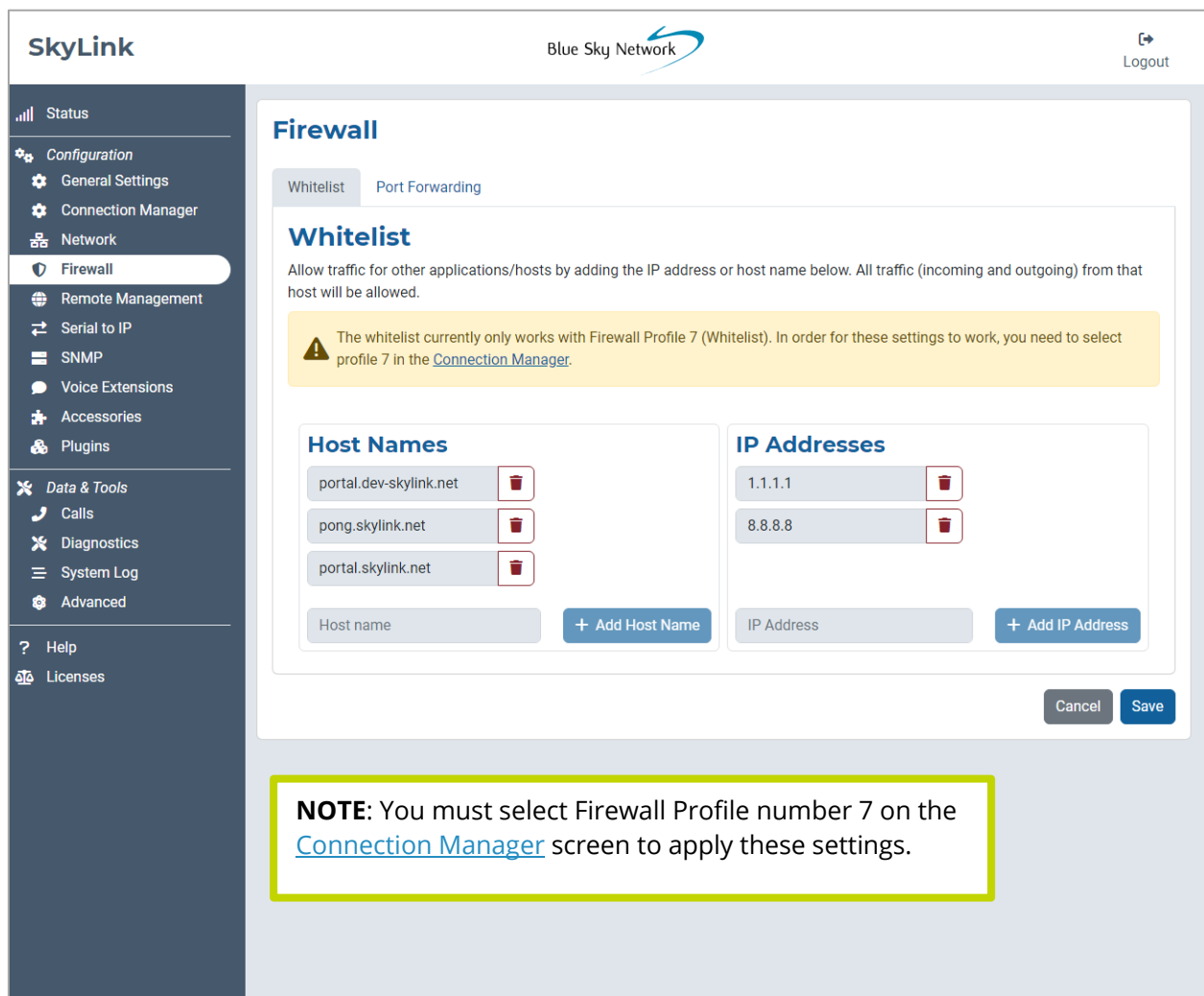
The SkyLink Device Interface enables you to set incoming and outgoing network traffic from specified applications/hosts. The two tabs on this screen allow you to make these configurations.

WARNING: Failure to set up proper firewall rules could result in heavy data usage. We recommend contacting Blue Sky Network support for assistance with custom rule creation.

NOTE: Use the SkyLink Cloud Services portal to apply custom rules to a fleet of SkyLink devices.

WHITELIST

A list of approved host names and IP addresses can be found here. Press 'Add Host Name' or 'Add IP Addresses' to allow incoming and outgoing traffic from other applications/hosts. All other traffic is blocked. Click the red trashcan next to each field to remove the data.



NOTE: You must select Firewall Profile number 7 on the [Connection Manager](#) screen to apply these settings.

PORT FORWARDING

On this tab, click the 'Add' button to create rules for forwarding incoming connections to devices on the local network. Once a rule is created, select the pencil icon to edit or the red trashcan to delete.

The screenshot displays the SkyLink interface for configuring Firewall Port Forwarding. On the left is a navigation menu with categories like Configuration, Data & Tools, and Help. The main content area is titled 'Firewall' and has tabs for 'Whitelist' and 'Port Forwarding'. Under 'Port Forwarding', there is a section for 'Port Forwarding Rules' with a warning message and a table of rules. A table with one rule is shown, and a '+ Add' button is highlighted with a yellow box and an arrow pointing to a 'New Rule' modal form. The modal form contains input fields for Action, Source, IP Address, Source Port, Destination Port, Protocol, and Comment, along with 'Cancel' and 'Save' buttons.

Action	Source	Destination	Source Port	Dest. Port	Protocol(s)	Comment	Actions
Forward	Internet	192.168.111.50	8080	8080	tcp	Test	

New Rule

Action:

Source:

IP Address:

Source Port:

Destination Port:

Protocol:

Comment:

Remote Management

This screen provides configuration options for IoT management via the SkyLink Cloud Services portal, including enabling and disabling position reports, remote device management, and status reports. Use the drop-down menus to set reporting, syncing, and check-in frequencies.

SkyLink Blue Sky Network Logout

Remote Management

Position Reports Enabled: Position Report Interval: 24 hours

Remote Management Enabled: Remote Management Interval: 24 hours

Status Reports Enabled: Status Report Interval: 24 hours

Call History Enabled: Call History Upload Interval: 24 hours

Usage Upload Enabled: Usage Upload Interval: 1 hour

Configuration Sync Interval: 24 hours

These fields are set to 24 hours by default and can be adjusted to different intervals ranging from 1 minute to 7 days, depending on the menu. Some allow for custom frequencies as well.

Below is a description of each interval category and their meaning:

- *Position Report* – How often the device sends a position report to the portal and SkyRouter.
- *Remote Management* – How often the device checks with the portal to see if it needs to complete any tasks, such as a firmware update, factory reset, or reboot.
- *Status Report* – How often the device sends operational information, such as health and data usage, to the portal.
- *Call History Upload* – How often the device sends the unit's call log information to the portal.
- *Configuration Sync* – How often the device checks if the portal has requested a configuration change.

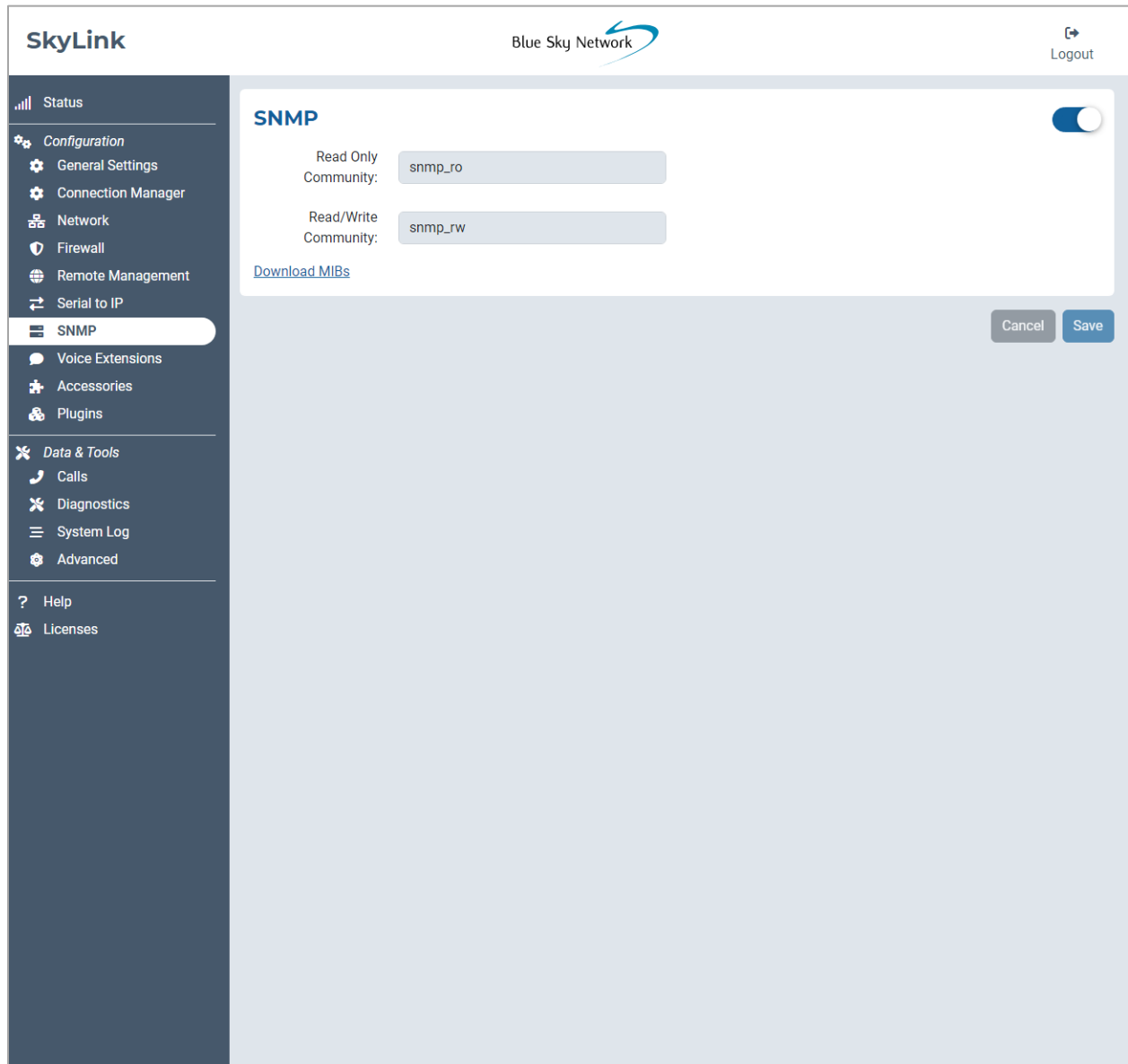
Serial to IP

The SkyLink device supports modem dialing to IP addresses. Enable or disable the serial port on this screen. Click 'Save' to apply the changes.

The screenshot displays the 'Serial Port' configuration interface. On the left is a dark sidebar with a navigation menu. The main area has a white header with the 'Serial Port' title. Below the title, there is a toggle switch for 'Enabled' (currently turned on), a 'Baud Rate' dropdown menu (set to 115,200), and a 'Flow Control' dropdown menu (set to None). A yellow callout box with a green border points to the Baud Rate dropdown, containing the text: 'Use this menu to choose from the following options:' followed by a list of baud rate values: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 11520, and 230400. At the bottom right of the configuration area are 'Cancel' and 'Save' buttons.

SNMP

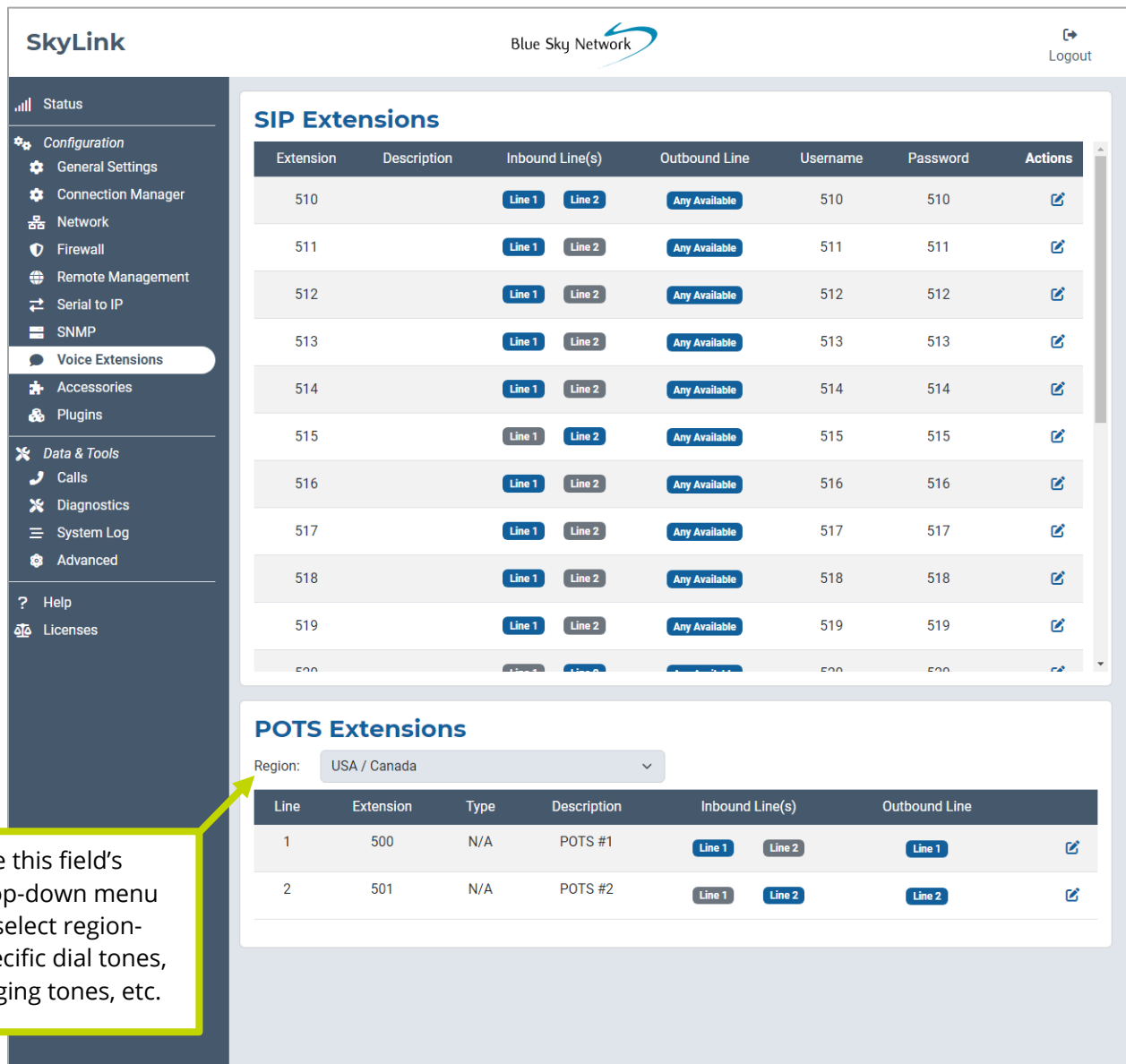
On the Simple Network Management Protocol (SNMP) screen, click the toggle slider to view the community strings; these fields are disabled by default for security purposes. Note that these fields are currently unable to be edited.



Voice Extensions

Find mobile and landline phone information and configuration settings here. The username and password are the respective extension number; these can be changed on this screen.

The Inbound Line(s) column shows the order in which line numbers ring when a call comes in. By default, the first extension (shown below as 510) allows calls to both Line 1 and Line 2, the next 10 extensions allow calls to Line 1 only, and the following 10 to Line 2 only. The Outbound Line column is set to Any Available by default.



SIP Extensions

Extension	Description	Inbound Line(s)	Outbound Line	Username	Password	Actions
510		Line 1 Line 2	Any Available	510	510	Edit
511		Line 1 Line 2	Any Available	511	511	Edit
512		Line 1 Line 2	Any Available	512	512	Edit
513		Line 1 Line 2	Any Available	513	513	Edit
514		Line 1 Line 2	Any Available	514	514	Edit
515		Line 1 Line 2	Any Available	515	515	Edit
516		Line 1 Line 2	Any Available	516	516	Edit
517		Line 1 Line 2	Any Available	517	517	Edit
518		Line 1 Line 2	Any Available	518	518	Edit
519		Line 1 Line 2	Any Available	519	519	Edit
520		Line 1 Line 2	Any Available	520	520	Edit


POTS Extensions

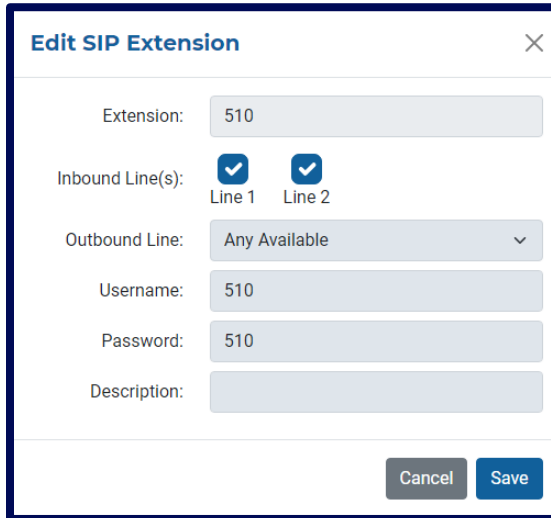
Region: USA / Canada

Line	Extension	Type	Description	Inbound Line(s)	Outbound Line	Actions
1	500	N/A	POTS #1	Line 1 Line 2	Line 1	Edit
2	501	N/A	POTS #2	Line 1 Line 2	Line 2	Edit

Use this field's drop-down menu to select region-specific dial tones, ringing tones, etc.

EDITING A SIP OR POTS EXTENSION

Click the  icon next to the SIP or POTS extension that you would like to edit. In the pop-up window, complete the fields and add a description if desired, then press 'Save.'



Edit SIP Extension

Extension: 510

Inbound Line(s): Line 1 Line 2

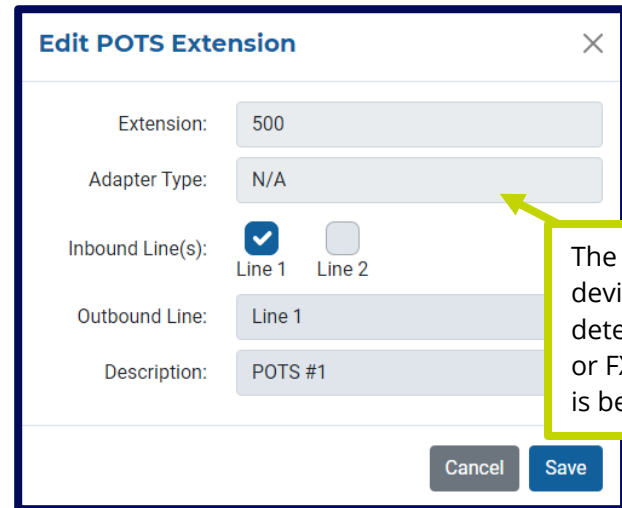
Outbound Line: Any Available

Username: 510

Password: 510

Description:

Cancel Save



Edit POTS Extension

Extension: 500

Adapter Type: N/A

Inbound Line(s): Line 1 Line 2

Outbound Line: Line 1

Description: POTS #1

Cancel Save

The SkyLink device will detect if an FXS or FXO adapter is being used.

Under the Inbound Line(s) field, tick each box to allow calls to both Line 1 and Line 2. Deselect both lines to block calls from ringing to an extension. **NOTE:** If you are not receiving calls to your extension, ensure one or both lines are selected here.

Use the drop-down menu in the Outbound Line field to choose whether Line 1, Line 2, or Any Available line can be used when making a phone call from this extension. A scenario for only selecting one line would be a ship captain who has Line 1 reserved, and the crew uses Line 2.

NOTE: Selecting only Line 1 or Line 2 in the Inbound Line(s) field along with the Any Available option in the Outbound Line field may cause issues when returning calls. For example, if only Inbound Line 1 is selected and you dial on Any Available Outbound Line, you may dial out on Line 2; this would leave someone unable to return your call.

Accessories

This screen allows you to optimize settings for your SkyLink Battery Pack and SOS button. Please note that these are optional accessories; changes made on this screen will only be implemented if the corresponding accessory is attached to the SkyLink device.

Under the Battery Pack section, use the toggle slider to enable an automatic shutdown timer. The buttons to the right allow you to determine precisely when the battery will turn off.

When enabled, the slider in the Emergency Switch/Button section sends an SOS event with GPS location to SkyRouter. Click the drop-down menu to configure how often these reports get sent.

SkyLink Blue Sky Network Logout

Accessories

Some optional accessories for SkyLink have configuration settings. This is where you can manage those settings. Remember, these accessories are optional, so unless you have one attached any changes to these settings won't have any effect.

Battery Pack

Shutdown Timer Enabled:

Days 0 Hours 2 Minutes 0 Seconds 0

Emergency Switch/Button

Emergency Reporting Enabled:

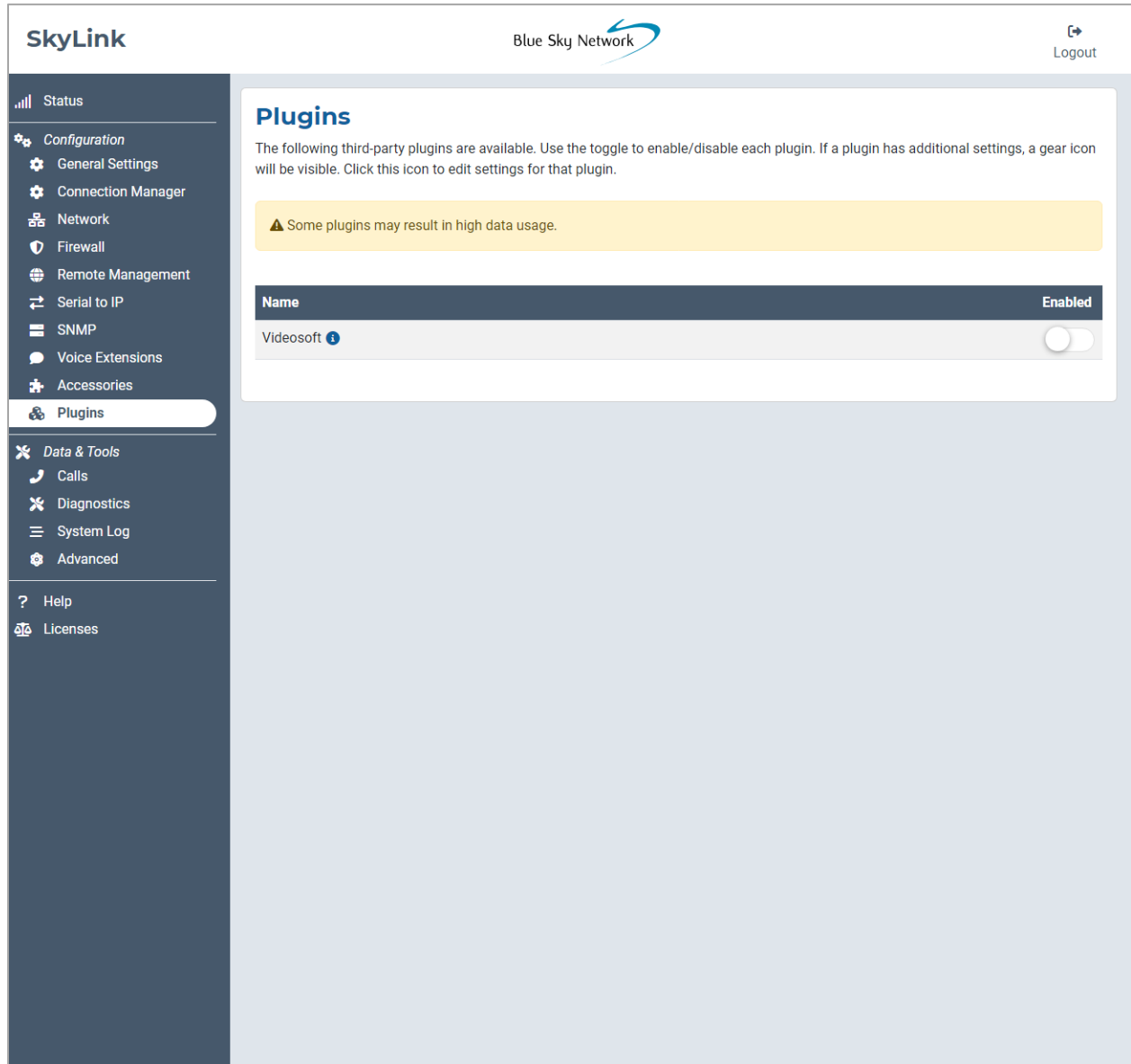
Emergency Report Interval: 1 minute

Cancel Save

Choose from 15 seconds up to 10 minutes or select the custom option to set a desired time. The timer is set to 30 seconds by default.

Plugins

Enable or disable all third-party plugins on this screen. A gear icon will be present next to the plugin if additional settings need to be configured.



Calls

A list of incoming and outgoing calls by extension number (shown below as Source) can be found here. It also includes the day and time that the call was placed, its total vs. expected billable duration, and whether or not it was answered. **NOTE:** Internal calls will not generate an Iridium bill.

Each call is assigned a unique ID number that can be provided to the Blue Sky Network support team for troubleshooting purposes in the event that there is a call issue.

The screenshot shows the SkyLink web interface. At the top left is the 'SkyLink' logo. At the top right is the 'Blue Sky Network' logo and a 'Logout' button. A sidebar on the left contains navigation menus: 'Status', 'Configuration' (with sub-items: General Settings, Connection Manager, Network, Firewall, Remote Management, Serial to IP, SNMP, Voice Extensions, Accessories, Plugins), 'Data & Tools' (with sub-items: Calls, Diagnostics, System Log, Advanced), 'Help', and 'Licenses'. The 'Calls' menu item is highlighted. The main content area is titled 'Call Log' and contains a table with the following data:

Date	Source	Destination	Line	Total Duration	Billable Duration	Disposition	Call ID
4/13/23 2:14 PM	510	777		00:00:04	00:00:04	ANSWERED	1681420454.4
4/13/23 2:13 PM	510	777		00:00:06	00:00:06	ANSWERED	1681420434.0

Diagnostics

Here you will find information to help you diagnose and resolve satellite and cellular issues.

SYSTEM INFORMATION

This first section provides diagnostics that you may be asked for in the event that you report a technical issue to the Blue Sky Network support team. Data points may be shown for POE only, EXT (external 12V power) only, or both.

Data points about the supercapacitor (shown below as Super Cap.) can be found here. A check mark under Power Good means good power is detected to charge the Super Cap. A red 'x' under Fault indicates a power fault in the unit.

The screenshot shows the SkyLink web interface. At the top, there is a navigation bar with the SkyLink logo, 'Blue Sky Network' branding, and a 'Logout' button. A left-hand navigation menu includes 'Status', 'Configuration' (with sub-items: General Settings, Connection Manager), 'Network', 'Firewall', 'Remote Management', 'Serial to IP', and 'SNMP'. The main content area is titled 'System Information' and contains the following data:

Serial Number	Model	Hardware	Firmware	Capabilities	System Time
0000-0016	SkyLink 5100	SYN267 REV F	2.25-230116-2253	land,voice	2023/4/13 21:17:01 UTC

Current Reading	Voltages							Super Cap.	
	3.3V	4.1V	5V	12V	EXT.	POE	POE+	Power Good	Fault
3.36	4.053	4.972	12.155	20.443	0.022			✓	

SATELLITE & CELLULAR INFORMATION

Satellite Information

Modem

Serial Number	Firmware Version	API Version	Enabled	Data Enabled	IMEI
y000dp	1.3.1	1.2.0	✓	✓	300058060001420

SIM

Present	Connected	ICCID
✓	✓	8988169771000295445

Provisioning

Valid	Fully Compatible	Messaging	Data	Voice
✓	✓	✓	✓	✗

Cellular Information

Modem

Enabled	Manufacturer	Model	IMEI
✓	Quectel	EM06-A	861364040178400

SIM

Present	SIM ICCID	APN	IMSI	MCC	MNC	SPN
✓	89883030000052347330	em	295050900810292	295	05	EMnify

Signal

Connected	Network	Network Name	Strength	Quality	Technology
✓	310, 410	AT&T	-106 dBm	-16 dB	lte

Use the check marks in these sections to verify that your satellite and cellular capabilities are enabled. Data related to the satellite and cellular modems, SIM cards, satellite provisioning, and cellular signal are available here as well.

NETWORK TROUBLESHOOTING

Here you can use the Operation drop-down menu to perform pings and trace routing. Press the 'Execute' button to apply the configurations. Results will be displayed in the section below.

Network Troubleshooting

Operation
Ping

Network Interface
Cellular

Number of Pings
5

Network Address

Execute

Results:

System Log

The information displayed on the System Log screen can be used by the Blue Sky Network support team for diagnostic purposes. Use the toggle slider to enable or disable automatic updates.

The screenshot shows the SkyLink web interface. At the top, there is a 'SkyLink' logo on the left and 'Blue Sky Network' with a logo in the center. On the right, there is a 'Logout' button. Below the header is a navigation sidebar on the left with the following items: Status, Configuration (General Settings, Connection Manager, Network, Firewall, Remote Management, Serial to IP, SNMP, Voice Extensions, Accessories, Plugins), Data & Tools (Calls, Diagnostics), System Log (highlighted), Advanced, Help, and Licenses. The main content area is titled 'System Log' and has an 'Auto-Update' toggle switch which is currently turned on. The log entries are as follows:

```
4184]: 705 127.0.0.1/40411 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:23 tpb daemon.info dnsmasq[4184]: 705 127.0.0.1/40411 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:23 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:23 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:23 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:24 tpb daemon.info dnsmasq[4184]: 706 127.0.0.1/32793 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:24 tpb daemon.info dnsmasq[4184]: 706 127.0.0.1/32793 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:24 tpb daemon.info dnsmasq[4184]: 707 127.0.0.1/32793 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:24 tpb daemon.info dnsmasq[4184]: 707 127.0.0.1/32793 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:24 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:24 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:24 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:25 tpb daemon.info dnsmasq[4184]: 708 127.0.0.1/56040 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:25 tpb daemon.info dnsmasq[4184]: 708 127.0.0.1/56040 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:25 tpb daemon.info dnsmasq[4184]: 709 127.0.0.1/56040 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:25 tpb daemon.info dnsmasq[4184]: 709 127.0.0.1/56040 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:25 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:25 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:25 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:26 tpb daemon.info dnsmasq[4184]: 710 127.0.0.1/46687 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:26 tpb daemon.info dnsmasq[4184]: 710 127.0.0.1/46687 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:26 tpb daemon.info dnsmasq[4184]: 711 127.0.0.1/46687 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:26 tpb daemon.info dnsmasq[4184]: 711 127.0.0.1/46687 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:26 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:26 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:26 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:27 tpb user.info [7998]: CAM1: Connected to ONVIF Bridge
Apr 17 20:37:27 tpb user.err [7998]: CAM1: Unable to connect to ONVIF camera at 192.168.1.101 80
Apr 17 20:37:27 tpb daemon.info dnsmasq[4184]: 712 127.0.0.1/33697 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:27 tpb daemon.info dnsmasq[4184]: 712 127.0.0.1/33697 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:27 tpb daemon.info dnsmasq[4184]: 713 127.0.0.1/33697 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:27 tpb daemon.info dnsmasq[4184]: 713 127.0.0.1/33697 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:27 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:27 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:27 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:28 tpb daemon.info dnsmasq[4184]: 714 127.0.0.1/47199 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:28 tpb daemon.info dnsmasq[4184]: 714 127.0.0.1/47199 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:28 tpb daemon.info dnsmasq[4184]: 715 127.0.0.1/47199 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:28 tpb daemon.info dnsmasq[4184]: 715 127.0.0.1/47199 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:28 tpb user.info [7998]: CCS: Local bind address accepted
Apr 17 20:37:28 tpb user.info [7998]: CCS: Connect to CCS (4) (3.9.103.202:7978)
Apr 17 20:37:28 tpb user.err [7998]: CCS: Error connecting to server (Network unreachable)
Apr 17 20:37:29 tpb daemon.info dnsmasq[4184]: 716 127.0.0.1/60452 query[A] go.videosoft.live from 127.0.0.1
Apr 17 20:37:29 tpb daemon.info dnsmasq[4184]: 716 127.0.0.1/60452 cached go.videosoft.live is 3.9.103.202
Apr 17 20:37:29 tpb daemon.info dnsmasq[4184]: 717 127.0.0.1/60452 query[AAAA] go.videosoft.live from 127.0.0.1
Apr 17 20:37:29 tpb daemon.info dnsmasq[4184]: 717 127.0.0.1/60452 config go.videosoft.live is NODATA-IPv6
Apr 17 20:37:29 tpb user.info [7998]: CCS: Local bind address accepted
```


Advanced

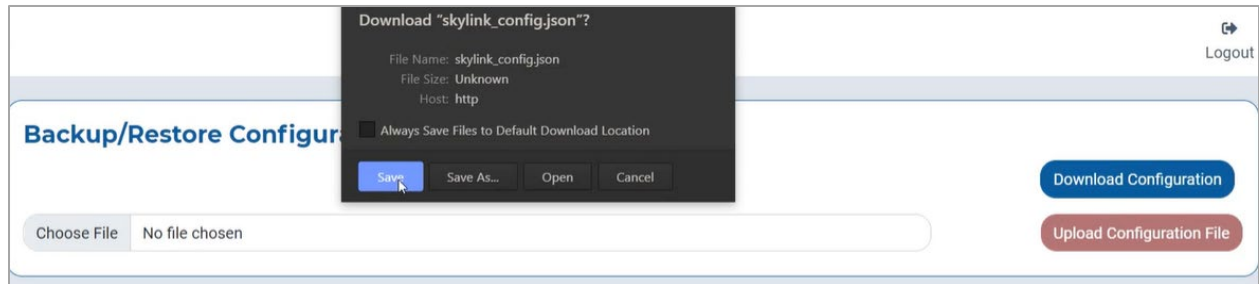
Use this screen to backup or restore a system configuration, or when the system is ready to be updated. SkyLink firmware includes the 9770 Certus modem firmware; appropriate versions will be upgraded or downgraded as needed. **NOTE:** Blue Sky Network will not downgrade the Certus 9770 modem firmware unless specifically required by Iridium.

NOTE: The [Status](#) screen displays the SkyLink's current firmware version and the [Diagnostics](#) screen shows the current 9770 Certus modem firmware version.

The screenshot displays the SkyLink web interface. The left sidebar contains navigation options: Status, Configuration (General Settings, Connection Manager, Network, Firewall, Remote Management, Serial to IP, SNMP, Voice Extensions, Accessories, Plugins), Data & Tools (Calls, Diagnostics, System Log), Advanced (selected), Help, and Licenses. The main content area is titled 'Advanced' and includes three sections: 'Backup/Restore Configuration' with 'Download Configuration' and 'Upload Configuration File' buttons; 'System Update' with a 'Check for Updates' button; and 'Manual Upload' with a 'Choose File' button and 'Upload Firmware' button. A 'Factory Reset' button is located below the Manual Upload section. A yellow callout box points to this button with the text: 'Click here if you would like to reset all settings to factory defaults. Type "reset" in the pop-up box. Your device will then reboot.' A 'Factory Reset?' dialog box is overlaid on the right, featuring a warning: 'Warning! All changes will be lost!' and instructions: 'Factory Reset will reset all parameters back to factory defaults. Enter the word reset below to continue.' The dialog includes a text input field and 'Cancel' and 'Reset' buttons.

BACKUP/RESTORE CONFIGURATION

To back up a configuration, press 'Download Configuration' and wait for the device to reboot. To restore, click 'Choose File,' then select the appropriate .tpz file from your computer/personal device. Click 'Save,' then 'Upload Configuration File.' Your SkyLink device will reboot.

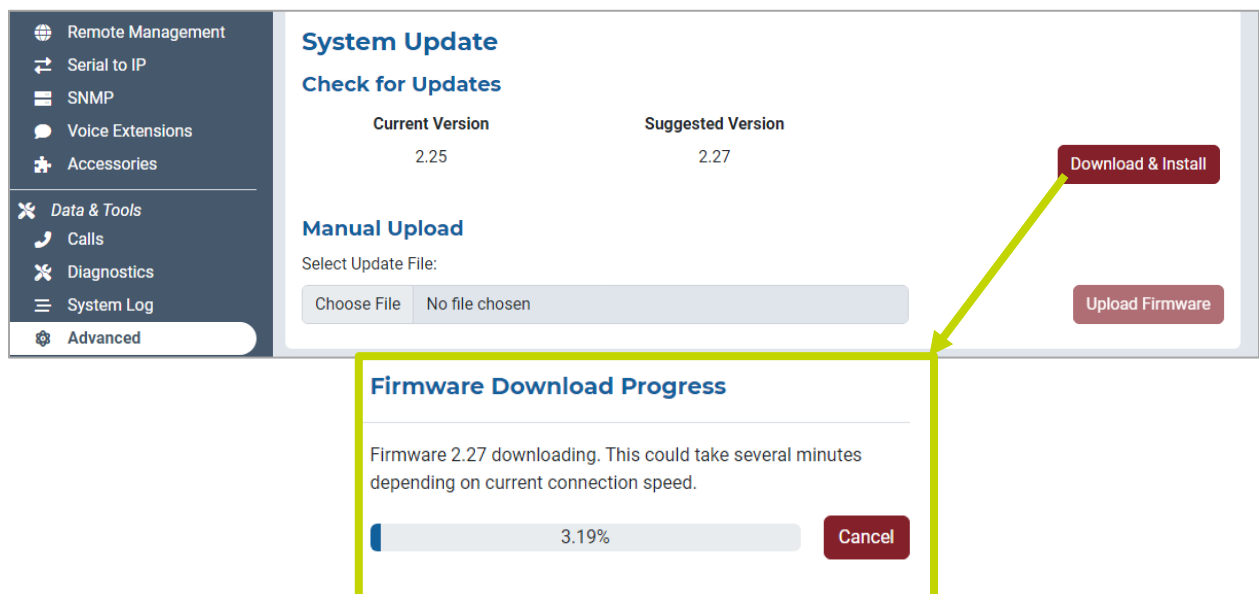


SYSTEM UPDATE

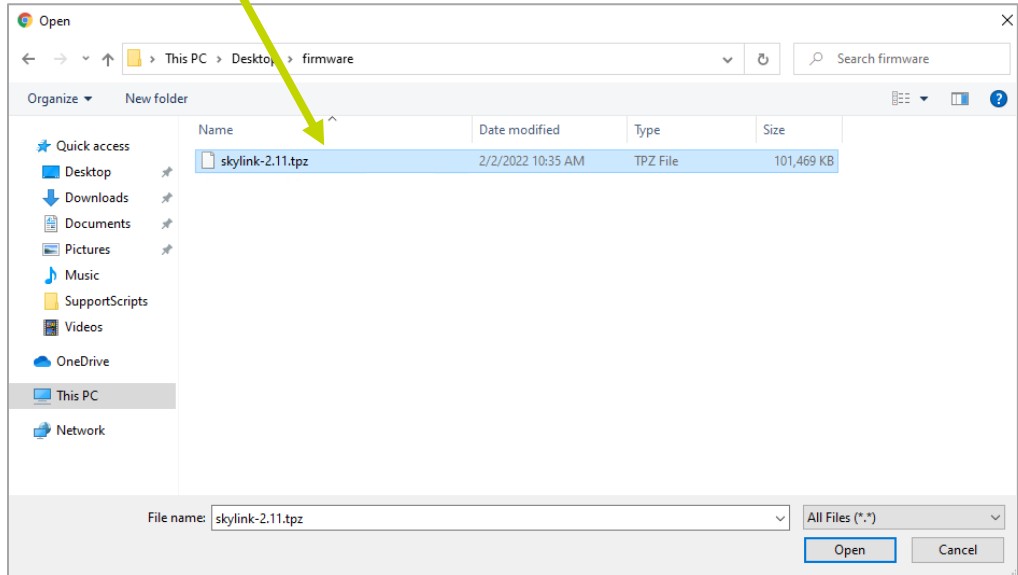
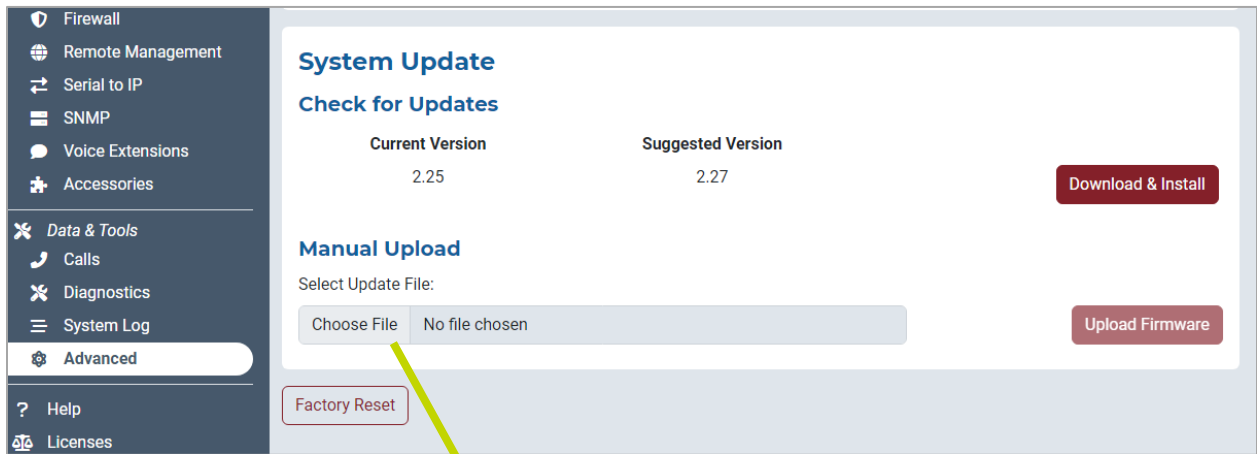
NOTE: We recommend updating firmware using an ethernet cable.

NOTE: If updating a fleet of devices, save time by using the SkyLink Cloud Services portal.

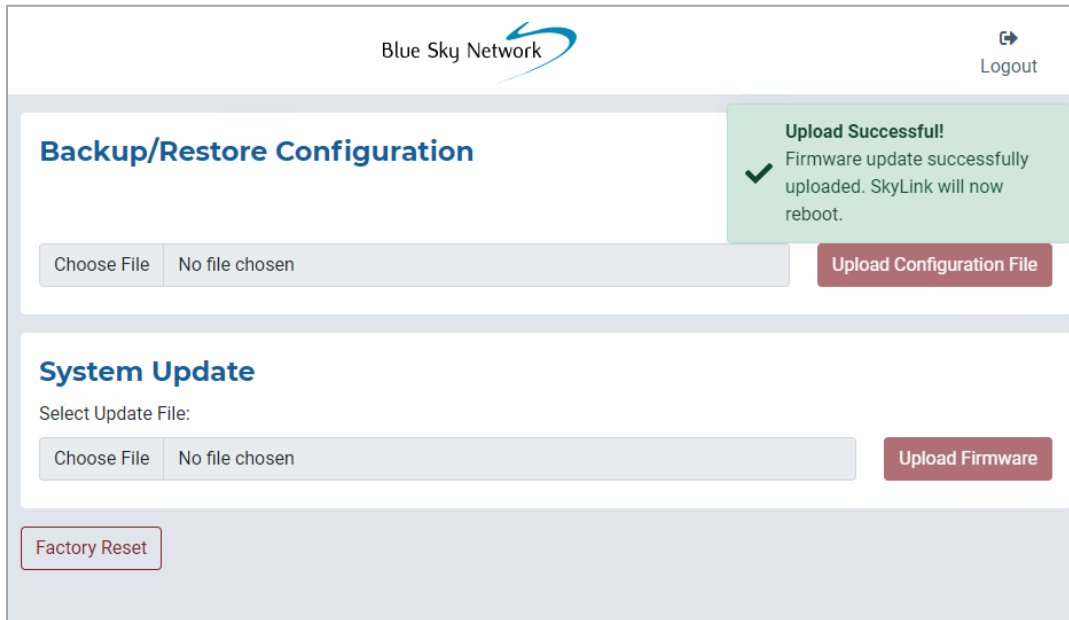
When the system is ready to be updated, you'll see the new version listed under the Check for Updates section. There are two ways to perform an update. First, you can simply click 'Download & Install.' A download progress bar will show you the percentage to completion.



Alternatively, click the 'Choose File' button under the Manual Upload section. Locate and select the appropriate .tpz file, then press 'Upload Firmware' to start the firmware upgrade process.

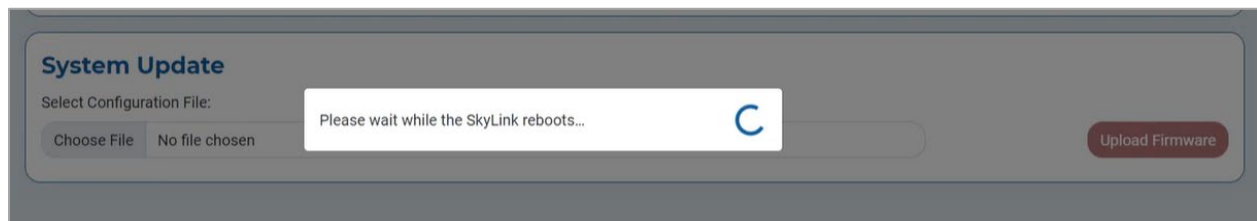


Once the firmware upload is complete, a green success message will appear in the right corner.



You will then be prompted to wait while the SkyLink device reboots. This may take several minutes.

As it updates, the power LED indicator located on the top panel of the device will blink blue. A red blink indicates an Iridium firmware upgrade or downgrade. *****The SkyLink device should not be powered off while the power LED indicator is blinking blue or red.*****



Once the web browser refreshes and the power LED indicator shows a steady blue light, the update has finished, and your device is ready to use.

Help

This screen contains multiple resources, including the SkyLink User Guide and contact information for the Blue Sky Network support team, to help you troubleshoot hardware and firmware issues. A full list of FAQs can also be found at the end of this user guide.

SkyLink Blue Sky Network Logout

Help

About SkyLink

Introduction to SkyLink

SkyLink by Blue Sky Network is the inaugural Iridium Certus 100 mid-band solution for land mobile, aviation, IoT, and maritime markets. This small-form, multi-stack hardware is designed for any fixed-mount, portable, or mobile application and offers a range of service configurations.

Key features include:

- Remote device management
- Health monitoring
- Sensor/engine diagnostics
- Network services (VPN, IP, MQTT)
- IP65 Certified
- Data analytics/edge computing
- SkyRouter integration
- FCC Part 15 & 25 Certified

Installation

It is important that the Iridium-approved antennas be mounted with an unobstructed, full view of the sky and away from other radiating antennas that may cause interference. Please see the [SkyLink Installation Guide](#) for suggested device/antenna mounting locations and detailed steps on equipment installation.

Troubleshooting

The power LED indicator on the top panel of the unit cycles through multiple colors as it loads:

- Green = Initial Power On
- Red = Unit in Bootloader Mode
- Blue Blink = OS is Booting
- Blue Steady = Device is Ready
- Red Blink = Iridium Firmware Upgrade
- Blue Blink = SkyLink Firmware Upgrade

If the power LED indicator becomes stuck on red, remove the power cable from the power port and wait approximately 60 seconds, until the light fades from green to dark. Once the unit has completely shut down, reapply power. If the device continues to display red, please contact us for technical support.

Cable Diagrams

Please see the [SkyLink Installation Guide](#) for a comprehensive list of cable diagrams.

Frequently Asked Questions

We have compiled answers to FAQs listed under their respective categories. If you are still unable to resolve your issue, please contact the [Blue Sky Network support team](#) and we will be happy to help!

Resources

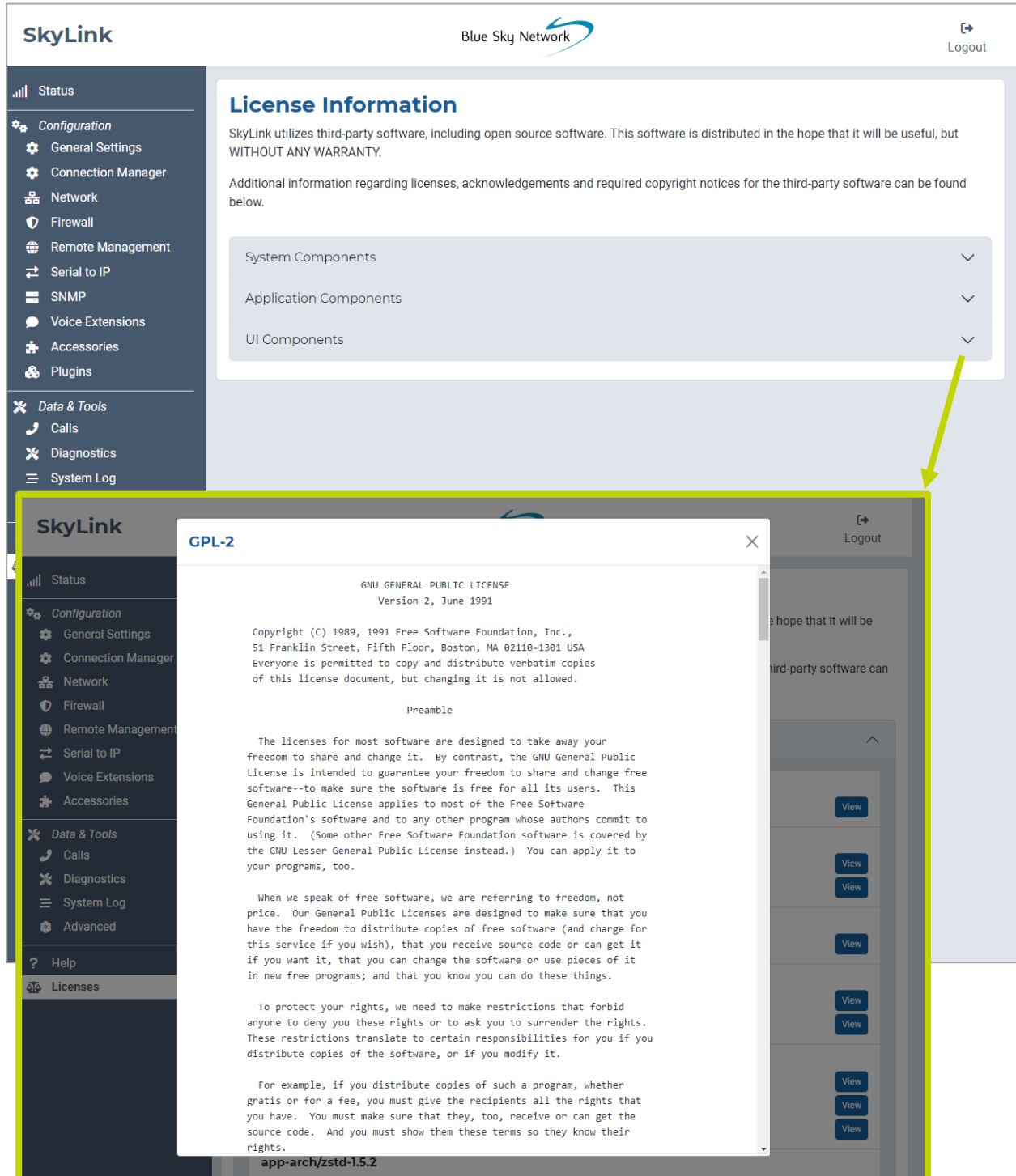
- User Guide
- Install Guide
- SNMP MIBs

Contact Support

- +1 858-551-3894
- support@blueskynetwork.com
- Help Center

Licenses

Information regarding third-party software licenses, acknowledgements, and copyright notices can be found on this screen. Use the drop-down arrows to see more details.



SKYLINK CAPABILITIES

Now that you are familiar with the SkyLink Device Interface, you are ready to use your device! The following describes the most common device capabilities.

Making Phone Calls

The SkyLink device supports 2 phone lines and a network connection that accepts SIP, providing users with multiple voice options. Each option offers 2 Iridium inbound and outbound lines. POTS customers also have FXS and FXO options to choose from.

Before making a phone call, ensure the following is completed:

- You have properly installed your activated Iridium SIM card.
- You have connected one of the following Iridium-approved antennas to the SkyLink device:
 - MARUWA (MHL-1621C)
 - High-Profile Maxtena (M1621HCT-HP)
 - Sensor Systems (S67-1575-414)
 - SCAN (65020-000)

NOTE: Please see the SkyLink Installation Guide for detailed information on installing the SIM card and antennas.

- You have enabled satellite capability by navigating to the Connection Manager screen on the SkyLink Device Interface and pressing the left-hand toggle slider.

You are now able to make inbound/outbound calls via your landline phone or personal device, including third-party apps on computers, smart phones, or tablets. Use the Voice Extensions screen on the SkyLink Device Interface to configure line extensions and the Calls screen to view call details.

OPTIMIZING SIP PHONE APPS

Below are a few setup pointers for SIP phone apps (e.g., GS Wave, Linphone).

iPhone/Android settings:

- Airplane mode
- Smartphone Settings > Wave Lite App > Enable 'Local Network' access
- Smartphone Settings > Wave Lite App > Disable 'Cellular Data'

GS Wave settings:

- 'WiFi only' mode enabled
- Account Name: 510 (510-516 available default)
- SIP Server: 192.168.111.1 (unless SkyLink Device Interface IP has been changed)
- SIP User ID: 510
- Authentication ID: 510
- Password: 510


Additional settings for other SIP phone apps (Linphone, etc.):

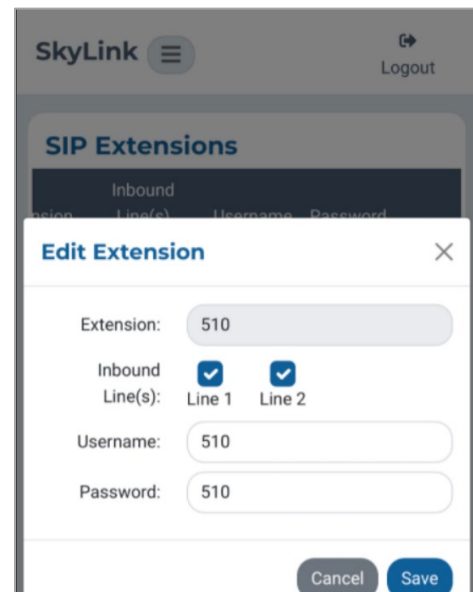
- Codecs (if setting is available): Enable – A-LAW, 722. Disable – U-LAW

NOTE: If using a physical SIP phone (not a SIP phone app), please see your SIP phone manufacturer's documentation for information on configuring the phone with your SkyLink device.

If you are not receiving incoming call notifications on SIP extensions, it may be that the SIP extension you are using is not configured to receive incoming calls from the Iridium line you are calling.

To configure both lines:

- 1) Navigate to the [Voice Extensions](#) screen.
- 2) Click the  icon next to the SIP or POTS extension that you would like to edit.
- 3) Ensure that both boxes in the Inbound Line(s) field are ticked, then click 'Save.'



Connecting to the Internet

To connect to the internet, first ensure that:

- You have properly installed your activated Iridium and cellular SIM cards.
- You have connected the LTE antenna or an Iridium-approved antenna to the SkyLink device (full list included in above section on Making Phone Calls).
- You are connected to the SkyLink device WiFi or are using an ethernet cable.
- Satellite or cellular capabilities have been enabled via the toggle sliders on the Connection Manager screen of the SkyLink Device Interface.

You are now able to use your personal device to browse the internet and use mobile applications.

NOTE: Satellite internet connection supports messaging apps, mobile-optimized web surfing, and IoT data transfers. It is not intended for general web browsing or high bandwidth applications and may cause slow connection speed if used for these purposes. Please visit [Iridium.com/mobile](https://www.iridium.com/mobile) for a list of mobile-optimized sites.

Using the Serial Port

The SkyLink device supports AT Command Set emulation via the serial port, enabling legacy sensor connection to the cloud. Default port settings are 230400 8N1 (Baud: 230400; Data bits: 8; Parity: none; Stop bits: 1).

- You can dial an IP address by using one of the following formats:

Format:	Will Dial:
ATD1.2.3.4:777	IP 1.2.3.4 tcp port 777
ATD010000000005068	IP 10.0.0.5 tcp port 68
ATD192168111003#777	IP 192.168.111.3 tcp port 777

- SSL/TLS are also supported (using ! operator), as shown below:

Format:	Will Dial:
ATD!1921681110003#777	IP 192.168.111.3 TLS port 777

NOTE: Separator for 'port' can be ':' or '#'

- Other AT commands implemented include:
 A, D, E, H, I, L, M, N, O, P, Q, T, V, X, Z, &C, &D, and &F
 And S registers.
 Default s registers are:
 S0 = 0 S7 = 60
 S1 = 0 S12 = 50
 S2 = 43 S25 = 5
 S3 = 13 S30 = 0
 S4 = 10 S38 = 0
 S5 = 8
- To run a custom test command: +MARCO - returns "POLO"

INCOMING CONNECTIONS

A TCP listener runs on port 4001. To receive a connection, one device should issue an "ATD..." to establish an outgoing TCP connection and the remote device will need to set up a "port forward" from an external port to the internal 4001.

Upon receiving the external TCP connection, the default will be to auto answer, and the devices will be connected as long as there are no other active connections.

On incoming, please note the following:

- With auto answer on, "CONNECT" is displayed just before the connection is made.
- If auto answer is off, "RING" is displayed to alert the serial port of the incoming connection.
- Incoming rings can be answered via ATA.
- If another connection is in progress, the second incoming connection will be rejected.
- If multiple attempts to connect happen simultaneously and auto answer is off, the last connection seen will be answered by ATA.

On disconnect of the remote connection, "NO CARRIER" is displayed to alert the local serial port that the link is lost.

NOTE: If you are interested in SkyLink to SkyLink on-net communication, please contact your Blue Sky Network account manager to learn more about the Virtual Closed User Group (vCUG) feature.

Basic command functionality is available to query signal strength, connection strength, and model number. An unsupported command will return ERROR but can be implemented upon request.

SkyLink AT Command	Expected Response
D	Dial a number
+++	End your session
BREAK	Issue a new command
H	End a current call
#FACTORYRESET	Perform a factory reset of entire device configuration and reboot device
i0	Model
i1	"0000"
i2	"PASSED"
i3	"iridium"
i4	Make
i5	Software_version
i6	Hw_revision
"+CGMI"	"Iridium"
"+CGMM"	Make
"+CGMR"	"Software_version hardware_revision"
"+GMI"	"Iridium"
"+GMM"	Make
"+GMR"	"Software_version hardware_revision"
+GSN	Serial number
+CGSN	Serial number
+CGSN=n	See GSM docs, gives variously IMEI, software version, etc.
+CGDCONT	Ignored
+CSQ	Signal
+CSQF	Roughly same as signal
+IRIRESET	Powers down the Iridium 9770 modem and then back up to its previous state (e.g., if data was enabled, it will restart the data session).

+IRIDATARESET	Stops and starts the data session on the Iridium 9770 modem. Compared to the above command, the process to re-acquire the data session should be faster as the modem does not need to boot, connect to the SIM, and register on the Iridium network. It will, however, flush all network buffers and restart the Iridium data connection.
+CELLRESET	Powers down the cellular modem and then back up. It will return to its previous state once restarted. Note that the cellular modem takes approximately 30 sec. to boot and may need additional time to register on the network. This will also restart the SIM and pick up changes if it has been swapped.

RETRIEVING GPS LOCATION

SkyLink has two onboard GPS modules—one provided by the device’s processor and the other provided by the LTE modem. Since both modules are internal, it is important to position SkyLink where it can receive GPS signals. **NOTE:** Disabling the LTE modem will also switch off its GPS module.

The SkyLink device also supports an external USB mag-mount GPS receiver/antenna, which can be purchased separately from Blue Sky Network.

Use the below industry standard AT command to retrieve your GPS location:

SkyLink AT Command	Expected Response
AT+TGPSLOC	GPS position in the following format: <UTC>,<latitude>,<longitude>,<HDOP>,<altitude>,<fix>,<COG>,<spkm>,<spkn> ,<date>,<num_satellites>

An error returns:

+CME ERROR: <errcode>

NOTE: Running “GPRMC” or “GPGLA” will return raw GPS output strings.

Explanation of Parameters

- **<UTC>** - Time displayed in UTC
Format: hhmmss.sss
- **<latitude>** - Latitude
Format: ddmm.mmmm N/S
dd: 00-89 (degree)
mm.mmmm: 00.0000-59.9999 (minute)
N/S: North latitude/South latitude
- **<longitude>** - Longitude
Format: dddmm.mmmm E/W
ddd: 000-179 (degree)
mm.mmmm: 00.0000-59.9999 (minute)
E/W: East longitude/West longitude

- **<HDOP>** - Horizontal precision: 0.5-99.9
- **<altitude>** - The antenna's altitude away from the sea level (unit: m), accurate to one decimal place
- **<fix>** - GNSS positioning mode
 - 2 = 2D positioning
 - 3 = 3D positioning
- **<COG>** - Course Over Ground based on true north
Format: ddd.dd
- **<spkm>** - Speed over ground in km
Format: xxxx.x. Unit: km/h. Accurate to one decimal place
- **<spkn>** - Speed over ground in knots
Format: xxxx.x. Unit: knots. Accurate to one decimal place
- **<date>** - UTC date when fixing position
Format: ddmmyy
- **<num_satellites>** - Number of satellites, from 00 to 12
- **<mode>** - Integer type. Latitude and longitude display format
 - 0 <latitude>,<longitude> **Format:** ddm.mmmm N/S,dddmm.mmmm E/W
 - 1 <latitude>,<longitude> **Format:** ddm.mmmmmm N/S,dddmm.mmmmmm E/W
 - 2 <latitude>,<longitude> **Format:** (-)dd.dddd,(-)ddd.dddd

ACCESSING GPSD SERVICE

The SkyLink device provides gpsd service by default. GPSD is a service daemon that collects data from one or more GPS receivers and provides the data via an IP network to one or multiple client applications in a server-client configuration.

The SkyLink gpsd service can be reached either via serial port, which requires a serial cable, or via SkyLink's default IP address: 192.168.111.1 port 2947 (unless changed).

You can telnet to the gpsd service on port 2947 to verify access. You should see a banner similar to the following example:

```
{"class": "VERSION", "release": "3.25", "rev": "3.25", "proto_major": 3, "proto_minor": 15}
```

One way to use the service is with the ?POLL command:

```
?WATCH={"enable": true}
```

You can then say "?POLL;" to print a repeated sample of gpsd's recorded data:

```
?POLL;
```

For further usage, please see any gpsd manual online.

NOTE: The gpsd service may be subject to change at a later date.

Accessing the Network Time Protocol (NTP) Server

SkyLink's built-in Network Time Protocol (NTP) server synchronizes time to your local applications across the system without needing to access an online NTP server periodically, which would normally result in data charges.

SkyLink's NTP server time is constantly synchronized with 2 onboard GPS modules and an (optional) external USB GPS module.

The NTP server can be reached at SkyLink's default IP address: 192.168.111.1 (unless changed). The NTP server can be reached locally regardless of your configured Firewall rules.

To verify access to the NTP service from a Windows computer:

- 1) Open Command Prompt
- 2) Type 'w32tm /stripchart /computer:192.168.111.1'

You should see a print of the current time returned from the NTP server. Below is an example:

```
The current time is 9/29/2023 9:30:49 AM.
```

```
09:30:49, d:+00.0013782s o:+77.4973572s
```

You can use the following command on a Mac: 'sntp 192.168.111.1'

SKYLINK SPECIFICATIONS & INSTALLATION

Technical Specifications

CONNECTIVITY

Cellular

- LTE-A CAT 12 module with M.2 form factor
- Supports LTE-A carrier aggregation
- Worldwide LTE-A and 3G UMTS / HSPA(+) coverage
- 300 Mbps receive (DL) / 50 Mbps transmit (UL)
- User-accessible SIM

Iridium Certus® 100

- Simultaneous voice and IP data
- 88 Kbps receive (DL) / 22 Kbps transmit (UL)
- Frequency: 1616 MHz – 1626.5 MHz
- 2 high-quality voice channels
- User-accessible SIM

Positioning

- Multi-constellation GNSS receiver in cellular module:
 - GPS
 - GLONASS
 - BeiDou
 - Galileo
- 33 tracking channels
- 99 acquisition channels
- 210 PRN channels
- Anti-jamming and multi-tone active interference canceller
- < 2.5 m CEP horizontal position accuracy

WiFi

- 2.4 / 5 GHz
- IEEE 802.11 ac / a / b / g / n
- Certifications with multiple antennas:
 - FCC (USA)
 - IC (Canada)
 - ETSI (Europe)
 - Giteki (Japan)
 - RCM (AU/NZ)

MECHANICALS

Size & Weight

- Dimensions: 8.0 x 5.0 x 1.5 in. (12.7 x 20.3 x 3.2 cm)
- Weight: 1.6 lbs. (0.7 kg)

LEDs

- Single multi-purpose, multi-color LED:
 - Green = Initial Power On
 - Red = Unit in Bootloader Mode
 - Blue Blink = OS is Booting
 - Blue Steady = Device is Ready
 - Red Blink = Iridium Firmware Upgrade
 - Blue Blink = SkyLink Firmware Upgrade

Connectors

- 1x cellular SMA female connector
- 1x Iridium SMA female connector
- 2x M12 connectors (1x Ethernet & Power, 1x USB & RS232)

OPERATING PARAMETERS

Electrical

- External power:
 - 10 – 34 VDC
 - POE
- Power consumption:
 - 7W nominal power
 - 18W peak power

Environmental

- Operating temperature range: -40°C to +70°C
- Storage temperature range: -40°C to +85°C
- Operating humidity range: ≤ 75% RH
- Storage humidity range: ≤ 93% RH

Regulatory Standards & Compliance

- US (FCC)
- EU (CE MARK)
- Canada (IC)
- IP65 rating
- Brazil (ANATEL)
- DO-160G

Software Specifications

CONFIGURATION

- Local configuration of SkyLink devices using WiFi or Ethernet
- Remote configuration of SkyLink devices, features, and settings
- Bulk device configuration
- DHCP server, client, or static IP address
- WiFi SSID and password
- POTS and SIP voice extensions

Internet

- Cellular internet
- Satellite internet
- Ability to fail-over
- Ability to disable satellite data but not voice communication

Firewall

- Firewall Profiles for quick and easy firewall setup
- Advanced rules that allow customers to add functionality beyond the set profiles

Voice

- Support for up to 2 FXS / FXO USB adapters
- Support for up to 20 SIP clients
- Call logs

REPORTING

- Position and event reporting
- Device data usage
- Network-wide data usage
- Data usage by transmission type
- Data usage by device type
- Device health monitoring
- Network-wide health monitoring
- Device diagnostics
- Customizable report rate

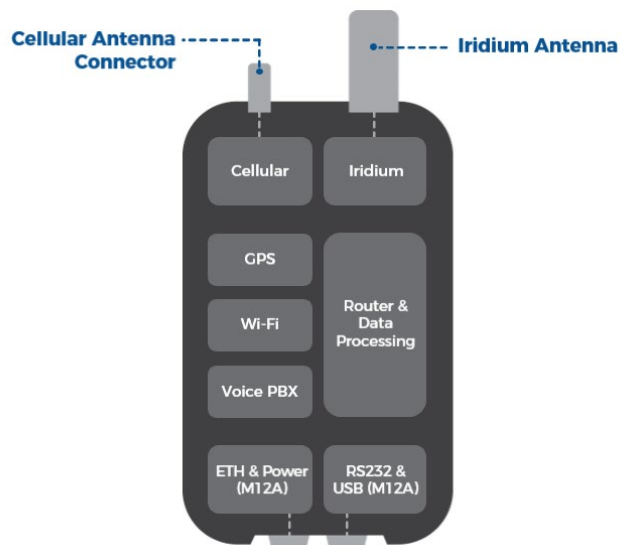
MONITORING

- Device CPU and modem temperatures in real time
- Modem signal strengths in real time
- Modem data usage
- Least-cost routing status
- Voice call logs
- Device location monitoring
- Device health monitoring

DEVICE MANAGEMENT

- View status and customize settings in a web UI
- Firmware upgrade
- Factory reset

Diagram



Installation and Cable Diagrams

It is important that the Iridium-approved antennas be mounted with an unobstructed, full view of the sky and away from other radiating antennas that may cause interference. Please see the SkyLink Installation Guide for suggested device/antenna mounting locations, detailed steps on equipment installation, and a comprehensive list of cable diagrams.

Troubleshooting

The power LED indicator located on the unit's top panel will cycle through multiple colors as it loads:

- Green = Initial Power On
- Red = Unit in Bootloader Mode
- Blue Blink = OS is Booting
- Blue Steady = Device is Ready
- Red Blink = Iridium Firmware Upgrade
- Blue Blink = SkyLink Firmware Upgrade

If the power LED indicator becomes stuck on red, remove the power cable from the power port and wait approximately 60 seconds, until the light fades from green to dark. Once the unit has completely shut down, reapply power. If the device continues to display red, please contact Blue Sky Network for technical support.

PRODUCT WARRANTY

PLEASE READ -- THIS DOCUMENT CONTAINS IMPORTANT NOTICES, WARRANTY INFORMATION, AND LIMITATIONS ON YOUR RIGHTS.

Upon the signed verification of the attached Quotation (see Equipment Purchase & Service Agreement Terms & Conditions) by the Customer (“**Customer**”), the Quotation and these Terms and Conditions shall constitute a binding contract (“**Contract**”) between Customer and Blue Sky Network, LLC, a Delaware limited liability company (“**Blue Sky**”) for the purchase of the products and services described in the Quotation.

Product Terms and Conditions

Blue Sky Network, LLC (“Blue Sky”) warrants that the Products it manufactured shall be free from defects in materials and workmanship. This warranty (i) shall apply to Customer (as named in the Quotation) only and no other and (ii) shall not apply to any Product which is not stored, handled, installed, or used in strict accordance with Blue Sky’s specifications and instruction manuals, or which is altered without Blue Sky’s express consent, or which has been subject to misuse, negligence, or accident.

Blue Sky’s sole obligation shall be to replace or repair defective Products covered by this warranty provided that Customer returns such defective Product within two (2) years of the date of the Quotation. Customer hereby agrees that the replacement or repair of defective Products shall be Customer’s sole remedy in the event of a breach of warranty and shall be in lieu of any other remedy. Except as provided above with respect to Products only, **Blue Sky makes no warranties relating to the Products (see section on Warranty Disclaimer/Limitation of Liability).**

Warranty Disclaimer / Limitation of Liability

EXCEPT AS EXPRESSLY SET FORTH HEREIN WITH RESPECT TO THE BLUE SKY PRODUCTS, NO WARRANTIES APPLY (AND BLUE SKY SPECIFICALLY DISCLAIMS ALL WARRANTIES), WHETHER EXPRESS, IMPLIED OR ARISING BY OPERATION OF LAW (INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). IN NO EVENT, WHETHER DUE TO BREACH OF WARRANTY HEREUNDER OR ANY OTHER CAUSE WHATSOEVER, SHALL BLUE SKY BE LIABLE FOR OR OBLIGATED IN ANY MANNER TO PAY CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, COST OF SUBSTITUTE PRODUCTS AND PERSONAL INJURY OR PROPERTY DAMAGE, WHETHER SUCH CLAIM IS BASED ON CONTRACT OR TORT OR ANY OTHER THEORY OF LAW.

Blue Sky’s only duties in connection with the sale of the Products shall be to honor the limited warranty for the Products as set forth herein. To the extent assignable, any manufacturer warranty for Products other than the Products shall be assigned by Blue Sky and passed through to the Customer. Blue Sky’s sole liability, if any, for loss or damage arising out of mistakes, omissions, interruptions, errors, or any other causes relating to the services, INCLUDING THE NEGLIGENCE OF

BLUE SKY, shall be limited to the credit for service interruption for each separate period of interruption as described in the section on Availability of Service.

EXCEPT FOR THE FOREGOING, CUSTOMER WAIVES ANY RIGHT OF RECOVERY AGAINST BLUE SKY FOR ANY CLAIMS, DEMANDS, ACTIONS, LIABILITIES, LOSSES, COSTS OR EXPENSES (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES OR COSTS) ("**CLAIMS**") BY OR DUE TO THIRD PARTIES AND SUFFERED BY CUSTOMER, DIRECTLY OR INDIRECTLY RELATING TO OR ARISING FROM THE NEGLIGENCE OF BLUE SKY OR THE MANUFACTURE, DISTRIBUTION, SALE, USE OR INSTALLATION OF ANY PRODUCT OR THE PROVISION OF THE SERVICES. CUSTOMER SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS BLUESKY AGAINST ANY AND ALL CLAIMS BY THIRD PARTIES RELATED TO OR ARISING FROM THE SALE OF THE PRODUCTS OR PROVISION OF THE SERVICES DESCRIBED HEREIN. The provisions of this section shall survive termination of services.

SOME STATES DO NOT ALLOW DISCLAIMERS OF IMPLIED WARRANTIES OR LIMITS ON REMEDIES FOR BREACH; THEREFORE, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY. THIS CONTRACT SETS FORTH SPECIFIC LEGAL RIGHTS AND CUSTOMER MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

FREQUENTLY ASKED QUESTIONS

The following questions pertain only to the SkyLink device and Device Interface. Please see the SkyLink Cloud Services User Guide for questions related to the secure online portal.

If you are still unable to resolve your issue, please contact the Blue Sky Network support team and we will be happy to help!

Connectivity

1. Why can I not connect to the SkyLink WiFi?

- Verify that the WiFi SSID (located on the box or back panel of the device) matches the WiFi network shown on your personal device. If they match, try one (or all) of the following:
 - If typing in the WiFi password, use the number zero instead of the letter "O".
 - If you did not previously, use a phone or tablet to scan the QR code found on the label to automatically connect to the WiFi.
 - Switch your mobile device into airplane mode before connecting to the SkyLink WiFi.
 - If you used a mobile device, try using a tablet (or vice versa) to log in.

If you are still unable to connect to the SkyLink device's WiFi, please contact the Blue Sky Network support team for further assistance.

2. What are the cellular modem options? Can they be exchanged?

- Yes, Blue Sky Network can support any Key B M.2 cellular card with advanced notice. Currently, the cellular modem options are:
 - Quectel EM06-A (North America / Mexico)
 - Quectel EM06-B (Europe / Middle East / Africa / Asia Pacific / Brazil)
 - Quectel EM12G (Brazil)

3. Which WiFi frequencies are used for the SkyLink Data Gateway?

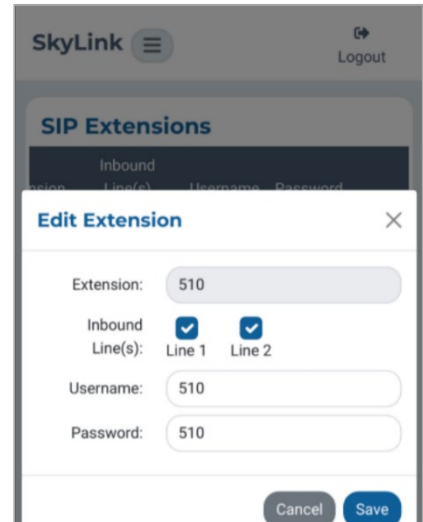
- The WiFi uses 2.4Ghz and 5Ghz; the channels depend on the regulatory domain selected (more information can be found in the user guide under General Settings > WiFi & Cellular). If using a more capable companion WiFi option, you will want to disable the Gateway WiFi.

4. I am not receiving incoming call notifications on SIP extensions.

- The SkyLink device has 2 incoming Iridium phone lines. It is possible that you are not receiving call notifications because the SIP extension you are using is not configured to receive incoming calls from the Iridium line you are calling.

In the SkyLink Device Interface:

- 1) Navigate to the Voice Extensions screen.
- 2) Click 'Edit' on your extension.
- 3) Ensure that both boxes in the Inbound Line(s) fields are ticked, then click 'Save.'



Antennas / Cables / Power Sources

5. Why did my device not power on after I connected the power cable?

- Confirm that the correct cable is attached to the power port located on the left-hand side of the device's bottom panel. Your SkyLink kit comes with one of the following power adapters:
 - 12V Cigarette Lighter Adapter
 - SkyLink DC Pigtail Harness
 - POE Injector (self-assembly kit)
 - AC/DC Power Supply (self-assembly kit)

After verifying the correct cable and port, disconnect and then re-apply the power cable into the port. Connect the adapter into the appropriate power source (e.g., a wall or vehicle outlet).

The power LED indicator located on the top panel of the device will show a steady blue light when the device is ready to use. For additional information, please see the SkyLink Installation Guide.

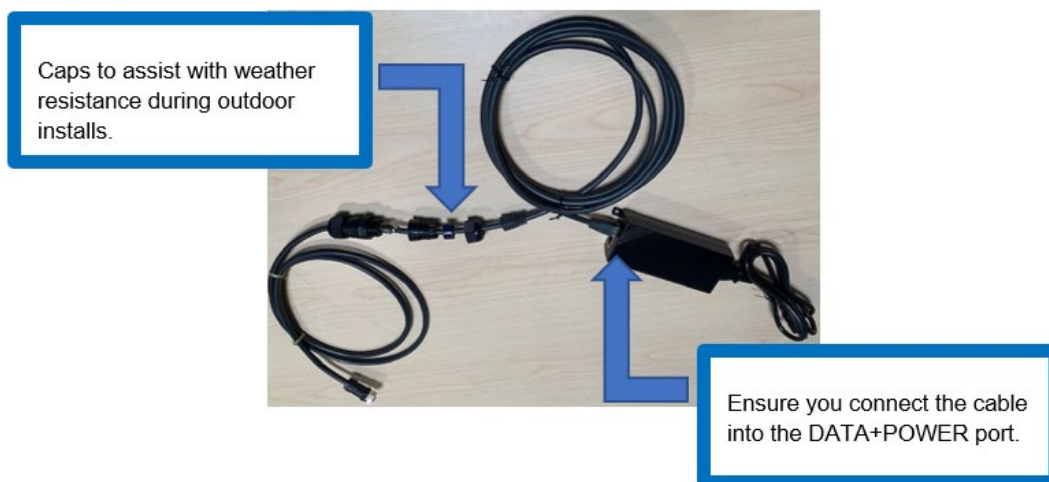
NOTE: If self-installing cellular and Iridium SIM cards, verify that they are in the correct holders. Additionally, ensure they are not placed in the micro SD slot also present in the connectivity port.

6. My kit came with a Power Over Ethernet (POE) power source. What is it and how do I use it?

- Power over Ethernet (POE) is a technology that passes electric power to your device over an Ethernet cable, powering it without the need for a traditional AC power supply.

To use this technology, you will need the POE Injector (which adds power to a non-powered ethernet connection) included in your kit or a POE-enabled switch (which is a network switch that provides power to connected devices).

We support both common standards: regular POE (sometimes referred to as 802.3at) and POE+ (sometimes referred to as 802.3af).



7. Can I use an alternative cellular antenna?

- Yes. The SkyLink device has 3 antennas:
 - 1 internal GPS
 - 1 internal LTE diversity
 - 1 external LTE main

The LTE main antenna can be replaced with any proper LTE antenna that you wish to use.

8. Can I use the existing Iridium antenna installed in my building with my Data Gateway device?

- No, Certus antennas for SkyLink are required. The following are acceptable to use:
 - MARUWA (MHL-1621C)
 - High-Profile Maxtena (M1621HCT-HP)
 - Sensor Systems (S67-1575-414)
 - SCAN (65020-000)

9. What is included in an RS232 cable kit?

- The SkyLink RS232 cable kit comes with a DB9F connector and conforms to the RS232 standard pinout for a DB9. **Note:** RS232 cables for SkyLink are proprietary and available only from Blue Sky Network. Contact sales@blueskynetwork.com or your reseller to purchase.

10. I received a SkyLink DC Pigtail Harness. What are its specs?

- This is the cable you receive if you request the currently labeled 'SL100-IS, SkyLink 10' Power Interface Cable with QuickPosition (QPos).' The specs are as follows:

OPERATING PARAMETERS

Electrical

- External power:
 - 10-34 VDC (12V nominal power)
 - POE
- Wiring

Function	Color
+Vin	Brown
GND	Green
SOS	White

Device Management

11. How do I prioritize data routing to use GSM or SAT first?

- Navigate to the Connection Manager screen on the SkyLink Device Interface. Choose your desired configuration from the Data Routing drop-down menu and save your selection. Settings are applied immediately.

NOTE: Iridium QoS (also called Iridium secondary data flows) are not supported on Certus 100, therefore, BSN cannot offer per-stream priorities or VLANs over the Iridium link.

12. Where can I find the current SkyLink and satellite firmware versions?

- The Status screen on the SkyLink Device Interface has the unit's current hardware and software versions. 'SYN267 REV F' refers to the chipsets/hardware revision and '2.02-210627-0009' refers to the firmware revision/date/time. The Diagnostics screen contains the Certus 9770 modem's current version.

13. How can I manage a fleet of SkyLink devices?

- The SkyLink Cloud Services portal allows you to configure, monitor, and manage fleets of devices. Use the SkyLink Device Interface for local management of a particular device.

14. How do I set up my apps to low bandwidth?

- Navigate to the Settings page in the app and select the option to use less data. Please note that not all apps have this capability. On iPhone, 'Low Data Mode' is available on the WiFi Config screen for each WiFi network.

15. How can I optimize the use of my SIP phone apps (e.g., GS Wave, Linphone)?

- Below are a few setup pointers for SIP phone apps:

iPhone/Android settings:

- Airplane mode
- Smartphone Settings > Wave Lite App > Enable 'Local Network' access
- Smartphone Settings > Wave Lite App > Disable 'Cellular Data'

GS Wave settings:

- 'WiFi only' mode enabled
- Account Name: 510 (510-516 available default)
- SIP Server: 192.168.111.1 (unless SkyLink Device Interface IP has been changed)
- SIP User ID: 510
- Authentication ID: 510
- Password: 510

Additional settings for other SIP phone apps (Linphone, etc.):

- Codecs (if setting is available): Enable – A-LAW, 722. Disable – U-LAW

TOC Box and Battery Pack

16. What is the battery performance of the SkyLink Battery Pack?

- The SkyLink Battery Pack has a run-time of up to 48 hours based on a typical 80/20 (standby/transmitting) duty cycle (specifications subject to change).

17. What is the battery performance of the SkyLink TOC BOX?

- The 2 batteries attached to the system provide up to 28 hours of continuous operation in normal mode and up to 10 hours in peak mode (specifications subject to change).

18. Is the SkyLink Battery Pack safe/approved for aviation carry-on luggage?

- Yes, the Battery Pack meets current [TSA requirements](#) for carry-on luggage.

Other

19. What is the safety distance between the Data Gateway and human interaction?

- To avoid exposure to antenna radiation, personnel should maintain a safe distance of 30 cm. (11.8 in.) minimum from the unit while it is in operation.

20. Why is there a billing discrepancy between the data usage seen on my SkyLink device versus my invoice?

- The SkyLink device's billing feature is only an approximation, similar to what you see on your cellphone versus a bill from your service provider.

21. Will my device overheat if left outside for too long?

- The SkyLink device operates normally in temperatures between -40°C - +70°C. Prolonged exposure to temperatures outside of this range may cause the device to lose functionality.

TECHNICAL SUPPORT

Blue Sky Network is committed to providing the highest level of service and support. If you have any questions or concerns, please feel free to contact us by email or phone; contact information is available at the bottom of this page. For self-help, please visit <https://support.blueskynetwork.com/>.

Thank you for choosing Blue Sky Network!



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