

# Thuraya IP Voyager

## User Guide

Revision D  
3500883-0001

### PROPRIETARY NOTICE

All rights reserved. This publication and its contents are proprietary to Hughes Network Systems, LLC. No part of this publication may be reproduced in any form or by any means without the written permission of Hughes Network Systems, LLC, 11717 Exploration Lane, Germantown, Maryland 20876.

HUGHES, HughesNet, IPoS, SPACEWAY, AIReach, Broadband Unbound, and Connect to the future are trademarks of Hughes Network Systems, LLC. All other trademarks are the property of their respective owners.

Copyright © 2019, 2021, 2023 Hughes Network Systems, LLC



# SAFETY INFORMATION

---

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

## ▶▶ | WARNING SYMBOLS USED IN THIS GUIDE

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.



### **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 VOYAGER TERMINAL



### **Do not stand at the side or top of the Antenna (ADU)**

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 ADU when system is operational. Maintain a distance of one meter away from those areas of the ADU.



### **WLAN Antenna**

This device emits radio frequency energy when transmitting – to avoid injury keep at least 20cm from all persons.



### **Properly ground the Below Deck Unit (BDU)**

Failure to properly ground the terminal BDU may result in severe personal injury or death. Use the GROUND terminal on the BDU and follow the instructions found in the Installation manual.



### **General**

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

Avoid placing the terminal BDU close to cigarettes, open flames or any source of heat.

Changes or modifications to the terminal BDU not expressly approved by Hughes Network Systems could void your authority to operate this equipment.

Only use a soft damp cloth to clean the terminal BDU.

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

When inserting the SIM, do not bend it or damage the contacts in any way. When connecting the interface cables, do not use excessive force.



### **In the vicinity of blasting work and in explosive environments**

Never use the Thuraya IP Voyager 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 Voyager while at a petrol filling station. Do not use near fuel or chemicals.



### **Qualified service**

Do not attempt to disassemble the ADU or terminal BDU. The unit does not contain consumer-serviceable components. Only qualified service personnel may install or repair equipment.



### **Accessories**

Use Hughes approved accessories only. Use of non-approved accessories may result in loss of performance, damage to the IP Voyager, fire, electric shock or injury.



### **Connecting devices**

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



### **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 Voyager should seek the advice of their cardiologist. If, as a pacemaker user, you are still concerned about interaction with the Thuraya IP Voyager, we suggest you follow these guidelines:

- Maintain a distance of 20cm from the Wi-Fi antenna and your pacemaker;
- Maintain a distance of one meter from the main ADU 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 Voyager immediately.



## 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 Voyager.



## Electrical Storms

Operation of the Thuraya IP Voyager during electrical storms may result in severe personal injury or death. Ensure the Below Deck Equipment is properly grounded to the vehicle chassis.

## INFORMATION TO USER

Hughes Network Systems, LLC, declares under our sole responsibility that the product Hughes 9105 Satellite IP Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents: ETSI EN 301 444, ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17, ETSI EN 301 489-20, IEC 60950-1. 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 R&TTE Directive 1999/5/EC and RoHS-2 Directive 2011/65/EU.

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.

This equipment has been tested and found to comply with the limits for 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 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 ADU
- 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

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

# CONTENTS

---

<b>SAFETY INFORMATION</b> .....	<b>I</b>
WARNING SYMBOLS USED IN THIS GUIDE.....	I
WARNINGS FOR THE THURAYA IP VOYAGER TERMINAL.....	II
<b>CONTENTS</b> .....	<b>V</b>
<b>INTRODUCTION</b> .....	<b>1</b>
<b>FIRST TIME SET-UP</b> .....	<b>1</b>
<b>QUICK REFERENCE</b> .....	<b>2</b>
GLOBAL POSITIONING SYSTEM OPERATION .....	2
INTEGRATED STATUS DISPLAY.....	2
WEB MAN MACHINE INTERFACE (WMMI) SCREENS.....	3
HOME SCREEN.....	4
PROPERTIES SCREEN.....	5
STATISTICS SCREEN.....	6
CONNECTION MANAGEMENT SCREEN.....	7
STATUS SCREEN .....	8
SETTINGS SCREENS.....	9
NETWORK SETTINGS SCREEN.....	9
PORT FORWARDING CONFIGURATION SCREEN.....	11
SECURITY MANAGEMENT SCREEN.....	12
ETHERNET MAC FILTERING CONFIGURATION SCREEN:.....	14
LOGIN SETTINGS SCREEN .....	15
WLAN CONFIGURATION SCREEN .....	16
WLAN SECURITY SCREEN.....	17
REMOTE ACCESS SCREEN.....	19
ADVANCED SETTINGS SCREEN.....	21
UPGRADING THE THURAYA IP VOYAGER.....	22
UPGRADING SOFTWARE .....	22
<b>TROUBLESHOOTING</b> .....	<b>24</b>
GENERAL TROUBLESHOOTING .....	24
STATUS CODES.....	28
<b>GLOSSARY</b> .....	<b>41</b>
<b>SPECIFICATION</b> .....	<b>43</b>
<b>INDEX</b> .....	<b>46</b>





# INTRODUCTION

---

Your Thuraya IP Voyager terminal provides mobile, high-speed data communications via satellite. Using “Always On” technology, you can remain connected to the Internet while only sending or receiving the data that you need at speeds of up to 444kbits/s, just as if you were sitting at your office desk.

The Thuraya IP Voyager works with your computer using an Ethernet or Wi-Fi connection much like commercially available wireless routers. Note that the Wi-Fi Access Point in the Thuraya IP Voyager uses a separate subnet and DHCP server than the wired Ethernet port. An internal router allows IP traffic to flow seamlessly between the two subnets and over the satellite link.

While the Thuraya IP Voyager operates very similarly to other data modems, there are a few important operating differences to note. Please read this user guide carefully to understand all the aspects of operating your Thuraya IP Voyager.

## FIRST TIME SET-UP

---

Please refer to the installation manual for the Thuraya IP Voyager terminal as it applies to your installation.



### **Do not stand in front of the Antenna (ADU)**

The ADU 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 ADU when system is operational.

# QUICK REFERENCE

This section serves as a reference guide, identifying the key operational aspects of using the Thuraya IP Voyager system and the **Controls and Indicators** on the Thuraya IP Voyager and their functions.

## ▶▶ GLOBAL POSITIONING SYSTEM OPERATION

The Thuraya IP Voyager contains an integrated Global Positioning System (GPS) receiver that is used to provide location information. GPS location information is required for system access, and the reception of a new GPS location is attempted automatically every time Thuraya IP Voyager is powered on. The GPS receiver is located in the antenna, otherwise known as the Above Deck Unit (ADU). It is updated automatically during operation provided the ADU is able to receive the GPS signal.

## ▶▶ INTEGRATED STATUS DISPLAY

The terminal BDU has an **Integrated Status Display** which allows you to view the operational status of the terminal. The display includes four lights for this purpose as explained in the following table




Light	Colour	Description
Power	Green	On when the BDU is powered up (light is embedded in the power switch)
Network Connection	Green	On when a network connection has been established (light is next to the world icon)
GPS	Green	On when a valid GPS location has been obtained (light is labelled GPS)
Fault	Red	On when the Thuraya IP Voyager has detected a fault, check the web user interface for additional information (light is next to the warning icon)

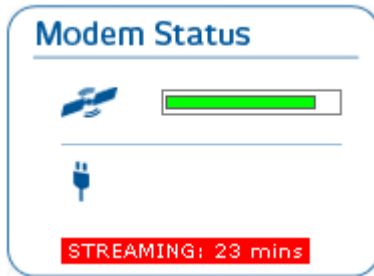
## ▶▶ WEB MAN MACHINE INTERFACE (WMMI) SCREENS

The Thuraya IP Voyager can be accessed through a standard web browser interface. To accomplish this, the connected computer must have one of the following supported browsers installed.

- Internet Explorer 6.0 or later
- Firefox 2.0
- AOL Explorer
- Macintosh Safari

To access the Thuraya IP Voyager, connect your computer via Ethernet or WLAN, run a supported browser and enter <http://192.168.128.100> into the browser's address field. You may wish to add this address to the browser's bookmark list so the address will be easier to find in the future. When active, the browser interface will allow you to access the WMMI.

Each of the main web pages contains important status information in the Modem Status panel (shown below) in the upper left hand corner. The bar graph next to the satellite (  ) icon represents receive signal strength. During a streaming session this area also displays a timer to show how long the session has been active.



## HOME SCREEN

The **Home Screen** provides you with key summary status information about the Thuraya IP Voyager and is also a gateway into Thuraya IP Voyager management.

**Network Status:** Provides the status of the network connection.

**Transmit Rate:** Provides the requested and actual transmit channel data rate. The actual allocated data rate may vary from the one requested due to subscription or system capacity restrictions.

**Receive Rate:** Provides the requested and actual receive channel data rate. The actual allocated data rate may vary from the one requested due to subscription or system capacity restrictions.

**Fixed Rate:** Provides the status of the Fixed Rate control. Enable Fixed Rate when using a streaming connection that must match the requested data rate. If the rate is unavailable, the connection is denied.

**Multimedia:** Provides the status of the Multimedia control. Enable Multimedia when using streaming applications like Voice over Internet Protocol (VoIP) or live video playback.

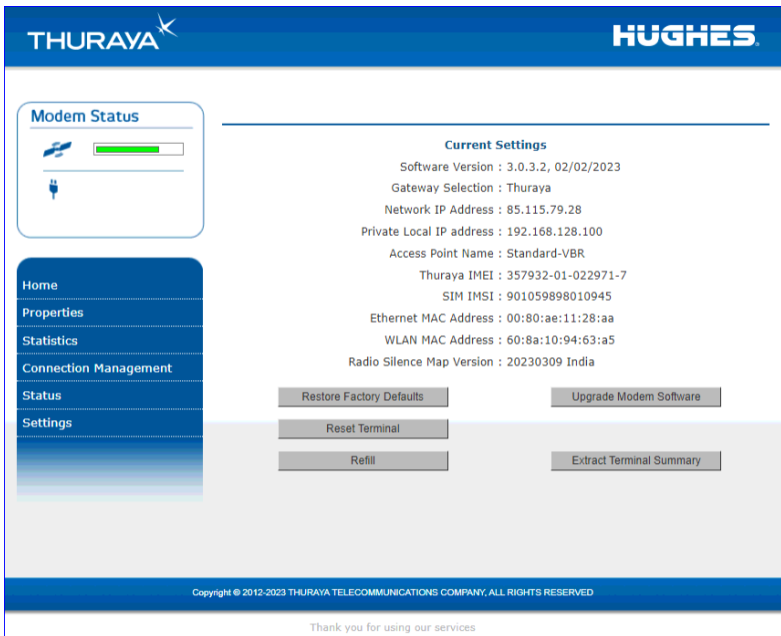
Connect/Disconnect: This button toggles the network connection state on or off. When disconnected no data can be sent or received.

Change Data Rate: This button allows you to change the connection parameters for the current session.

Quick Connect: These buttons access pre-stored connection profiles.

GPS: The display includes the GPS receiver state (On/Off), GPS satellites visible, GPS position validity, compass direction (azimuth) and elevation angle to the Thuraya satellites. The direction and elevation are blank until a GPS position is obtained. This information can be used to ensure that the ADU has a clear view of a Thuraya satellite from its current location.

## PROPERTIES SCREEN



The **Properties Screen** displays a summary of current communications parameter settings. You can also use this screen to do the following:

**Restore Factory Defaults**: When you click this button, the **restore message confirmation screen** informs you that the terminal is about to reset to factory defaults. Restoring the factory defaults returns the Thuraya IP Voyager settings to their original, just out-of-the-box state. This does not change the security code or SIM parameters. Please exercise caution when proceeding. If you invoke **Restore Factory Defaults**, you

will need to re-enter any configuration information supplied by your Service Provider.

**Reset Terminal:** Reboots the terminal software.

**Refill:** Connects to the prepaid SIM web site.

**Upgrade Modem Software:** Connects to the Thuraya upgrader web site.

**Extract Terminal Summary Log:** Fetches diagnostic data from the terminal which can be saved on the connected computer.

**Current Settings:** provides the current communications parameters.

- Software Version currently installed
- Public Network IP Address
- Private Local IP Address (Ethernet subnet and wMMI address)
- WLAN Local IP Address (WLAN subnet)
- Access Point Name (APN) for the satellite connection
- BDU International Mobile Equipment Identity (IMEI)
- SIM International Mobile Subscriber Identity (IMSI)
- Ethernet and WLAN Media Access Control (MAC) Addresses
- Version information for Radio Silence map file (if present)

## STATISTICS SCREEN

**THURAYA** **HUGHES**

**Modem Status**

Traffic statistics since powered on

Data transmitted:	144,545,227 bytes	<input type="checkbox"/> Reset
Data received:	178,193,178 bytes	<input type="checkbox"/> Reset

Cumulative traffic statistics

Data transmitted:	7,055,770,635 bytes
Data received:	21,531,063,555 bytes

While all reasonable efforts have been made to maximize the accuracy of this data usage information, users are advised that accuracy may be affected by a variety of conditions. Results should be used as a guide only and users should be aware that the results do not override the calculations contained in invoices issued by the Service Provider.

Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED

Thank you for using our services

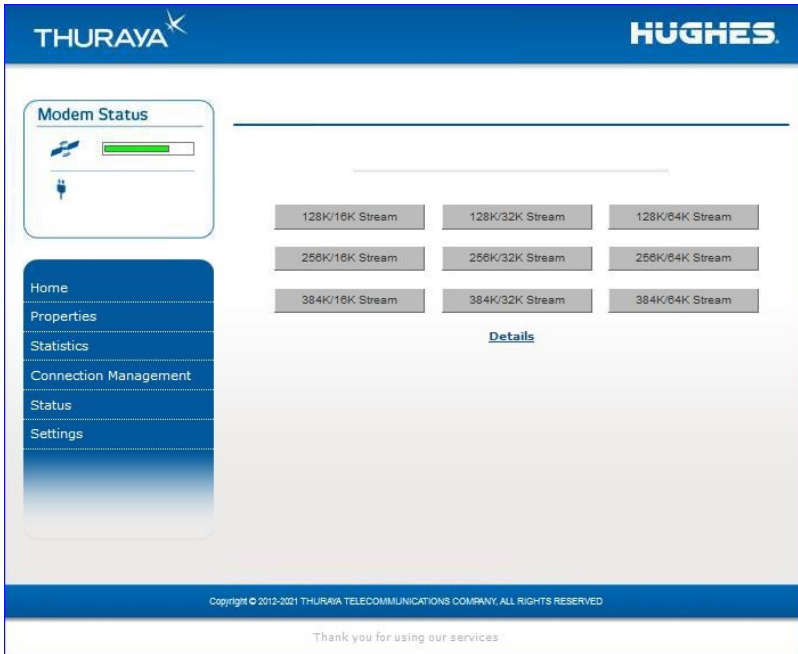
The **Statistics Screen** provides you with an estimate of your data usage. Data usage figures are obtained by counting the bytes in the IP packets

received by and sent from the Thuraya IP Voyager. You can view both “since power on” (per session) and “cumulative” (lifetime) data usage counts. To reset the data counters of a session, simply check the **reset** boxes for transmit and/or receive and click the **Apply** button.



**Note:** The data usage figures provided on the screen are estimates only. This feature is not tied into the actual billing system. Hughes assumes no liability if differences are found between data usage figures and your actual bill.

## CONNECTION MANAGEMENT SCREEN



Accessible from the Main Menu, the **Connection Management Screen** allows you to select from nine Quality of Service (QoS) quick connect buttons. Each button can be customized using the **Details** link on the Connection Management Screen. The customization parameters for each button are as follows:

Transmit Rate and Receive Connection Rate: Allows you to select the transmit and receive rates from the list of bandwidth values.

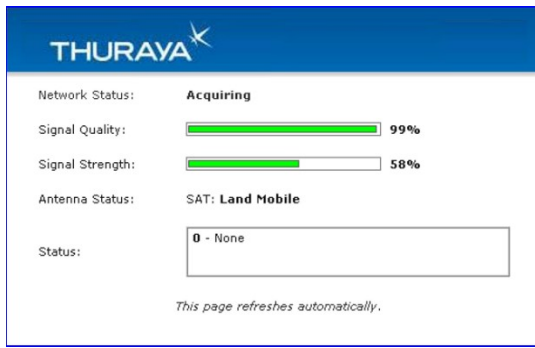
Multimedia Control: Allows you to enable or disable Automatic Repeat-request (ARQ) over the satellite. Typically, ARQ—an error control protocol for data transmission—is best disabled for voice or video traffic.

Please note that to *disable* ARQ, set Multimedia to **Enable**, and to *enable* ARQ, set Multimedia to **Disable**.

**Fixed Rate Control:** Allows you to enable or disable fixed rate service over the satellite. Set this to **Enable** when you require the requested streaming rate and cannot accept lower rates. If **disabled**, the best streaming rate possible — up to and including the selected rate — will be allowed. If **enabled**, the terminal will reject a connection unless the requested rate is available from the network.

**Remember** to click **Apply** to save any changes or they will be lost.

## STATUS SCREEN



The **Status Screen**, displayed in a separate window, provides you with a concise real-time summary of the Thuraya IP Voyager status. Content is updated every few seconds.

**Network Status:** Provides the status of the network connection.

**Signal Quality:** This bar graph displays satellite signal quality.

**Signal Strength:** Use this display to monitor incoming signal strength from the satellite.



**Note: Signal Quality vs. Signal Strength.** The Signal Quality status is a different measure of the received satellite signal than the Signal Strength status. Seeing differences between these two levels is normal and not an indication of a problem with your Thuraya IP Voyager unit.

**Antenna Status:** Displays connected antenna (ADU) type.

**Status:** Any current system status codes (see Troubleshooting section).



## SETTINGS SCREENS

From the Main menu you can select **Settings** to navigate among all the various Settings functions from the menu on the left side of the screen:

- Network Settings
- Security Management Settings
- Login Settings
- WLAN Settings
- Remote Access
- Advanced Settings

## NETWORK SETTINGS SCREEN

**THURAYA** **HUGHES**

**Modem Status**

Private Local IP address: 192 . 168 . 128 . 100  
Local IP address Mask: 255 . 255 . 255 . 0

DHCP Server:  Netmode:

Note: RELAY mode is not supported over WLAN.  
The DHCP settings apply only to the Ethernet Port.

Global IP Address:

Obtain address automatically  
 Static IP Address: 0 . 0 . 0 . 0

Obtain DNS address automatically  
 Static DNS Host: 0 . 0 . 0 . 0

Disable DMZ  
 Enable DMZ Host: 0 . 0 . 0 . 0

Note: DMZ functionality is disabled in RELAY mode.

**Configure Port Forwarding**

APN Selection

Streaming-CBR  
 Refill  
  
 Disabled

After clicking on the SAVE button, restart the Thuraya Terminal and reboot your PC for the changes to take effect.

Exercise caution when changing network settings.  
Please consult your Service Provider.

Copyright © 2012-2023 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED

Thank you for using our services

After executing the necessary First Time Set-up steps to configure the Thuraya IP Voyager, you may want to select the **Network Settings Screen** to check your network configuration. This screen provides you with control over key network access parameters. Here you find the appropriate Domain Name Service (DNS) and the Access Point Name (APN) information configured by your Service Provider. You are also given the ability to make changes.



**Note:** Generally your Service Provider has already performed this configuration step for you. Whenever you modify the addresses on the **Network Settings** screen, you must press **Save** and exit the wMMI, reboot your computer, and power the Thuraya IP Voyager off and then back on so that the new settings can take effect.

Private Local IP Address: This setting allows you to change the all four octets of the terminal's (BDU) local gateway address. Changing this address will change the address of the wMMI and the base address for the Ethernet DHCP server. This subnet must remain unique from the WLAN subnet address being used.

Local IP Address Mask: This setting allows you to set the local Ethernet subnet mask. The setting for this mask should match the LAN that the terminal is connected to.

DHCP Server: The DHCP server for Ethernet can be enabled or disabled as needed. If disabled, a local static IP addressing scheme must be used by connected Ethernet devices. This setting has no impact on the WLAN operation which uses a dedicated DHCP server.

Netmode: This command allows for NAT or Relay Mode to be selected. The NAT (Network Address Translation) mode allows multiple devices to be connected via the Ethernet and WLAN ports. This is the default operating mode. Relay Mode is used for special situations where a single local device needs to be assigned the same address as the Global IP Address assigned to the terminal BDU. The connected device is assigned a LAN address initially, but with a very short DHCP lease time. When the Global IP Address is assigned to the terminal BDU it is passed through to the connected device via a DHCP address reassignment. All WAN traffic flows through to the single connected device with no port or address translation. Relay Mode is only available on the Ethernet port and DHCP must be enabled at the same time on the connected device.

Global IP Address:

Obtain Address Automatically: If this button is **selected**, the Thuraya IP Voyager uses an IP address automatically assigned by the network during the period when the terminal connects to the network.

Static IP Address: If this button is **selected**, the Thuraya IP Voyager uses the IP address you enter in the associated IP Address field. You should check this box and enter an IP address only if directed to do so by your Service Provider.

DNS:

Obtain DNS Address Automatically: If this button is **selected**, the Thuraya IP Voyager uses a Primary Host Domain Name Service (DNS) automatically assigned by the network during the period when the terminal connects to the network.

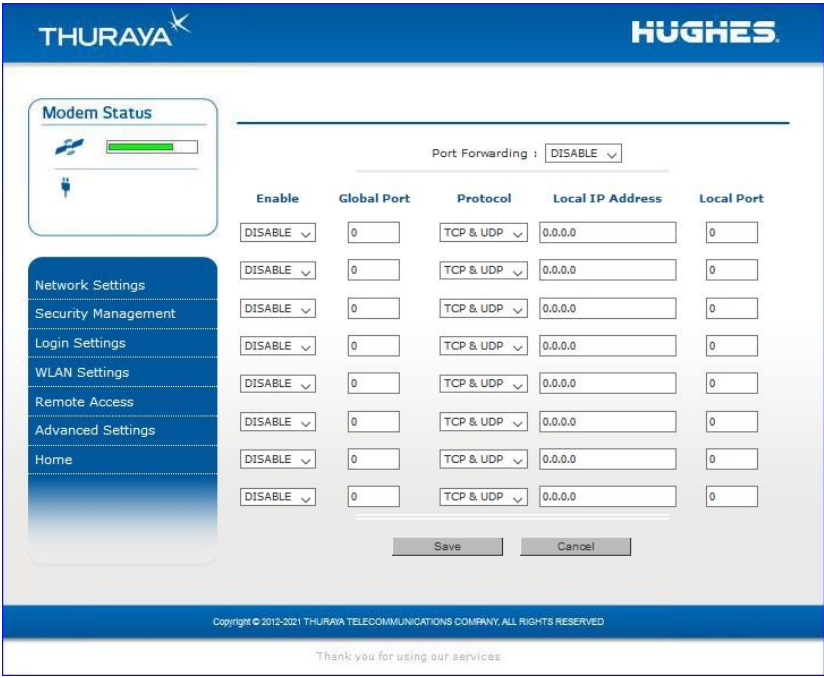
Static DNS Host: If this button is **selected**, the Thuraya IP Voyager uses the DNS address you enter in the DNS Address field. You should check this box and enter an IP address only if directed to do so by your Service Provider.

DMZ Host: If you wish to route incoming network originated IP traffic to a specific connected device, enter that device's IP address here. Be careful to establish a suitable firewall on this device to protect against malicious attacks from the Internet.

Port Forwarding: Port forwarding is a feature that allows user-specified global ports to be connected to user-specified TE devices. This mode allows incoming IP traffic to be reliably delivered to the specified TE IP address based upon the global port number the traffic was received on.

To enable/disable and to set up rules for port forwarding, click on the Configure Port Forwarding link to go to the Port Forwarding Configuration screen.

**PORT FORWARDING CONFIGURATION SCREEN**



Note that a new PDP context is required for Port Forwarding changes to take effect. Port Forwarding is not compatible with Relay Mode and is disabled automatically when Relay Mode is enabled.

**APN Selection:** If use of multiple Internet Service Providers is required, you can modify the current **Access Point Name (APN)** value. You should modify these fields only if directed to do so by your Service Provider. The choices are the following: Streaming-CBR, Refill, <blank> (enter the desired name) and Disabled.

**SAVE/CANCEL:** If you want the values you have entered to be processed, click the **SAVE** button, **exit** the WMMI, and **reboot** your computer. You will also need to turn the terminal BDU off and then on again so that the new settings can take effect. If you want the values you have entered to be ignored, click the **CANCEL** button and the Network Settings remain as they were with no reboot required.

## SECURITY MANAGEMENT SCREEN

The screenshot shows the Security Management screen. At the top, there are logos for THURAYA and HUGHES. On the left, there is a 'Modem Status' box with a signal strength indicator and a 'Network Settings' menu with options: Network Settings, Security Management (selected), Login Settings, WLAN Settings, Remote Access, Advanced Settings, and Home. The main area contains the following settings:

- SIM PIN:
- Note: To effect a change, enter the SIM PIN and click SAVE
- Enter SIM PIN:
- [Change SIM PIN](#)
- Lock upon SIM Change:
- Restricted Administrative Access:
- Security Code:
- Note: To effect a change, enter the Security Code and click SAVE
- [Change Security Code](#)
- 
- [Ethernet MAC filtering Configuration](#)

At the bottom, there is a copyright notice: Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED. and a thank you message: Thank you for using our services.

The **Security Management Screen** allows you to impose a tighter level of security on your Thuraya IP Voyager.

**SIM PIN Disable/Enable:** If **Enabled**, a prompt requests you to enter the SIM PIN each time you power up the modem. This helps prevent unauthorised use of your SIM. **Disable** this feature to skip the PIN entry

process. To change the setting, click the desired one, enter the current SIM PIN (required), and click the **Save** button.



**Note:** If the SIM PIN code is incorrectly entered three times, the SIM will be locked until the PUK (Pin Unlock Key) number is entered. Consult your Service Provider for the PUK number.

Change SIM PIN: If the SIM PIN is **enabled**, and you would like to change the existing PIN, click this link. You will be required to enter the Old PIN, the New PIN, and the New PIN again for confirmation.

Lock Upon SIM Change: When this setting is **enabled**, you must enter a security code when the terminal powers up with a new SIM.

Restricted Administrative Access: When Restricted Administrative Access is **enabled**, protected web pages can only be accessed after you enter a username and password. The username is the fixed string "admin" and the password is the security code.

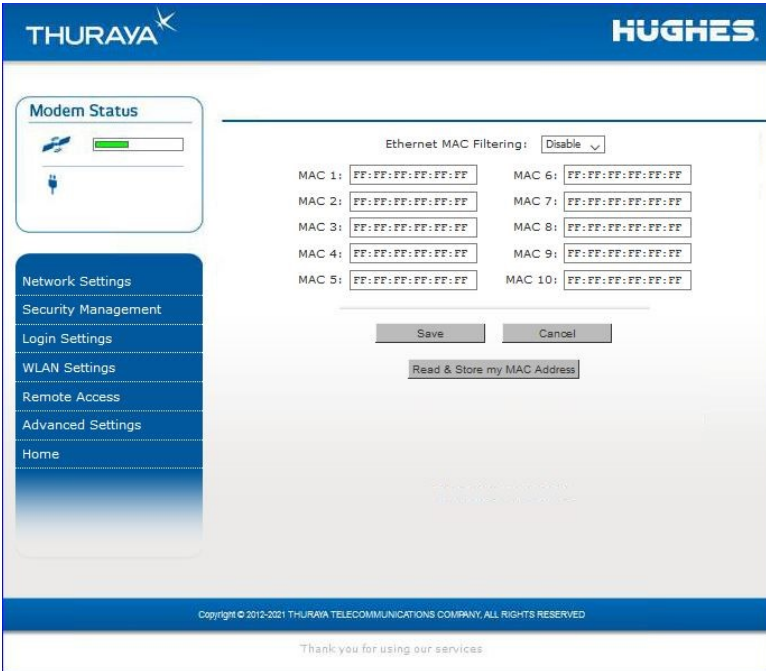
Change Security Code: The security code is 12345 when shipped from the factory. To change an existing Security Code, click this link. You will be required to enter the Old Code, the New Code, and the New Code again for confirmation.



**Note:** If you forget the security code you will need to consult with your service provider.

Ethernet MAC Filtering: Ethernet MAC filtering provides a means to restrict Ethernet access to the UT to devices that have their MAC addresses specified in the white list. To enable Ethernet MAC filtering, click on the Ethernet MAC Filtering Configuration link on the Security Management Screen. This will take you to the Ethernet MAC Filtering Configuration Screen.

## ETHERNET MAC FILTERING CONFIGURATION SCREEN:



THURAYA HUGHES

Modem Status

Ethernet MAC Filtering:

MAC 1: <input type="text" value="FF:FF:FF:FF:FF:FF"/>	MAC 6: <input type="text" value="FF:FF:FF:FF:FF:FF"/>
MAC 2: <input type="text" value="FF:FF:FF:FF:FF:FF"/>	MAC 7: <input type="text" value="FF:FF:FF:FF:FF:FF"/>
MAC 3: <input type="text" value="FF:FF:FF:FF:FF:FF"/>	MAC 8: <input type="text" value="FF:FF:FF:FF:FF:FF"/>
MAC 4: <input type="text" value="FF:FF:FF:FF:FF:FF"/>	MAC 9: <input type="text" value="FF:FF:FF:FF:FF:FF"/>
MAC 5: <input type="text" value="FF:FF:FF:FF:FF:FF"/>	MAC 10: <input type="text" value="FF:FF:FF:FF:FF:FF"/>

Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED.

Thank you for using our services.

From this screen you can enable and disable Ethernet MAC filtering and you can specify up to eight MAC addresses in the white list. Any changes to this configuration screen will be effective upon a restart of the UT.

The button "Read & Store my MAC Address" may be used to put your PC's MAC address in the table directly. This is recommended if your PC will remain connected to the terminal.



**Note:** Enabling MAC filtering without specifying any entries in the list will disable the Ethernet ports in favour of WiFi access only. Be sure to enable WiFi on the UT before disabling the Ethernet ports so that you do not lose access to the wMMI.

## LOGIN SETTINGS SCREEN

THURAYA

HUGHES

Modem Status

Service Provider Security:

User Name:

Password:

Confirm Password:

Save Cancel

Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED

Thank you for using our services.

Utilize the **Login Screen** only if you have been given the necessary information from your Service Provider.

Service Provider Security: If this is **enabled**, you can enter a **User Name** and **Password** for authentication between the Thuraya IP Voyager and your Service Provider. Your Service Provider will let you know if this step is required and give you the necessary information.

User Name, Password, Confirm Password: You must enter the password twice to ensure accuracy.

## WLAN CONFIGURATION SCREEN

The screenshot shows the WLAN Configuration interface. At the top left is the THURAYA logo and at the top right is the HUGHES logo. Below the logos, there is a 'Modem Status' section with a signal strength indicator and icons for network and Wi-Fi. A navigation menu on the left lists: Network Settings, Security Management, Login Settings, WLAN Settings (highlighted), Remote Access, Advanced Settings, and Home. The main configuration area includes: WLAN Mode: ON (dropdown), WLAN Power Off timeout: Disable (dropdown), WLAN SSID: Thuraya-022971-7 (text input), WLAN Region: Worldwide (1-13) (dropdown), and WLAN Channel: 11 (dropdown). Below these are 'Save' and 'Cancel' buttons, and a message 'Security Disabled (Modify)'. The footer contains 'Copyright © 2012-2023 THURAYA TELECOMMUNICATIONS COMPANY, ALL RIGHTS RESERVED' and 'Thank you for using our services'.

The **WLAN Configuration Screen** allows you to configure the integrated WLAN Access Point (AP) which can support up to eight simultaneous clients using 802.11b/g/n.

WLAN Mode: Select ON or OFF to turn the feature on or off.

WLAN Power Off timeout: If **disabled**, there is no timeout. If this parameter is **enabled**, the WLAN will remain powered up for the selected timeout value after the terminal powers on. If no WLAN activity is detected during the timeout, the WLAN card will power down.

WLAN SSID: The WLAN network ID (SSID) can be entered as desired.

WLAN Region: Select the WLAN region from a drop down list (Worldwide (1-13) and USA/Canada (1-11)). If you try to activate a channel not supported in the selected region, the request shall be rejected with an error message.

WLAN Channel: Select the WLAN channel from a drop down list.



WLAN Local IP Address: If the WLAN page has the following line present

WLAN Local IP address:  .  .  .

then the WLAN network uses a separate subnet from the Ethernet port. If this line is not present, then the WLAN access point is operating in bridge mode using the same subnet as the Ethernet port (192.168.128.xyz by default).

When the WLAN AP is operating on its own subnet the default address range is 192.168.129.xxx with DHCP addresses starting at 192.168.129.100. The two least significant octets can be changed to different values; however, the WLAN subnet must remain distinct from that used by Ethernet. The wMMI remains at 192.168.128.100 (default) whether accessed via WLAN or Ethernet.

## WLAN SECURITY SCREEN

THURAYA HUGHES

Modem Status

Operation Successful !!  
Caution: Wireless clients may need reconfiguration to regain connectivity.

WLAN SSID Broadcast:

Security:

WPA2 Pass Phrase:   
The Security Pass Phrase must be 8 to 63 characters in length.

MAC Filtering:

MAC 1:  MAC 5:   
MAC 2:  MAC 6:   
MAC 3:  MAC 7:   
MAC 4:  MAC 8:

Copyright © 2012-2023 THURAYA TELECOMMUNICATIONS COMPANY, ALL RIGHTS RESERVED  
Thank you for using our services

The **WLAN Security Screen** allows you to configure WLAN security parameters, including enabling/disabling Wired Equivalent Privacy (WEP), hiding the SSID and setting Media Access Control (MAC) filters.

Access this screen by clicking the **WLAN Security Settings** link towards the bottom of the **WLAN Configuration Screen**.

WLAN SSID Broadcast: **Enable** or **Disable** SSID broadcast.

Security: **Disable** or chose an available security method: Wired Equivalent Privacy (WEP64 & WEP128 is not available on newer terminals), WPA or WPA2.

WEP Key to Use: Under WEP64, select the **active key**—Key1 through Key4—from a pull down menu. For WEP128 only key 1 is available.

WLAN Key Fields, Key 1 through Key 4: In WEP64 mode, enter a 10 character (0-9, A-F) **key value** in each of four text boxes. In 128-bit WEP mode, enter a 26 character (0-9, A-F) **key value** in the Key1 text box.

Generate: Instead of manually entering a key value, you may press the **Generate** button to automatically generate a key value.

TKIP/AES Key Update Interval: Under WPA and WPA2 this timeout determines how often the working key is changed.

WPA/WPA2 Pass Phrase: Under WPA and WPA2 enter a secret pass phrase as per the password policy length that will become the master key for WLAN access.

Hide Keys: Click this button to hide the keys from this display.

MAC Filtering: **Enable** or **disable** MAC filtering. If filtering is **enabled**, you can enter up to eight MAC addresses. Only these addresses will be permitted to access the terminal via the WLAN. MAC filtering changes only take effect after a power cycle of the terminal and are only enforced when some form of WiFi encryption is enabled.

## REMOTE ACCESS SCREEN

 Enabled  Disabled'. There are 'Save' and 'Cancel' buttons. A red note states: 'Note: Remote Access is not available when Relay Mode is enabled.' Below this, the 'Remote Access Password' section has 'Define new password:' and 'Confirm password:' fields, each with a text input box, and 'Save' and 'Cancel' buttons. At the bottom of the screen, there is a copyright notice: 'Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED.' and a thank you message: 'Thank you for using our services'."/>

THURAYA

HUGHES

Modem Status

Remote Access is enabled.

Remote Access operation:  Enabled  Disabled

Save Cancel

Note: Remote Access is not available when Relay Mode is enabled.

Remote Access Password

Define new password:

Confirm password:

Save Cancel

Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED.

Thank you for using our services

The **Remote Access Screen** enables wMMI access from WAN or Internet hosts. To use the feature, you must first define a password (there is no default) and select **Save**. Then set Remote Access operation to **Enabled**. Obtain the Network IP Address from the **Properties Screen** and use that in the browser on the remote host as follows: `http://85.115.79.53:45380` (85.115.79.53 is an example; your terminal address will be different and can change with each PDP session, depending on whether the network is issuing a dynamic IP address or static IP address). In general the IP address to use is <http://aaa.bbb.ccc.ddd:45380>, where aaa.bbb.ccc.ddd is your terminal's public IP address and the access port is 45380. Enter the Remote Access password to log in and gain access to the wMMI. For security reasons you should use the **Logout** button on the wMMI once you have finished the session. The Remote Access feature will log you out automatically if it detects no user activity for 30 minutes.

- Only one Remote Access session is supported at any one time
- The Thuraya IP Voyager must have an active PDP context
- The Remote Access password can be changed by entering a new string in the **Remote Access Screen** password entry fields
- The Remote Access feature is disabled by default

- If you forget the Remote Access password simply enter a new one to overwrite the old one.

Note that Remote Access uses satellite data that will be billed to the account on the user terminal. The Remote Access traffic also shares the channel with other user traffic sent and received by the Thuraya IP Voyager.

## ADVANCED SETTINGS SCREEN

**THURAYA** **HUGHES**

**Modem Status**

Satellite Search Method : Normal

Location-based Radio Silence : Disable

Buffering : Enable

Streaming Activity Monitor : Disable Timeout : 5 minutes

M2M Activity Monitor : Disable Timeout : 60 minutes

Power Up Profile : Standard

Profile Name	Multimedia	Fixed Rate	Transmit Rate	Receive Rate
128K Streaming	Enable	Disable	128Kbps	128Kbps
256K Streaming	Enable	Disable	256Kbps	256Kbps
384K Streaming	Enable	Enable	384Kbps	384Kbps

Save Cancel

Copyright © 2012-2021 THURAYA TELECOMMUNICATIONS COMPANY. ALL RIGHTS RESERVED

Thank you for using our services

The **Advanced Settings Screen** allows you to modify several key operating parameters in the unit.

**Satellite Search Method:** **Normal** is the default method to use unless your Service Provider specifies the Full Method. The **Full** method takes longer and utilizes more resources since it will search all possible frequencies for the Thuraya IP service. This full search can take up to 20 minutes.

**Gateway Selection Mode:** **Thuraya** is the default mode and should be used by regular users. Other mode(s) require a special subscription.

**Location-based Radio Silence:** Satellite access may be suppressed in certain geographical locations by uploading a map file to the Thuraya IP Voyager and enabling this field. For more details, contact your service provider.

**Buffering:** When buffering is enabled the Thuraya IP Voyager can store more data to handle bursts of IP traffic from connected devices. When buffering is disabled, only the minimum of traffic is stored to reduce latency. Disable buffering for low latency traffic such as voice or video.

**Streaming Activity Monitor:** When enabled, the Thuraya IP Voyager monitors user traffic during streaming sessions. If the timeout period expires with no user traffic, the streaming session is cancelled and a

standard on-demand session is requested. The minimum **Timeout** value is 5 minutes. This setting has no effect during non-streaming sessions.

**M2M Activity Monitor:** When enabled, the Thuraya IP Voyager monitors transmit and receive traffic. If traffic is not seen in both directions for the configured timeout period the terminal will automatically reboot to ensure it stays online. The feature will also try to re-establish a PDP context if it is disconnected for any reason. This mechanism is useful to ensure continuous operation from unattended installations.

**Power Up Profile:** You can select the power up profile from a drop down list, including Standard and three customizable streaming profiles. Each streaming profile can be customized by **name**, **multimedia** mode, **fixed rate** mode, **transmit rate**, and **receive rate**.

Select the **Save** button to implement your modifications.



## UPGRADING THE THURAYA IP VOYAGER

Should a Thuraya IP Voyager software upgrade become available, you can complete the upgrade process yourself. The software can be downloaded directly from the Internet using any available access method, including the Thuraya IP Voyager itself.

### UPGRADING SOFTWARE

In order to upgrade software **you must first connect to the Internet** and follow the steps listed below:

1. Connect your PC/Notebook to the Internet using the Thuraya IP Voyager (satellite service), wired LAN, or dial up connection.
2. Go to [www.thuraya.com](http://www.thuraya.com) or use the Upgrade link on the Properties Page if connected to the Thuraya IP Voyager.
3. Go to the web site area for Thuraya IP Voyager updates.
4. To download, select the latest upgrade package. The browser proceeds to retrieve the package.
5. Once the package is downloaded, you are prompted to execute the package. Select **Yes** and the upgrader application will self-extract onto the PC's hard drive.
6. Once the package is installed, it puts a shortcut on the desktop and prompts you to **upgrade now**. Make sure the Thuraya IP Voyager is now connected to the PC via Ethernet and is powered up. Select the upgrade option on the PC, and the program will allow you to upgrade the terminal BDU.

7. The upgrader will query the current software version of the terminal BDU. You should choose whether you want to upgrade to the newer version of software.
8. If you choose to upgrade the terminal BDU, the process automatically downloads the new release of software and forces a terminal reboot.
9. When the terminal BDU returns from reboot, you can verify that the download was successful via the **Properties** page in the wMMI or by confirming the new release on the upgrader.
10. Once loaded onto a PC, the upgrade program can be used to upgrade any number of Thuraya IP Voyager units. Just connect them one at a time and execute the upgrade program.

# TROUBLESHOOTING

Some general hardware and software problems you may encounter in the installation and operation of Thuraya IP Voyager along with the possible source of these problems and how to correct them. System Status codes and descriptions reported to you by the Thuraya IP Voyager on the wMMI screens, along with their possible causes and solutions. If unable to correct a problem please contact the Thuraya IP Voyager dealer you purchased the unit from.

## ▶▶ GENERAL TROUBLESHOOTING

Problem	Possible Cause	Action
Thuraya IP Voyager will not switch on.	DC input not present.	Ensure that between 10 to 32VDC is present at the terminal BDU power connector. Note extended DC cable runs may require a higher source voltage or lower resistance wire to ensure that the operating voltage is maintained under load.
	The remote switch line is not active.	The Thuraya IP Voyager will not power up unless the remote switch input has DC voltage applied.
	The fuse is blown or missing.	Check the blade fuse for connectivity and replace if necessary. Use only a 15 Amp, fast blow, ATO blade fuse, Littelfuse, part number 0287015.
	Insufficient current.	Ensure that the DC supply has sufficient current (12A) to supply the Thuraya IP Voyager.
SIM card error.	SIM card or SIM card contacts may be damaged.	Visually inspect the SIM card and SIM card contacts and return SIM card to your Service Provider if it is damaged.
	SIM card may not be present.	Verify that the SIM card is present.



<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
	SIM card may be inserted incorrectly.	Remove the SIM card and make sure that it is inserted according to the instructions in the User Guide.
	SIM card contacts may be dirty.	Clean the SIM card contacts with a dry cloth.
The wMMI does not work from browser.	The browser may not be correctly configured.	<p>For Firefox, go to Advanced Preferences and select 'Direct connection to the Internet.'</p> <p>For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labelled 'Use a proxy server for your LAN.'</p> <p>You May Need To Recheck This Box Upon Returning To Your Other Internet Connection.</p>
Primary LAN connection to the BDU does not function.	The interface cable is not plugged in correctly.	Remove and reinsert the interface cable from both the PC and the BDU.
	The PC Windows network settings may not be configured correctly.	Make sure the Windows network settings in the PC are set to choose IP settings automatically (DHCP). Then reboot the PC.
	The PC can only have one active LAN connection. When connected to the PC, the terminal must be the only active LAN connection.	<p>Disconnect all other LAN connections. Make sure the terminal is the only active LAN connection.</p> <p>Windows limits the number of network bindings to six. If you have more than six, you must remove one in order for the PC to communicate with the terminal.</p>

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
The Security Code appears to be invalid.	The code may have been changed.	After ten failed attempts to enter the Security Code, you must switch the terminal off and on again to have access to another 10 retries. If you forgot the Security Code, contact your Service Provider.
The SIM PIN code appears to be invalid.	The code may have been changed.	If the SIM PIN is blocked, contact your Service Provider to obtain the PUK (PIN Unlock Key) code. Enter the PUK when prompted.
Thuraya IP Voyager cannot locate itself using GPS.	No signal or weak signal.	Make sure no obstruction is blocking the ADU. Make sure that you do not place any objects over the ADU.
	Determining GPS position can take up to 5 minutes.	Wait for 5 minutes. Switch the terminal off and on again.
	The ADU is not attached.	The ADU is required to be properly connected to the terminal BDU to obtain a GPS location.
Thuraya IP Voyager cannot find the satellite.	No signal or weak signal.	Make sure no obstruction is blocking the satellite signal. Make sure that the ADU has a clear view of the sky in the direction of the satellite.
Thuraya IP Voyager cannot access the internet.	PDP context disconnected.	Check the web MMI to ensure that a PDP connection has been requested.
	The ADU may be blocked.	You may need to reposition the Thuraya IP Voyager, verifying that there are no obstructions blocking the satellite signal and that the ADU has a clear view of the sky in the direction of the satellite.
	The terminal network settings may not be correctly configured.	Refer to the network settings supplied by your Service Provider. If the DNS Host settings are changed, the PC must be rebooted.

<b>Problem</b>	<b>Possible Cause</b>	<b>Action</b>
	The browser may not be correctly configured.	<p>For Firefox, go to Advanced Preferences and select 'Direct connection to the Internet.'</p> <p>For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labelled 'Use a proxy server for your LAN.'</p> <p>YOU MAY NEED TO RECHECK THIS BOX UPON RETURNING TO YOUR OTHER INTERNET CONNECTION.</p>
No network access or poor network performance.	Interference from other satellite mobile terminals.	If you are near another satellite mobile terminal, switch the other satellite mobile terminal off or move as far away as possible to avoid interference.
Thuraya IP Voyager stops sending data even with good network connection.	Terminal is overheated.	Let the Thuraya IP Voyager cool down before attempting to resume operation.
The Signal Quality meter on the wMMI changes from time to time.	Normal behaviour.	There are several types of channels used by the terminal, each with different signal strengths. Because the Signal Quality meter measures the channel currently in use, there may be slight differences in what the meter shows as channels are changed from one type to another.

Number and Description	Cause	Solution
<p>1: SIM card is not installed. Power down, install SIM card properly and try again.</p>	<p>Absence or incorrect installation of the SIM card.</p>	<p>SIM card may not be present. Verify that the SIM card is present.</p> <p>SIM card may be inserted incorrectly. Remove SIM card and make sure it is inserted according to the instructions in the Installation Guide.</p> <p>SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged.</p> <p>SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth.</p> <p>If problem continues, replace SIM card with a known good SIM card. If problem persists, return the unit to your Service Provider for service.</p>
<p>2: SIM card read/write error. Power down and try again.</p>	<p>Failure to read from or write to the SIM card.</p>	<p>Power down the Thuraya IP Voyager and try again.</p> <p>SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged.</p> <p>SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth.</p> <p>If the problem continues, replace SIM card with a known good SIM card. If the problem persists, return the unit to your Service Provider for service.</p>

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
3: SIM card access has been blocked. Please contact your Service Provider.	Failure to access the SIM card due to too many failed attempts with an invalid PIN.	This occurs after 3 failed attempts to enter the PIN. The SIM card is locked. Enter the PUK to unlock the SIM card.
4: SIM card has been improperly changed during an active session. Power down and try again.	You replaced a SIM card with another after the terminal was turned on.	The SIM card must be replaced when the unit is turned off. Make sure the unit is turned off before replacing the SIM.
5: SIM card is not responding. Power down and try again.	Hardware failure to access the SIM card.	<p>Power down the Thuraya IP Voyager and try again.</p> <p>SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged.</p> <p>SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth.</p> <p>If problem continues, replace SIM card with a known good SIM card. If problem persists, return the unit to your Service Provider for service.</p>
6: A required data field is missing from the SIM card. Please contact your Service Provider.	Absence of a required data field on the SIM card.	SIM card was incorrectly programmed and is missing one or more required fields. The SIM card must be replaced by another from your Service Provider.
7: You are not allowed to connect to the network. Please contact your Service Provider.	Network connection failure because the user is not allowed to connect to the Network.	Your authorisation has been removed by your Service Provider (SIM card IMSI is not authorised). Contact your Service Provider to regain service.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
8: Your Thuraya terminal is not allowed to connect to the network. Please contact your Service Provider.	Network connection failure because the terminal is not allowed to connect to the Network.	The terminal authorisation has been removed by your Service Provider (terminal BDU IMEI is not authorised). Contact your Service Provider to regain authorised service.
9: You have no subscription, service is not allowed. Ensure you are using a valid Thuraya SIM. Please contact SP if problem persists	Network connection failure because you are not identified as a subscriber to the service.	Contact your Service Provider to receive authorised service. Your Service Provider should check the subscription entries in the Home Location Registry.
10: The network detached the terminal. Verify your settings (APN, IP, etc.) and retry.	Network connection broken with an unknown cause.	Verify settings, Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
11: Network connection failure – Invalid parameters used for network attach procedure. Please contact your Service Provider.	Network connection failure due to use of invalid parameters.	Contact your Service Provider.
12: Network connection failure – LLC or SNDCCP failure. Power down and try again.	Network connection failure caused by LLC or SNDCCP failure.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
13: Network connection failure – Unknown PDP type. Please contact your Service Provider.	Network connection failure.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
14: Network connection failure – User authorisation failed. Please contact your Service Provider.	Network connection failure because the user is not authorised for service.	Contact your Service Provider to regain authorised service. Your Service Provider should check the subscription entries in the Home Location Registry.
15: Network connection failure – Service option not supported. Please contact your Service Provider.	Network connection failure because the service option is not supported.	Contact your Service Provider to regain authorised service. The Service Provider should check the subscription entries in the Home Location Registry.
16: Network connection failure – Service option not subscribed. Verify your settings (APN, IP, etc.) and retry. Please Contact SP if problem persists.	Network connection failure because user was not subscribed to the service option.	Verify settings and contact your Service Provider to regain authorised service. The Service Provider should check the subscription entries in the Home Location Registry.
17: Network connection failure – N-SAPI has already been used. Power down and try again.	Network connection failure because network assigned an N-SAPI that is already being used.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
18: Network connection failure – Regular PDP deactivation by network. Power down and retry.	The connection was deactivated by the Network.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
19: Network connection failure – SM network failure. Power down and try again.	Connection failure due to the network Session Manager (SM).	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
20: Network connection failure – Too many failures to activate PDP context. Power down and try again.	Too many failed attempts (4) to connect to the Network.	This failure may occur because of a weak signal due to obstructions or geographic position (such as extreme latitude or longitude). Contact your Service Provider to verify coverage for your location.
21: Network connection failure – Network assigned an invalid IP address. Power down and try again.	Assignment of an invalid IP address by the network during connection.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider. The Service Provider should verify that you have the correct network settings.
22: Network connection failure – No response from network. Power down and try again.	Network connection failure due to lack of a response from the network.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
23: Network connection failure – Protocol error received from network. Power down and try again.	Network connection failure due to a protocol error.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
24: Network connection failure – GPRS stack could not attach to MUX interface. Power down and try again.	Internal software error.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
25: Network connection failure – GPRS stack could not detach from MUX interface. Power down and try again.	Internal software error.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.



<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
26: SIM card error – IMSI field is longer than 8 bytes and is invalid. Please contact your Service Provider.	SIM card may have been programmed incorrectly.	SIM card was incorrectly programmed. The SIM card must be replaced by another from your Service Provider.
27: GPRS software internal failure – GPRS stack message subscription failure. Please contact your Service Provider.	Internal software error.	Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
28: Your PC has been disconnected from the Thuraya terminal. Please ensure the interface cable is plugged in securely.	The connection between PC and Mobile Terminal has been removed, or the interface cable between Terminal Equipment and Mobile Terminal is not plugged in properly.	Remove and reinsert the interface cable from both the PC and the Thuraya IP Voyager. When done reboot the Thuraya IP Voyager.
29: Your requested QoS parameters could not be met by the network. Please try again later	Current Network Resources cannot support the Quality of Service requested.	Try a different QOS setting.
30: Your requested QoS parameters are not valid. Please modify them and try again.	QOS selection incorrect	Check settings and If the problem continues, contact your Service Provider.
31: Antenna Fault: External Communication Failure. Check antenna cable and restart terminal.	ADU Fault: External Communication Failure between the ADU and terminal BDU.	Check ADU cable and restart terminal

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
32: Antenna Fault: Cable Calibration Failure. Check antenna cable and restart terminal.	ADU Fault: Cable Calibration Failure between the ADU and terminal BDU	Check ADU cable and restart terminal
33: Antenna Failure: Invalid External Antenna Detected. Only HN221 Land Mobile or HN321 Maritime Antennas allowed.	The Thuraya IP Voyager detects that a non-standard antenna has been connected.	Connect an approved Land Mobile ADU to the terminal and restart.
34: Radio Silence is active; satellite access temporarily blocked.	The current GPS position is determined to be within one of the zones defined in the Radio Silence map file.	<p>This is normal operation for defined locations. If blockage is unexpected at the current GPS position, check that the map file has accurate data.</p> <p>Note: there is a one kilometre hysteresis factor in the location computation. If in doubt, wait until the terminal has moved at least 1 km to see if the terminal becomes unblocked.</p>
35: Incorrect SIM for configured terminal type.	The currently installed SIM is not suitable for use with the terminal's gateway selection.	<p>Replace the SIM with one that is compatible with your terminal.</p> <p>If the problem continues, contact your Service Provider.</p>
41: Your PC is opening a large number of TCP connections. Thuraya terminal is running out of resources.	Applications on your PC are generating excessive Internet connections.	<p>Check your PC for applications that may open large numbers of connections and disable these applications.</p> <p>If the problem continues, contact your Service Provider.</p>

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
42: Excessive TCP requests from user devices have depleted NAT resources. Condition will eventually clear itself. To clear immediately, restart terminal.	Excessive TCP connections by the PC have consumed all available connection resources in the terminal.	<p>Check your PC applications that are creating excessive TCP connections.</p> <p>The condition should eventually clear itself, within several minutes. If not, power down the Thuraya IP Voyager and try again.</p> <p>If the problem continues, contact your Service Provider.</p>
101: You were detached by the network. The Thuraya terminal is attempting to reattach...	Connection broken by the Network.	If terminal cannot reattach, Power down the Thuraya IP Voyager and try again. If the problem continues, contact your Service Provider.
102: No network connection, user initiated detach from network.	User initiated network disconnect.	User can reconnect using the wMMI connection controls.
103: Network connection failure – PLMN is not allowed. Reacquiring connection.	Network connection failure due to PLMN not allowed.	If the problem continues, contact your Service Provider.
104: Network connection failure – LA is not allowed. Reacquiring connection...	Network connection failure because the Thuraya IP Voyager is in a service not allowed Location Area (LA).	If the problem continues in other areas where service is allowed, contact your Service Provider.
105: Network connection failure – Roaming is not allowed. Reacquiring connection...	You are using a SIM card from a carrier that does not have a roaming agreement with your Service Provider.	If the problem continues with an authorised SIM card, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
106: Network connection failure – Thuraya terminal implicitly detached by the network. Reacquiring connection...	Network connection failure because terminal was implicitly detached by the Network.	If the problem continues, contact your Service Provider.
107: Network service is not available – Network resources not available. Reacquiring connection...	Network service not available due to lack of network resources.	If the problem continues, contact your Service Provider.
108: Network service is not available. Reacquiring connection...	Network service not available.	If the problem continues, contact your Service Provider.
109: Network Service is not available – Packet data services not presently available in this network.	Network service not available.	If the problem continues, contact your Service Provider.
110: Network service is not presently available - Thuraya terminal acquiring network.	Network service not available	If the problem continues, contact your Service Provider.
111: Network service is not available – Limited network service. Reacquiring connection...	Network service not available due to limited service.	If the problem continues, contact your Service Provider.
112: Network service is not available-Invalid position. Update the GPS under open sky and ensure you are under the Thuraya coverage.	Network service not available because the GPS position is not valid.	Verify that the ADU has an open view of the sky to get a GPS fix. If the problem continues, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
113: Network service is not available – Invalid position for the selected Service Provider. Reacquiring connection...	Network connection failure because the of an invalid GPS position.	Verify that the ADU has an open view of the sky to get a GPS fix. If the problem continues, contact your Service Provider.
114: Network service is not available - Invalid position for selected RAI. Reacquiring connection...	The GPS fix does not match the selected Routing Area Information (RAI).	Verify that the ADU has an open view of the sky to get a current GPS fix. If the problem continues, contact your Service Provider.
115: Network service not available – Unknown cause. Reacquiring connection...	Network service not available – cause unknown.	If the problem continues, contact your Service Provider.
116: Network connection failure - Insufficient resources. Reacquiring connection...	Network connection failure due to insufficient resources.	If the problem continues, contact your Service Provider. Network may be down.
117: Network connection failure – PDP rejected for unspecified reason. Reacquiring connection...	Network connection failure – unknown cause.	If the problem continues, contact your Service Provider. Network may be down.
118: Network connection failure - Service option temporarily out of order. Reacquiring connection...	Network connection failure because service option is temporarily out of order.	If the problem continues, contact your Service Provider. Network may be down.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
119: Network connection failure - PDP deactivated by network. Reacquiring connection...	Network connection failure.	If the problem continues, contact your Service Provider. Network may be down.
120: No network connection - User initiated PDP deactivation.	The terminal was powered down while connected to the network.	You will generally not see this code. In order for you to deactivate the PDP, you must power down the terminal. If the problem continues, contact your Service Provider.
121: Network connection failure - Missing or invalid APN. Please provide correct information and try again.	Network connection failure because the APN is missing or invalid.	Contact your Service Provider to get the correct network settings.
122: Network connection failure - Rejected by GGSN. Please re-enter User ID/Password and try again.	Network connection failure due to rejection by the GGSN.	Verify User ID/Password is correct on the network Settings Screen, re-enter and try again. If they are correct and the problem continues contact your SP.
123: Network connection failure - Subscribed QoS rejected by network. Please contact your Service Provider.	Network connection failure because the requested QoS was rejected by the Network.	Modify the QoS settings and try again. If the problem continues, set all QoS settings to the default values and try again. If the problem continues with the default values, contact your Service Provider.
124: Network connection failure - Invalid transaction id. Reacquiring connection...	Network connection failure due to invalid transaction ID.	If the problem continues, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
125: Network connection failure – Unknown Session Manager error. Reacquiring connection...	Network connection failure due to unknown session manager error.	If the problem continues, contact your Service Provider.
126: Network access temporarily unavailable - Please wait, the Thuraya terminal should automatically reacquire a connection within 1-2 minutes	Network connection failure because network access is blocked.	Network access is blocked. The network will send the terminal a timer value, and the terminal will attempt to connect again when the timer is complete. If the problem continues, contact your Service Provider.
127: Network access blocked - Radio priority is less than threshold. Thuraya terminal waiting to be unblocked by the network...	Network access is blocked due to the user's priority.	You are blocked from Network access due to your network priority. If the problem continues, contact your Service Provider.
128: Network Blocked - GPS fix is too old. Please obtain new GPS fix in an open area away from obstructions. Please contact SP if problem persists.	Notification of a GPS fix during or after Network connection procedure.	A new GPS fix was obtained during the connection process, superseding the old fix. The terminal will reacquire the connection. If the problem continues and a new connection cannot be made, contact your Service Provider.
129: Network Access blocked - GPS location may be too old. Please obtain new GPS fix in an open area away from obstructions. Contact SP if problem persists	GPS fix may be too old.	Verify that the ADU has an open view of the sky to get a GPS fix. If the problem continues, contact your Service Provider.

<b>Number and Description</b>	<b>Cause</b>	<b>Solution</b>
130: Network access unavailable - GPS location needs updating. The Thuraya terminal will acquire a new GPS location and connection. Do not power off!	GPS fix is too old.	The Thuraya IP Voyager will acquire a new GPS location and connection. Do not power off the terminal BDU.
132: Terminal temperature too high.	The terminal is too hot.	Allow the terminal to cool down.
134: Antenna temperature too high, transmit temporarily disabled.	The antenna unit is reporting an overheat condition.	Wait a short time for the condition to clear itself. If necessary, power down the terminal and wait a few minutes before trying again.
135: Requested streaming rate was negotiated downward by network.	A streaming session was requested and granted, but the negotiated data rates were less than requested.	This message is informational only and is not a fault. If the negotiated rates on the MMI are not acceptable, try reconnecting.



# GLOSSARY

---

**ADU:** Above Deck Unit. The Thuraya IP Voyager tracking antenna.

**APN:** Access Point Name. APNs can be assigned to each external network interface to allow communications among multiple Internet Service Providers (ISPs). If use of multiple ISPs is required in your network, on Thuraya IP Voyager wMMI Network Settings screen you can enable APN and enter the value supplied by your Service Provider.

**BDU:** Below Deck Unit. The Thuraya IP Voyager inside-vehicle unit.

**DHCP:** Dynamic Host Configuration Protocol. DHCP is a communications protocol that lets network administrators manage centrally and automate the assignment of IP addresses in an organization's network. With use of the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. You must make sure that the Windows network settings on your PC are set to allow the network to choose IP settings automatically.

**DNS:** Domain Name Service, a static, hierarchical name service for TCP/IP hosts. The network administrator configures the DNS with a list of host names and IP addresses, allowing users of workstations configured to query the DNS to specify remote systems by host names rather than IP addresses. On Thuraya IP Voyager wMMI Network Settings screen, a primary and possibly a secondary DNS address supplied by your Service Provider must be assigned.

**Ethernet:** Ethernet is a local area networking method used widely throughout the computer industry.

**GGSN:** Gateway GPRS Support Node.

**GPRS:** General Packet Radio System.

**GPS:** Global Positioning System. When the GPS receiver in Thuraya IP Voyager gets a bearing on a GPS satellite, the receiver computes and stores the terminal's location on earth. That location is used in the Pointing Process to obtain your location relative to the Thuraya Satellite.

**NAT:** Network Address Translation.

**Normal Operational Mode:** In this mode, the Thuraya IP Voyager is connected to your network, allowing you to perform standard system activities such as Internet browsing.

**PDP:** Packet Data Protocol.

**QoS:** Quality of Service.

**SIM:** Subscriber Identification Module. Your Service Provider issues you a SIM, containing your SIM Personal Identification Number (PIN) and other security-related information. You insert the SIM into the terminal BDU SIM holder as part of terminal hardware setup. If you configure the terminal to enable SIM PIN security, each time you invoke the terminal wMMI after turning on the terminal, PIN authorisation is required in order to use the system.

**SIM PIN:** A Subscriber Identification Module (SIM) Personal Identification Number (PIN) may be supplied by your Service Provider. If SIM PIN entry is enabled on Thuraya IP Voyager wMMI Security Management screen, a prompt requests you to enter the SIM PIN each time you run the wMMI. This helps prevent unauthorised use of your SIM.

**Static IP Address:** A static Internet Protocol (IP) address is a number that is assigned to a computer by an Internet Service Provider (ISP) to be its permanent address on the Internet. Computers use IP addresses to locate and talk to each other on the Internet. If Static IP addressing is enabled on Thuraya IP Voyager wMMI Network Settings screen, you must enter an IP address supplied by your Service Provider in the Static Public Network IP Address field that follows.

**Status Code:** A number which uniquely references an event or condition in a hardware or software system. In Thuraya IP Voyager, if there is a fault detected, the status code and a description are displayed at the bottom of the terminal wMMI Home and Status screens.

# SPECIFICATION

<b>Physical Characteristics</b>	
Weight (BDU)	2.2 kg
Weight (ADU)	2.0 kg
Size (BDU)	46 mm x 281 mm x 233 mm
Size (ADU)	252mm x 119mm
<b>Packet Data Services</b>	
Streaming IP	384 kbps
Standard IP	444 kbps
<b>Environmental</b>	
Operating Temperature	-25°C to +55°C
Storage Temperature	-40°C to +80°C
Operating Humidity	95% RH at 40°C
Mechanical Vibration	200-2000 Hz, 0.3 m <sup>2</sup> /s <sup>3</sup> MIL-Spec 810B
Unpacked Drop	0.5m (cosmetic damage only)
Ingress Protection (ADU)	IP56
<b>Compliance and certifications</b>	
	CE, EMC 301 444, 301 489, IEC 60950
<b>External Power</b>	
Main power input	10-32VDC
Maximum current	12A
<b>Interfaces</b>	
Connectors	4 Ethernet (PoE-IEEE 802.3af standard) <b>Note:</b> 48Vdc for PoE devices is supplied over the TX, RX pairs. It is active only when an 802.3af compliant device is plugged in. The other pairs (4, 5, 7, and 8) are unused.
User Interface	Web-based graphical user interface accessible via standard web browser
External Connector	Thuraya Satellite tracking antenna HN221 (Land-mobile)
WLAN Connectivity	IEEE 802.11 b/g/n standard with: - WEP, WPA and WPA2 encryption - SSID broadcasting control - MAC address filtering - DHCP

# Declaration of Conformity

## DECLARATION OF CONFORMITY

### Application of council directives:

Low Voltage Directive:	2014/35/EU
EMC Directive:	2014/30/EU
RED Directive:	2014/53/EU
RoHS Directive:	2011/65/EU

### Standards to which conformity is declared:

Safety:	EN 62368-1 :2014 /A11 :2017 ; IEC 62368-1 :2014
EMC:	EN 301 489-1 V2.1.1 (2017) ; EN 301 489-17 V3.2.0 (2018-03) EN 301 489-20 V1.2.1 (2002) ; EN 60945 :2002
RF Spectrum:	EN 301 444 V2.1.2 (2016) ; EN 301 444 V2.2.1 (2021-04) EN 300 328 V2.1.1 (2016) EN 300 328 V2.2.2 (2019-07)
RF Health Exposure:	EN 62311 :2008
RoHS:	EN 50581 :2012

### HNS conformity assessment reports:

Safety:	HNS-3004465
EMC:	HNS-3004457, HNS-3004458, HNS-3004462, HNS-3004463
RF Spectrum:	HNS-3004454, HNS-3004455, HNS-3004456, HNS-3004526 HNS-3004460, HNS-3004461, HNS-3004579, HNS-3004580
RF Exposure:	HNS-3004459
RoHS:	HNS-3004466

Product(s):	Thuraya IP Voyager, Thuraya Orion IP
Model Numbers:	9105
Serial Number:	All
Year of Start Manufacture:	2013
Manufacturer's Name:	Hughes Network Systems
Manufacturer's Address:	11717 Exploration Lane, Germantown, Maryland, USA 20876
Importer's Name:	Hughes Network Systems GmbH
Importer's Address:	Ottostrasse 9, 64347 Griesheim, Germany

### The conformity assessments have been performed by the following location(s):


- Nemko USA, Inc., 2210 Faraday Ave, Suite 150, Carlsbad, CA 92008, USA
- WestPak, Inc., 10326 Roselle St, Suite 101, San Diego, CA 92121, USA

### The product carries the CE Mark:



I hereby declare that the above-named product is in conformity to all essential requirements of the Low Voltage, EMC, RED and RoHS Directives.

### Signature:

  
Steve McPhilly  
Vice President, Quality  
Hughes Network Systems, LLC

Place: Germantown, Maryland  
Date: March 10, 2023

**Corporate Offices**  
11717 Exploration Lane  
Germantown, MD 20876 USA  
Tel: 301-428-5500  
Fax: 301-428-1868  
[www.hughes.com](http://www.hughes.com)

## DECLARATION OF CONFORMITY

### Application of council directives:

Low Voltage Directive:	<i>Electrical Equipment (Safety) Regulations 2016</i>
EMC Directive:	<i>Electromagnetic Compatibility Regulations 2016</i>
RED Directive:	<i>Radio Equipment Regulations 2017</i>
RoHS Directive:	<i>The Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012</i>

### Standards to which conformity is declared:

Safety:	<i>EN 62368-1 :2014 /A11 :2017 ; IEC 62368-1 :2014</i>
EMC:	<i>EN 301 489-1 V2.1.1 (2017) ; EN 301 489-17 V3.2.0 (2018-03) EN 301 489-20 V1.2.1 (2002) ; EN 60945 :2002</i>
RF Spectrum:	<i>EN 301 444 V2.1.2 (2016) ; EN 301 444 V2.2.1 (2021-04) EN 300 328 V2.1.1 (2016-11) ; EN 300 328 V2.2.2 (2019-07)</i>
RF Health Exposure:	<i>EN 62311 :2008</i>
RoHS:	<i>EN 50581 :2012</i>

### HNS conformity assessment reports:

Safety:	<i>HNS-3004465</i>
EMC:	<i>HNS-3004457, HNS-3004458, HNS-3004462, HNS-3004463</i>
RF Spectrum:	<i>HNS-3004454, HNS-3004455, HNS-3004456, HNS-3004526 HNS-3004460, HNS-3004461, HNS-3004579, HNS-3004580</i>
RF Exposure:	<i>HNS-3004459</i>
RoHS:	<i>HNS-3004466</i>

Product(s):	Thuraya IP Voyager, Thuraya Orion IP
Model Numbers:	9105
Serial Number:	All
Year of Start Manufacture:	2013
Manufacturer's Name:	Hughes Network Systems
Manufacturer's Address:	11717 Exploration Lane, Germantown, Maryland, USA 20876
Importer's Name:	Hughes Network Systems
Importer's Address:	Rockingham Drive, Linford Wood, Milton Keynes, United Kingdom, MK14 6PD

The conformity assessments have been performed by the following location(s):


- Nemko USA, Inc., 2210 Faraday Ave, Suite 150, Carlsbad, CA 92008, USA
- WestPak, Inc., 10326 Roselle St, Suite 101, San Diego, CA 92121, USA

The product carries the CE Mark:



I hereby declare that the above-named product is in conformity to all essential requirements of the Low Voltage, EMC, RED and RoHS Directives.

Signature:

  
Steve McPhilly  
Vice President, Quality  
Hughes Network Systems, LLC

Place: Germantown, Maryland  
Date: March 10, 2023

Corporate Offices  
11717 Exploration Lane  
Germantown, MD 20876 USA  
Tel: 301-428-5500  
Fax: 301-428-1868  
[www.hughes.com](http://www.hughes.com)

# INDEX

---

- address ..... 3, 10, 11, 32, 41, 42
- Administrative Access..... 13
- ADU ..... 2, 26, 36, 37, 39, 43
- antenna ..... ii, iv, 1, 26
- APN ..... 9, 12, 38, 41
- ARQ ..... 7
- battery ..... 27
- BDU..... 1, 24, 26, 30, 41, 43
- browser ..... 2, 3, 22, 25, 27
- connection profiles ..... 5
- data usage ..... 6, 7
- DNS ..... 9, 10, 11, 26, 41
- Ethernet ..... 1, 22, 41
- fault codes ..... 24
- Fixed Rate..... 4, 8
- GPS ..... 2, 5, 26, 36, 37, 39, 40, 41
- IMEI ..... 6, 30
- login..... 15
- MAC ..... 6, 17, 18
- Multimedia ..... 4, 7
- password ..... 13, 15, 38
- PIN ..... 12, 13, 26, 29, 42
- pointing..... 26
- Power button ..... 2
- Private Satellite Modem IP  
    Address ..... 6
- proxy server.....25, 27
- Public Network IP Address...6, 10,  
    42
- QoS .....7, 38, 42
- Quality of Service .....7, 42
- region ..... 16
- Restore Factory Defaults**.....5
- safety .....i
- satellite .ii, 1, 5, 7, 8, 22, 26, 27, 41
- security code.....5, 13
- Signal Quality.....8, 27
- Signal Strength.....8
- SIM5, 12, 13, 24, 25, 26, 28, 29, 33,  
    35, 42
- SSID ..... 16, 17
- temperature .....40
- timeout ..... 16
- upgrade .....22, 23
- USB ..... 1
- video.....4, 7
- voice.....7
- WEP ..... 17, 18
- WiFi..... 1
- WLAN ..... 16, 17, 18
- wMMI .3, 10, 12, 23, 24, 25, 27, 41,  
    42