



## VTracker Instruction Manual NAVT-01

### Thank You!

Thank you for choosing Nautic Alert® VTracker. Proudly engineered and assembled in the USA. We are confident your new purchase will provide an outstanding experience of edge-based *precision engineered technology*. Please take a few minutes to read through the instruction manual and familiarize yourself with the installation and setup process.

**Contents**

- Technical Specifications ..... 3
- Product Labeling Requirements..... 3
- Quick Start Guide ..... 4
- Reporting Services ..... 4
  - Basic Reporting Service ..... 4
  - Enhanced Reporting Service ..... 4
    - Global Geofencing..... 4
  - Cloud Watch Reporting Service ..... 5
    - Anti-Theft ..... 5
    - Vessel-Track Reconstruction..... 5
- VTracker Overview..... 6
- VTracker Sample Schematic Reference ..... 7
  - VTracker Installer Details ..... 8
- Cable Glands ..... 9
- Antenna Placement..... 9
- Hardware Options/Modes of Operation..... 10
  - Alarm Latching ..... 10
  - Status LEDs and Mode/Set Buttons ..... 11
  - Mode/Set Buttons and Alarm Inputs ..... 11
  - Configuring and Testing Zones..... 12
- Power Inputs and Battery Monitoring/Trending ..... 13
- Remote Engine Kill ..... 13
- High-Water Monitoring..... 14
- Alarm/Security Monitoring ..... 14
- SOS ..... 14
- GEOS Reference ..... 15
- Geofence ..... 16
- Activating VTracker and Remote Access..... 17
  - Remote Text Message Access ..... 17
  - Admin and Additional Users ..... 17
  - MyInsights Web Portal..... 18

MyInsights Vessel Tracking .....	21
MyInsights Global Geofencing .....	22
Alarm Latching .....	23
Notifications.....	23
Overages .....	23
Terms and Conditions .....	23

## Technical Specifications

### Electrical Specifications:

DC Input Voltage: 6-37V

Backup DC Input Voltages: 6-37V

Nominal Current: 60mA (12V), does not include switch output or 12V output

Alarm Terminals: 12V

12V Regulated Output: 500mA max including switch output

**Operating Current:** 60mA

**Operating Temperature:** -20 to 60C

**Enclosure:** IP67 when cable glands properly sealed

Follow ABYC installation standards

Incorrect wiring may damage VTracker or external devices and voids warranty

## Product Labeling Requirements

Device Contains FCC ID: Q639603

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 interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The cellular and/or satellite antenna must be located at a distance greater than 20cm from the device and any persons under normal operating conditions to be compliant with FCC SAR limits.

## Quick Start Guide

In order to start using your VTracker, the following minimal steps are necessary:

- 1) Connect the included GPS and Iridium antennas to VTracker's antenna jacks
- 2) Connect VTracker's primary DC power input to a DC battery source
- 3) Verify [status LEDs](#) meet signal strength requirements in preliminary mounting location
- 4) Mount VTracker and antennas
- 5) Activate VTracker by going to <https://www.nauticalert.com> and click on Activate Nautic Alert in the menu. You will be required to enter the modem IMEI present on the [modem label](#).
- 6) Activation process can take 12-48 hours
- 7) Go to [www.nauticalert.com](http://www.nauticalert.com) and login to access VTracker and get the cellular number assigned to VTracker for sending remote text commands

## Reporting Services

A Nautic Alert reporting service is required for device communications and alerts to be received. Currently, three reporting service options are available from:

<https://www.nearshorenetworks.com/menu/activate-services/nautic-alerts-activation>

### Basic Reporting Service

A basic reporting service includes vessel tracking with an automatic location update interval of one hour when moving, and up to 150 on-demand requests, which can include real-time location, arming/disarming, dc trends, and more discussed in the [Remote Access](#) section of this document.

### Enhanced Reporting Service

An enhanced reporting service includes vessel tracking with an automatic location update interval of thirty minutes when moving, global geofencing, and up to 250 on-demand requests, which can include real-time location, arming/disarming, dc trends, and more discussed in the [Remote Access](#) section of this document.

### Global Geofencing

With global geofencing, multiple geofence boundaries can be drawn on a Google Map interface on the [MyInsight's Web Portal](#), and the geofence data will upload and sync with the device making it fully aware of the boundaries. This makes it possible for VTracker to notify in real time when entering or exiting a geofence boundary, including the name of the boundary. See the [Global Geofencing](#) section below for additional info.

## **Cloud Watch Reporting Service**

A Cloud Watch reporting service is available for the ultimate anti-theft detection, which provides the same as the Enhanced Reporting service, with a 15 minute check-in/location update interval, plus the following:

### **Anti-Theft**

With Cloud Watch, the update interval is 15 minutes, and communication inactivity will be detected and notified. In addition, GPS disconnect events will also send notifications.

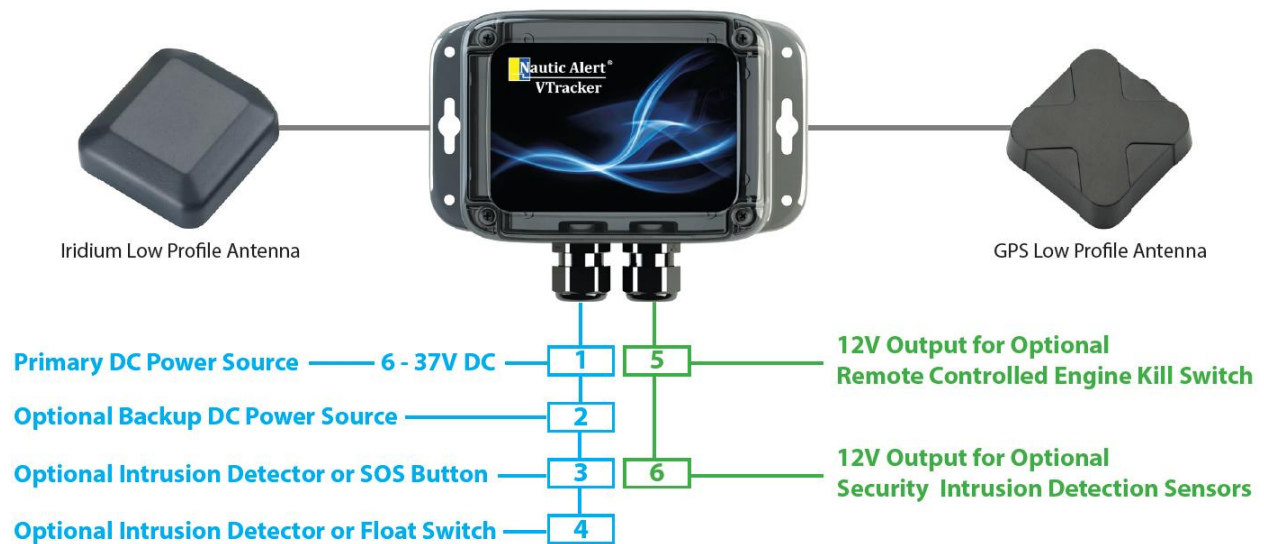
### **Vessel-Track Reconstruction**

If the communications antenna is intentionally removed, and the device cannot communicate, it will continue to store time-stamped location data, and then reconstruct the previous tracks once communications is restored.

## VTracker Overview

Nautic Alert VTracker™ tracks the location of your boat or yacht in real-time with unmatched precision. Using the award-winning Nautic Alert SMART geofence technology, it will learn and detect the location and a change to the location in as little as 250 ft with the included low profile antennas, or 50 ft. with the optional performance antennas using an onboard self-aware geofence, rather than a web-based geofence. VTracker also provides anchor alarm capability, while meeting or exceeding insurance requirements.

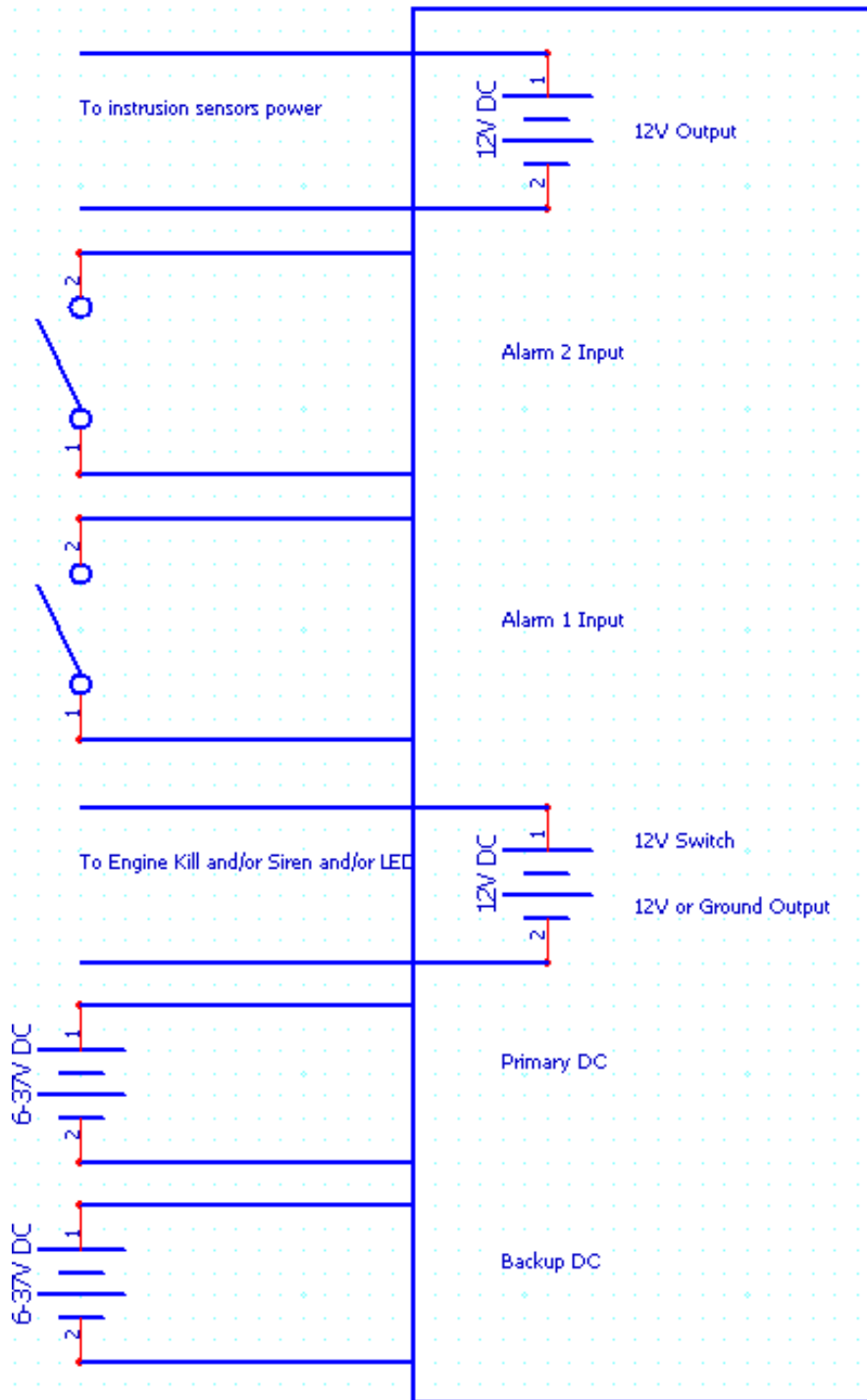
With the secured Nautic Alert Cloud™, you can connect directly to your onboard VTracker using the Iridium® NEXT global satellite network and request on-demand location information, receive automatic location updates and other information, at any time from your mobile or web enabled devices.



VTracker optional capabilities provide a set of dedicated input and output ports for a backup battery to enable full fault-redundancy and notifications of primary battery loss, for intrusion detection sensors and/ or SOS button for security or safety notifications, for a float switch and high water notifications, and for a remotely controlled engine kill switch or a switch to turn on an air conditioner, and more.

VTracker can be installed in minutes and communicates through most fiberglass and composite hulls with the included low profile antennas. Integrated push buttons and LEDs offer a quick setup and ability to test features during installation without requiring live connectivity. Optional high performance antennas and LMR cables are also available as alternative options to the included low profile antennas.

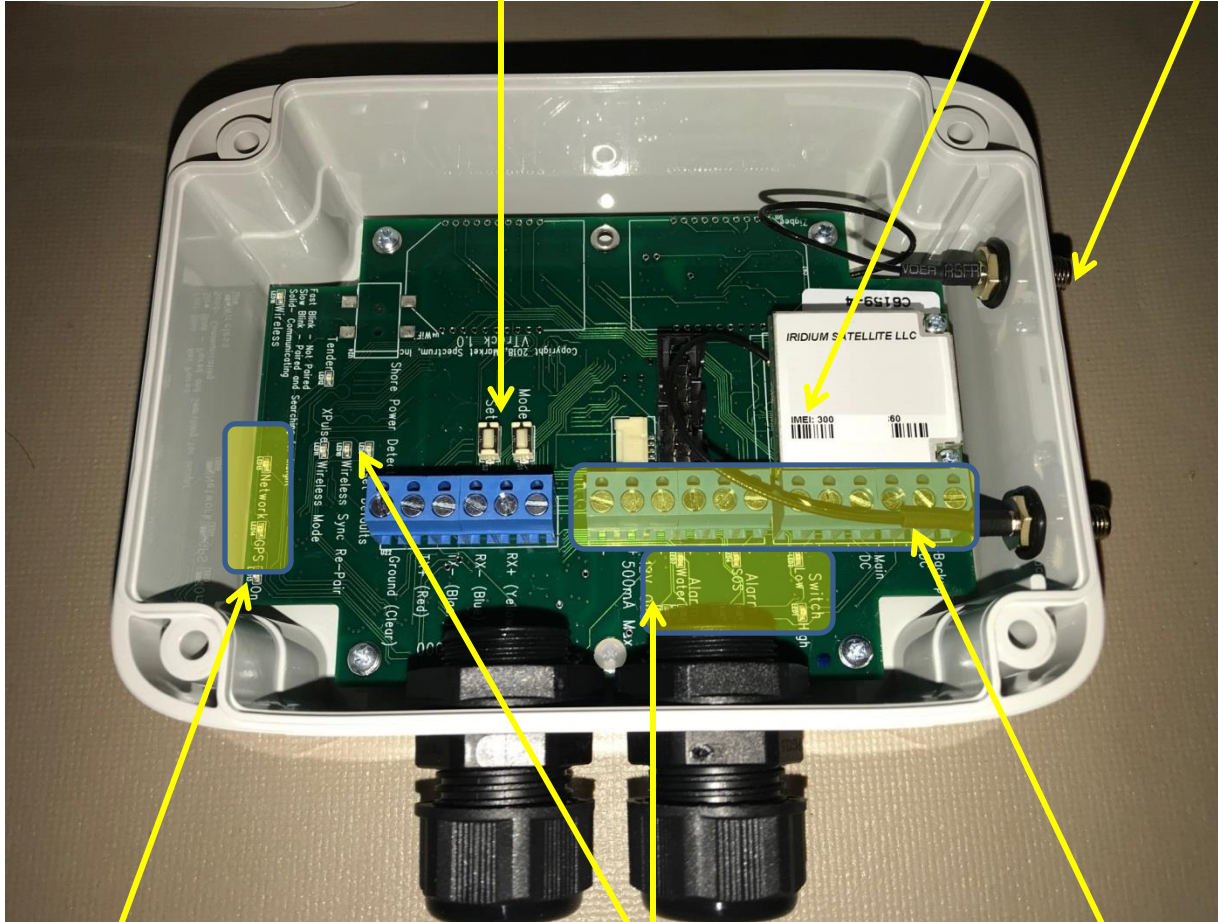
# VTracker Sample Schematic Reference



# Mode/Set Configuration Buttons Modem IMEI

VTracker Installer Details

GPS Antenna



Status LEDs

Configuration LEDs

Block Terminals

Block Terminal Pinout

12V Output		Zone 2		Zone 1		12V Switch		Primary Batt		Backup Batt	
+	-	Com (-)	+	Com (1)	+	-	+	-	+	-	+



## Cable Glands

All cable glands must be properly sealed to prevent water ingress and preserve the IP67 enclosure rating. If a cable gland is not used, a short cylindrical stopper is recommended. Otherwise, a small amount of non-conductive silicone adhesive can be used around the cable at the point where the glands tighten down from the outside of the enclosure.

## Antenna Placement

The included low-profile antennas can be placed under most decks or externally, however, the included Iridium antenna cable length is only about 3 feet, whereas the included GPS cable length is approximately 10 feet. The included antenna cabling is more easily susceptible to nearby electrical interference, and thus, should be kept away from any power or signal cables. In addition, nearby large extremities should be avoided, including solar panels.

A good mounting location can include under the bow deck, in T-Top ceiling compartments, and in cabins where the antennas can be mounted beneath the deck walkways, but connectivity should always be evaluated with [the Status LEDs](#).

If additional length, external mounting, or better shielding is required, the optional high-performance low-profile antennas and shielded LMR cables should be used. While the included low-profile antennas are ideal for covert installs, the optional compact high-performance antennas can also be installed under the deck/lockers, flush mounted, mast mounted, and more, as shown below.



## Hardware Options/Modes of Operation

A dedicated 12V output terminal can be used to power sensors that interconnect to alarm Inputs 1 and 2, if required. Max current from this onboard regulator is shared with the 12V switch output.

Sensors used for alarm Inputs 1 and 2 can be any 12V tolerant normally open or normally closed sensors, including, but not limited to the following:

Product Name	12V Required	NO/NC
Outdoor Wired Microwave Motion Sensor	Yes	NO or NC
Indoor Wired Microwave Motion Sensor	Yes	NC
Outdoor FLIR Perimeter Human Detection	Yes, External	NO
Indoor Wired Contacts	No	NO or NC
High Water Float	No	NO
Push Button With Integrated LED, SOS	Switch	NO

Sensor manuals are available from: <https://nauticalert.com/support/instruction-manuals/>

Alarm inputs can be driven by standard relay outputs, so any external device capable of driving a relay can be interfaced with VTracker's alarm inputs.

If normally open sensors are used, multiple sensors can be wired in parallel and connected to an alarm input. If normally closed sensors are used, multiple can be wired in series and connected to an alarm input. In either case, any one sensor can trigger the alarm interface at a time.

If alarm input 1 is configured as an SOS input, the 12V switch must be used with a visual/audible indicator to indicate when the SOS is active. In this case, the 12V switch cannot be remotely controlled. If alarm input 1 is configured as a zone input, then the 12V switch can be remotely controlled and used as an engine kill or to control any 12V tolerant device or relay.

Alarm Configurations:

Alarm 1	Zone	SOS
Alarm 2	Zone/Water	Zone/Water
12V Switch Output	Remotely Controlled	SOS Active Indicator

### Alarm Latching

Alarms and notifications will be latched and sent as follows:

Alarm- Latched if VTracker is in an armed state only

Water- Latched in all cases

SOS- Latched in all cases, but requires a 2.5 second assertion to activate, and a subsequent 2.5 second assertion will clear and cancel the SOS

## Status LEDs and Mode/Set Buttons

Status LEDs shown above provide instant visual confirmation for the following:

- ON- Lights solid once the system has booted and is operational.
  - o Will not light if incoming DC voltage is insufficient, to prevent hardware stress in the event of DC power brownouts or blackouts
- NETWORK- Blinks at a duty cycle proportional to the Iridium Satellite signal strength
  - o Stays solid when two-way communications is possible
  - o Indicator does not require customer activation of the system
  - o Normal for a solid LED to only occur once a minute, and last for about 10-30 seconds at a time
  - o If a solid LED does not occur once per minute, try repositioning the antenna
  - o In some cases, the use of the optional high-performance antennas mounted outside or at a higher elevation may be required
  - o Avoid antenna placement beneath carbon-fiber decks, near solar panels, with nearby obstructions to the sky, and inside of tinted windows
- GPS- Blinks at a duty cycle proportional to the GPS signal strength
  - o Stays solid when an excellent signal and 3D fix is acquired
  - o Signal may take up to 5 minutes to fully acquire, but should remain solid all the time
  - o In some cases, the use of the optional high-performance antennas mounted outside or at a higher elevation may be required
  - o Avoid antenna placement beneath carbon-fiber decks, near solar panels, with nearby obstructions to the sky, and inside of tinted windows

The mode/set buttons provide a simple installer interface for quickly setting up VTracker alarm input types and verifying sensor inputs and switch output functions without the need for any remote connectivity.

## Mode/Set Buttons and Alarm Inputs

VTracker contains two zone inputs, which can be configured as follows by using the “Mode” and “Set” button interface:

- SWITCH- Toggles between On and Off
- ALARM 1- Toggles between Zone Normally Open, Zone Normally Closed, and SOS
- ALARM 1 ACTIVE - Resets the alarm if it has been latched
  - o Setting is only accessible if the alarm has been latched
- ALARM 2- Toggles between Zone Normally Open, Zone Normally Closed, and Water (high water float)
- ALARM 2 ACTIVE- Resets the alarm if it has been latched
  - o Setting is only accessible if the alarm has been latched
- RESET DEFAULTS- Resets defaults for switch output, alarm input types, and latched alarm states
  - o Setting this takes about 30 seconds to complete, followed by a system reset

## Configuring and Testing Zones

When configuring and testing zones, it is recommended to disconnect the antenna first to prevent against any accidental notifications, especially SOS events, unless live testing is desired. Monthly live testing is recommended, and third parties receiving notifications should be notified in advance and in accordance with 3<sup>rd</sup> party monitoring agreements.

If using a “Zone” alarm type, opening and closing the connected sensor/button/switch will update the corresponding zone’s “Active” LED, if the system is disarmed. The system can be forced into a disarmed state by resetting defaults.

## Power Inputs and Battery Monitoring/Trending

VTracker will send low voltage and critical voltage notifications by default. In order to receive such notifications in the event of a total battery loss, a backup battery must be installed and connected to the backup battery input.

Battery properties, voltage thresholds, and notification settings can be modified on the [MyInsights Web Portal](#).

## Remote Engine Kill

If alarm input 1 is not designated as an SOS type zone, the switch output can be remotely controlled to provide a 12V control signal. See the [Remote Access](#) Section for more information on how to remotely turn this switch on and off. This feature can be used for a remote engine kill or any other custom control solution.

When using the switch for remote engine kill, a certified installer can survey the boat and recommend the best practice for implementing this feature. Depending on the setup, common ways for connecting this signal could be through a 12V solenoid valve on the fuel line, through the ignition wiring, or via a readily available 12V input.

Other use cases for this can include custom solutions, such as interfacing an existing MOB system to an SOS zone input, then using the switch output to kill the engine when an MOB activation occurs. This implementation could have dual functions for notifying about the SOS event, and shutting down the engine.

User must ensure this feature is used responsibly, and assumes all liability as discussed in the [Terms and Conditions](#).

## High-Water Monitoring

When alarm input 2 is configured as a water zone, one or more float switches can be connected directly to the terminal inputs. In this configuration, the float switch must be used standalone, and cannot be driven by an external voltage source, or damage will occur.

A high-water notification will be sent out regardless of the arming state of VTracker, if a previous sensor activation has not been previously latched. See the [Remote Access](#) section for more information on how to arm and disarm the system, and clear latched alarms.

## Alarm/Security Monitoring

When an alarm input is configured as a zone type, notifications of a sensor activation will only be sent if the system is armed and the alarm has not already latched a previous activation while being armed. See the [Remote Access](#) section for more information on how to arm/disarm, and clear latched alarms.

## SOS

When alarm input 1 is configured as an SOS zone, the switch output must be connected to an audible/visual indicator so the user knows when the interface has been activated. The switch output will be on when the interface is active.

The SOS interface is activated with a 2.5 second closure of an attached button, and is cancelled with a subsequent 2.5 second closure of the button.

When an SOS event occurs, an SOS message is sent to the owner of the VTracker, and all users that have been added via the [MyInsights Web Portal](#). In addition, and optionally, GEOS can be notified for global search-and-rescue if a GEOS subscription is active and has been purchased.

**Testing with GEOS is also possible and periodically recommended. It is necessary for the customer to contact GEOS directly prior to any live testing.**

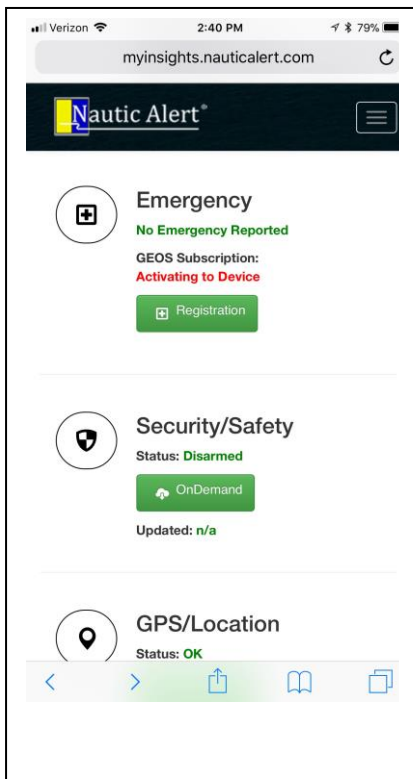
**Testing must be performed by customers in accordance with the terms and conditions set forth in the MyInsights GEOS registration procedures.**

## GEOS Reference

GEOS Global Emergency and Response monitoring subscriptions are available at [www.nauticalalert.com](http://www.nauticalalert.com), and enable SOS emergency reporting from Insight and connected [MOB devices](#).

Initially, the emergency subscription will show inactive on the MyInsights Web Portal. The administrator is responsible for entering required device registration information in the MyInsights web portal, see [MyInsights](#). See [Admin and Additional Users](#) section for more info on administrator roles.

The customer must ensure the emergency subscription displays “Active” on the device MyInsights Web Portal after completing the registration procedures. The registration button below will only be visible if the user is an administrator of the system and a GEOS subscription has been purchased.



## Geofence

A high-precision geofence/anchor alarm is built into VTracker, and can accurately detect unexpected movement in as little as 50 feet when using the optional low-profile high-precision antennas, or as little as 250 feet with the included stock antennas.

The geofence is automatically enabled and set when arming the system, or can be independently turned on through remote access commands. For more info, see the [Remote Access](#) section below.

The Award Winning Nautic Alert Geofence uses proprietary algorithms to automatically adjust as the positional accuracy degrades due to the real-time signal, thus, the preferred set radius of the geofence may increase and vary from time to time depending on the setup. Details of the actual perimeter and GPS signal can be obtained through the applicable geofence and GPS commands described in the [Remote Access](#) section.



## Activating VTracker and Remote Access

- 1) To activate VTracker, the IMEI of the satellite modem must be referenced, as shown on the [satellite modem](#) when the cover of VTracker is removed, as well as on the product box and enclosure.
- 2) Next, simply go to <https://www.nauticalalert.com> and click on the Activate Nautic Alert in the menu. **The activation process typically takes 12-48 hours.**
- 3) When the activation process is complete, go to <https://myinsights.nauticalalert.com> and login or create an account if you do not already have one. You can also reach this link by going to [www.nauticalalert.com](http://www.nauticalalert.com) then clicking on “login”. Once logged in, your device will show up automatically, and you’ll have instant access to remote SMS text message commands from your phone via the gateway number shown in the device details.

## Remote Text Message Access

VTracker information can be seen and modified via the My Insights web portal, or via text message commands. The following is a list of text message commands supported:

- “?” Displays list of commands available
- “Arm” Arms system, resets latched alarms, sets geofence to current position
- “Disarm” Disarms system, resets latched alarm
- “Clear” Clears latched alarms
- “Map” Returns Google Maps link to on-demand current location
- “GPS” Returns on-demand coordinates, heading, and speed
- “Geofence” Returns on-demand geofence status and drift distance
  - “Geofence Reset” – resets current center point of geofence
  - “Geofence set 50” —sets geofence radius to 50’. Minimum radius of 250 is recommended for stock antennas, 50’ is possible with high-performance antennas mounted properly externally and free of obstructions.
  - “Geofence on” —enables the geofence and resets the center point if the geofence is currently disabled
  - “Geofence off” —disables the geofence
- “Status” Returns on-demand system status summary
- “DC” Returns on-demand voltage from primary battery
- “Switch on” - turns switch on if zone 1 is not setup as an SOS type
- “Switch off” - turns switch off if zone 1 is not setup as an SOS type

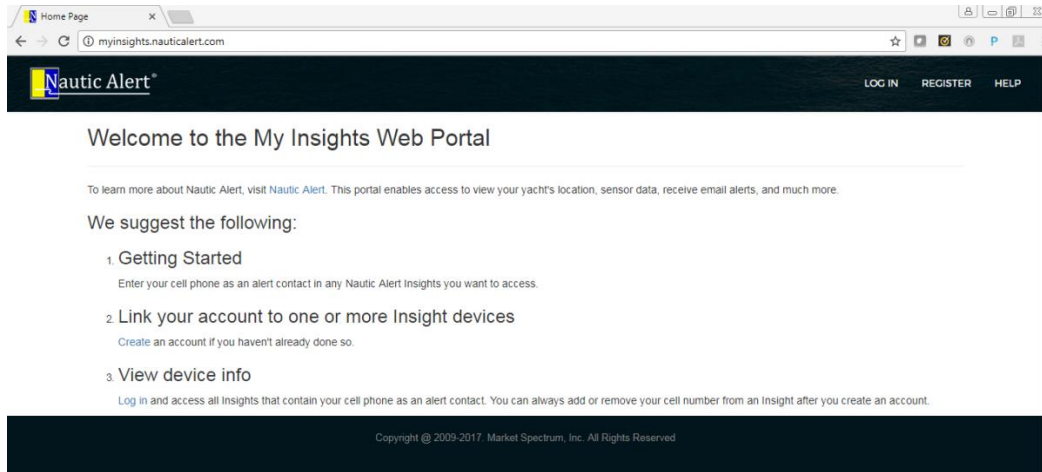
## Admin and Additional Users

The cell number of the owner provided when activating VTracker is considered the system administrator. Additional users can be added via the [MyInsights Web Portal](#) discussed below. Users also have remote access to the system, but do not receive Cloud Watch anti-theft notifications as discussed in the [Cloud Watch Reporting Service](#) section.

## MyInsights Web Portal

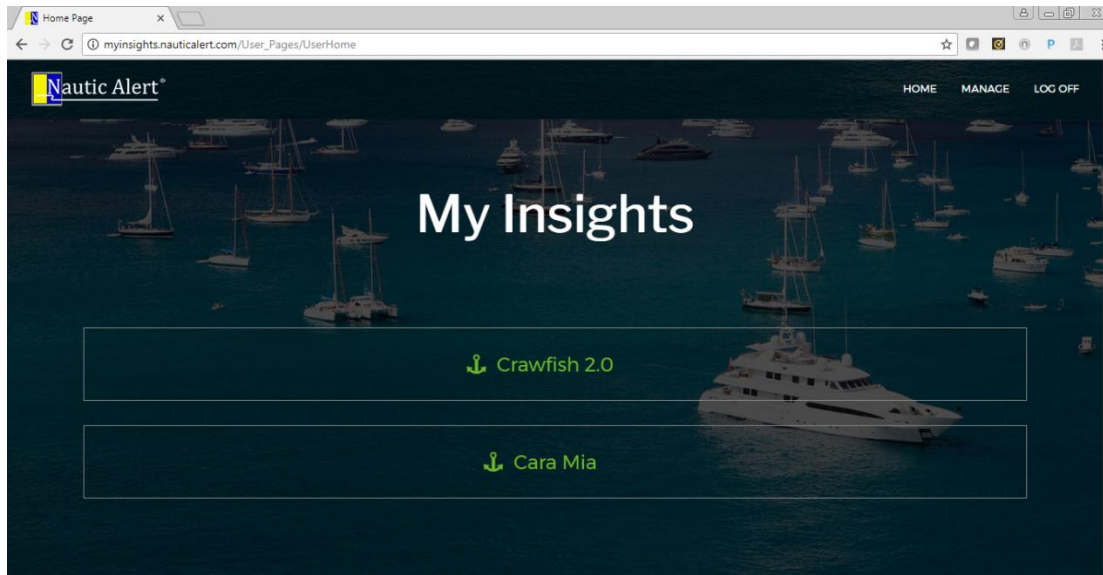
The web portal can be used to display sensor data on demand, view vessel tracking data, and events, from any web-enabled phone, tablet, or PC.

To access MyInsights, go to [www.nauticalert.com](http://www.nauticalert.com), then click login at the top, or go to [myinsights.nauticalert.com](http://myinsights.nauticalert.com).



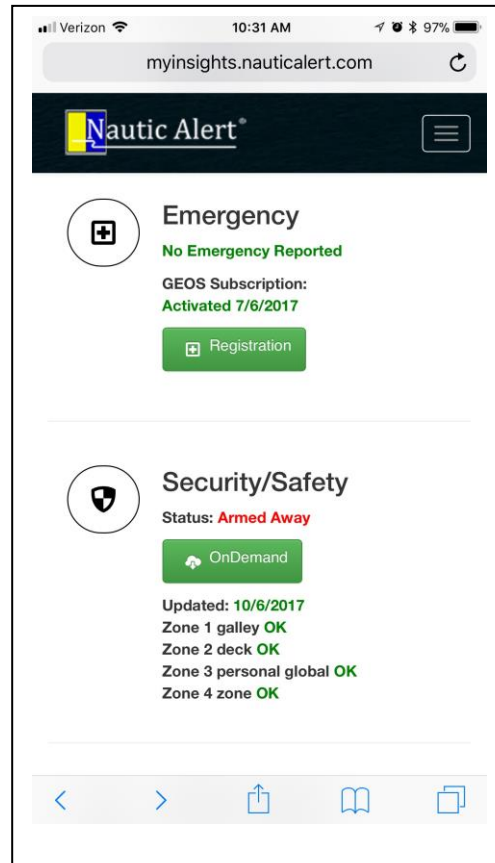
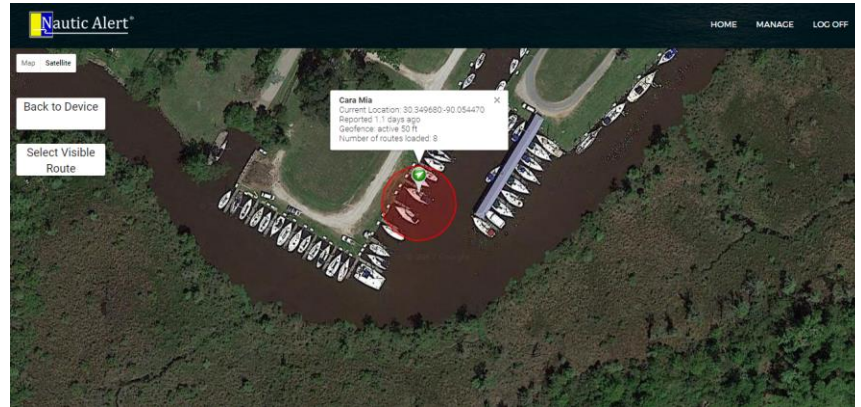
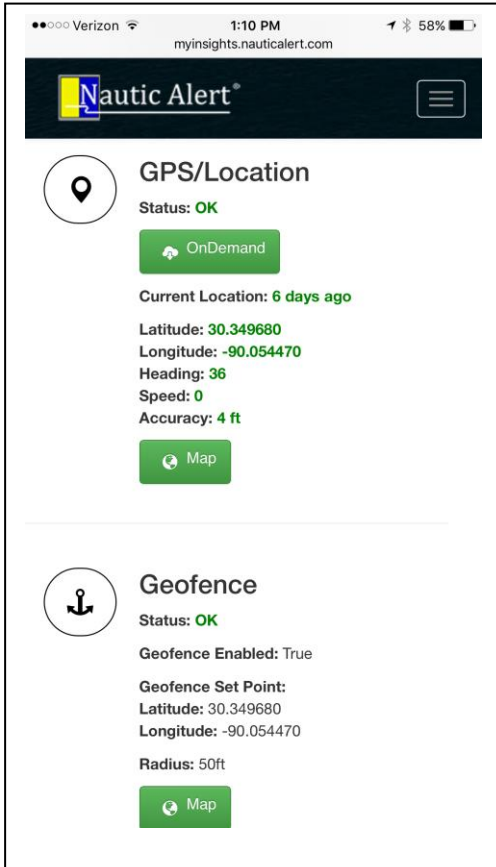
Before creating an account, ensure that your cell number is present in an Insight's alert contact list.

When logging in, all devices that contain your cell phone will show up in real-time.



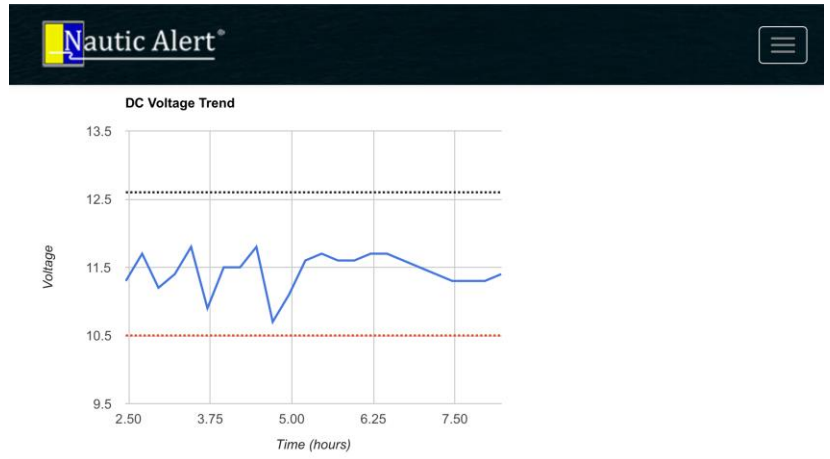
Clicking on a device gives you instant access to yacht vitals, location, tracking, trending, and subscription status.

An active geofence can visually be both visually displayed as seen below, and real-time movement data requested on-demand.



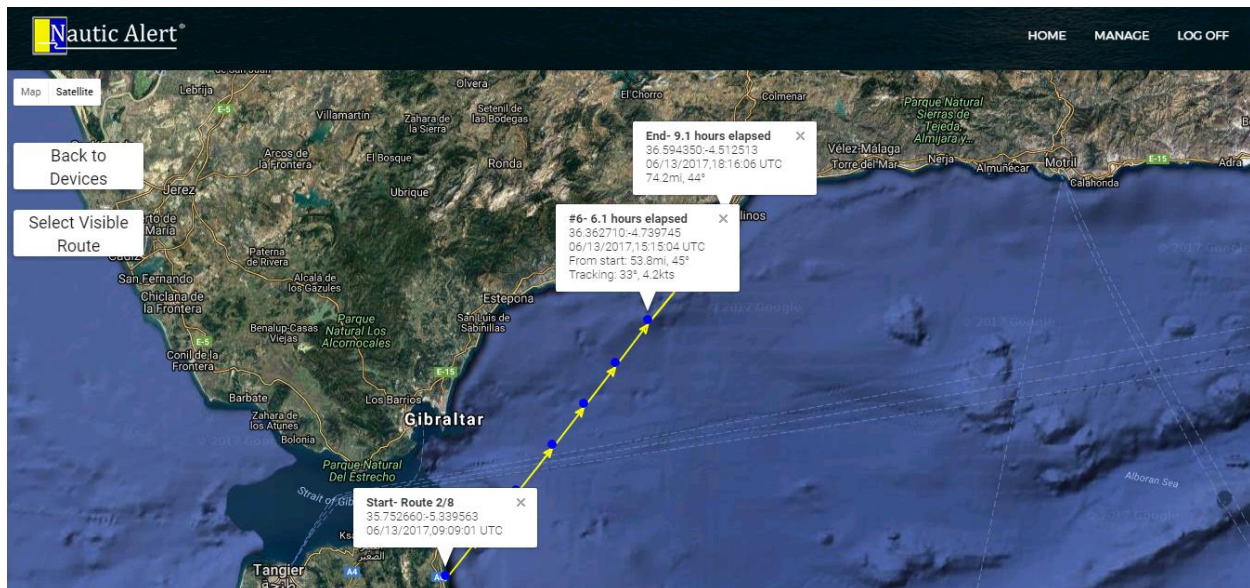
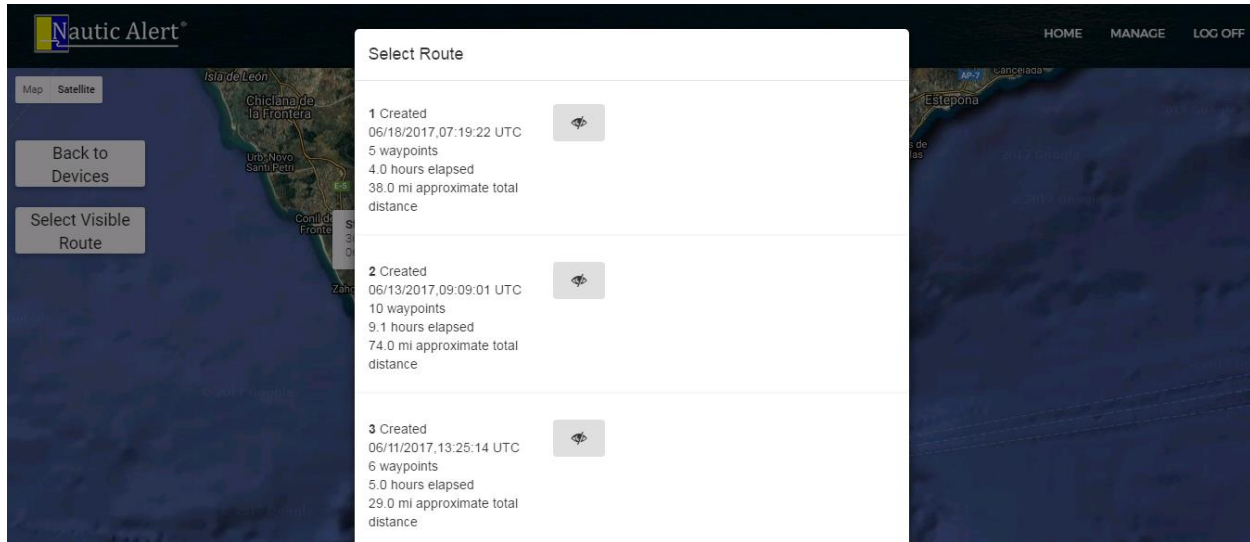
Example of sensor data and DC trending below:

The screenshot shows the Nautic Alert mobile application interface. At the top, the status bar displays 'Verizon', signal strength, Wi-Fi, time '10:31 AM', and battery level '97%'. The browser address bar shows 'myinsights.nauticalert.com'. The app header features the 'Nautic Alert' logo and a menu icon. Below the header, a circular icon with a pulse line is next to the 'Sensor Data' title, with an 'OnDemand' button. The data is organized into four sections: 'Bilge Management' (Nevata: Nevata 1, Status: OK, Last Update: 10/4/2017, Water: 0.2 inches), 'Shore Power 1' (Status: OK, Last Update: 10/4/2017), 'Insight DC' (Status: OK, Last Update: 10/4/2017, DC: 12.8 volts, with a 'Trend' button), and 'DC Bank 1' (Status: OK, Last Update: 10/4/2017).



## MyInsights Vessel Tracking

Nautic Alert's Vessel Tracking was created with simplicity in mind. VTracker is designed to update vessel tracks automatically, at time intervals defined depending on the subscription package chosen, as the vessel moves. Tracks are automatically collected and calculated behind the scenes. Here's a quick look at a list of previous tracks auto-generated, and the result of selecting a route.

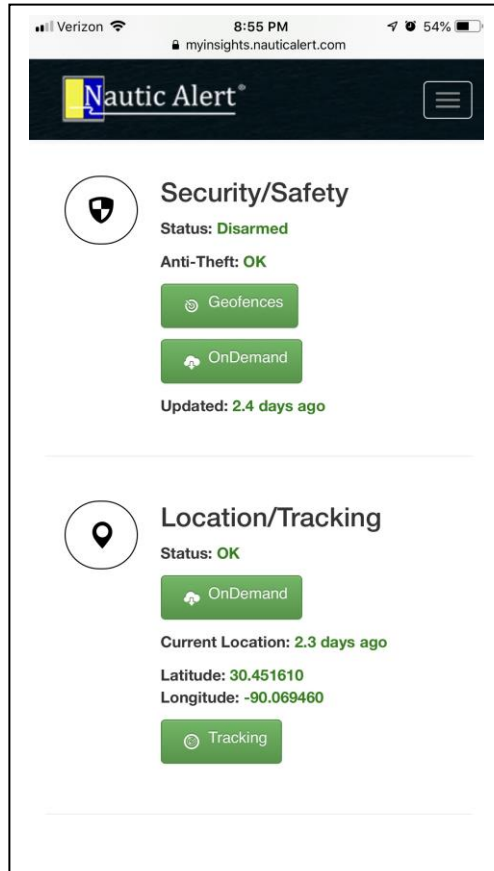


Individual tracks points can be selected on the map to display route and track stats. Tracks are updated in real-time, and when an On Demand location is requested. Location updates can be requested on demand at any time, without needing to wait for Insight to automatically update a location report. This way, friends and family with MyInsight access can always know where you are.

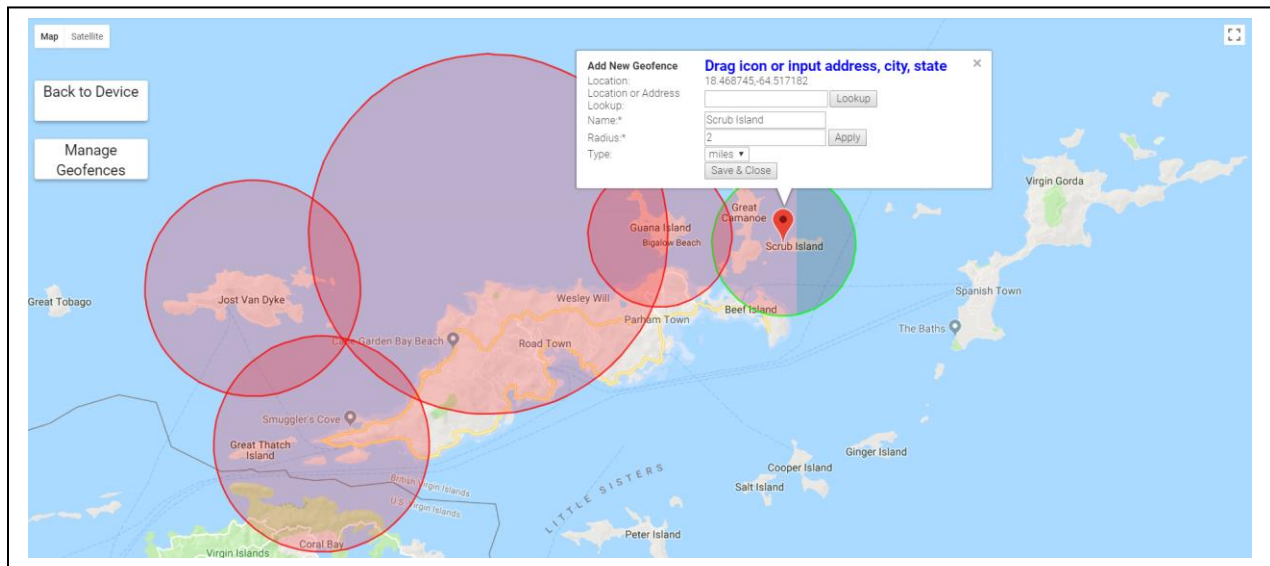
## MyInsights Global Geofencing

Global Geofencing is a feature available with a Cloud Watch Reporting Service. For more information on reporting services, see the [Reporting Services](#) section.

A system admin can access the geofences interface from the “Geofences” link as seen below, in the Security/Safety category:



The following shows an example of the global geofence interface available to the system admin:



## Alarm Latching

To prevent against sensors that continuously activate and re-activate, alarm events that send notifications will be latched. It is up to the user to clear these events such that subsequent notifications can be sent. This can typically be done with the “clear” command, and on-demand status of an alarm zone can be described through the “status” command or the MyInsights Web Portal Security Section On-Demand feature.

## Notifications

Device notifications are sent to the system admin, and additional users that the admin has added through the MyInsights web portal.

Cloud Watch notifications are only sent to the system admin, and users do not have visibility into these.

Email notifications are sent to all MyInsights registered users. Without registering for an account, only text message notifications will be received.

## Overages

Occasionally, and with heavy usage, monthly data overages can occur. The [MyInsights Web Portal](#) provides a real-time estimate of incurred data usage.

## Terms and Conditions

Any Nautic Alert user must agree and accept all terms and conditions as outlined in the [MyInsights Web Portal](#).