Web UI v2
User Manual

Web UI User Manual

Publication Number:

Revision Level: v0B

Revision Date: June 2020

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Table of Contents

Chapter 1 Web User Interface

The NovAtel Web User Interface (UI) is used to monitor, configure and update a variety of receiver functions via Ethernet or Wi-Fi.

Once communications has been established with the receiver, the NovAtel Web UI can be opened on any device with a web browser such as a smart phone, laptop, etc.

1.1 Open the Web UI

Once the receiver is connected and powered, locate the PwrPak7 in the list of detected Wi-Fi Networks and establish a connection. The PwrPak7 SSID is printed on a label on the bottom of the receiver. The format of the SSID is PwrPak7-<Receiver PSN>, e.g. "PwrPak7-ABCDEF1234567".

The NovAtel Web User Interface is compatible with Chrome, Firefox and Safari.

A prompt for a password will appear. On the bottom of the PwrPak7 the default password, specific to that PwrPak7 unit, is printed on the label. The default password can be changed. Refer to Network Settings Button for details.

OEM7 receiver cards can also use the Web UI via an Ethernet connection. No password is required as long as the card is connected and has an IP address.

Cookies should always be on and never blocked on the browser being used to connect to the Wi-Fi network.

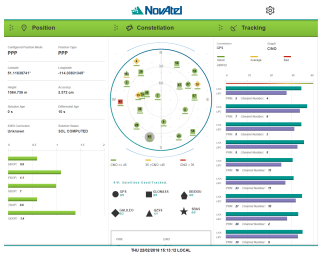
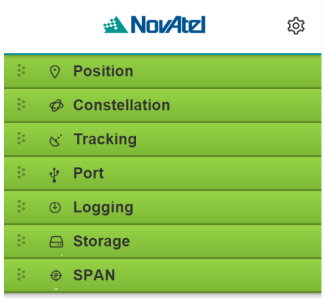
After a Wi-Fi connection is established, open a web browser and navigate to the receiver's URL, which is 192.168.19.1 by default. The receiver WebUI homepage opens.

More advanced monitoring, configuring and updating can be performed using any terminal/command line application (including the terminal of the NovAtel Web UI).

1.2 Web UI Main Window

The user interface for the Web UI is built using a responsive layout so computers, phones and devices of all sizes automatically display to size in the device window. If opened on a desktop/laptop, the Status Windows for all features are automatically displayed. If opened on a mobile device, the windows are closed and just the tabs are displayed.

Desktop/Laptop Main Window	Mobile Device Main Window - Tabs

	
Status Windows open automatically and display current status information	Click on a Tab to open the Status Window to display current status information
Click on a Function Tab to open the Configuration Window specific to that function. Configure options as needed	 Swipe a Tab to the right to open the Configuration Window specific for that function. Configure options as needed

1.2.1 Alerts

Alerts, applicable to a specific Function Tab, appear at the top of a Status Window indicating the current state of the receiver.

Examples:

A yellow alert message provides information regarding the current state of the receiver.

A red alert message provides information regarding errors affecting the receivers ability to properly function. The alert will remain until the situation is corrected. Check Port Status Window and/or the Position Status Window to review activity.

1.2.2 Settings Icon

Under the **Settings Overview** on page 7, network settings are managed, information regarding the connected receiver is displayed, a terminal/command line is available and the ability to update the receiver firmware and the Web UI is provided.

Chapter 2 Settings Overview

Click the Cog button ( ) to display Network Settings, Device Information, Terminal Command Line and Updating functionality.

= **User Preferences** below

= **Network Settings** below

= **Device Info** on page 10

= **Terminal** on page 12

= **Update** on page 14

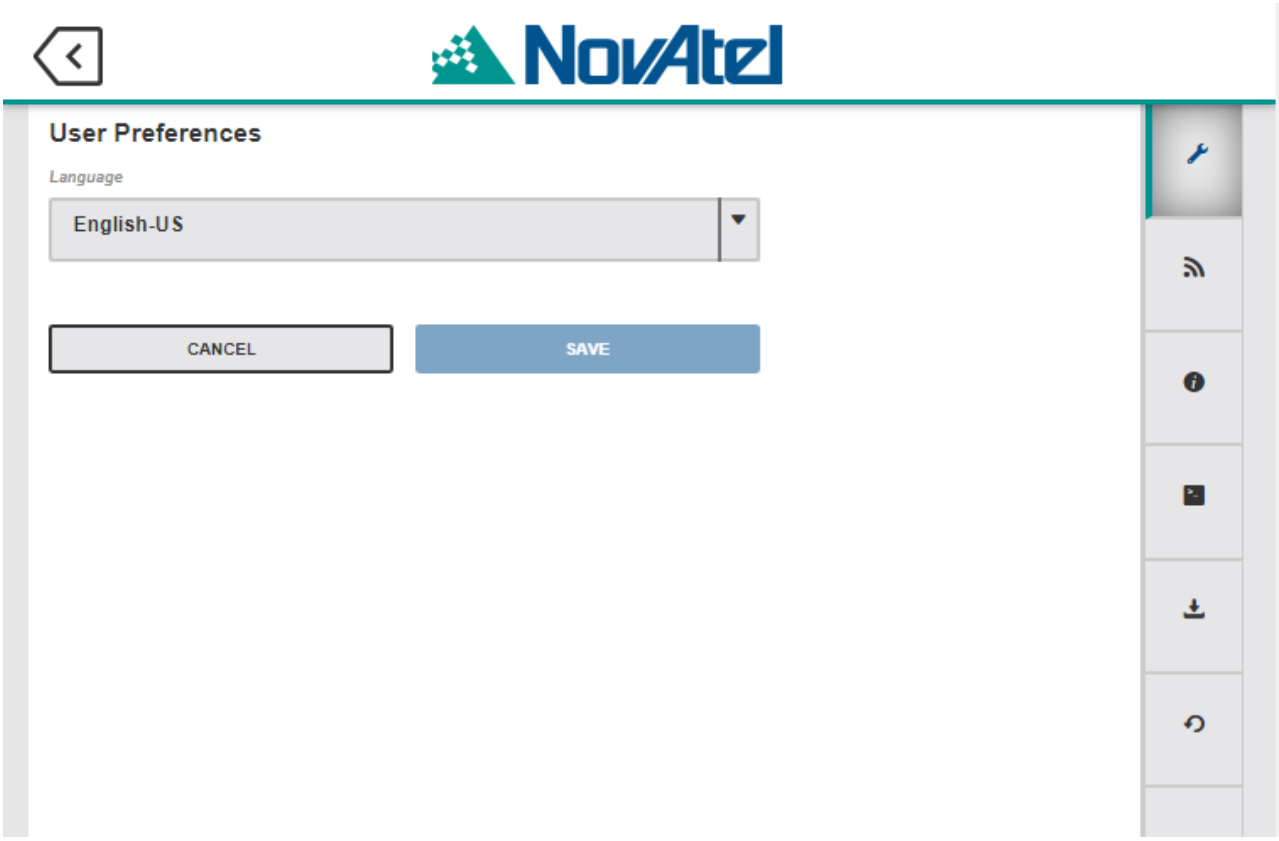
= **Reset** on page 16

2.1 Back Button

Use the Back button ( ) to return to the Status Window.

2.2 User Preferences

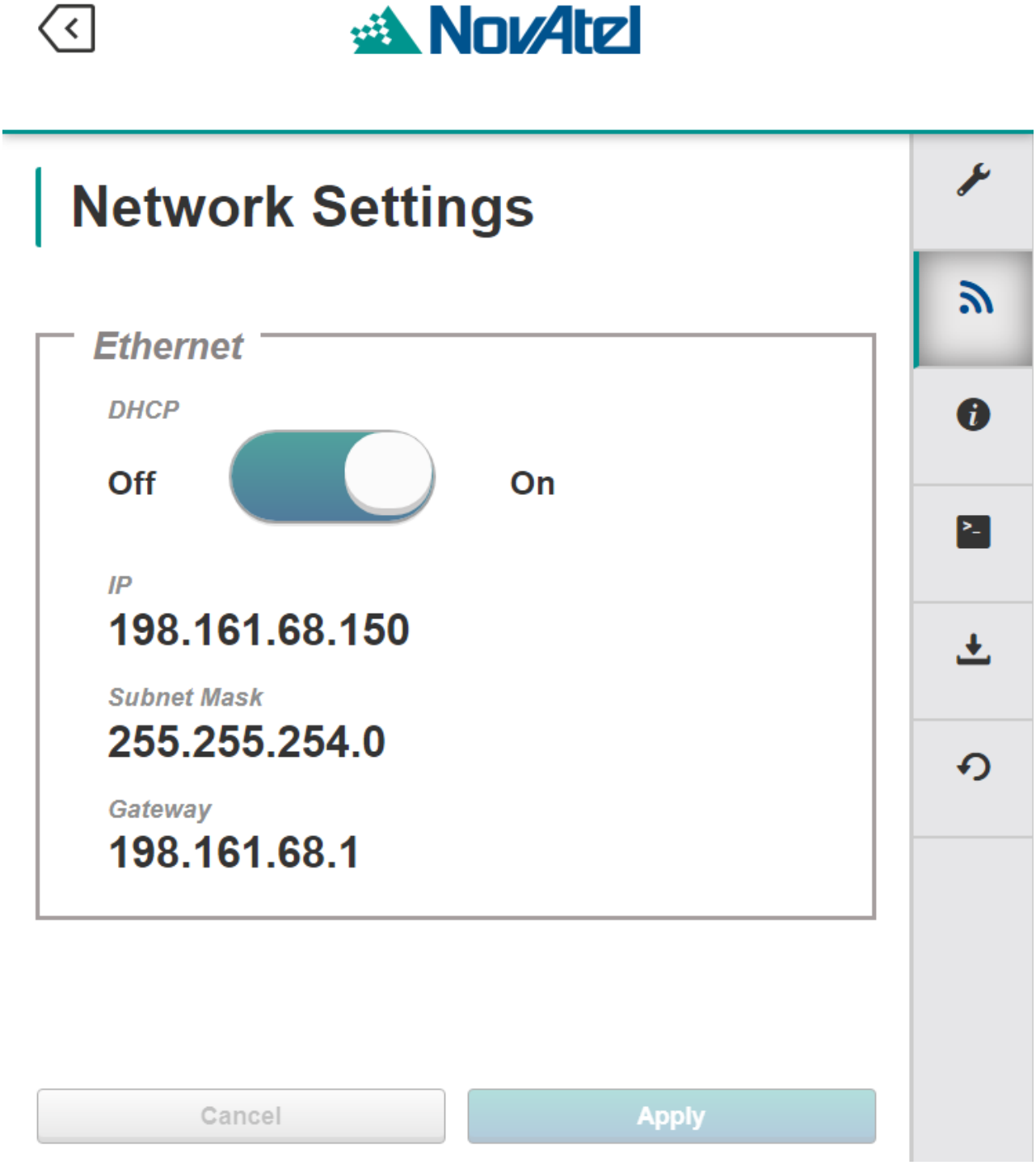
From the *User Preferences* window, the language used for the Web UI interface can be changed. To change the language, select the language from the **Language** drop list and then click the **Save** button.



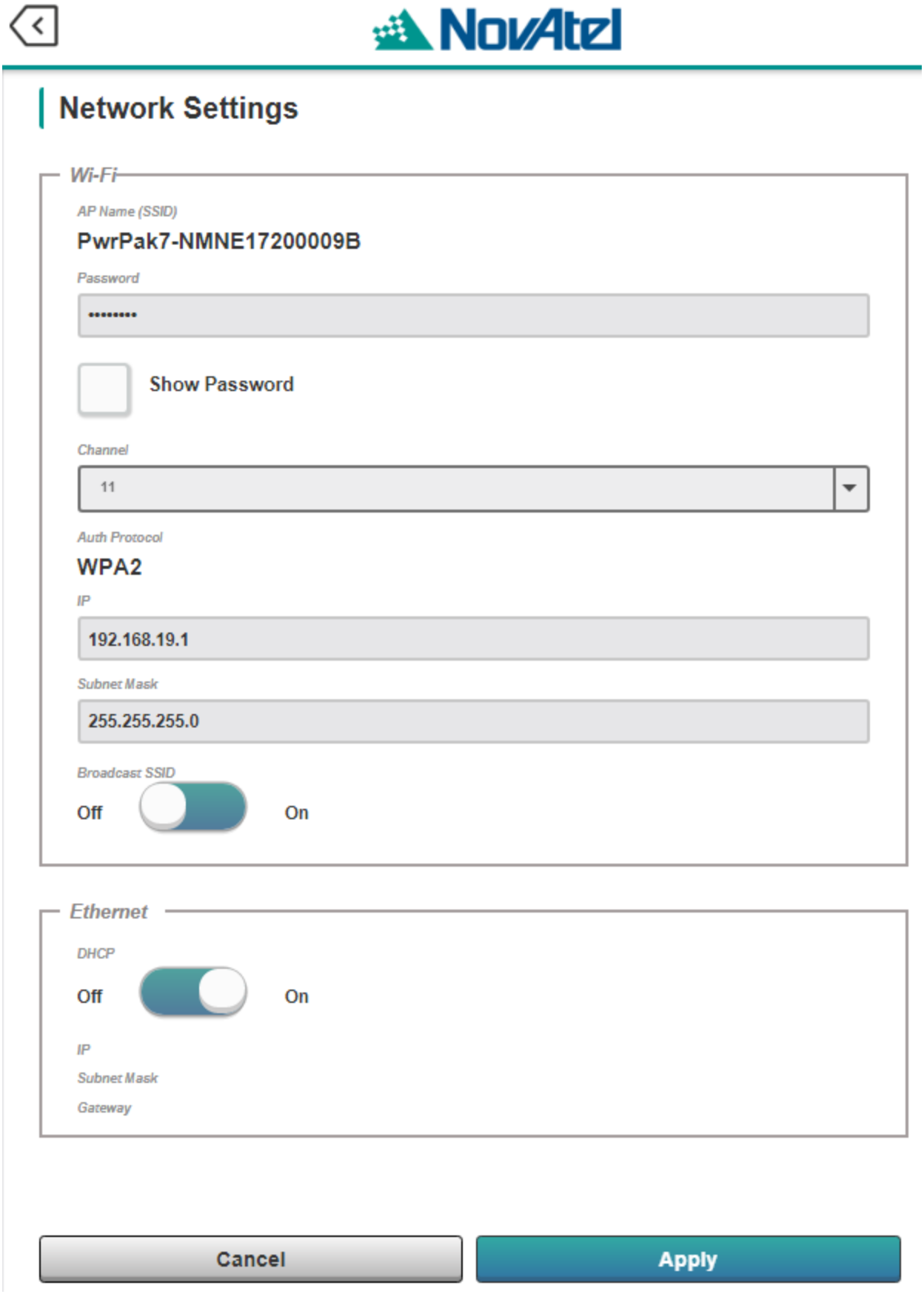
2.3 Network Settings

View the current network settings or turn network(s) on/off. The information shown depends on the network interface available on the receiver.

If receiver has only an Ethernet interface, DHCP can be turned on or off.



If the receiver has both an Ethernet interface and Wi-Fi, information for both interfaces are displayed.


NovAtel
Network Settings
Wi-Fi
AP Name (SSID)
PwrPak7-NMNE17200009B
Password
Show Password
Channel
11
Auth Protocol
WPA2
IP
192.168.19.1
Subnet Mask
255.255.255.0
Broadcast SSID
Off
On
Ethernet
DHCP
Off
On
IP
Subnet Mask
Gateway
Cancel
Apply

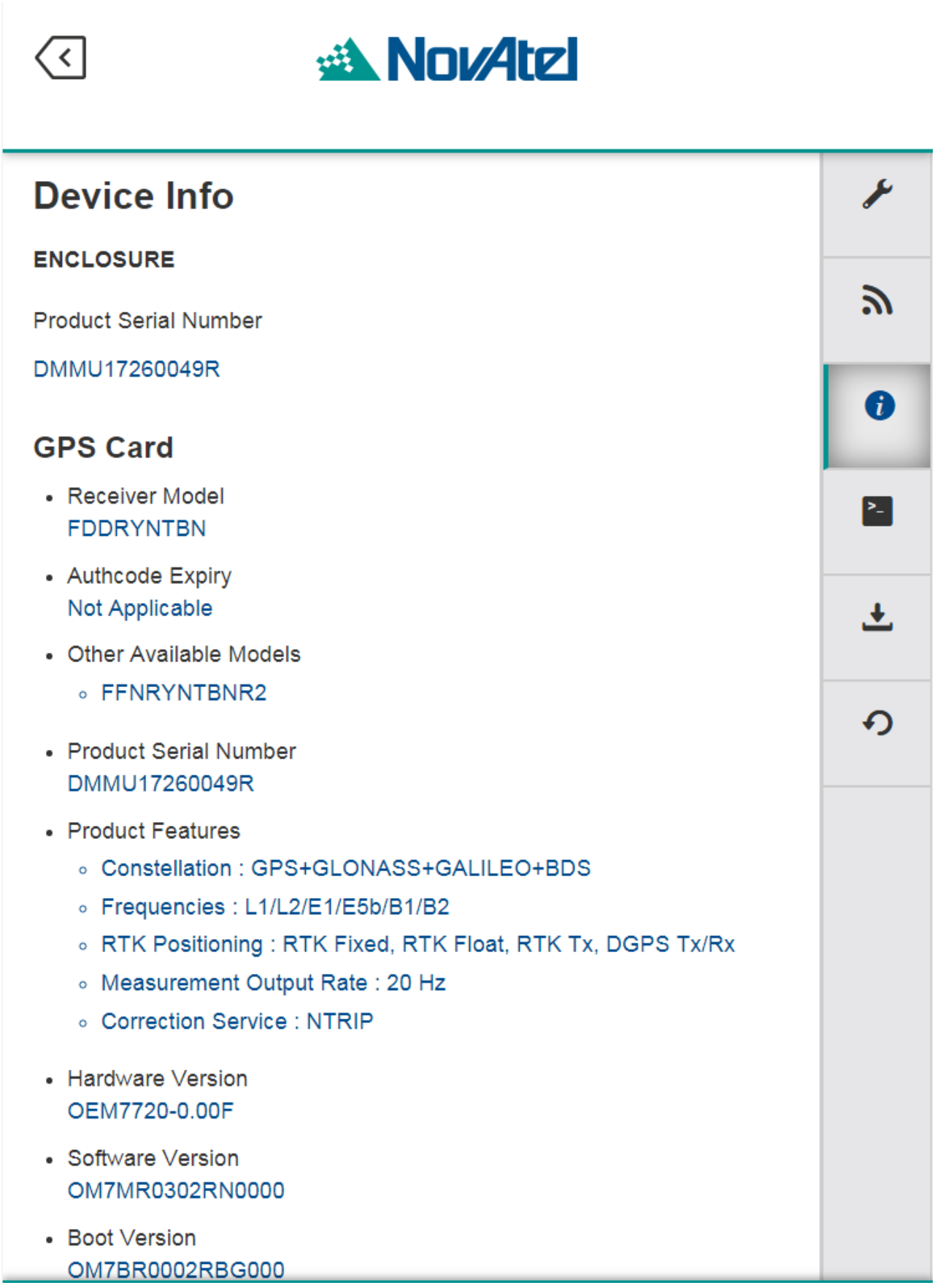
If required, change the password by entering a new password in the password field and pressing the **APPLY** button.

Turn the *Broadcast SSID on or off*: on to display device name in network list; off to not display.

Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

2.4 Device Info

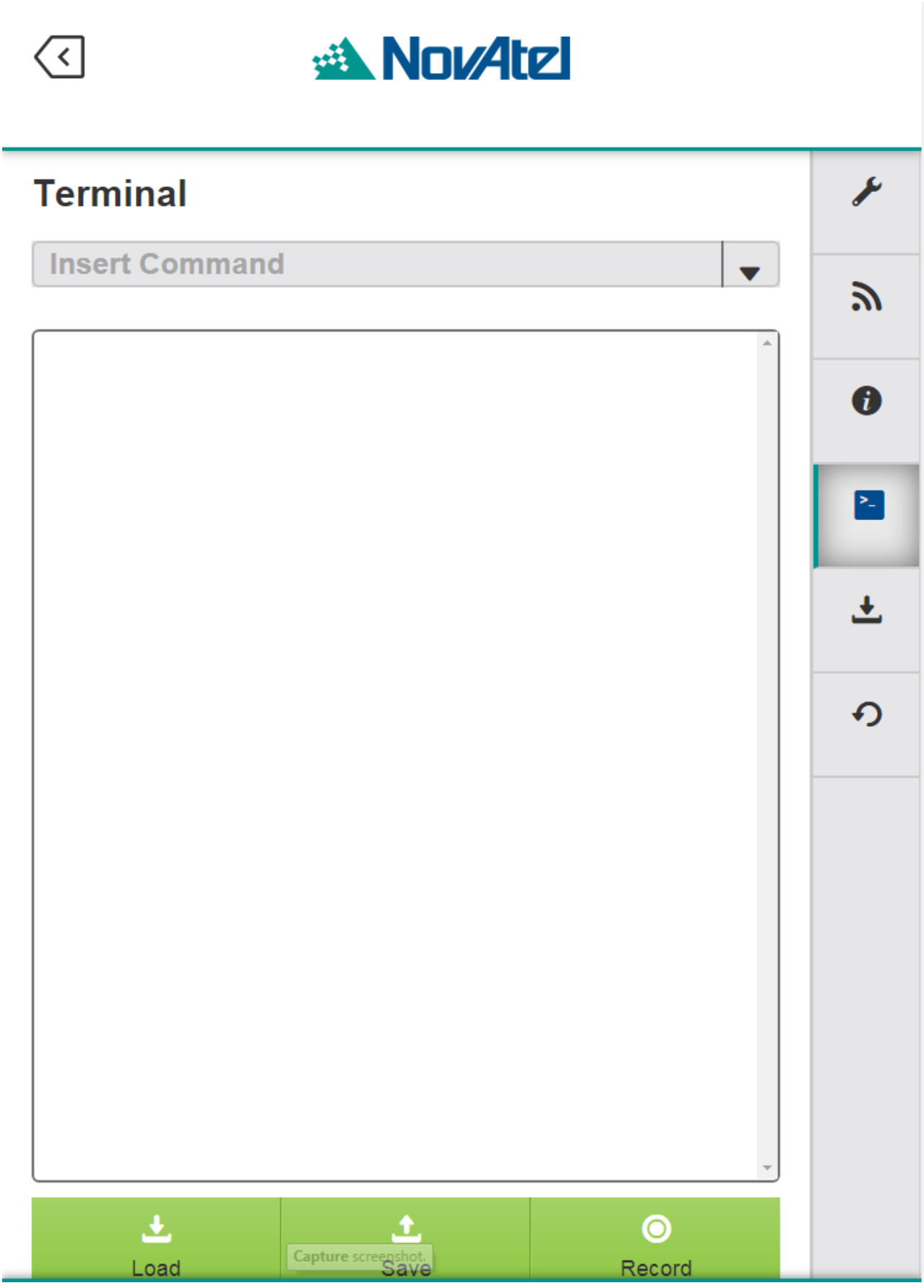
Displays important information regarding the receiver hardware and firmware version.


Device Info
ENCLOSURE
Product Serial Number
DMMU17260049R
GPS Card
Receiver Model
FDDRYNTBN
Authcode Expiry
Not Applicable
Other Available Models
FFNRYNTBNR2
Product Serial Number
DMMU17260049R
Product Features
Constellation : GPS+GLONASS+GALILEO+BDS
Frequencies : L1/L2/E1/E5b/B1/B2
RTK Positioning : RTK Fixed, RTK Float, RTK Tx, DGPS Tx/Rx
Measurement Output Rate : 20 Hz
Correction Service : NTRIP
Hardware Version
OEM7720-0.00F
Software Version
OM7MR0302RN0000
Boot Version
OM7BR0002RBG000

2.5 Terminal

Use the *Terminal* to directly send commands to the receiver and display any receiver acknowledgments and outputs.

Enter a command at the top and press **RETURN**.


Terminal
Insert Command
Load
Capture screenshot.
Save
Record

Load Button = Press to load a list of commands from a file to the receiver and automatically execute those commands.

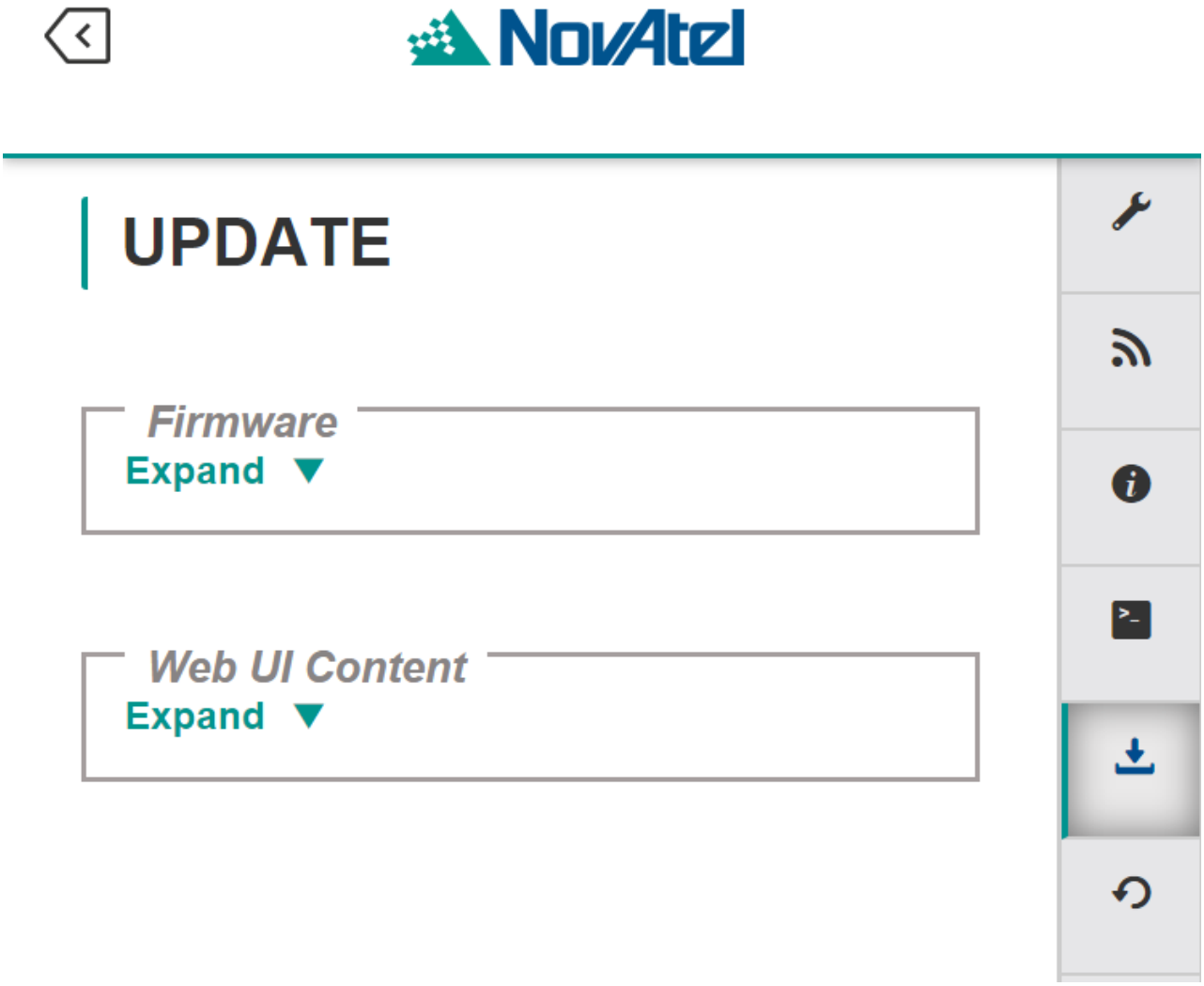
Save Button = Press the button to save a list of any commands issued in the Terminal to a file.

Record Button = Press the button to begin recording all activity in the Terminal. Press again to stop recording. A prompt to Save the recording to a file automatically displays.

The Terminal window does not support logging rates higher than 1 Hz.

2.6 Update

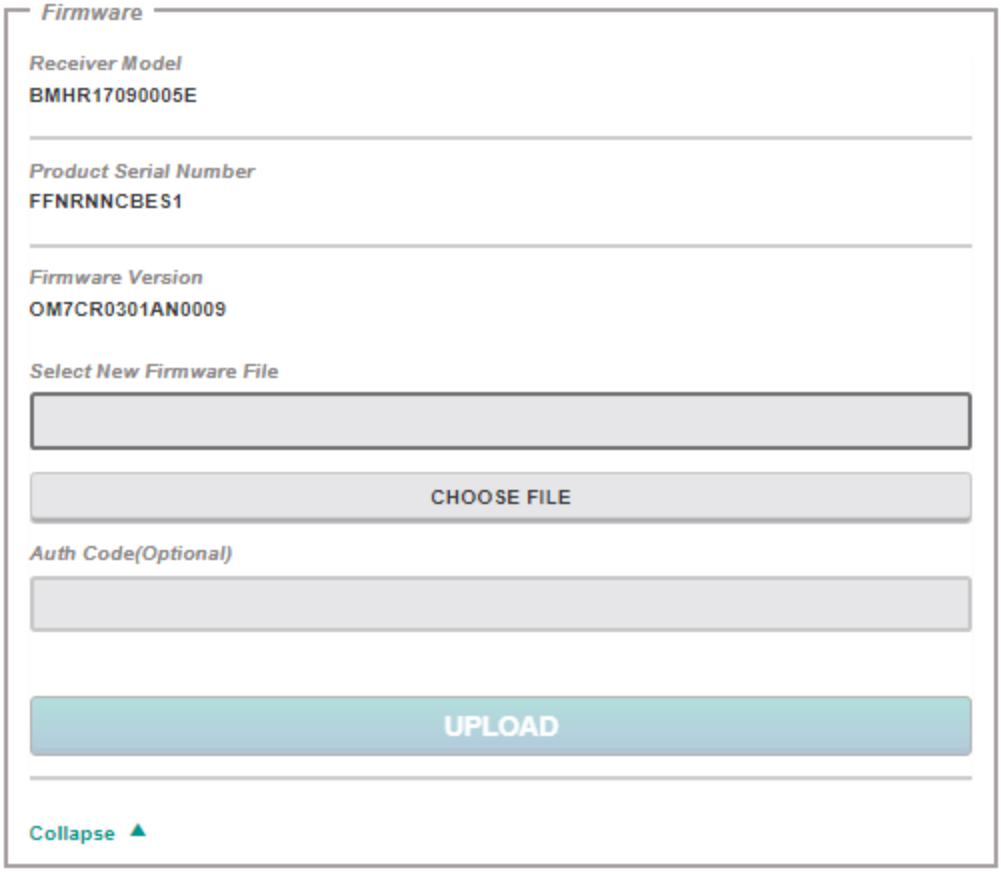
The Firmware and/or Web UI can be updated.



Use the / icons to expand/collapse the update fields.

2.6.1 Update Firmware

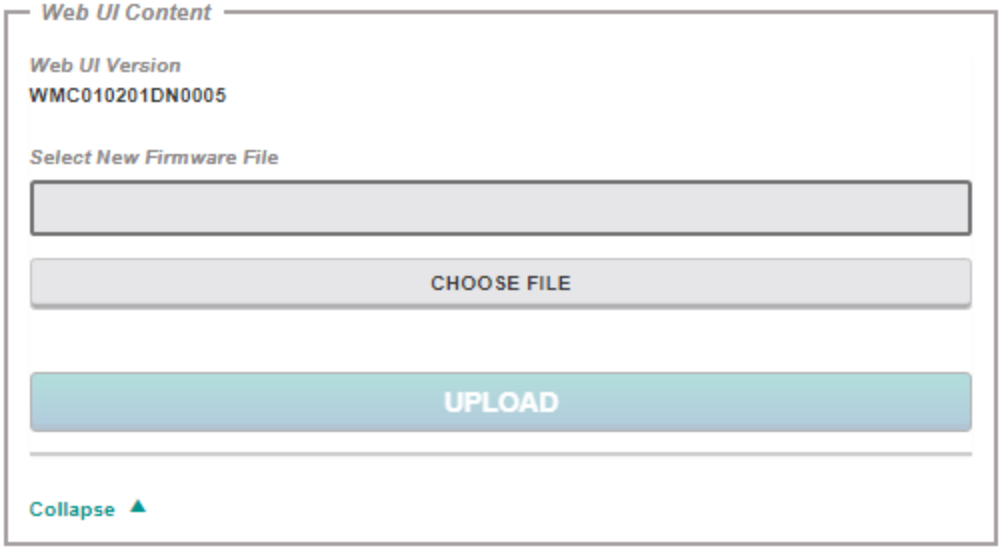
Use to update the firmware loaded in the receiver. Copy the .shex file to the device's local drive before uploading.



Use the **CHOOSE FILE** button to navigate to the .shex file location and select. If an Auth Code is also being applied, the Auth Code can be entered in the Auth Code field. Press the **UPLOAD** button. Once upload complete, Web UI automatically returns to the Main Window.

2.6.2 Update Web UI Content

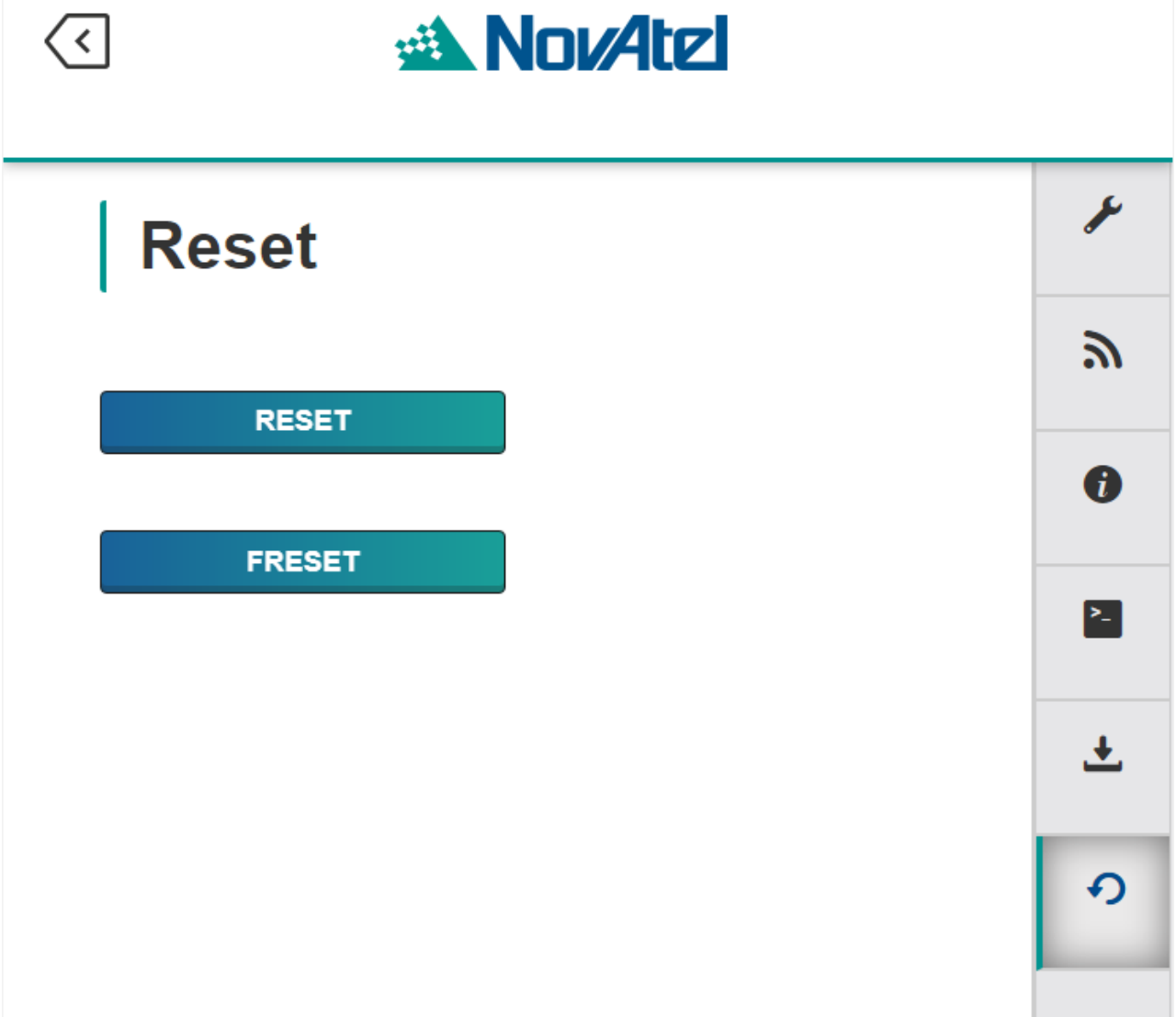
Use to update the Web UI. Copy the .hex file to the device's local drive before uploading.



Use the **CHOOSE FILE** button to navigate to the .hex file location and select. Press the **UPLOAD** button. Once upload complete, Web UI automatically returns to the Main Window.

2.7 Reset

Use this window to RESET or FRESET the receiver.



Click the **RESET** button to perform a software reset on the receiver. The receiver configuration reverts to the settings saved using the SAVECONFIG command.

Click the **FRESET** button to clear the data stored in non-volatile memory and restart the receiver. The data cleared includes the almanac, ephemeris and any user configuration.

For more information, refer to the RESET, FRESET and SAVECONFIG commands in the OEM7 Documentation Portal (docs.novatel.com/OEM7).

Chapter 3 Function Tabs

Each function of the Web UI has a Tab. Under each tab is a Status Window to view/monitor information and a Configuration Window to adjust various setting and options.

Available Function Tabs are:

- **Position Tab** below
- **Constellation Tab** on page 27
- **Tracking Tab** on page 29
- **Port Tab** on page 31
- **Logging Tab** on page 34
- **Storage Tab** on page 39
- **ALIGN Tab** on page 43
- **SPAN Tab** on page 45

The color of the tab depends on the status of function: Red=Bad, Yellow=Locked out or Average, Green=Good

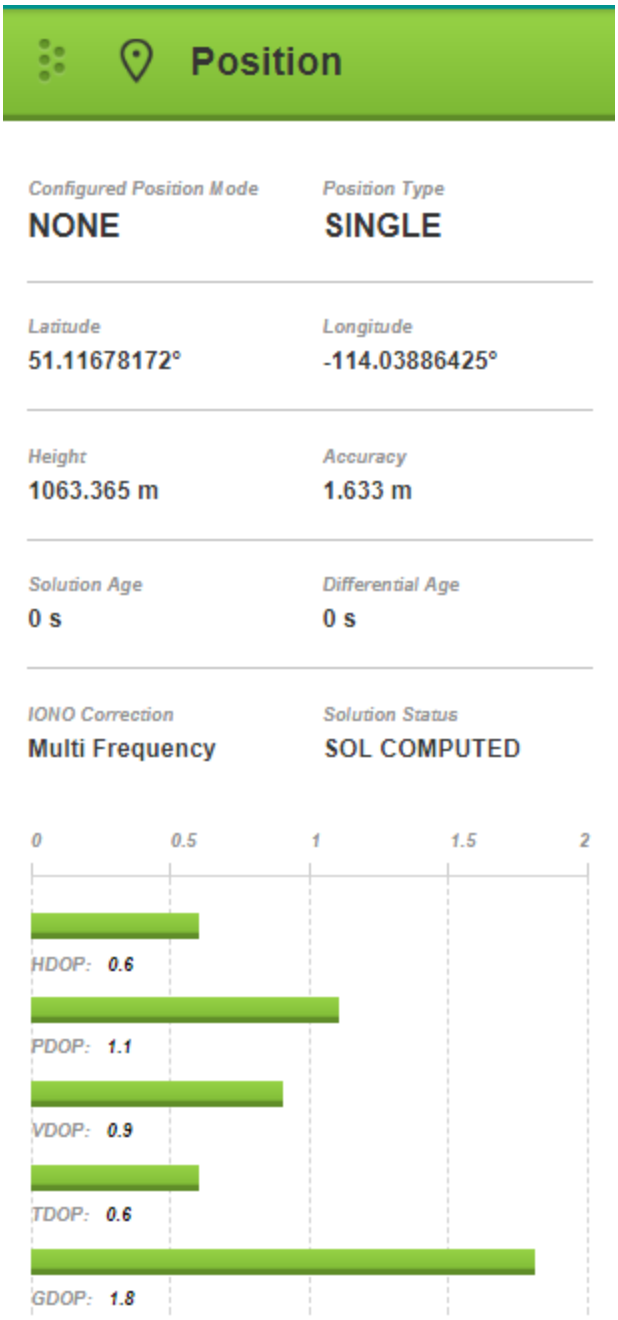
3.1 Position Tab

Display information regarding the current position such as Position Type, latitude, longitude, Solution Status, etc., and configure a variety of position options.

- **Position Status Window** below
- **Position Configuration – SBAS** on page 19
- **Position Configuration – TerraStar** on page 20
- **Position Configuration – RTK** on page 22
- **Position Configuration – NTRIP** on page 25

3.1.1 Position Status Window

The Position Status Window displays a variety of information about the receiver position and solution status.



Configured Position Mode

The displayed setting values depend on how the receiver is configured under the Position Configuration Tab.

Position or Velocity Type

Descriptions of the Type are listed in the BESTPOS log section in the OEM7 Documentation Portal (docs.novatel.com/OEM7).

Solution or Differential Age

The Solution or Differential Age is the age of the current solution. Typically, this represents the latency in the correction data.

Iono Corrections

The Iono Corrections indicate the current ionospheric correction model in use.

Solution Status

The Solution Status indicates if the position has been computed and, if not, provides a possible reason. The possible values are listed in the BESTPOS log section in the OEM7 Documentation Portal (docs.novatel.com/OEM7).

DOP

Displays the calculated Dilution of Precision (DOP) values for the solution.

3.1.2 Position Configuration Window

The Position Configuration Window is used to:

- Define SBAS Control settings
- Display TerraStar subscription details, L-Band beams and PPP controls
- Configure RTK Base or Rover correction ports and correction types
- Configure NTRIP Server or Client settings

.

Click on a tab to display available options.

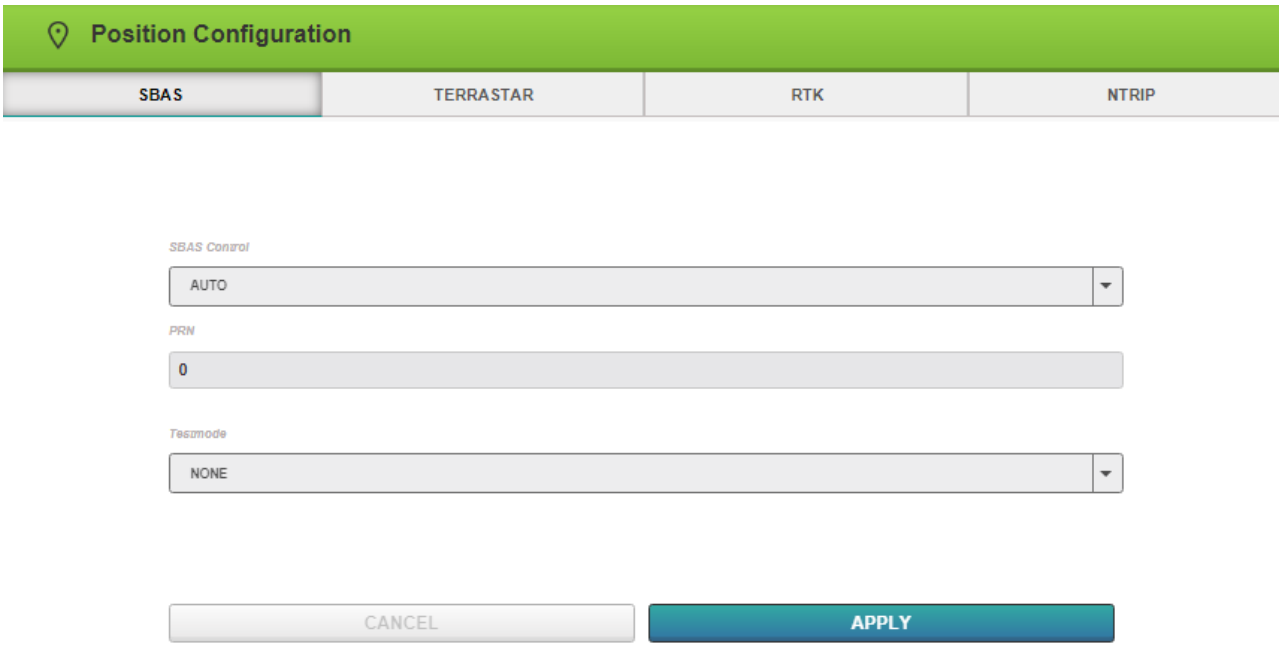
3.1.2.1 Position Configuration – SBAS

Use the Position Configuration – SBAS Window to define how the receiver tracks and uses correction data from Satellite Based Augmentation Systems (SBAS).

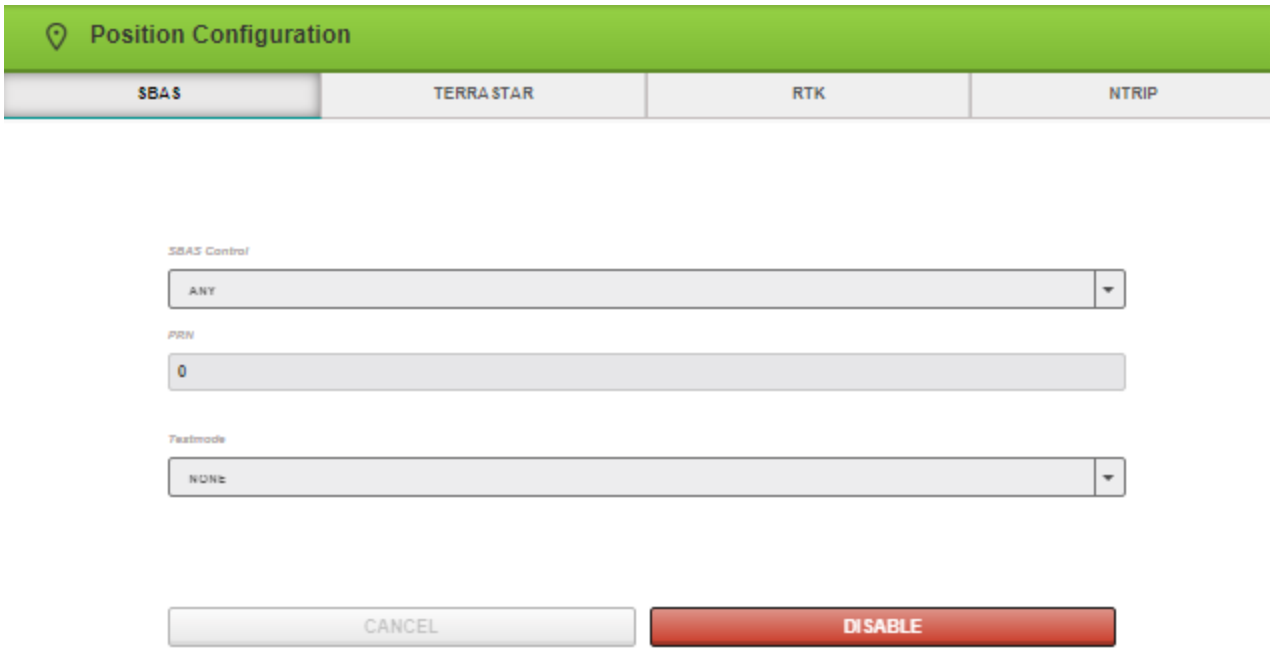
Use the drop menus to define the SBAS Control system type and the Testmode to define how the receiver interprets messages.

Refer to the Table: System Types in the SBASCONTROL command in the OEM7 Documentation Portal (docs.novatel.com/OEM7).

.



Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.



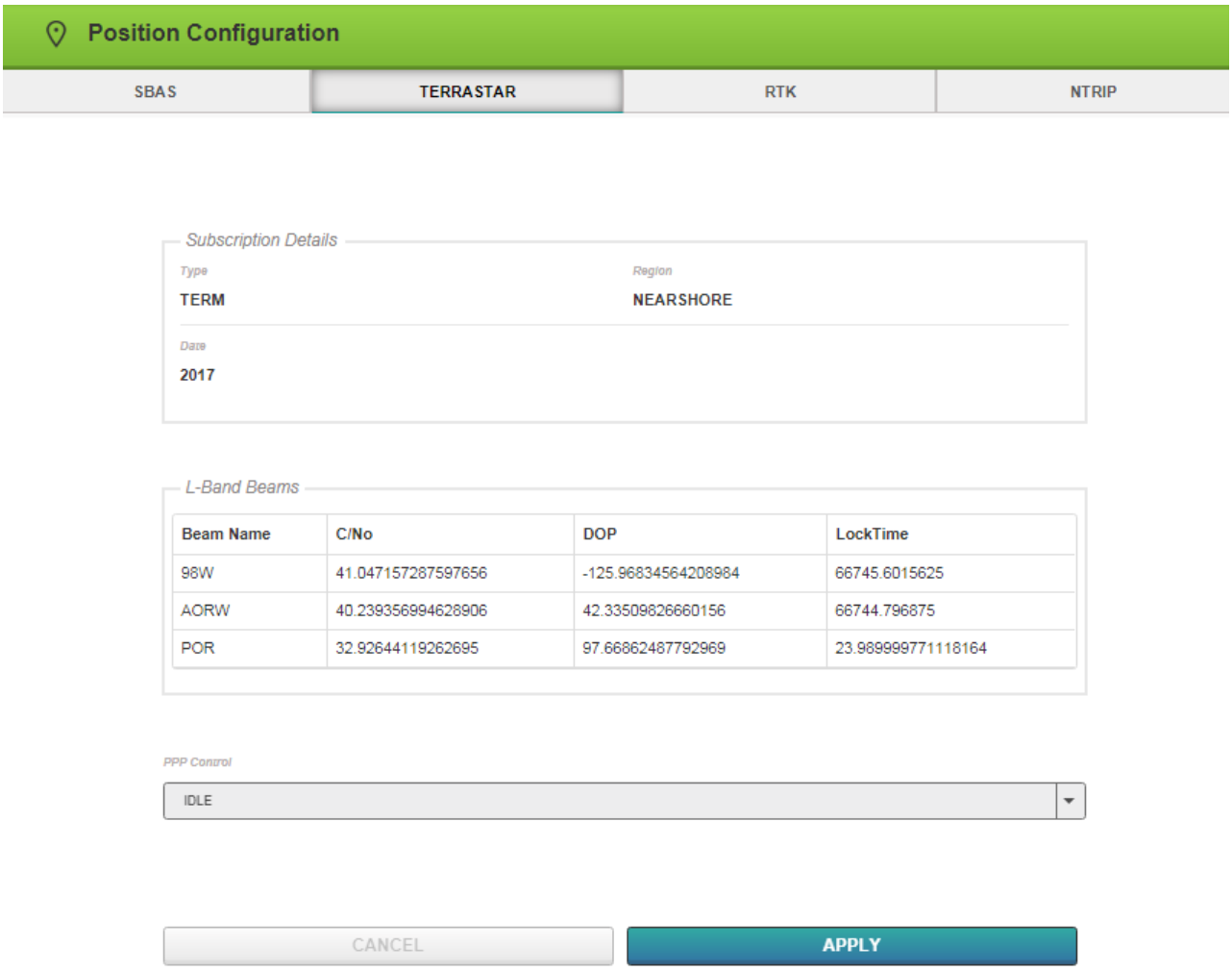
.

Press the **DISABLE** button to turn Configured Position Mode off.

3.1.2.2 Position Configuration – TerraStar

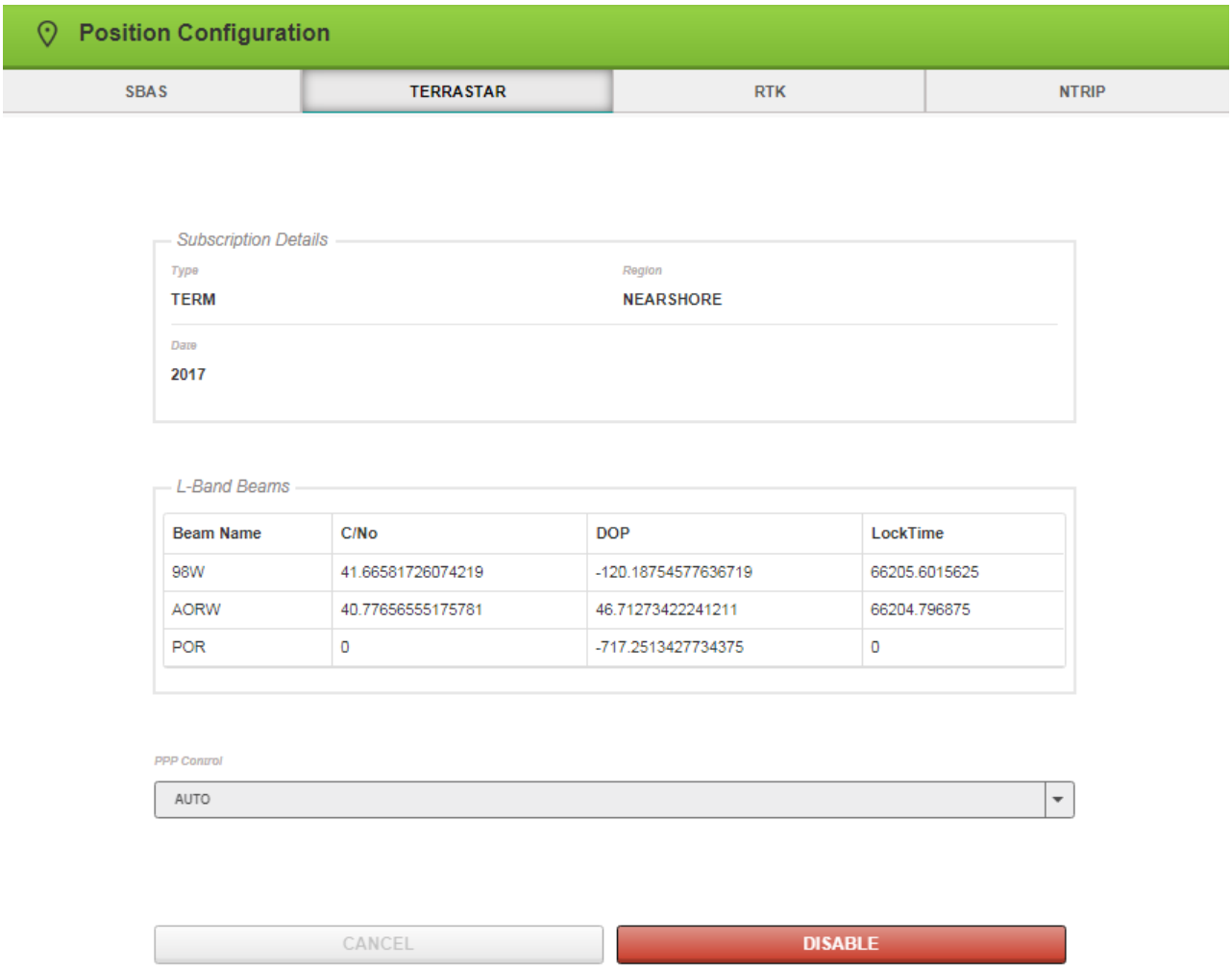
Use the Position Configuration – TerraStar Window to:

- Review current TerraStar subscription details
- Review L-Band Beams selected
- Select PPP Control



.

Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.



Press the **DISABLE** button to turn Configured Position Mode off.

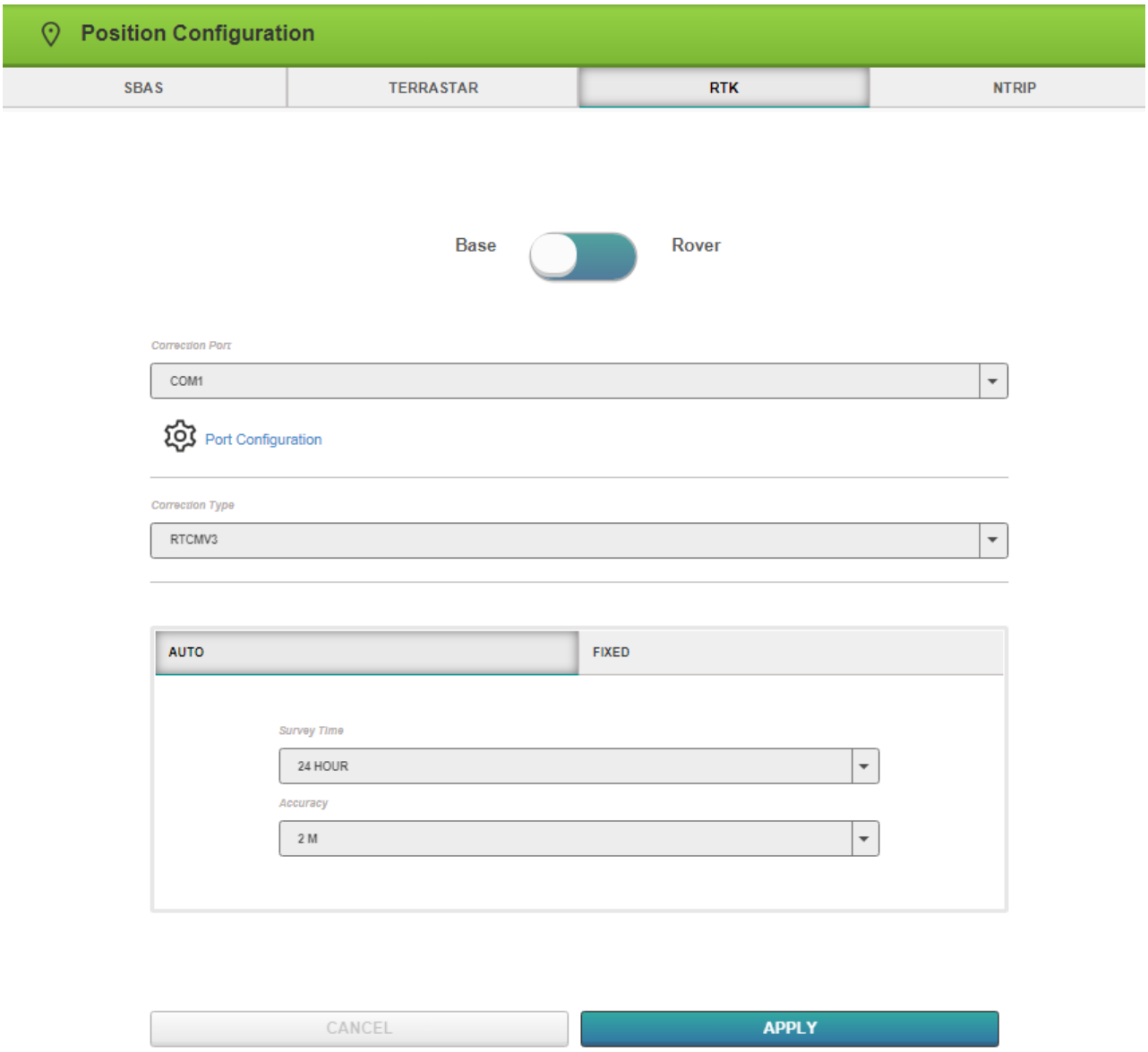
Refer to the ASSIGNLBANDBEAM command for PPP Control details.

3.1.2.3 Position Configuration – RTK

Use the Position Configuration – RTK Window to:

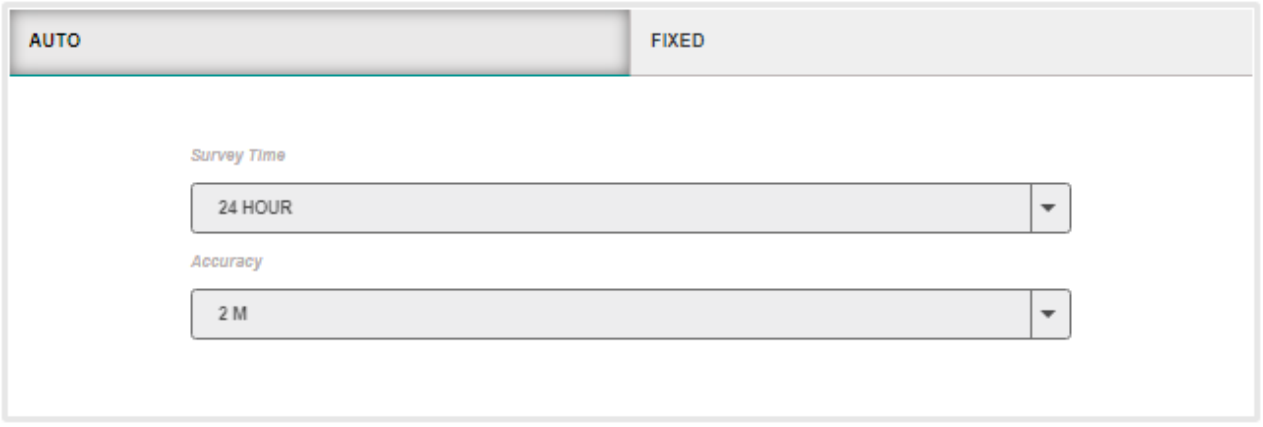
- Define the receiver as a Base or Rover
- Select the communication port to receive or transmit corrections
- Define the correction type serial interface mode. Refer to Table: Serial Port Interface Modes in the INTERFACEMODE command

Base

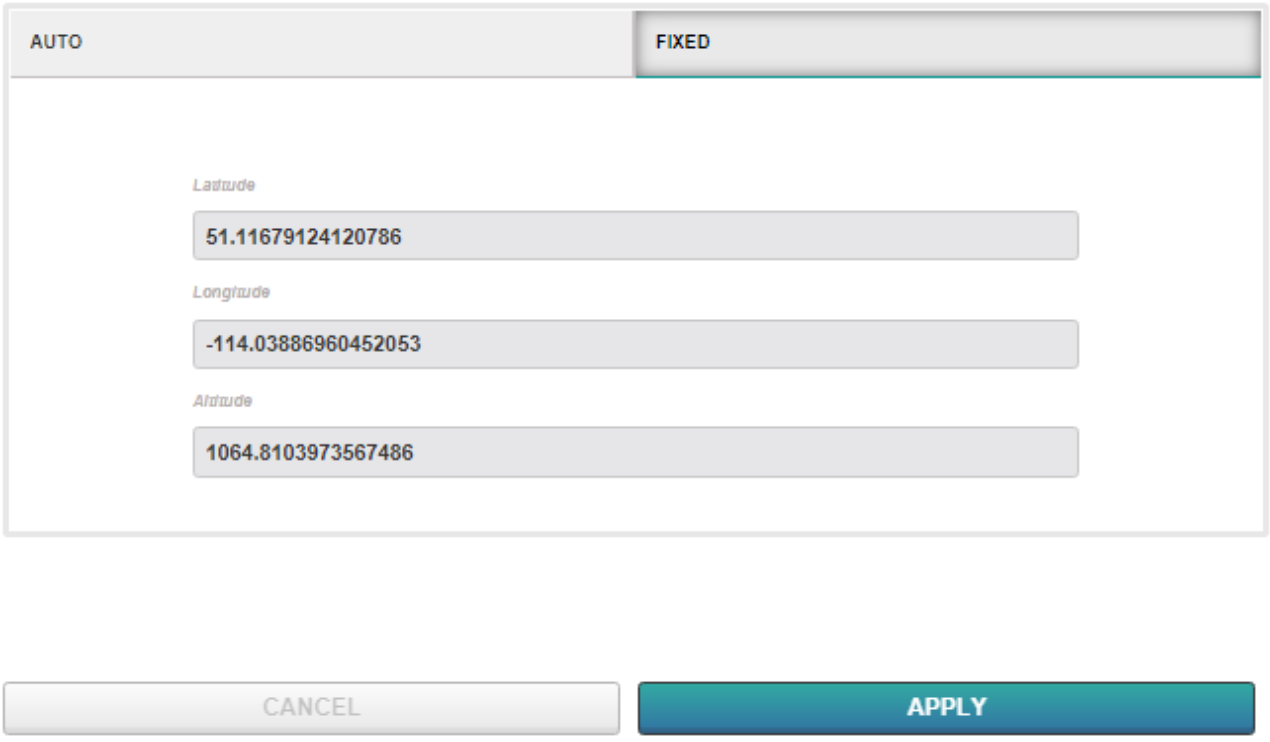


The Port Configuration link (in blue, beside Cog icon) is a short cut to open the Port Configuration Tab.

Set to AUTO to use position averaging to automatically determine the position for a base station. The default setting is AUTO.



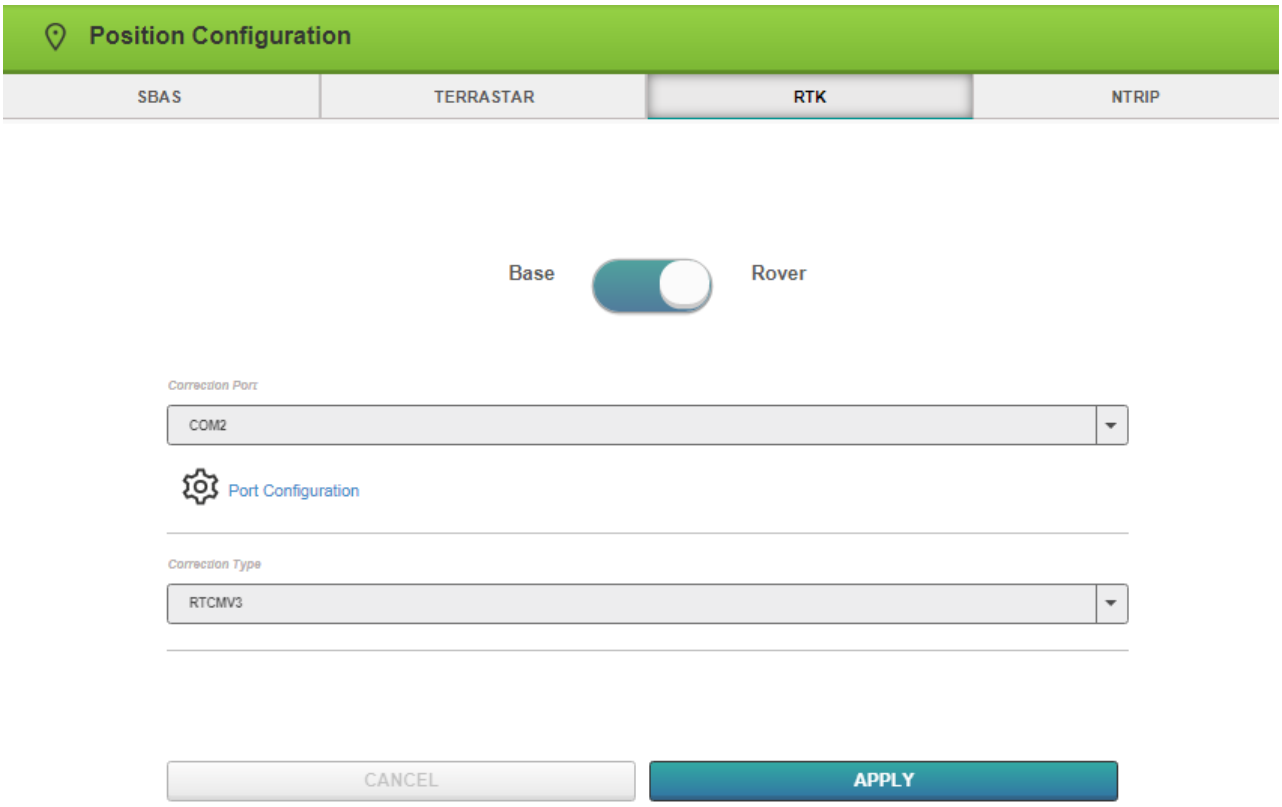
Set to FIXED to fix the position to help improve acquisition time and accuracy of position or corrections.



Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

Rover

Rover corrections port and type are the same as the Base.



Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

3.1.2.4 Position Configuration – NTRIP

Set up and configure NTRIP communications as either an NTRIP server or an NTRIP client. Set NTRIP to client for easy access to reference stations or network RTK corrections or set to Server for quick integration into GNSS infrastructure.

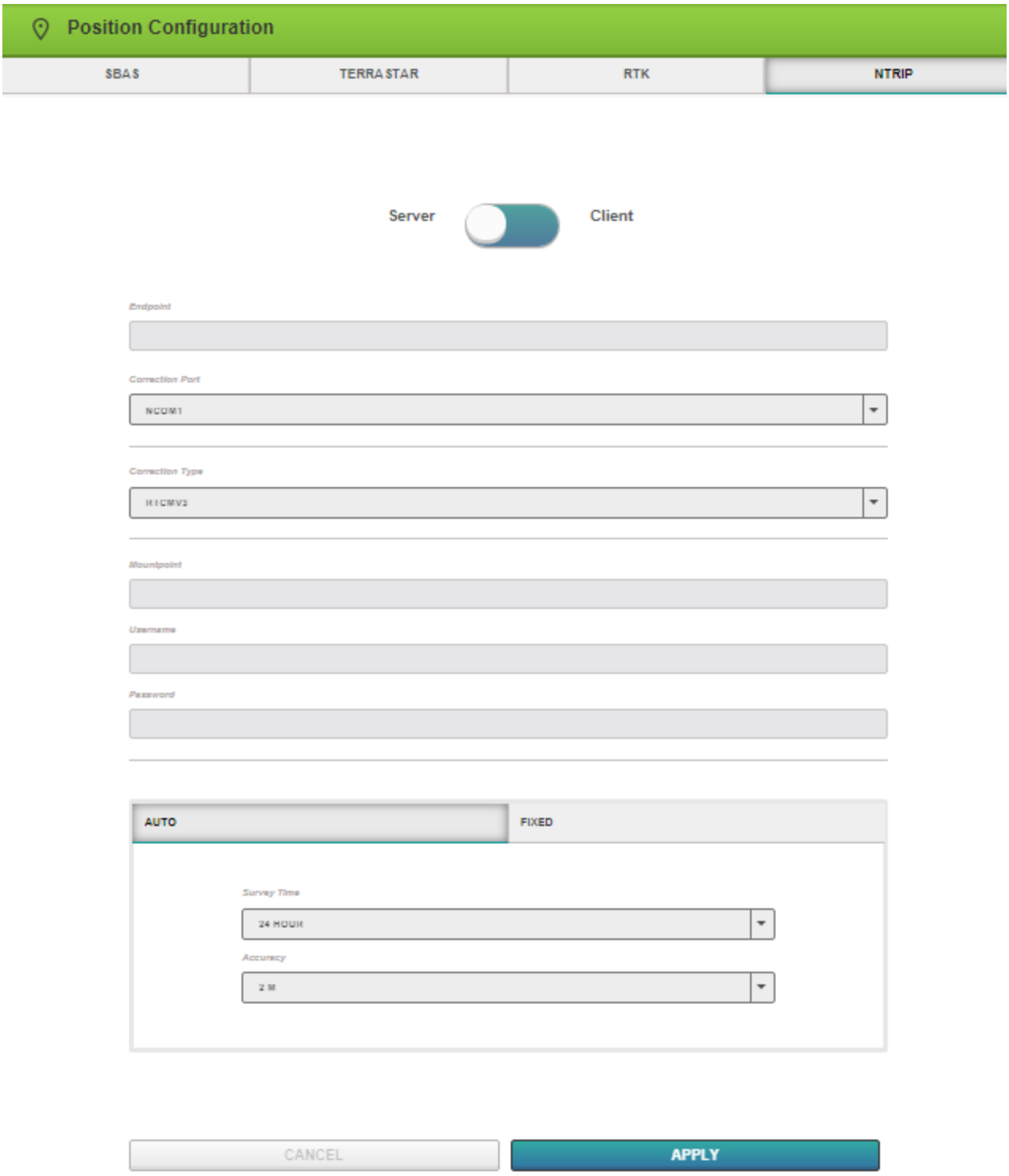
> Refer to NTRIP Configuration for details on NTRIP overall configuration. Refer to the NTRIPCONFIG command for endpoint, port and type descriptions.

Server

Set to Server to define a Base.

Define the Endpoint, Correction Port and Correction Type. Once the Endpoint is entered, a drop list of the available Mountpoints in the network is automatically populated in the Mountpoint field.

Set to AUTO to use position averaging to automatically determine the position for a base station or set to FIXED to fix the position to help improve acquisition time and accuracy of position or corrections. The default setting is AUTO.

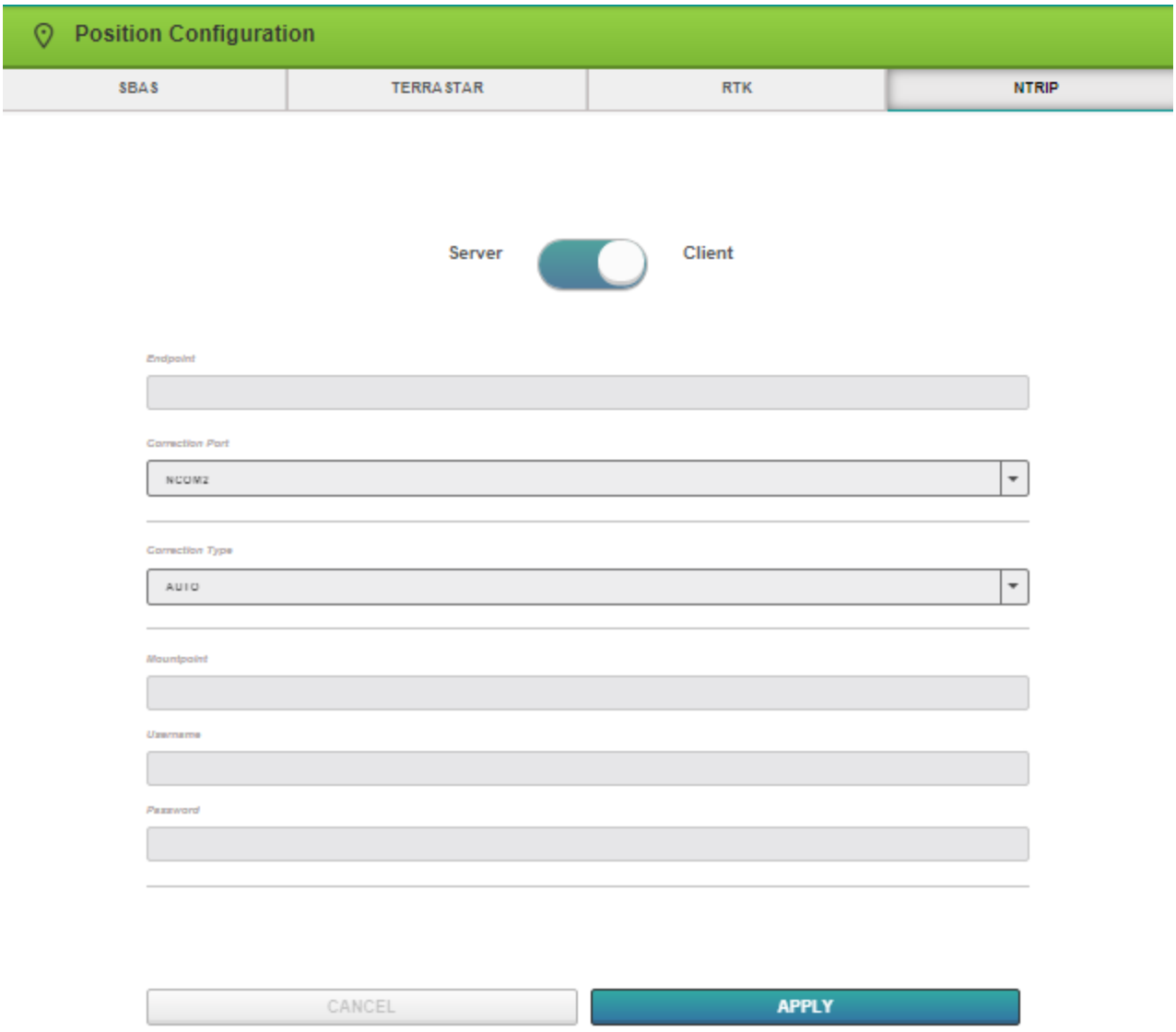


Once settings selected, press the APPLY button to save the changes or the CANCEL button to return to previous settings.

Client

Set to Client to define a Rover.

Define the Endpoint, Correction Port and Correction Type. Once the Endpoint is entered, a drop list of the available Mountpoints in the network is automatically populated in the Mountpoint field.



Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

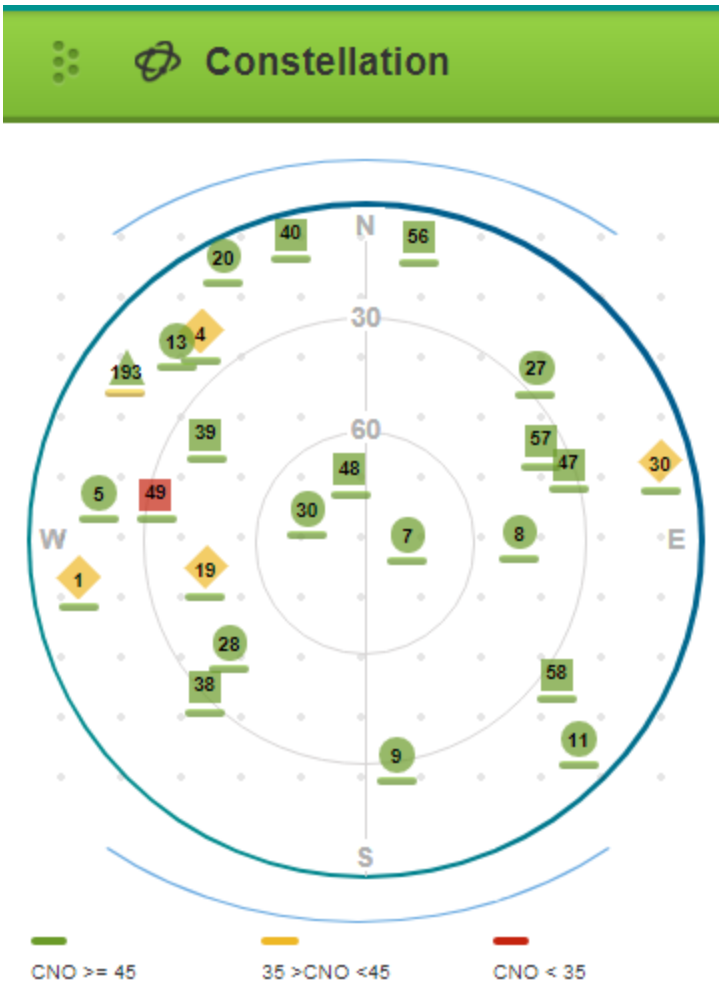
3.2 Constellation Tab

The Constellation Tab is used to display each satellite the receiver is tracking in graphical format and turn on and off the constellations that display.

3.2.1 Constellation Status Window

Concentric circles from 0° to 90° represent elevations from the horizon to directly overhead. The azimuth is mapped on a compass relative to true North.

The PRN of the satellite tracked appears on the Satellite icon. Click on an icon to display the Pseudo Random Number (PRN), Azimuth (AZ), Elevation (ELEV), Status and Signal to Noise Ratio (CNO). In addition, the signal strength appears as a color-coded bar below the satellite icon. Refer to icon and color legends within the Constellation Status window for definitions.



#/#: Satellites Used/Tracked.

GPS 10/10

GLONASS 8/9

BEIDOU 0/0

GALILEO 0/4

QZSS 1/1

SBAS 0/0

PRN:	C/NO
-	-

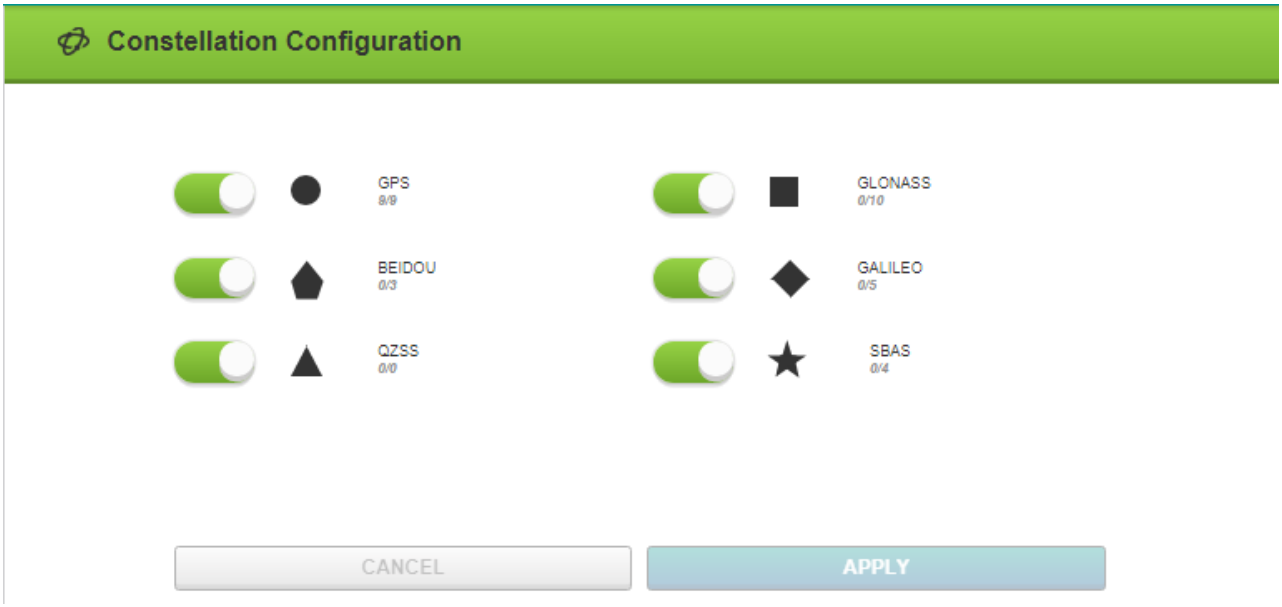
Status

-

Azimuth	Elevation
-	-

3.2.2 Constellation Configuration Window

Use the Constellation Configuration Window to select the signals to track by clicking right or left on the buttons. indicates a signal is off and not tracking; green indicates the signal is being tracked.



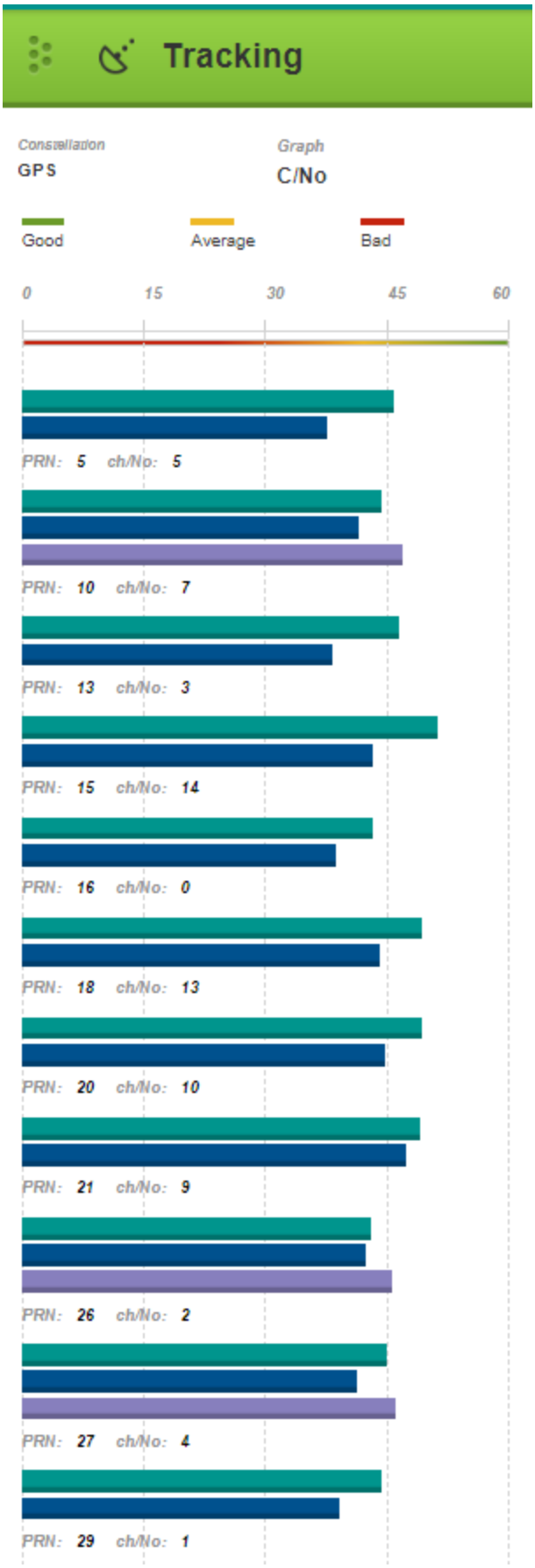
Once settings selected, press the **APPLY** button to save the changes or **CANCEL** return to previous settings.

3.3 Tracking Tab

Use the Tracking Tab to display signal channels status and modify what is displayed.

3.3.1 Tracking Status Window

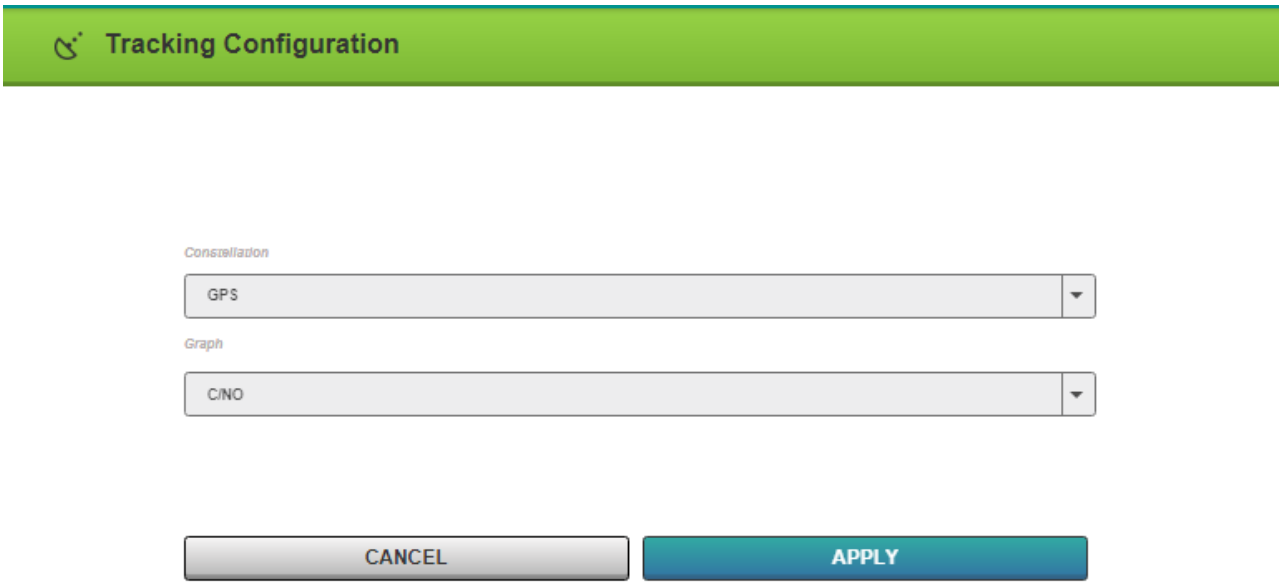
The Tracking Tab to displays tracking information for signal channels in graphical and text format.


Tracking
Constellation
GPS
Graph
C/No
Good
Average
Bad
0
15
30
45
60
PRN: 5 ch/No: 5
PRN: 10 ch/No: 7
PRN: 13 ch/No: 3
PRN: 15 ch/No: 14
PRN: 16 ch/No: 0
PRN: 18 ch/No: 13
PRN: 20 ch/No: 10
PRN: 21 ch/No: 9
PRN: 26 ch/No: 2
PRN: 27 ch/No: 4
PRN: 29 ch/No: 1

3.3.2 *Tracking Configuration Window*

Use the Tracking Configuration Window to select a Constellation and define what the Tracking Status Window displays.

- C/No (Carrier/Noise Ratio) - displays the strength of the signal
- PSR (Pseudorange) - displays the distance to the satellite from the antenna
- Doppler - displays the Doppler values
- Residual - displays the Pseudorange residual values
- Lock Time - displays the time the receiver has continuously tracked the signal

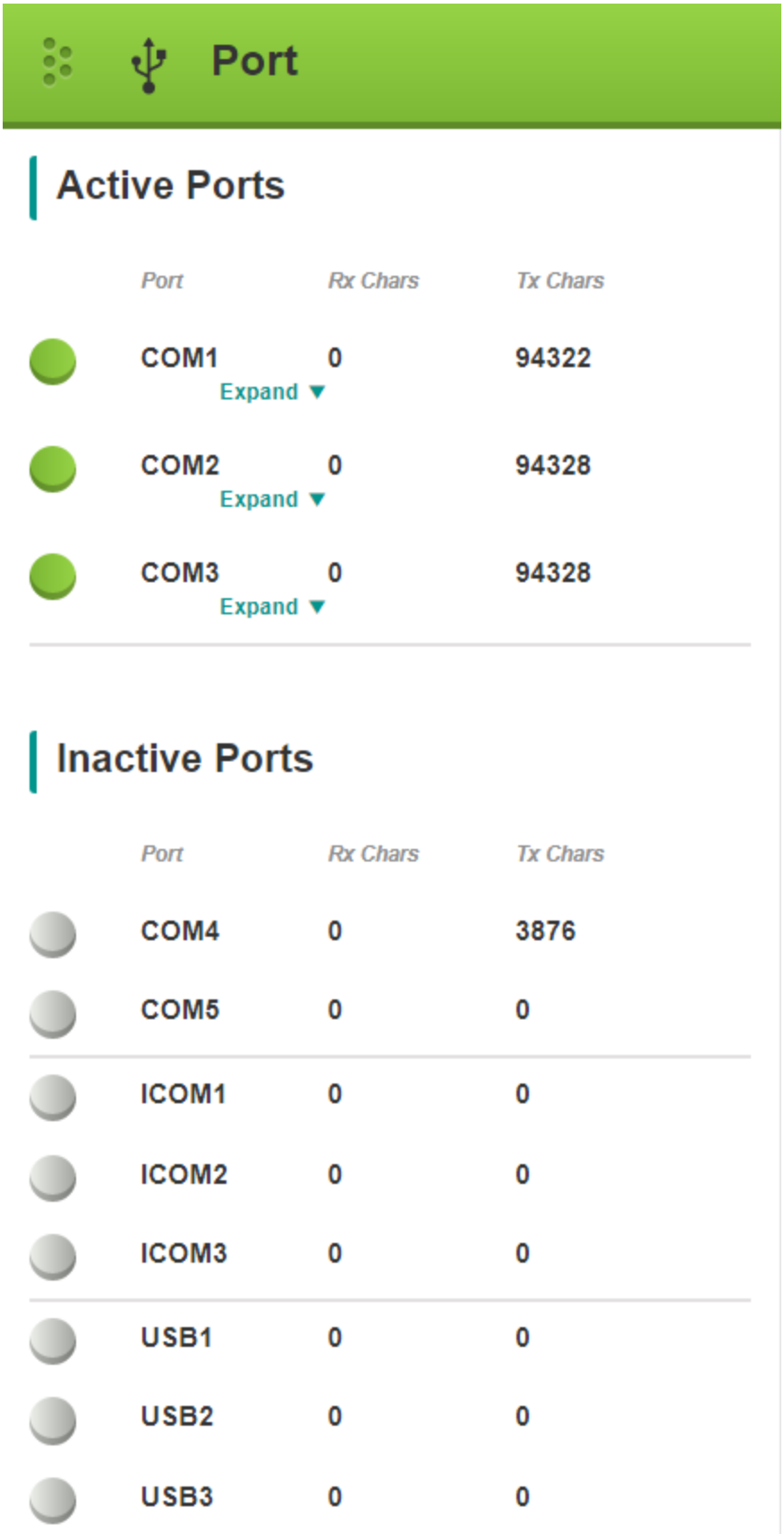


Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

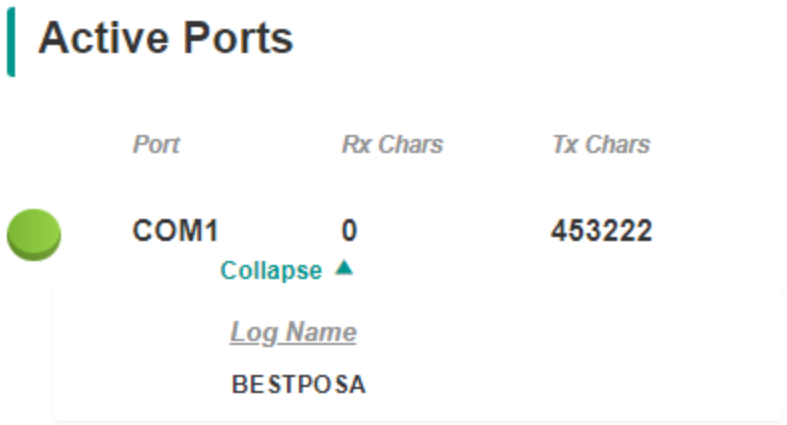
3.4 Port Tab

Use the Port tab to view and change port settings.

3.4.0.1 Port Status Window



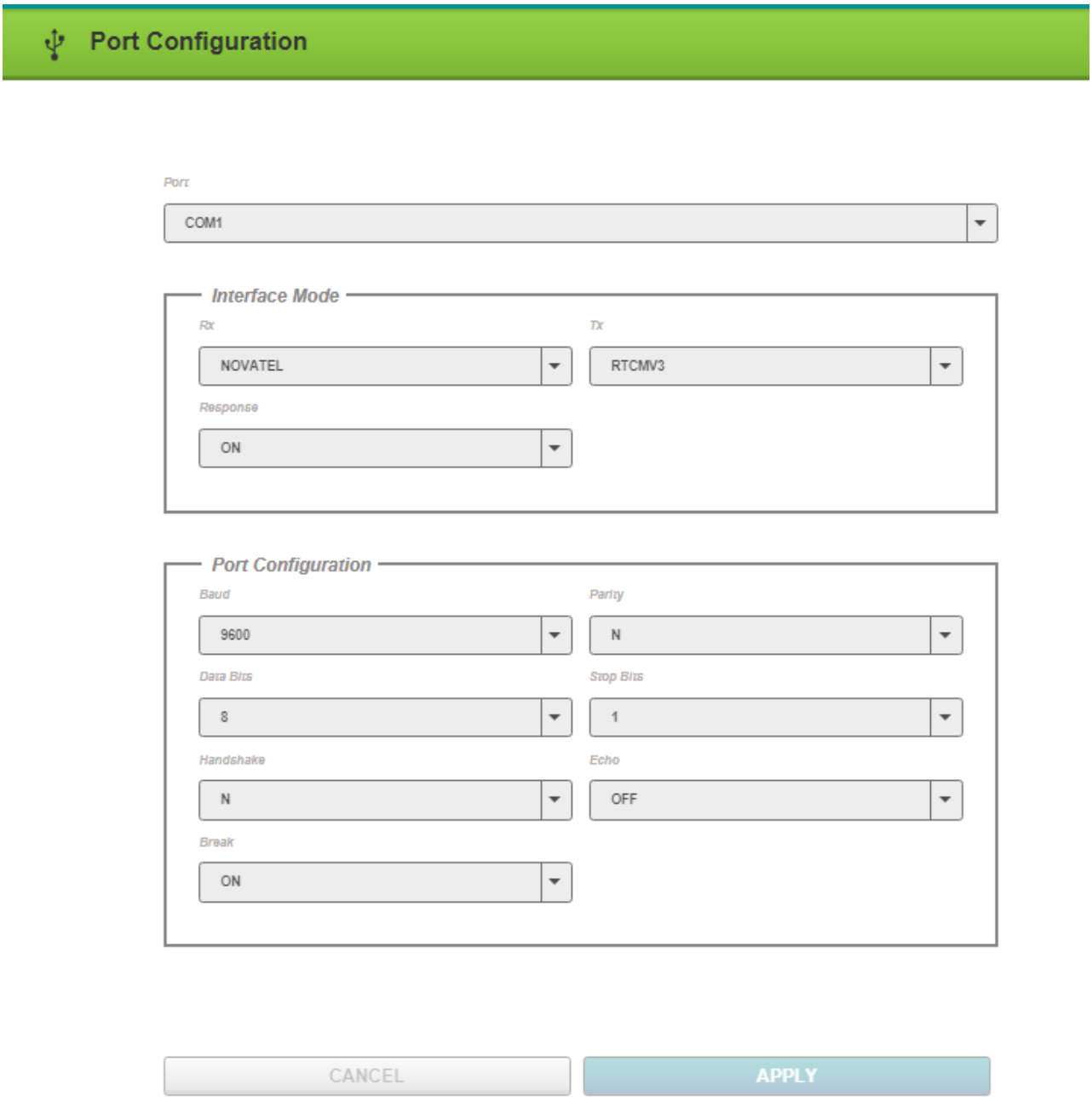
To view the logs that are being sent to a port, click the **Expand** drop list below the port name.



3.4.1 Port Configuration Window

Use the Port Configuration Window to define the COM Port to use, configure the Interface Mode and configure the selected port.

Refer to the SERIALCONFIG command and Table: Serial Port Interface Modes in the INTERFACEMODE command.



Select a Port, configure the Interface Mode and define the port configuration using the drop menus.

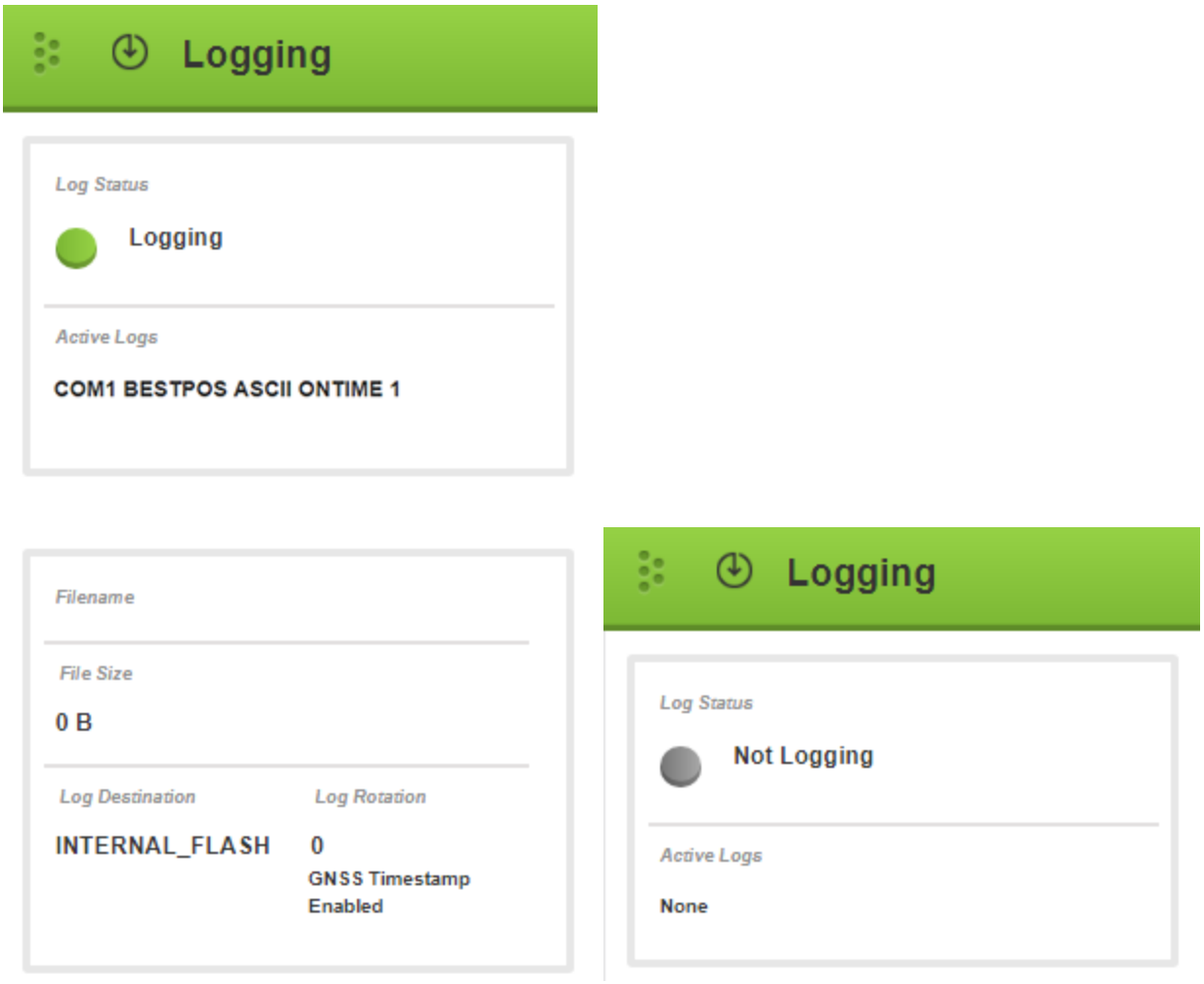
Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.

3.5 Logging Tab

Logs are the mechanism used to extract information from the receiver. Use the Logging Status Window to display current logging activity and settings. Use the Configuration Window to select and edit logs, view file information, start/stop logging and define how logged files are stored. The **Terminal** on page 12 can also be used to log data. File names are automatically generated.

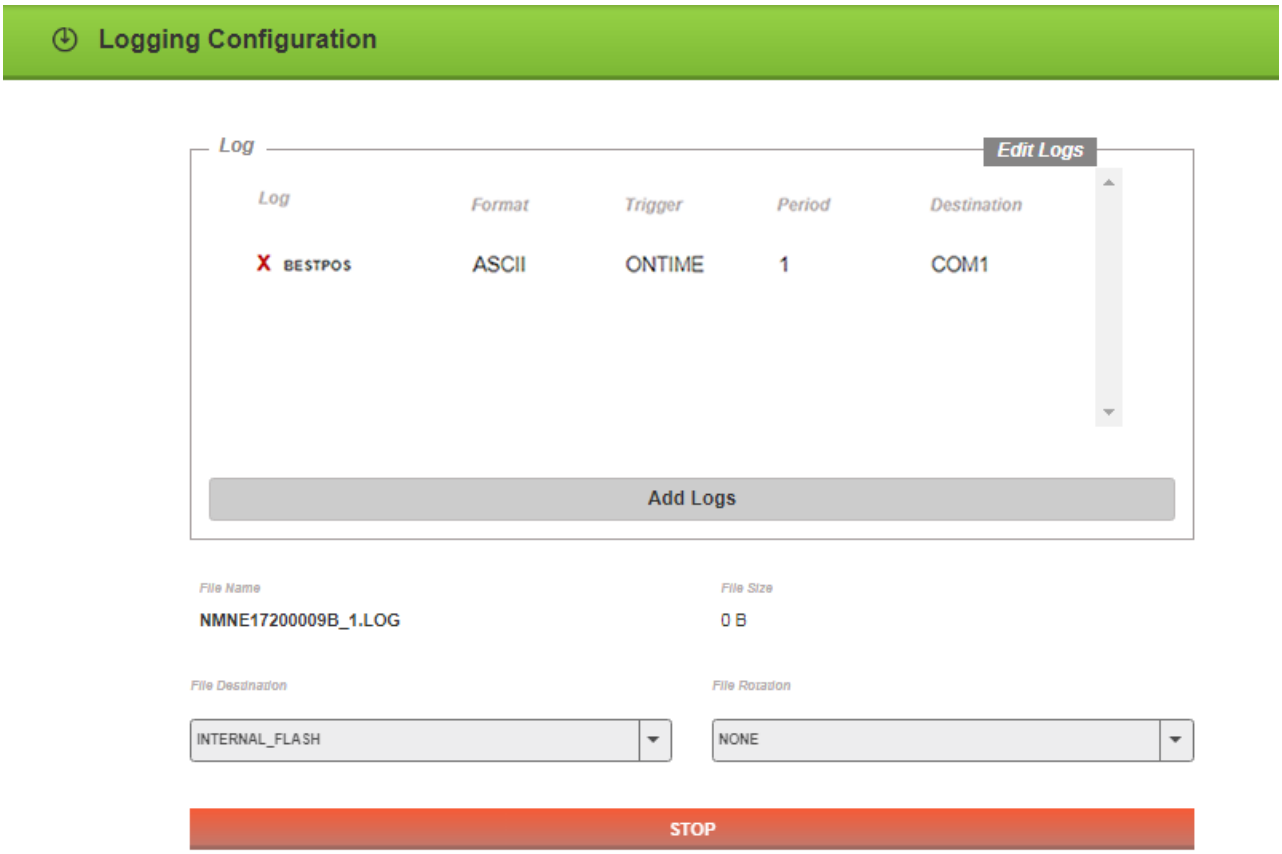
3.5.1 Logging Status Window

Display the logging status, a list of the active logs as well as file, destination and storage information.



3.5.2 Logging Configuration Window

Use the Logging Configuration Window to add or edit logs as well as select the storage location and file rotation option.



File Destination

Define how the logging files are stored using the drop menu:

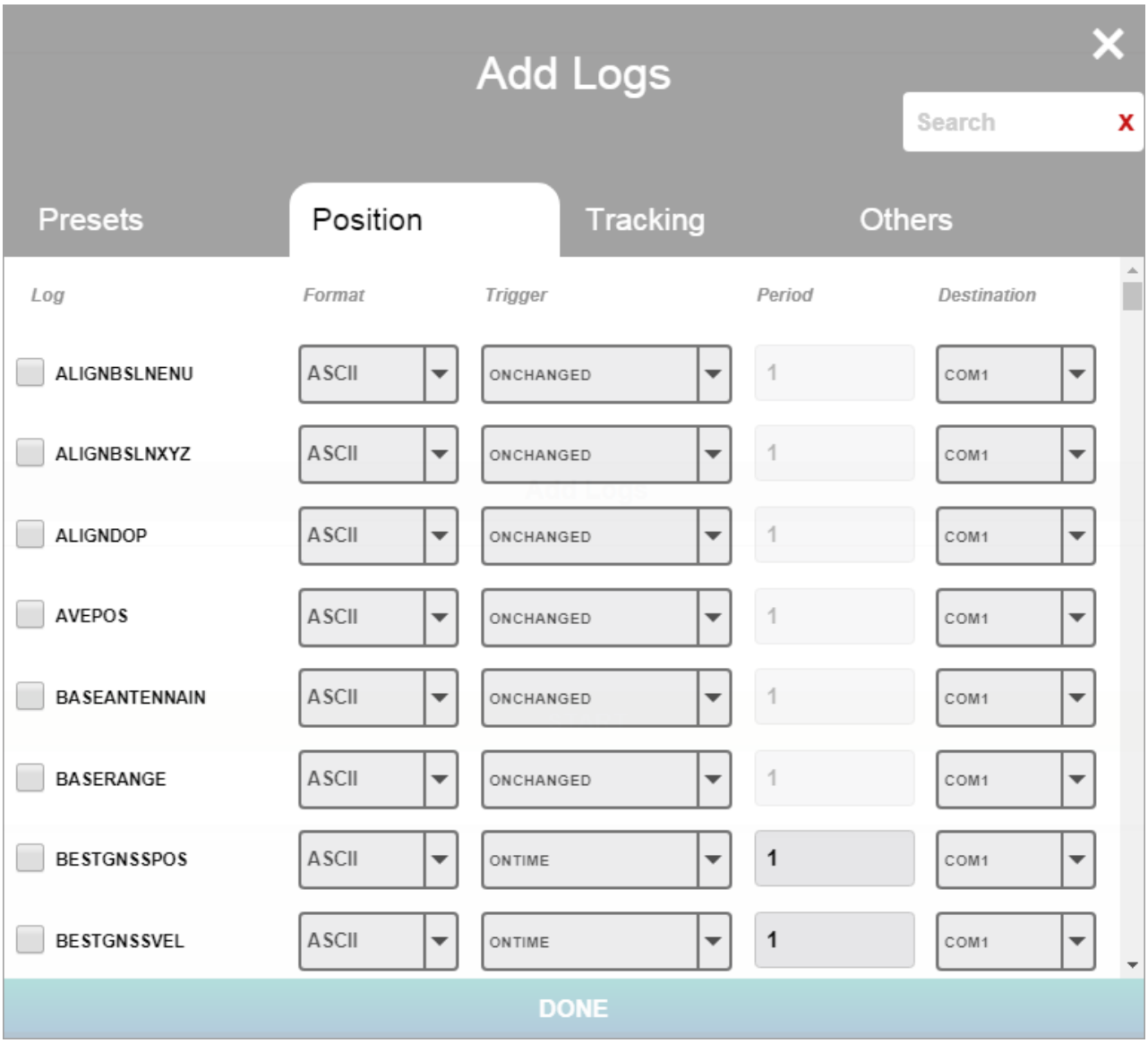
- to the receivers internal memory

File Rotation

If the file duration is selected from the drop menu, the log file is closed at the specified amount of time and a new log file is created.

Add Logs

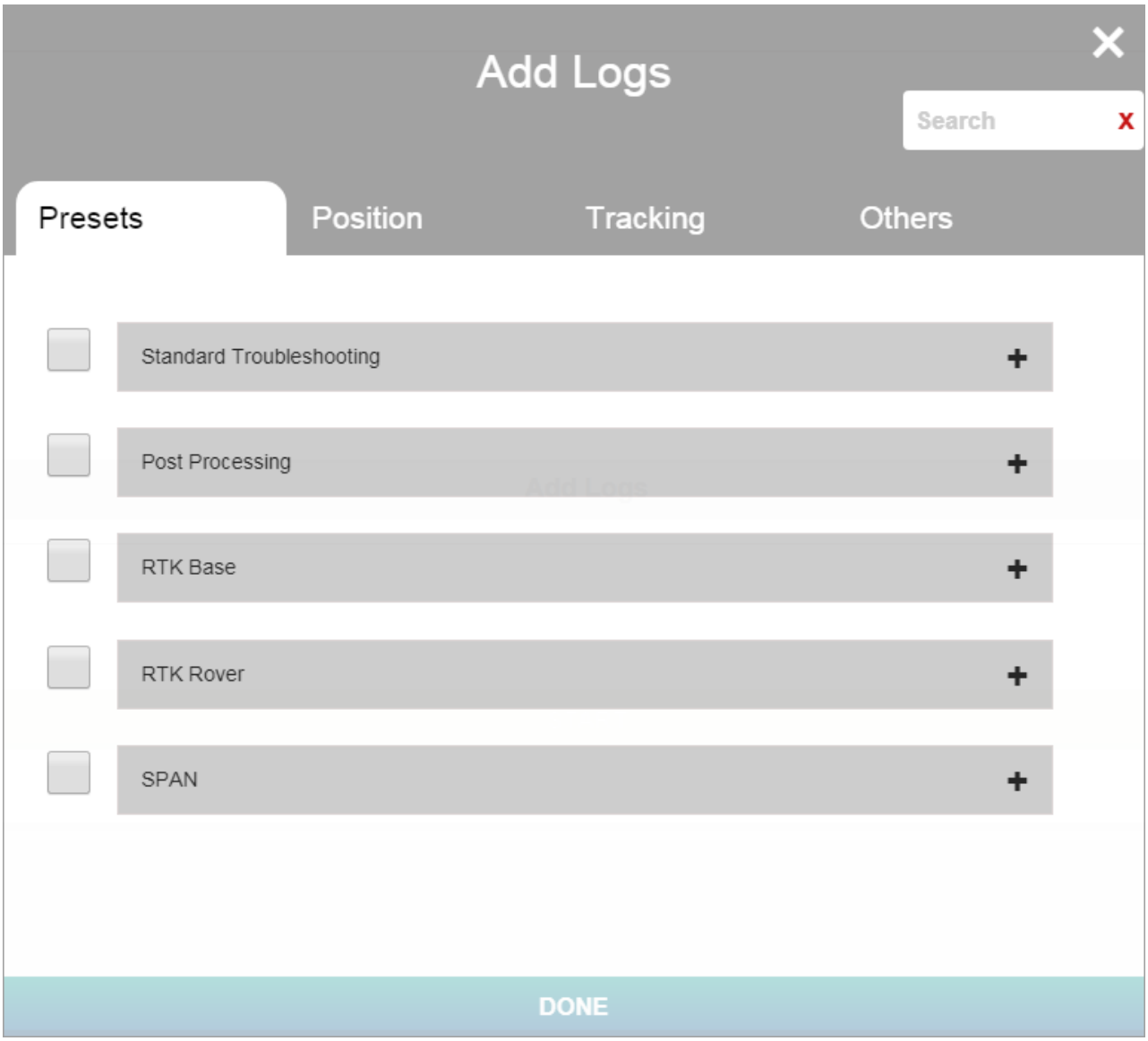
Click the **Add Logs** button to display the lists of logs. Click the Tabs at the top of window to select grouped lists.



Click the check box beside the log icon to select a log ☑. For each log, the following parameters can be set:

- Format
  Select the format, ASCII or Binary, in which the log is generated.
- Trigger
  Select what causes the log to be collected.
- Period
  If the ONTIME trigger is selected, enter the time interval between logs collected.
- Destination
  Select the communication port the log is sent to.

The Presets tab contains a groups of logs typically used for that function. To view the logs within the preset, click the ✚ icon. Click the ━ icon to close the list. Selecting a Preset adds all of the logs within the Preset. Multiple presets can be selected.

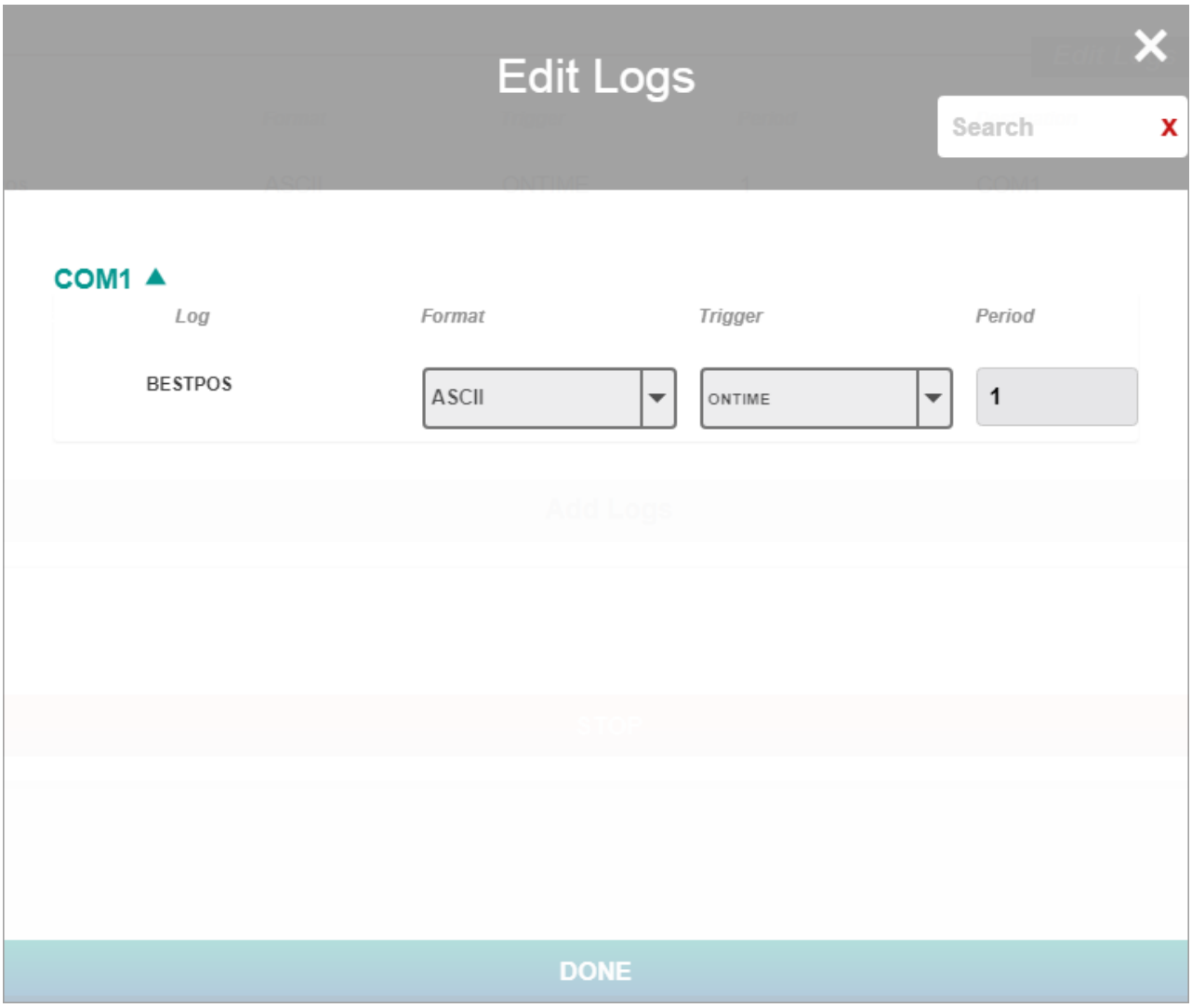


Press the icon to return to the main Logging Configuration Window without Adding a log. Press the DONE button to apply changes and Add logs.

3.5.3 Edit Logs

Edit logs to change the ASCII or Binary setting and select a trigger. If the ONTIME trigger is selected, enter a value in the Period field.

Refer to the LOG command for a the ASCII and Binary trigger definitions.



Press the icon to return to the main Logging Configuration Window without editing a log. Press the **DONE** button to apply changes.

When memory is full, logging stops. Use the command line to define the OVERWRITE option. Refer to the FILEROTATECONFIG command for details.

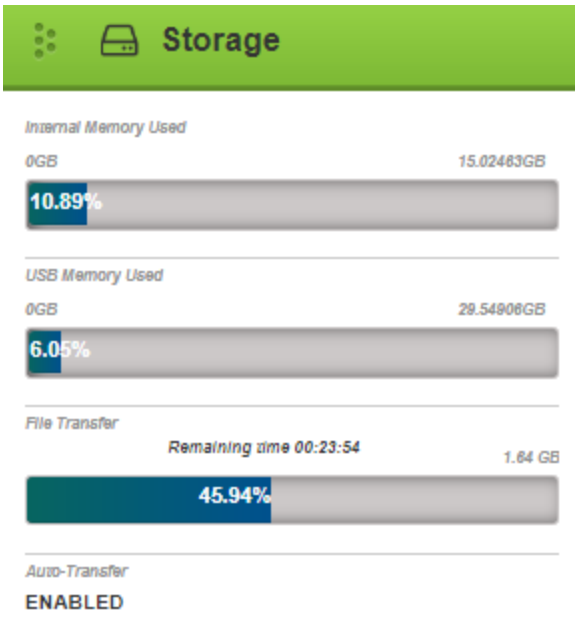
3.6 Storage Tab

Use the Storage Tab to manage how logged files are stored, moved, copied and downloaded.

View the storage type(s) selected in the Status Window and configure how files are managed in the Configuration Window.

3.6.1 Storage Status Window

The Status Window displays the options selected. A progress bar displays the percentage of memory used for the USB stick memory and the internal memory of the receiver and if the auto-transfer feature is enabled. A progress bar also displays during the File Transfer process.



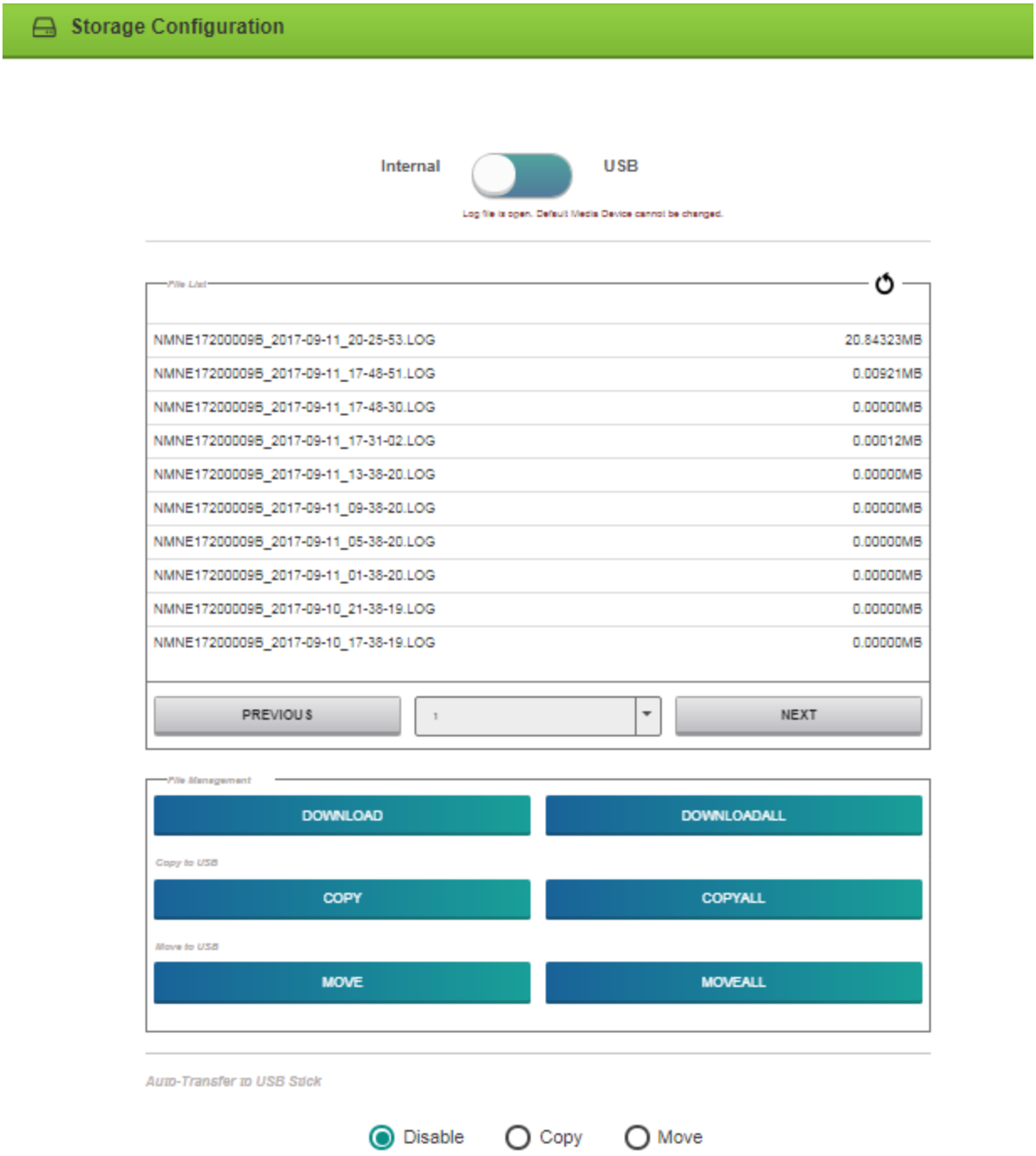
3.6.2 Storage Configuration Window

Use the top button to select Internal (click left) or USB (click right) and configure how logged files are stored and downloaded:

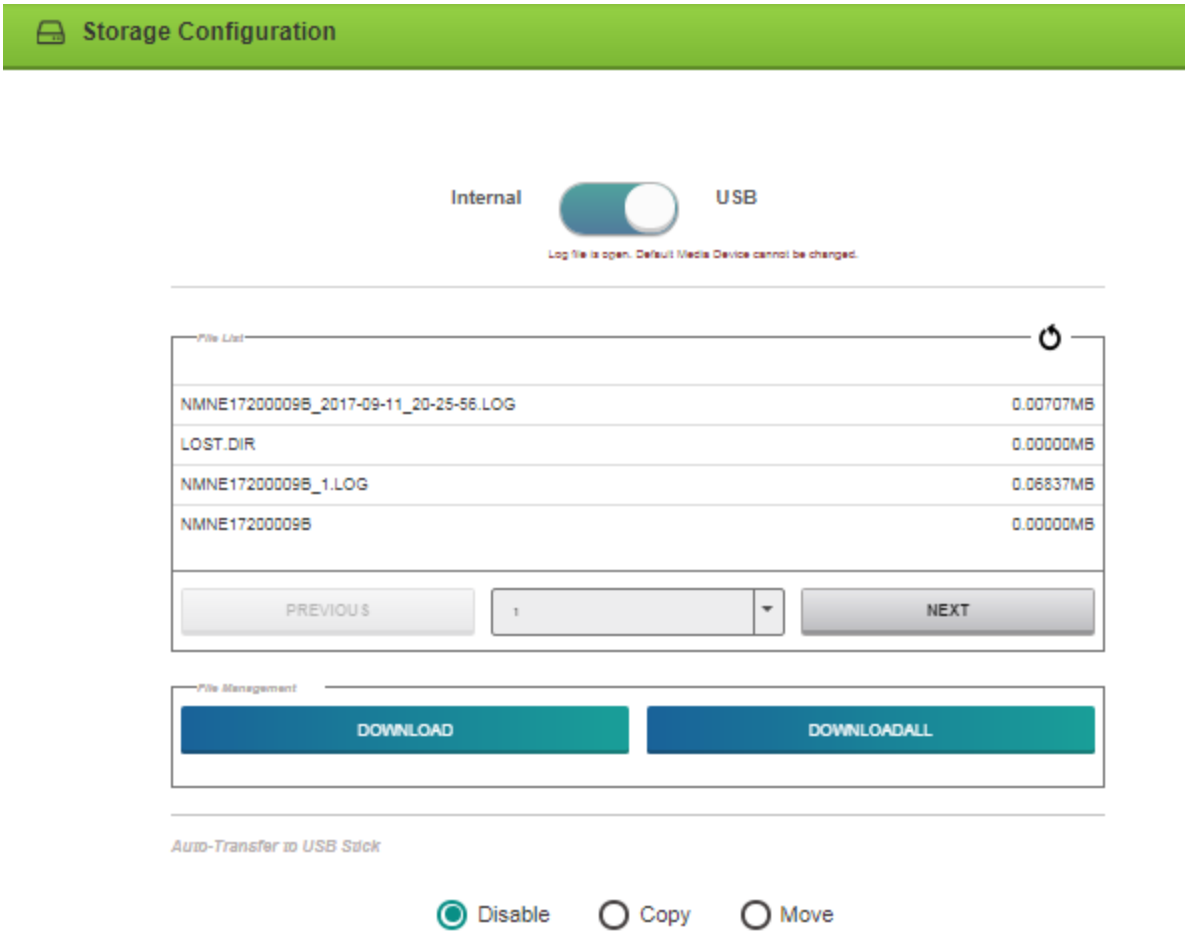
- to the receiver's internal memory
- to a mounted USB memory stick formatted as FAT32

> The file destination can also be defined as USB or Internal under the Logging Tab (File Destination).

3.6.2.1 Internal Memory



3.6.2.2 USB Selected



Use the **PREVIOUS** and **NEXT** buttons to move through the File List by page. Use the center drop menu to select a page number.

3.6.2.3 File Management

Files can be downloaded to the receiver or copied or moved to memory stick. Click to select files from the File List; select multiple files by holding the **SHIFT** key while selecting files.

DOWNLOAD and **DOWNLOADALL** buttons – Download selected or download all logged files to computer or mobile device. Browser FTP permissions must be set.

COPY and **COPYALL** buttons – Copy selected or copy all logged files to a memory stick. A progress bar and Cancel button display during copying. Copied logs remain in the receiver File List.

MOVE and **MOVEALL** buttons – Move selected or move all logged files to a memory stick. A progress bar and Cancel button display during moving. Moved logs are removed from the receiver File List.

Click the icon to refresh the file list.

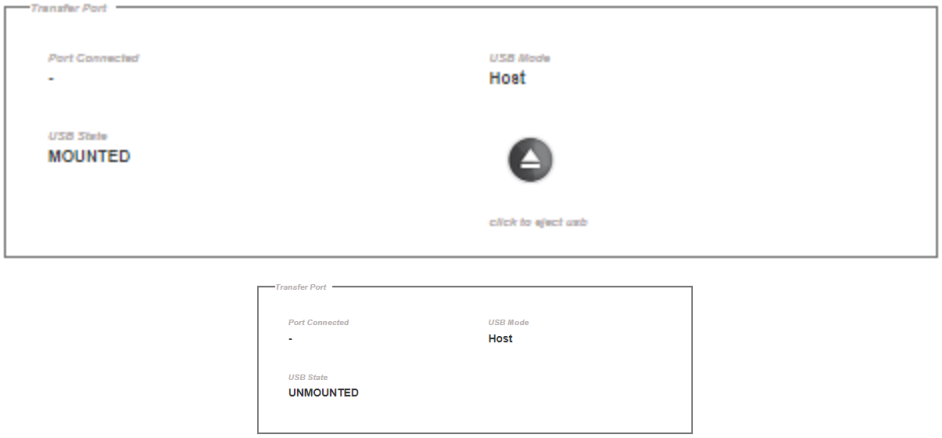
We have found two problems in the Microsoft® FTP clients contained within the Internet Explorer® and Edge browsers which make them unsuitable for retrieving files from a NovAtel receiver. When using a Windows® computer to transfer files off a NovAtel receiver, we suggest using a 3rd party FTP client.

3.6.2.4 Auto-Transfer

Click a radio button to define how logged files are automatically managed. Select Disable, Copy or Move files (files are retained in the File List using COPY; removed from list using MOVE). Click Disable to disable auto-transfer.

3.6.2.5 Transfer Port

The transfer port setting changes when a USB stick ejected. Click the Eject button and remove the stick.



The USB memory stick must be formatted as FAT32. Use the Eject button to unmount a memory stick. Ensure the receiver has stopped logging before removing a memory stick.

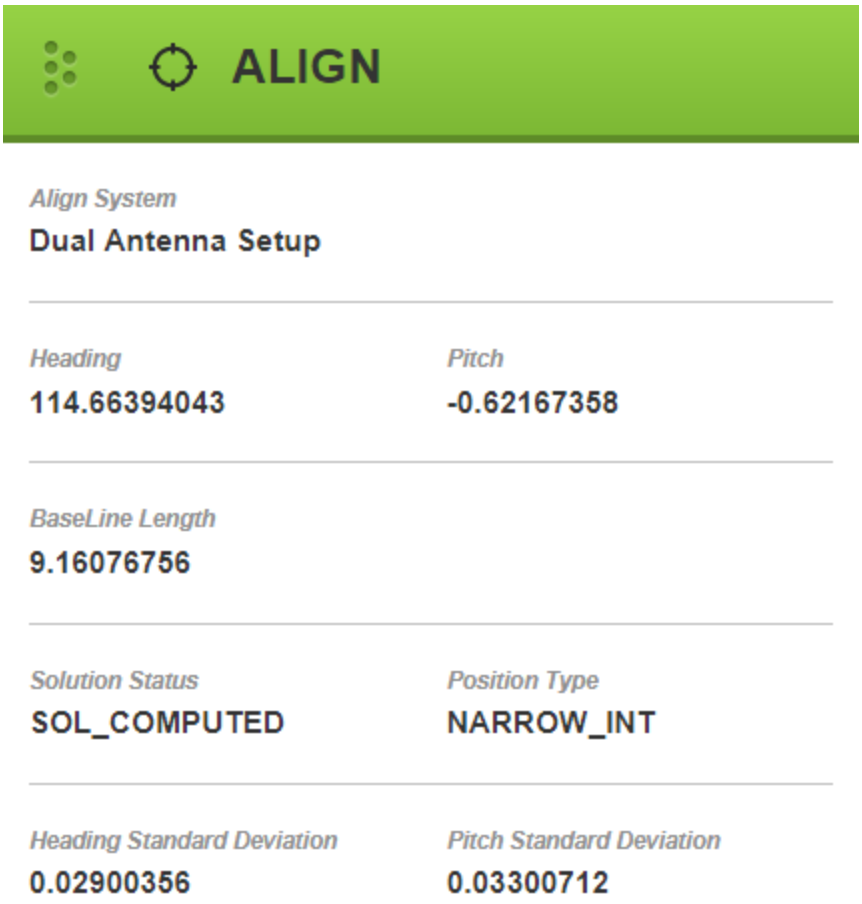
3.7 ALIGN Tab

ALIGN technology combines position information from two receivers, or a dual antenna receiver, to generate high precision heading and pitch angles between two GNSS antennas. The ALIGN tab is used to display the ALIGN the data and configure the ALIGN settings.

The Web UI supports dual antenna receivers only.

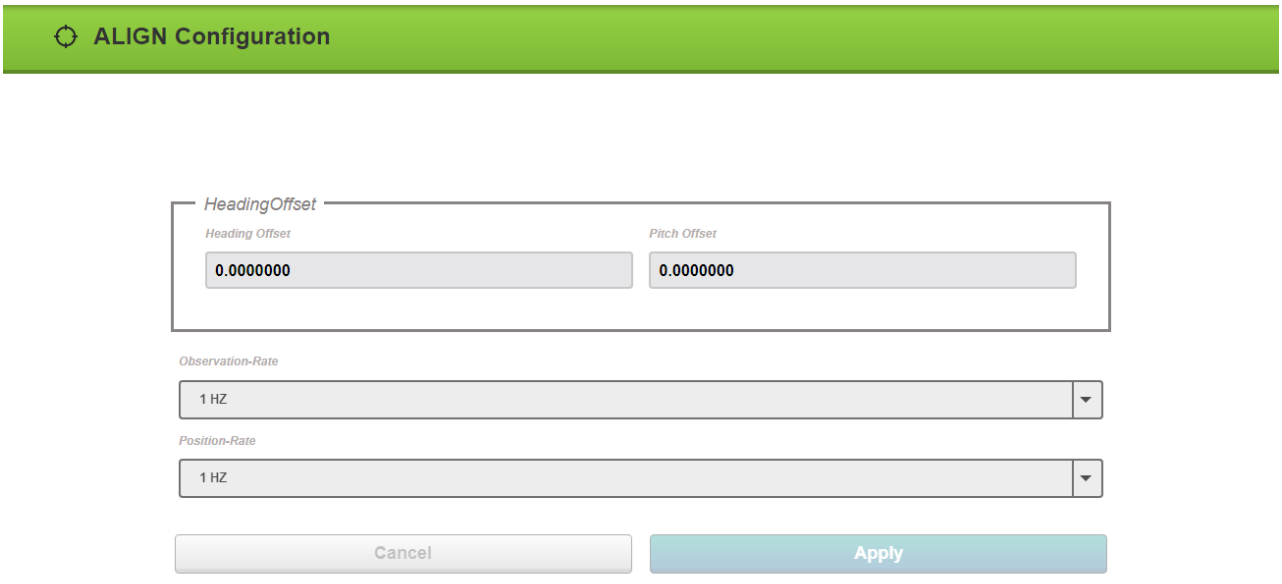
3.7.1 ALIGN Status Window

Use the ALIGN Status Window to view the current ALIGN data.



3.7.2 ALIGN Configuration Window

Use the ALIGN Configuration Window to configure the ALIGN settings.



Heading and Pitch Offset

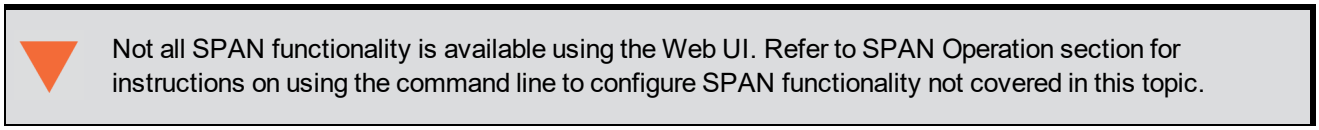
Use the Heading Offset and Pitch Offset fields to enter offset values for heading and pitch. The offset values are used in the HEADING2 log and GPHDT log. Refer to the HEADINGOFFSET command for more information about these parameters.

Data Rates

Use the Observation-Rate and Position-Rate fields to the select the rate at which ALIGN information is provided.

3.8 SPAN Tab

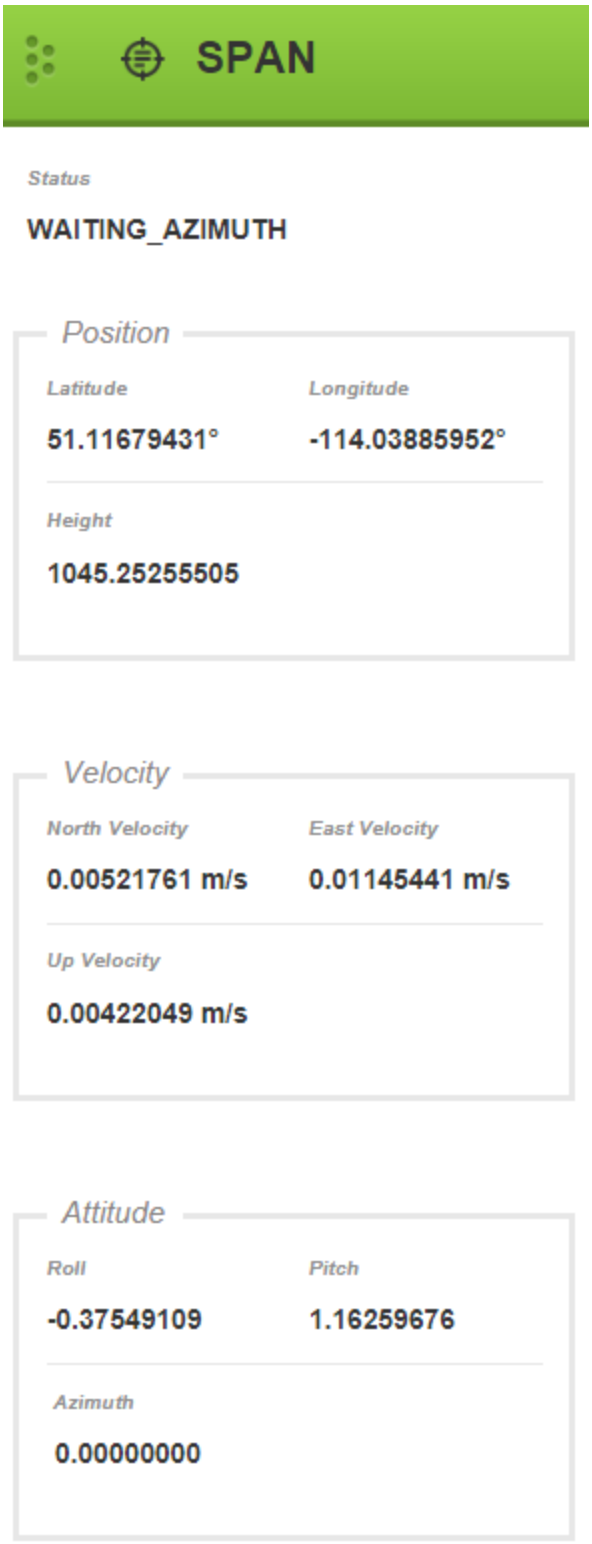
The SPAN Tab is used to view the current status and configure the IMU used, the rotation and translation for a primary antenna as well as a secondary (if required) and set an alignment mode.



Not all SPAN functionality is available using the Web UI. Refer to SPAN Operation section for instructions on using the command line to configure SPAN functionality not covered in this topic.

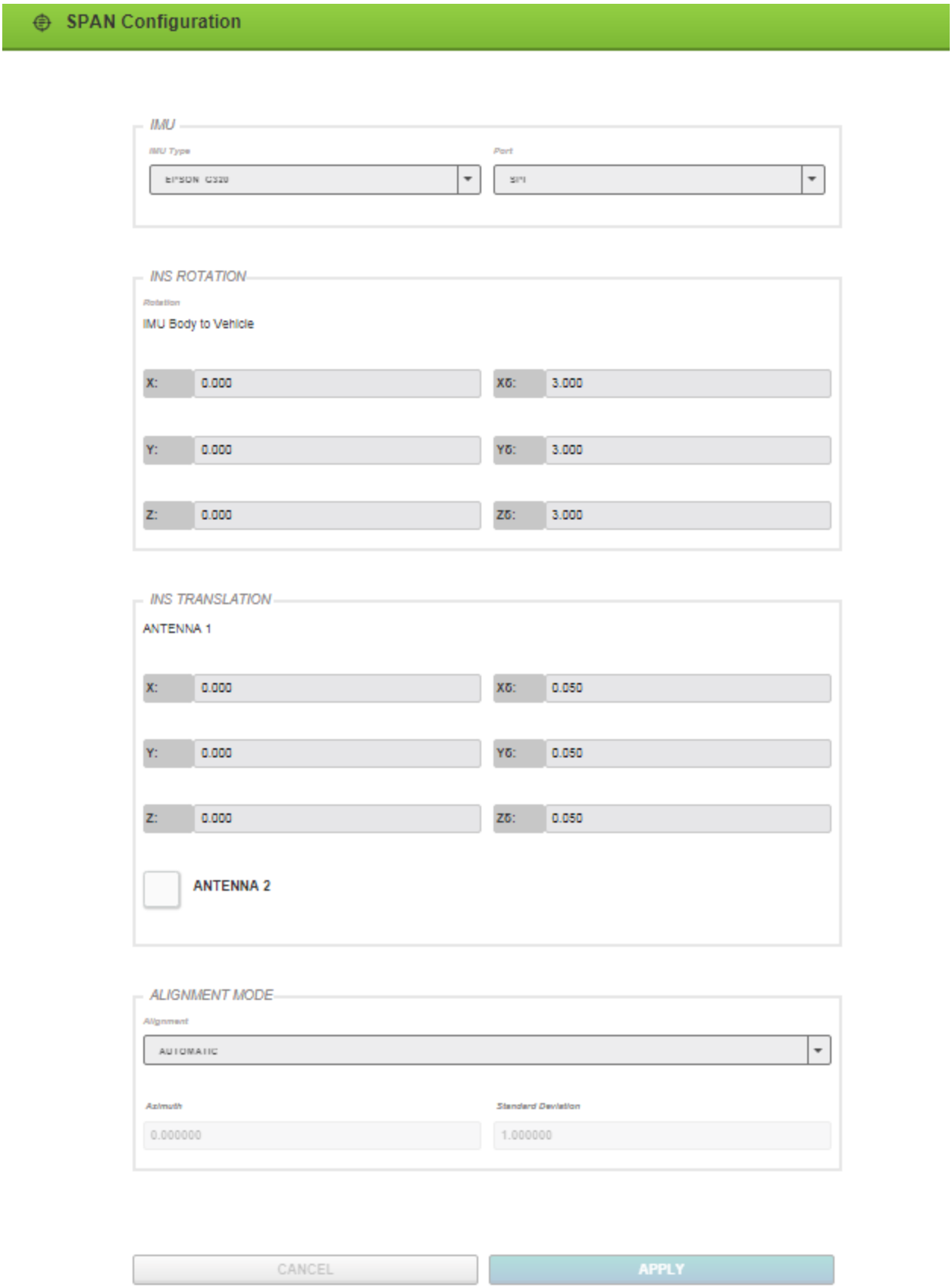
3.8.1 SPAN Status Window

Use the SPAN Status Window to view the current status including position, velocity and attitude of the IMU.



3.8.2 SPAN Configuration Window

SPAN technology combines GNSS and INS into one system to offer a solution that is more accurate and reliable than either GNSS or INS can provide alone. Refer to OEM7 SPAN Overview for a SPAN overview and details regarding SPAN configuration.


SPAN Configuration
IMU
IMU Type
EPSON G320
Port
SPI
INS ROTATION
Rotation
IMU Body to Vehicle
X:
0.000
Xσ:
3.000
Y:
0.000
Yσ:
3.000
Z:
0.000
Zσ:
3.000
INS TRANSLATION
ANTENNA 1
X:
0.000
Xσ:
0.050
Y:
0.000
Yσ:
0.050
Z:
0.000
Zσ:
0.050
ANTENNA 2
ALIGNMENT MODE
Alignment
AUTOMATIC
Azimuth
0.000000
Standard Deviation
1.000000
CANCEL
APPLY

IMU

Use the drop menus to select the IMU and the Port it will use. If using the PwrPak7-E1, do not change the default IMU type.

INS Rotation

Use this section to enter the rotational offset from the IMU body frame to the vehicle frame (RBV). Refer to SETINSROTATION command for explanations of other Rotational Offset Types available using the command line.

INS Translation

Use this section to enter the translational offset (or lever arm) from the IMU center of navigation to the phase center of the primary GNSS antenna, as measured in the IMU frame.

Check the Antenna 2 checkbox to enter an offset to a secondary GNSS antenna. This information is only required when using SPAN with Dual Antenna. Refer to the SETINSTRANSLATION command for explanations of other Translation Offset Types available using the command line.

Alignment Mode

Set the Alignment Mode to define the method used to initialize the SPAN system.

Refer to the ALIGNMENTMODE command for the mode definitions.

Once settings selected, press the **APPLY** button to save the changes or the **CANCEL** button to return to previous settings.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