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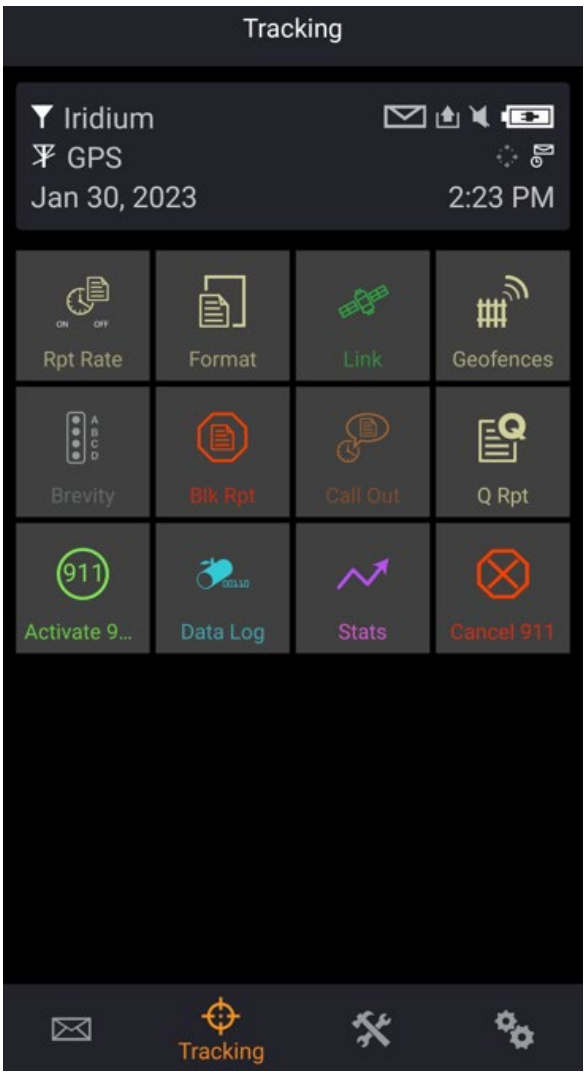
SHOUT App User Guide

Version F

October 23, 2024



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REVISION HISTORY

Revision	Date	Description
A	2/11/19	Initial version
B	6/17/20	Updated download links. Some detail added to the setup procedure.
B.1	6/09/2021	Updated to new template; proofread.
B.2	2/28/2022	Updated to outstanding comments in B.1, and minor editorial updates.
B.3	3/03/2022	- Updated Section 1.6 Bottom Dock: edit narrative and changed figure - Updated Section 3 Status: Added a Status Bar figure - Added: Downloading the SHOUT Application from Google Play Store
C	12/16/2022	Formal Initial Release
D	5/31/2023	- Updated section 2: Using the SHOUT APP - Updated Screenshots - Added section 7.7 NS Power - Added section 7.8 Bluetooth Power - Renamed User Guide: Was: SHOUT ns/nsx App User Guide Now: Shout APP User Guide
E	04/05/2024	Texting Menu/Mbx Rate (section 4.8) - Updated Mbx Rate screenshots Utilities Menu/Check GPS (section 6.1) - Updated Check GPS screenshot Settings Menu/Device Power (section 7.7) - Changed section title from “NS Power” to “Device Power” - Updated Device Power screenshots
E.1	07/08/2024	Added section 2.2 Installing The Shout App From Apple App Store
F	010/23/2024	Formal Release

REFERENCE DOCUMENTS

The latest revisions of the NAL documents are available by request via email.

Support@nalresearch.com.

Reference	Title	Revision/Date
[1]	SatTerm for SHOUT nano 100 v9.1.0	Version A, April 30, 2023

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ACRONYM LIST

AT .....Two-letter sequence starting a string of modem commands. The AT is intended to get the modem's attention prior to executing a command.

FCC .....Federal Communications Commission

GMT.....Greenwich Mean Time

GPS .....Global Positioning System

HACC .....Horizontal Accuracy

HDOP.....Horizontal Dilution of Precision

IC .....Industry Canada

IMEI .....International Mobile Equipment Identification

LED .....Light-Emitting Diode

NOC .....Network Operation Center

PDOP .....Position (3D) Dilution of Precision

PMS .....PECOS Message Structure

SatTerm.....Satellite Terminal Emulator software

SBD .....Short Burst Data

USB.....Universal Serial Bus

UTC.....Coordinated Universal Time

VDOP .....Vertical dilution of precision

1 INTRODUCTION

1.1 DESCRIPTION

The SHOUT App is a mobile application, available for Android and iOS, designed to provide a user interface to the SHOUT nano 100, SHOUT ns, and the SHOUT nsx. In this user guide, the term “SHOUT device” will apply to the aforementioned SHOUT devices. The SHOUT App has a variety of menus and icons used to configure and interact with the device. **Figure 1** depicts the main *Texting* home window as an example with the four main window segments: title bar, status bar, menu/function area, and bottom dock. SHOUT App menus consist of four (4) main categories: *Texting*, *Tracking*, *Utilities*, and *Settings*, described in more detail in the following sections.

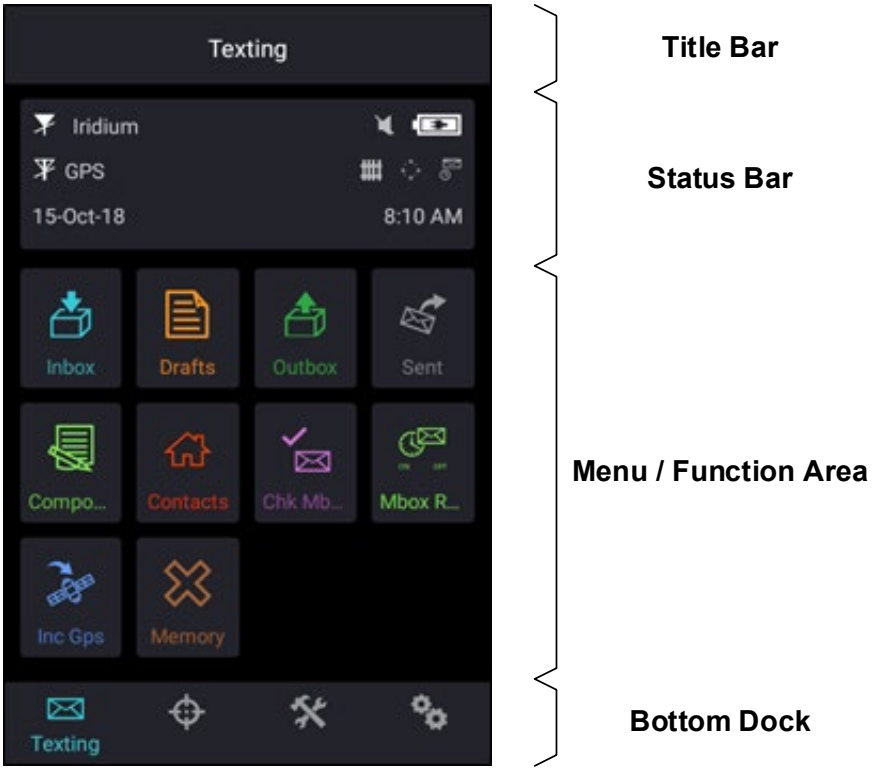


Figure 1: SHOUT App Texting Main Window

1.1.1 TITLE BAR

The title bar provides an indication of which main menu is currently active.

1.1.2 STATUS BAR

The status bar provides an assortment of icons that provide status for multiple functions within the SHOUT device, such as Iridium transceiver status, GPS receiver status, battery level, audio status, message status, geofence status, and tracking mode. (See section **3**).

1.1.2.1 DATE/TIME

The date and time displayed on the SHOUT App is derived from the time on the mobile device. Time zones and other date settings can be adjusted through the phone's own settings.

1.1.3 MAIN MENU/FUNCTION AREA

The main menu/function area is the location for the function select icons for the SHOUT device for each of the four menus: Texting, Tracking, Utilities, and Settings.

1.1.4 BOTTOM DOCK

The SHOUT App displays four main dock icons at the bottom of the screen, each representing a menu option: Texting, Tracking, Utilities and Settings. The active dock item is illuminated, shown in **Figure 2**, when selected and displays the icon and name of the menu, while the other three icons are grey and do not display name of the menu. Detailed descriptions of each of these menu options are included in the next sections.

Figure 2: Bottom Dock Icons Illuminated

1.1.5 SEARCH BOX

Some menu options have a search box to search for specific keywords or phrases. The search parameters are defined using **Settings** > **Search** menu. Touching the search box brings up a keyboard to enter the search item. **Figure 23** provides an example of a search box in the **Select Contacts** submenu.

1.2 FEATURES

The SHOUT App offers a variety of services including:

- **Normal Tracking** — The SHOUT App can program the device to automatically wake up and send a position report at a set interval ranging from once every minute to once every forty-five days (in one-minute increments).
- **Emergency Alert** — When emergency has been activated, the device immediately sends alerts to one or more designated monitoring centers. The home base and the user can then communicate to define further specifics of the situation and a response to the emergency.
- **Free-Text Messaging** — The SHOUT App allows the user to send free-text via touchscreen keyboards.
- **Canned Text Messaging** — The SHOUT App allows the user to send canned (predefined) messages stored its memory. Sending canned messages saves bandwidth (effectively cost) because only short codes are transmitted to the server instead of the entire message body.
- **Waypoint Tracking** — The SHOUT App lets the user send and/or save waypoints for later retrieval. A waypoint is a GPS location that a user wants to identify and mark with a specific nametag for future reference.
- **Check-In** — The SHOUT App allows a quick check-in message to be sent using a single key.
- **Geofencing** — The SHOUT App allows configuring settings for Geofences saved on the device.

2 USING THE SHOUT APP

The SHOUT App connects to the SHOUT ns/nsx and SHOUT nano 100 device via Bluetooth Low Energy (BLE). The mobile application will initiate the pairing process when the application is opened. **NOTE**: It is recommended to disconnect the SHOUT device from SatTerm before and during the SHOUT device connection to the SHOUT App. For additional information on how to pair the SHOUT device to a mobile device, refer to the applicable SHOUT device user guide.

The mobile application can be acquired from the mobile device's app store. Detailed instructions follow in Sections 2.1 and 2.2.

2.1 INSTALLING THE SHOUT APP FROM GOOGLE PLAY STORE

1. Select **Play Store** from your Android device (see **Figure 3**).

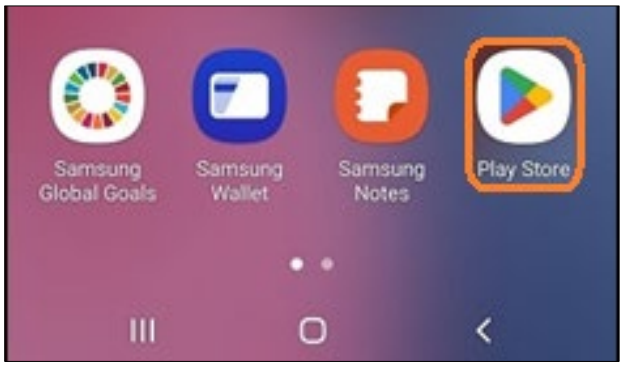


Figure 3: Select Play Store

2. Enter **SHOUT NAL** in the Search field, and press **Enter** (see **Figure 4**).
3. Select **SHOUT - UI for SHOUT nano 100** (see **Figure 4**).

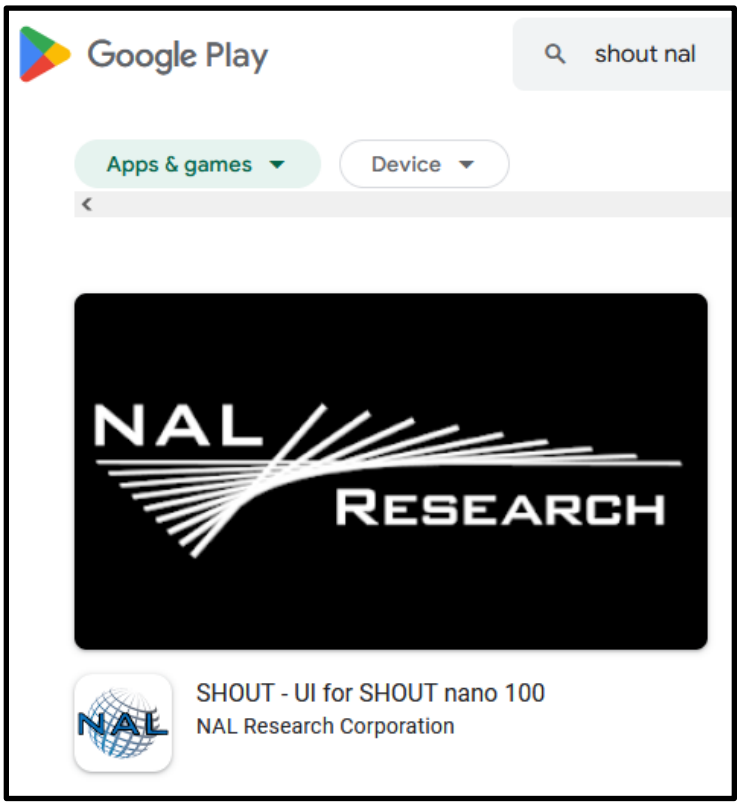


Figure 4: Search Screen

The SHOUT (App) screen displays (see **Figure 5**).

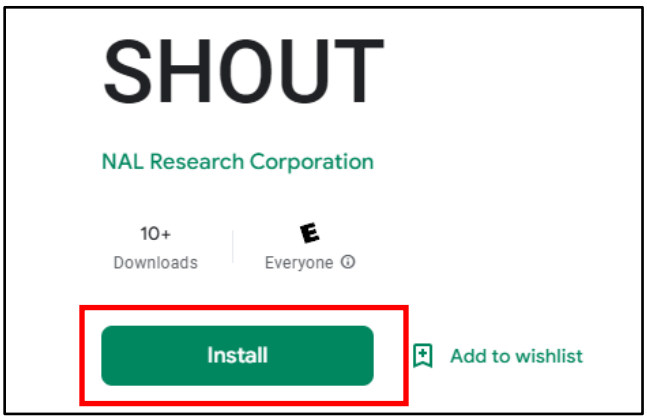


Figure 5: Install Screen

4. Select **Install** (see **Figure 5**).
5. Select **Open** (see **Figure 6**).
6. Select **While Using the app** for location Usage (see **Figure 7**).

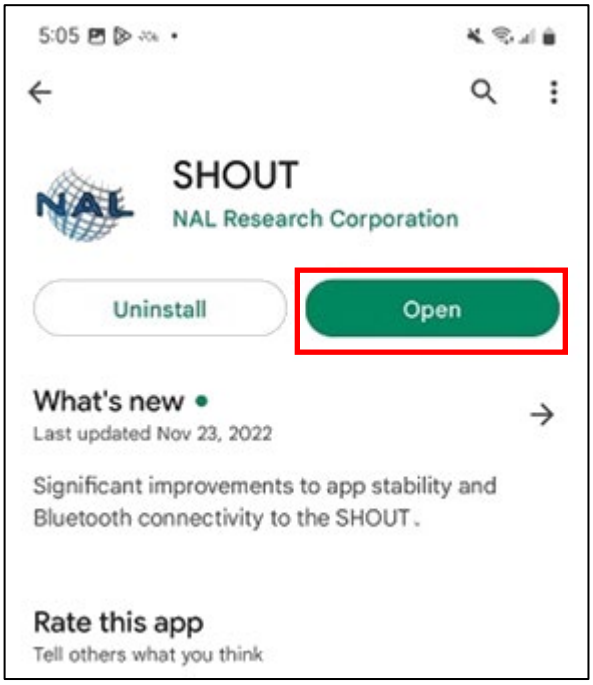


Figure 6: Open Screen

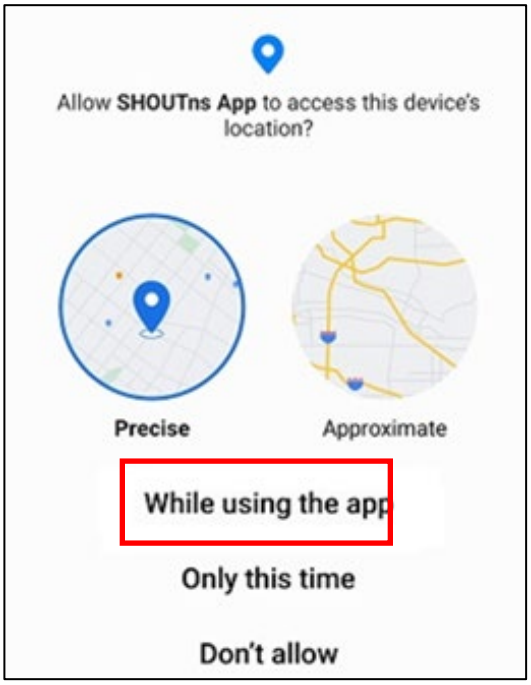


Figure 7: Location Usage

7. Select **Allow** for Bluetooth connection (see **Figure 8**).

Figure 8: Allow Bluetooth Connection

NOTE: These Location and Bluetooth connection choices display one time, only during the installation phase. You can update the choices in the Android Settings menu.

2.2 INSTALLING THE SHOUT APP FROM APPLE APP STORE

1. Select **App Store** from your iPhone device (see **Figure 9)**.

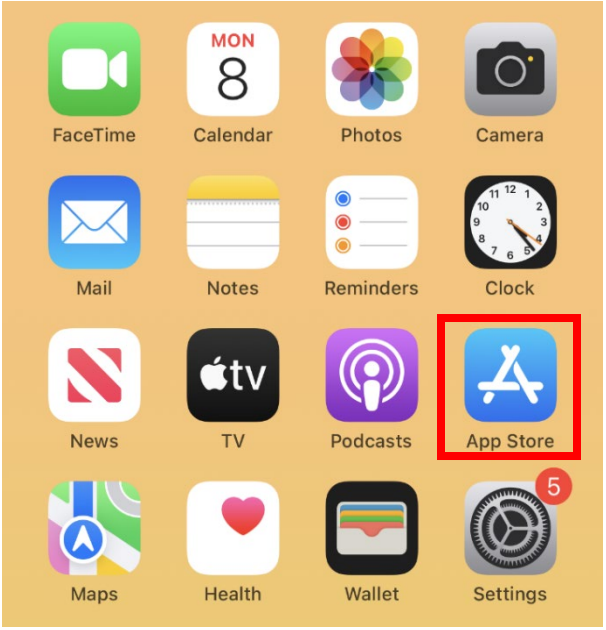


Figure 9: Select App Store

2. Enter **NAL SHOUT** in the Search field, and press **Search** (see **Figure 10**).

3. Select **NAL SHOUT** (see **Figure 10**).

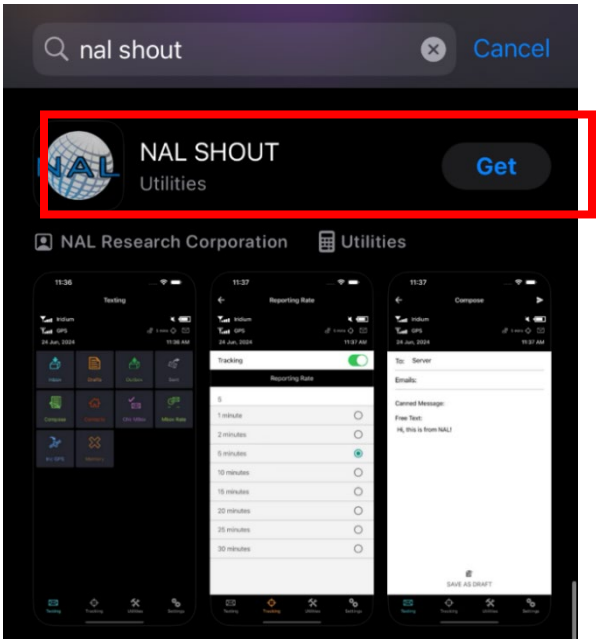


Figure 10: App Store Search Screen

4. Select **Get** (see **Figure 11**).

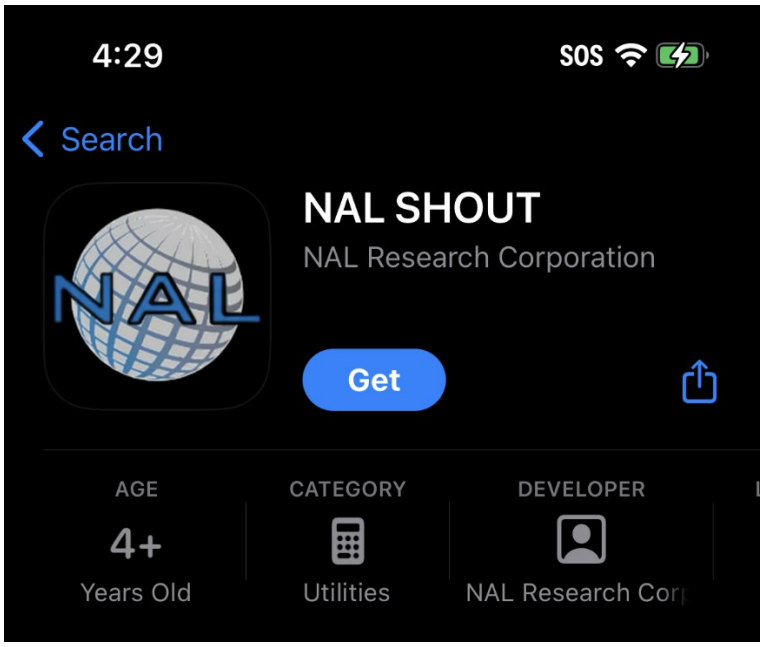


Figure 11: App Store Get Screen

5. Select **Install** (see **Figure 12**).

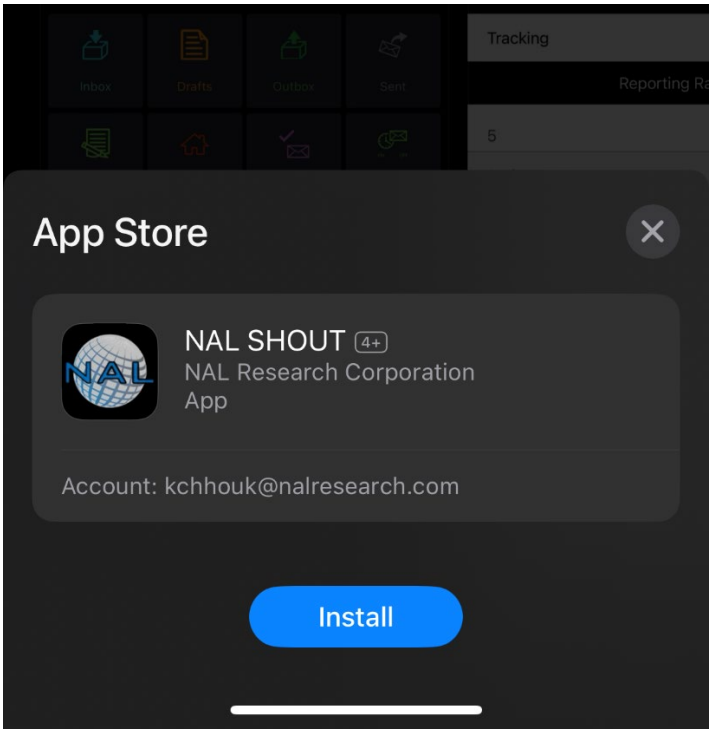


Figure 12: App Store Install Screen

6. Select **Open** (see **Figure 13)**.

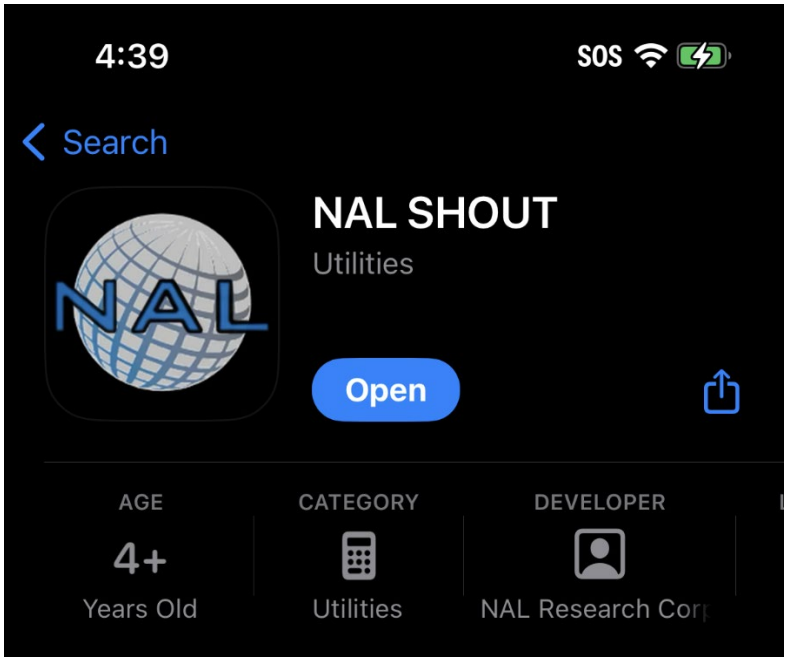


Figure 13: App Store Open Screen

7. Select **Allow** for Bluetooth connection (see **Figure 14**).

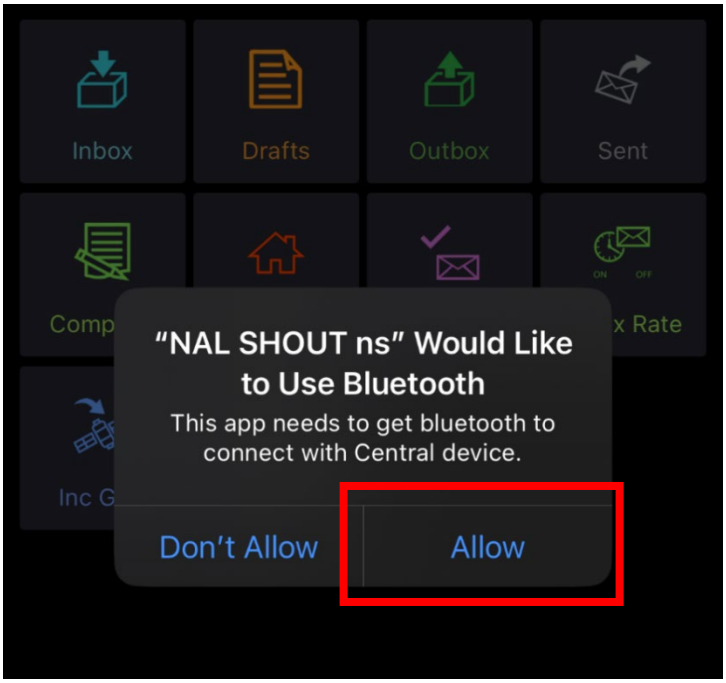


Figure 14: NAL SHOUT Allow Bluetooth Screen

NOTE: If Bluetooth is 'OFF', make sure to navigate to Settings to turn 'ON' Bluetooth and allow Bluetooth connection access to the NAL SHOUT App (see **Figure 15** and **Figure 16)**.

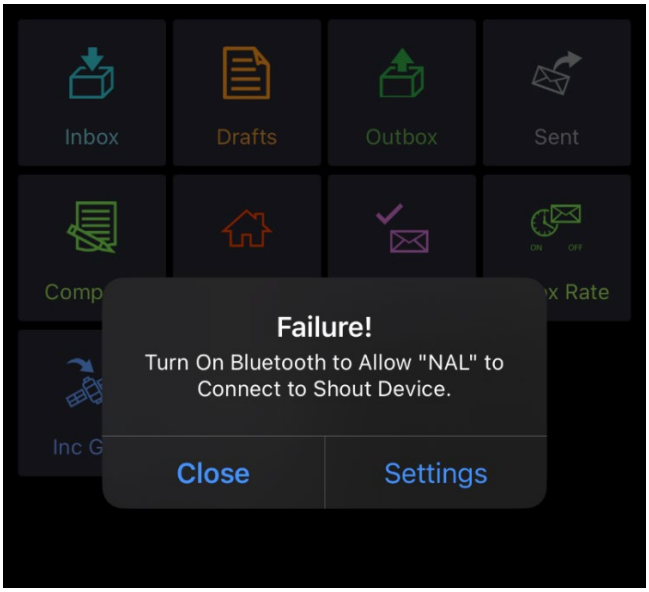


Figure 15: iPhone Bluetooth Prompt Screen

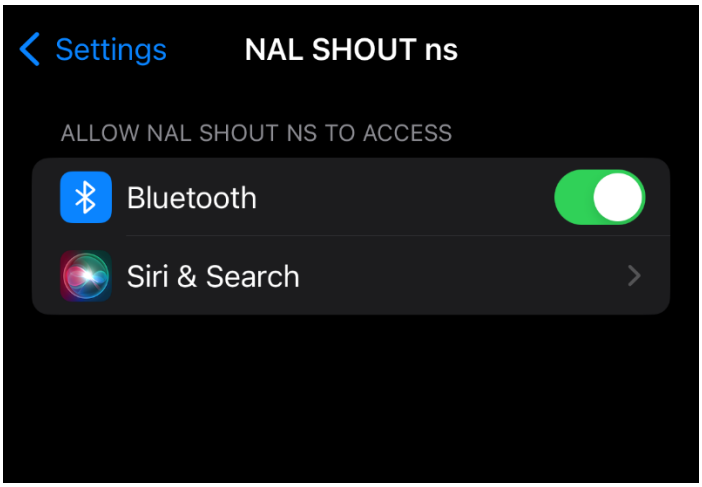


Figure 16: iPhone Allow Bluetooth Settings Screen

3 STATUS BAR

The SHOUT App has one status bar above the top of the screen as shown in **Figure 17**.

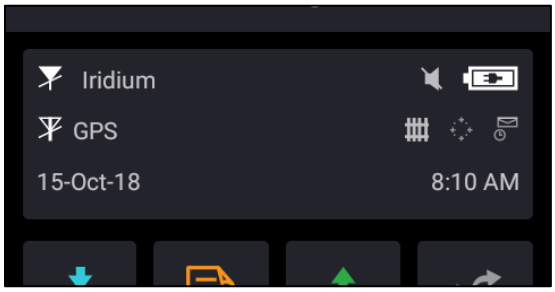


Figure 17: Status Bar

Table 1 below is a list and a description of the status icons.

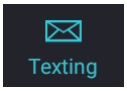
Table 1: Status Bar Icons

	Denotes the Iridium transceiver is off. To preserve battery life, the Iridium transceiver are only turned on when transmitting a message or position report; thus, a diagonal line is drawn over the symbol when off.
	Denotes: (1) the either Iridium transceiver is on with real-time signal strength represented by the number of vertical bars or (2) SBD message transmission is in progress. The signal strength can range from the lowest of zero to the highest of five bars. During transmission, the antenna must have a clear view of the sky. The device cannot send messages or reports from inside a building.
	Denotes the GPS receiver is off. The GPS receiver is normally kept off to preserve battery life until time, date, or position information is needed.
	Denotes the GPS receiver is on with real-time satellite acquisition status represented by the number of vertical bars. 1. One bar represents valid time and date fix. 2. Two bars represent 2D fix or dead reckoning. 3. Three bars represent 3D fix with HDOP higher than 2.0. 4. Four bars represent 3D fix with HDOP less than 2.0. Although the GPS receiver can often obtain a location fix when the antenna is partially blocked (near buildings, in a room next to a window, etc.), the antenna must have a clear view of the sky to minimize acquisition time and provide better position accuracy.

Table 1: Status Bar Icons

	Battery indicator.
	Denotes the battery is being charged by an external power source.
	Denotes all audio is off.
	Denotes audio is on.
	Denotes one or more unread messages are in the Inbox.
	Denotes one or more messages are in the Outbox ready to be sent or one or messages in queue failed to send.
	Denotes *Geofences* is on when the symbol is bright white. The symbol turns dimmed gray when geofence tracking is off. The geofence symbol does not appear when there are no fences saved into the device.
	Denotes *Call Out* is on when the symbol is bright white. The symbol turns dimmed gray when Call Out is off. The Call Out symbol will not appear when there are no Call Out times saved into the device.
	Denotes *Mailbox Check* is on when the symbol is bright white. The symbol turns dimmed gray when Mbox Check is off.
	Denotes tracking (standard tracking, geofence tracking, etc.) is on when the symbol is bright white. When standard tracking is on, a countdown timer to the next report appears beside the tracking symbol. The symbol turns dimmed gray when tracking is off.

4 TEXTING MENU



Use the *Texting* menu to compose, save, view, send canned or free-text messages, check mailbox for incoming messages, and set up an automatic mailbox check frequency.

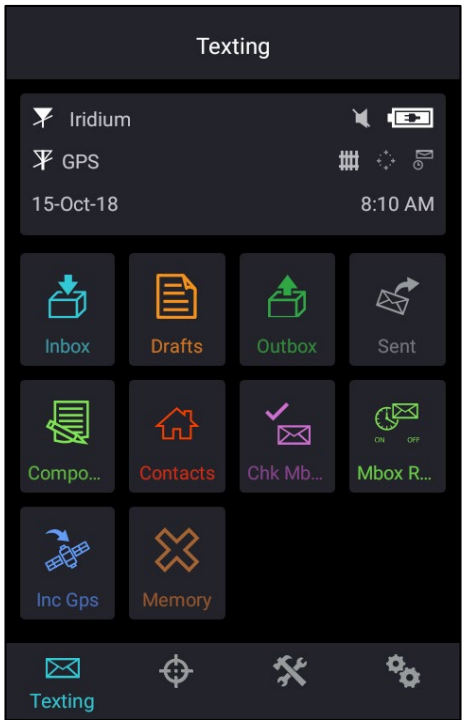


Figure 18: Texting Menu

4.1 INBOX

The *Inbox* folder contains all incoming read and unread messages with the newest on top of the list. Read messages have an opened envelope symbol next to them. Unread messages have a closed envelope symbol next to them. A closed envelope symbol appears at the top of the screen when one or more unread messages are in the Inbox. You can reply to or forward the Inbox messages. In either case, the *Compose* menu opens. From there, either choose to save a draft or send the message. For more information on the Compose menu, refer to section **4.5**.

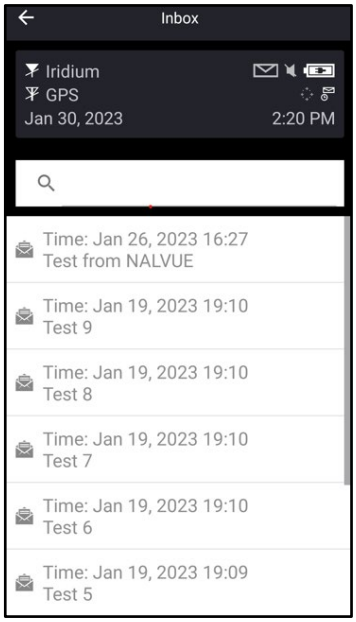


Figure 19: Inbox

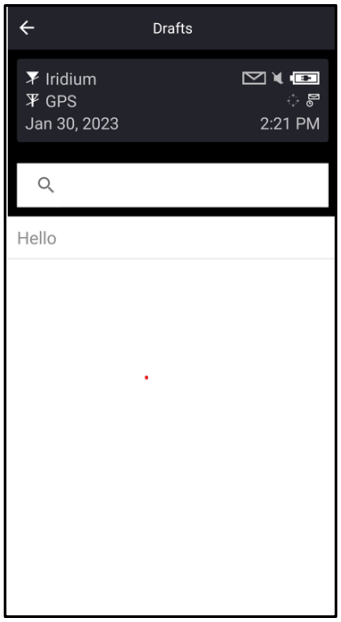


Figure 20: Drafts

4.2 DRAFTS

The *Drafts* folder contains draft messages saved under the *Compose* menu. The newest messages are saved at the top of the list and the oldest messages at the bottom.

1. Select a draft message to open the *Compose* screen.
2. Select **Send**.

   A *Confirm* and then a *Success* box appear to indicate that the message has been added to the Outbox.

   NOTE: If the *Inc GPS* option is enabled, then GPS location will be attached to a message. Messages with GPS location attached can take longer to send because a GPS position must be acquired.

4.3 OUTBOX

The *Outbox* folder contains either messages waiting to be sent or messages failed to send. A message *in the process* of being sent has a **<<** symbol next to it. You cannot interact with messages with this symbol. You must wait until the message has failed or is sent to continue. A message that has *failed* to send is marked with a red **X** symbol. A message *in*

queue waiting to be sent has no symbol. For each message queued in the Outbox waiting to be sent, the device has a two-minute window to transmit. Then the message will be dequeued to avoid draining the battery.

Figure 21: Outbox

Failed messages remain in the Outbox sorted in the order of priority, and then by the oldest to the newest messages. The symbol appears on top of the screen when there are one or more queued or dequeued messages in the Outbox.

Failed messages can be deleted or resent (enqueue). However, if you decide to resend a failed message and if the failed message is successfully retransmitted, the device automatically attempts to resend as many remaining failed messages in the Outbox as possible in the following order of priority.

Category 1 (highest priority):
- Callout
- Cancel Emergency
- Geofence Arrive/Depart
- Man Down

Category 2:
- Check-In
- Queued Tracking Report

Category 3:
- Motion Start/End Report
- Statistics Report
- Test Report

Category 4 (lowest priority):
- Remote Update Response
- Poll Report
- Text Message
- Waypoint

If there are multiple items in the same category, the oldest will be sent first. The device also automatically resends failed messages in the order stated above after a successful transmission (by accessing the network through methods such as Tracking, Test Report, Waypoint, etc.). To avoid draining the battery, maintain the Outbox frequently and delete unwanted failed reports.

4.4 SENT

The *Sent* folder contains messages successfully sent to a NOC server. A message can be resent, forwarded or deleted.

- *Resend* moves a message to the bottom of the Outbox folder's sending queue.
- *Forward* opens the *Compose* menu to enter additional information. You can then resend the message after modifying it or cancel the process.
- *Delete* permanently removes the message from the *Sent* folder.

Messages are stored in the *Sent* folder with the newest message displayed at the top of the list.

4.5 COMPOSE

The *Compose* menu allows you to enter, edit, and send canned messages, free-text messages, or a combination of canned and free-text messages to: (1) a NOC server, (2) a predefined list of email addresses, and/or (3) any email addresses entered via the keyboard.

The SatTerm software enables you to create and save predefined email addresses onto the device's contact list. During setup, SatTerm requires connectivity between the device and a NOC server to synchronize the lookup table of short codes. As with canned messages, short codes are used to map the actual email addresses to a lookup table located at a NOC.

To compose a message:

1. Select the **Compose** menu. The *Compose* screen appears with two distinct regions: *To: Server* and *Canned Message*, as shown in **Figure 22**.

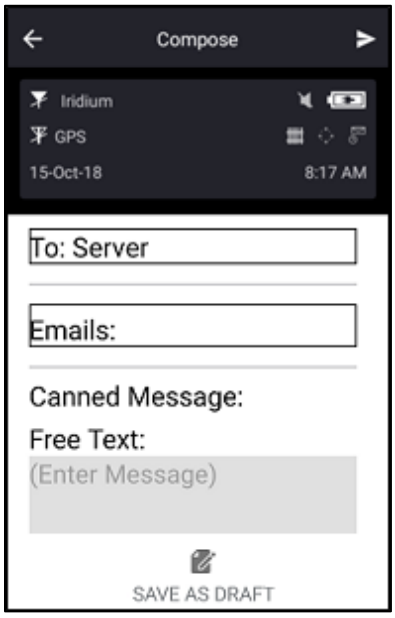


Figure 22: Empty Compose Screen

2. Press **To: Server** to select contacts (see **Figure 23)**, or press **Emails** to enter an email address (see **Figure 24)**.

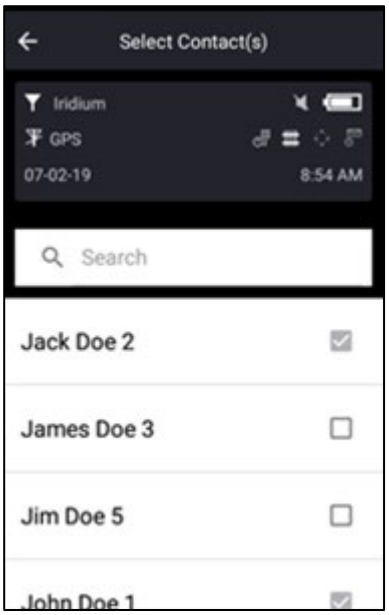


Figure 23: Select Contact(s) Screen

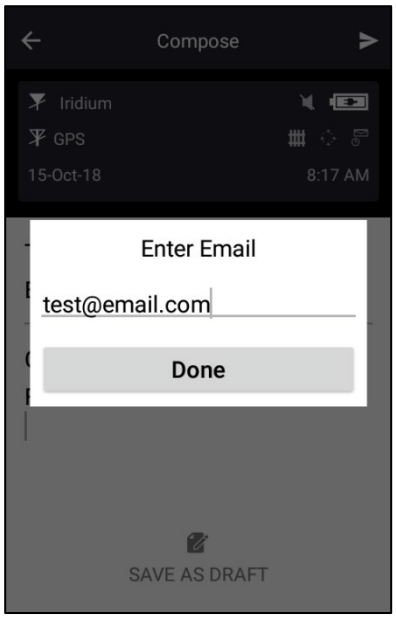


Figure 24: Enter Email Screen

3. Select contacts.

   a. When *To: Server* is selected and if contacts were entered with SatTerm, a list of contacts appears in alphabetical order, as shown in **Figure 23**.

b. Select a single contact or multiple contacts on the list and tap the back button to accept.

c. Remove a contact by going back to *Select Contact(s)*, unselecting the contact, and tapping **Add**.

Emails

When *Emails* is selected, a keyboard appears. Multiple email addresses can be entered separated by a comma.

NOTE: All email addresses, including the commas, must be a total of 255 characters or less. Email addresses and free-text messages share the same memory space with a maximum allowable length of 309 characters. Long email addresses or multiple email addresses reduce the number of characters available for a free-text message.

NOTE: The short codes represent the contacts listed under *To*; however, the device sends the actual email addresses listed under *Emails*. Any email addresses entered under *Enter Email* can be removed by selecting **Emails** to reopen the keyboard under the *Enter Email* pop-up window.

4. Select **Canned Message** to select a canned message or select **Free Text** to add free text.

Canned Message

a. When *Canned Message* is selected and if canned messages were entered with SatTerm, a list of canned messages appears in the order they were entered with SatTerm, as shown in **Figure 25**.

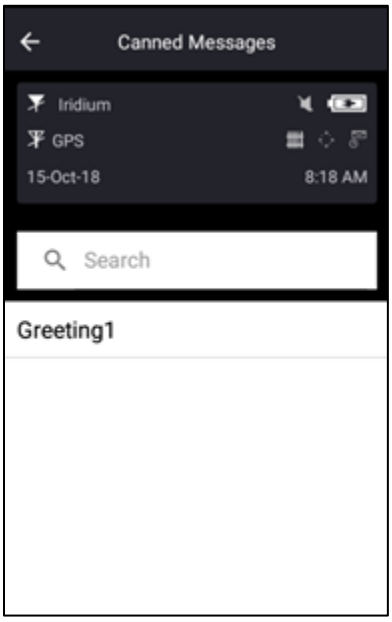


Figure 25: Select Canned Message

b. Press a canned message to view the complete canned message (see **Figure 26**).

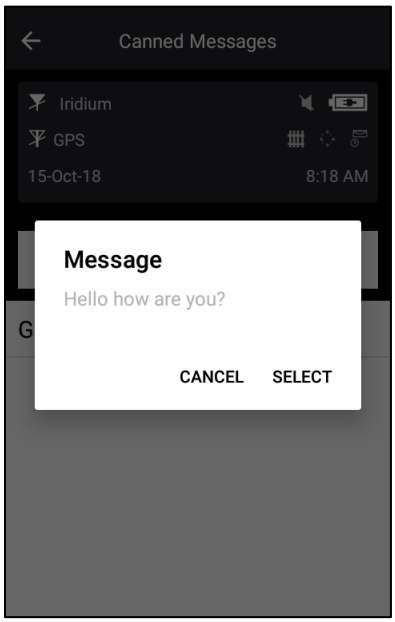


Figure 26: Confirm Canned Message

c. Press **Select** to choose the message.

d. Press **Canned Message** again to return to the canned messages. You can remove the canned message or select a different one.

Free Text

a. Select **Free Text** to create a free-text message using three on-screen keyboards.

NOTE: If a canned message was previously selected, then the entered free text will be appended to the canned message.

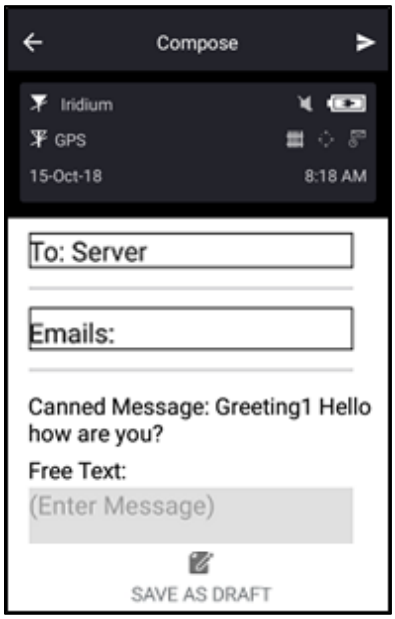


Figure 27: Free Text Appended to Canned Message

5. Select **Send** or **Save as Draft** when the message text is ready,

   If you selected Send, a Success screen appears to indicate the message has been added to the Outbox.

4.6 CONTACTS

The *Contacts* option is an address book with a list of contacts created and saved into the device's memory using NAL Research's SatTerm software.

The contacts are retrieved upon entering the screen and are displayed in alphabetical order. Information about each contact is displayed into four lines: *Name*, *Email*, *Phone*, and *Location*. The labels are always structured this way, regardless of the information entered in these sections.

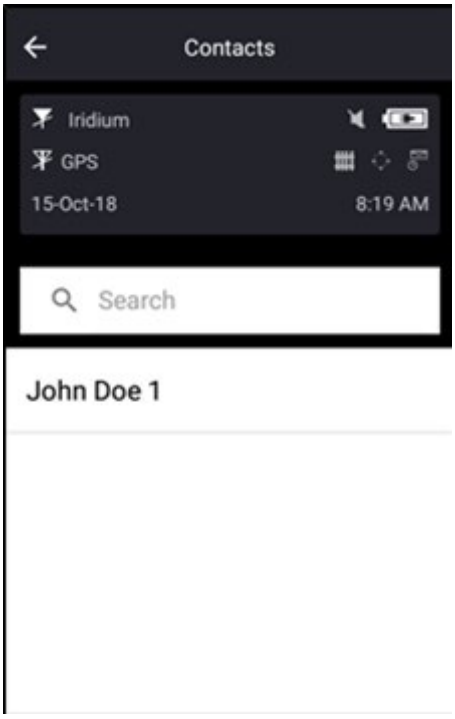


Figure 28: Contact List Display

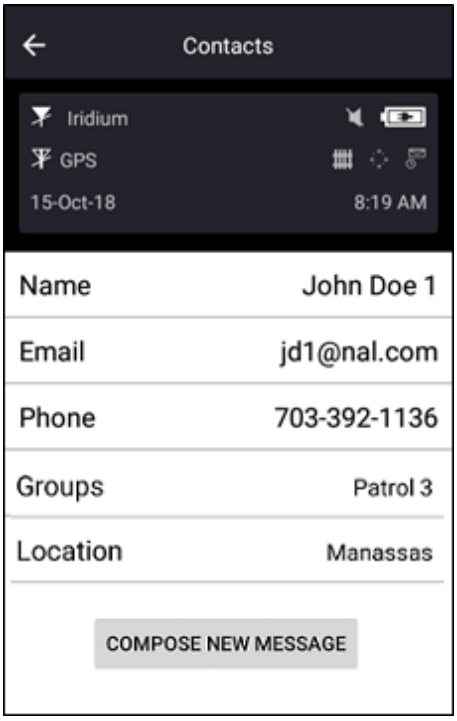


Figure 29: Contact Selected

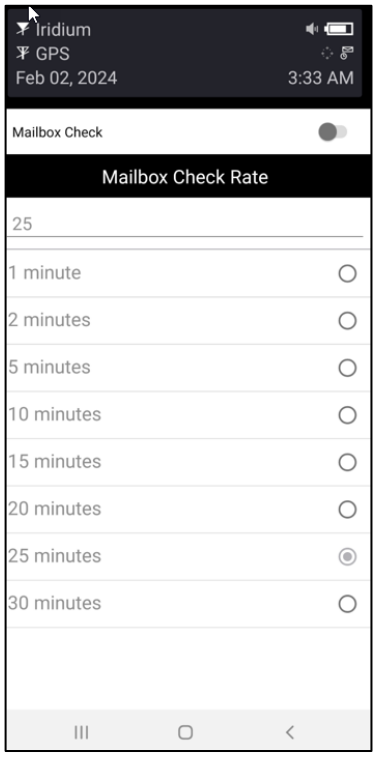
4.7 CHK MBX

The Check Mailbox [*Chk Mbx*] option is available only when the Iridium link is enabled. When the link is disabled, a mailbox check attempt is never issued. You can manually force a check of the mailbox at any time using *Chk Mbox* menu.

The Check Mailbox menu can be either *Idle* or *Checking* the Iridium gateway for any pending messages to be downloaded. As the messages are being downloaded, the app shows the number of unread messages in the Inbox and the number of messages still queued at the Iridium gateway to be downloaded.

4.8 MBX RATE

The Mailbox Check Rate [*Mbx Rate*] option is available only when the Iridium link is enabled. When the link is disabled, a mailbox check attempt is never issued. The Mbox Rate is used to set mailbox check rate (time between mailbox checks) and to enable mailbox checks automatically. Select either a predefined rate or a user-defined rate with an on-screen keypad. The *Mailbox Check Rate* menu is dimmed when mailbox check is disabled. However, even when mailbox check is disabled, and the labels are dimmed; you can still enter the rate.



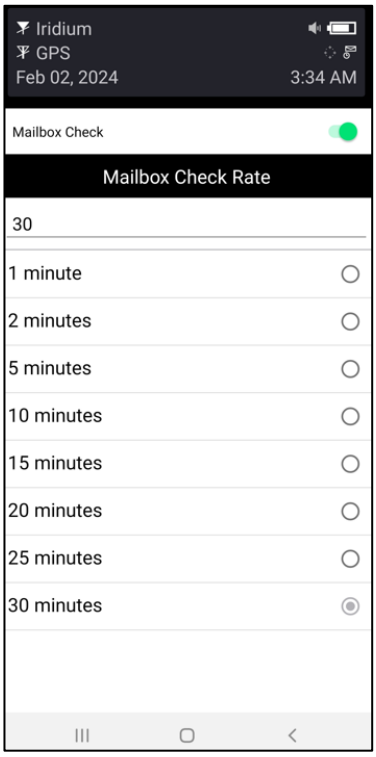


Figure 30: Mailbox Check Rate Disabled *Figure 31: Mailbox Check Rate Enabled*

When mailbox check is enabled, the symbol lights up from dimmed gray to bright white at the top of the screen. The device checks the Iridium gateway automatically for any pending messages on the next scheduled time.

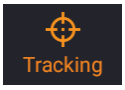
4.9 INC GPS

The Include GPS [*Inc GPS*] option forces the device to attach GPS location to Check-In and canned and free-text messages. Under the default setting, these messages do not have GPS information included. Messages with GPS location attached can take longer to complete because the device must acquire a GPS fix first. Depending on the validity of the stored ephemeris data, it could take an additional 29 seconds.

4.10 MEMORY

Memory is used to clear messages in all mailboxes or clear messages in each individual box—Drafts, Inbox, Outbox, and Sent. When clearing all memory, a prompt opens asking for confirmation to continue. You cannot interact with the app until the memory clearing is completed.

5 TRACKING MENU



The *Tracking* menu for the SHOUT App is shown in **Figure 32**. There is a variety of different menus used to interact with tracking. Some menus, such as Geofences and Call Out, require configuration with SatTerm beforehand. For these options, refer to the SatTerm manual for the specific device.

Figure 32: Tracking Menu

5.1 RPT RATE

The Report Rate [*Rpt Rate*] is used to set the tracking report rate (time between tracking reports) and to enable tracking. You can select either a predefined rate or a user-defined rate with an on-screen keypad. The *Reporting Rate* menu is dimmed when tracking is disabled. However, even when tracking is disabled, and the labels are dimmed; you can still enter the report rate.

The On/Off buttons are used to enable/disable tracking mode. When tracking is on, the tracking symbol at the top of the screen changes from dimmed gray to bright white. The device immediately turns the GPS receiver on to acquire a GPS fix and then attempts to transmit a position report. The next position report is sent automatically based on the reporting rate. The

countdown timer to the next report is displayed inside the parentheses next to the tracking symbol.

When waking up to transmit a location report and the Iridium link is used, the device must have a full view of the sky; otherwise, it will fail to send. By default, a failed report will not be resent. Using the *Q Rpt* menu, failed reports can be forced to stay in the Outbox awaiting to be resent.

The entire reporting duration can take up to two minutes depending on the Iridium satellite visibility and the validity of the GPS ephemeris data. Ephemeris data saved on the GPS receiver is valid for approximately two hours, allowing the receiver to obtain a hot-start fix. Report rate (time between reports) set to more than two hours forces the GPS receiver into either a warm-start or a cold-start fix (approximately 29 seconds). As a result, the device consumes more battery power, and the total number of reports is reduced.

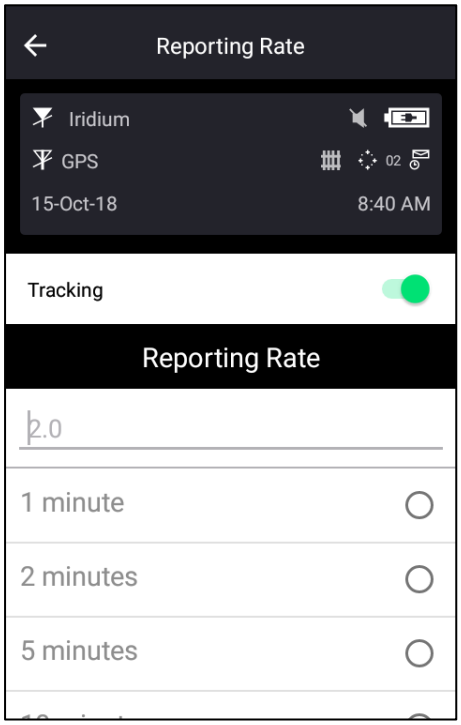


Figure 33: Reporting Rate Enabled

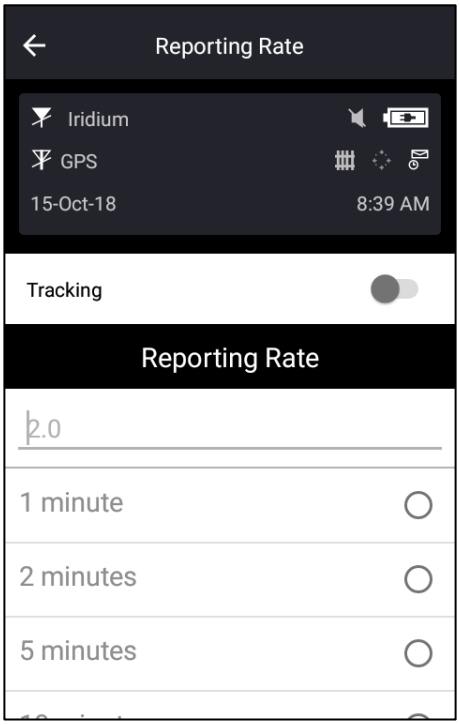


Figure 34: Reporting Rate Disabled

5.2 FORMAT

Position reports can be in the 30-byte, 10-byte, or PECOS formats. The 30-byte format includes UTC date, UTC time, latitude, longitude, altitude, speed, course, vertical

velocity, number of satellites used to obtain 3D fix, HDOP, and VDOP. Latitude and longitude are recorded with about 0.18 meters in resolution.

The 10-byte format includes UTC time, latitude, longitude, and PDOP. With UTC date omitted, the device relies on the NOC server to stamp the date as the report arrives. Latitude and longitude are recorded with about 1.1 meters in resolution. The 10-byte format is selected strictly for the purpose of Iridium airtime cost saving.

Encryption is also available for any of the supported formats. With encryption enabled, the minimum bytes for 10-byte format increase to a 16-byte format. For 30-byte format, the minimum byte count is increased to 32.

Position reports can also be sent in PECOS Message Structure (PMS). The PMS complies with the Blue Force Tracking Data Format Specification.

5.3 LINK

The default setting is *Yes* to allow the Iridium link to be used to transmit reports and messages. If the Iridium link is not allowed to be used (radio silence), set the *Allowed* setting to **No**. When Tracking and Data Logging are turned on and Iridium link is set to *No*, tracking reports are still saved in the log.

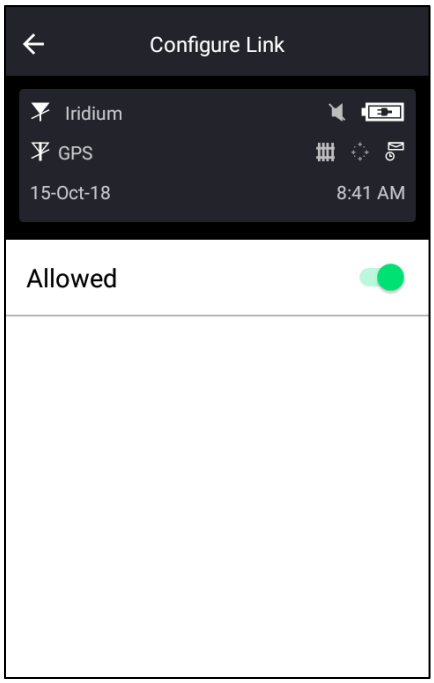


Figure 35: Configure Link Screen

5.4 GEOFENCES

The *Geofences* menu provides a few options including: (1) browsing a list of fences loaded into the device through SatTerm, (2) viewing its type of notification (arrival or departure), and (3) enabling/disabling a fence. Enter other geofence features through SatTerm.

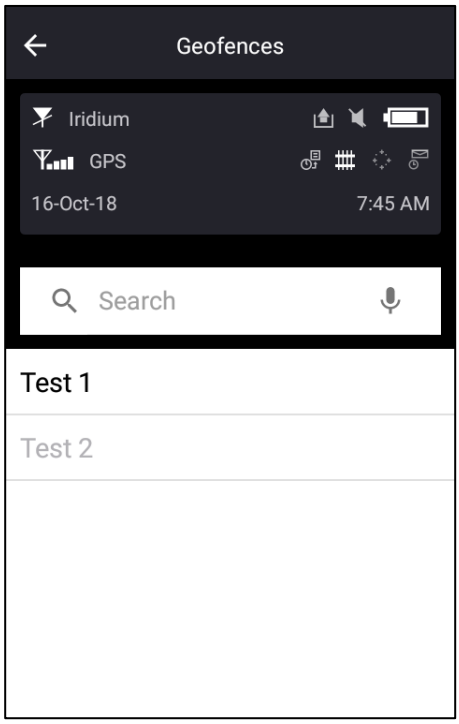


Figure 36: Geofence Display List

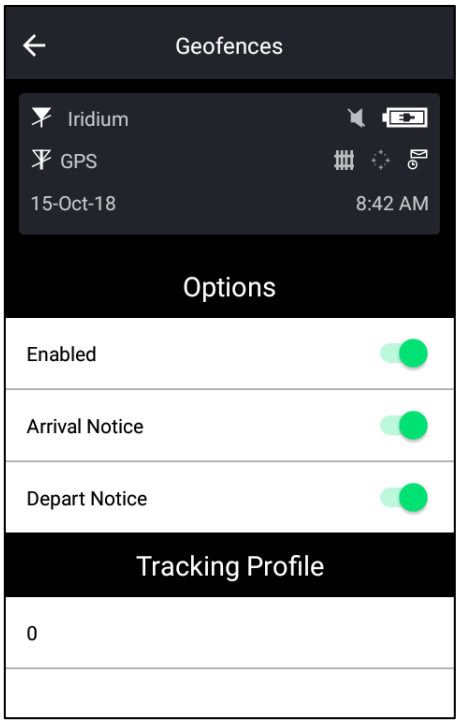


Figure 37: Geofence Options

When a fence or fences are enabled, the Geofences symbol  at the top of the screen changes from dimmed gray to bright white. The device immediately checks the GPS receiver to see whether the device is inside an enabled fence. If inside an enabled fence, the Geofences symbol turns green.

5.5 BREVITY

The *Brevity* code is part of the PECOS format. The device ignores the Brevity code settings if the PECOS format is not activated and not selected. With PECOS enabled, you can select any one of sixteen Brevity Codes (0000 through 1111) to be included in the PMS tracking reports. These codes are represented by A(z), B, C(z), and D, and can be selected via checkboxes to select a specific Brevity Code.

5.6 CALL OUT

Use the *Call Out* option to send a scheduled daily tracking report at a defined GMT time using a specific link. Scheduled times are entered via SatTerm software and are listed under the *Call Out* menu. When a Call Out time is selected, the  symbol will light up from dimmed gray to bright white at the top of the screen. Using the check boxes, individual Call Outs can be enabled or disabled at any time.

The Call Out option is useful when you need the device to transmit at a specific time and/or want to generate a daily heartbeat message for each link. Refer to the SatTerm manual for the specific device.

5.7 Q RPT

The default setting is to discard all tracking reports that failed to transmit because of poor signal quality. Use Q Report [*Q Rpt*] to force failed tracking reports to stay in the Outbox and wait to be resent later. Q Rpt also allows restricted reports to remain in the Outbox. If the options are disabled, all failed reports and restricted reports will not be saved for later.

5.8 BLK RPT

The default setting is to send all tracking reports, even those with an invalid GPS position. Use Block Report [*Blk Rpt*] to configure the device to send only tracking reports with a valid GPS position.

5.9 DATA LOG

The default setting is to log and save all position reports in memory. This feature can be turned off with the *Data Log* menu. When the memory is full, the oldest reports are overwritten. You can use SatTerm to retrieve all position reports saved on the device.

5.10 STATS

The *Stats* menu has a countdown timer to the next report at the top of the screen and is replaced with *Off* when tracking is disabled. The bottom half of the screen displays the last successful report sent by tracking or emergency notification. Check-In, Waypoint, free-

text, and canned messages are not considered as “reports,” and therefore are not displayed even if a message was sent successfully.

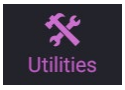
5.11 CANCEL 911

After the emergency mode is activated, you can deactivate the emergency alert by selecting the *Cancel 911* option. A prompt requires you to confirm the cancellation. The cancellation message is then queued in the Outbox to be transmitted. Emergency can also be deactivated by turning off the device or entering **AT^EMRE=0** into command mode in SatTerm.

5.12 ACTIVATE 911

While emergency is not currently enabled, you can activate emergency mode by selecting the *Activate 911* option. A prompt requires you to confirm the activation. Once activated, the device is put into emergency mode.

6 UTILITIES MENU



The *Utilities* menu provides five options used mainly to check for proper hardware operation and network setup. These utilities can be useful when trying to troubleshoot certain problems with the device.

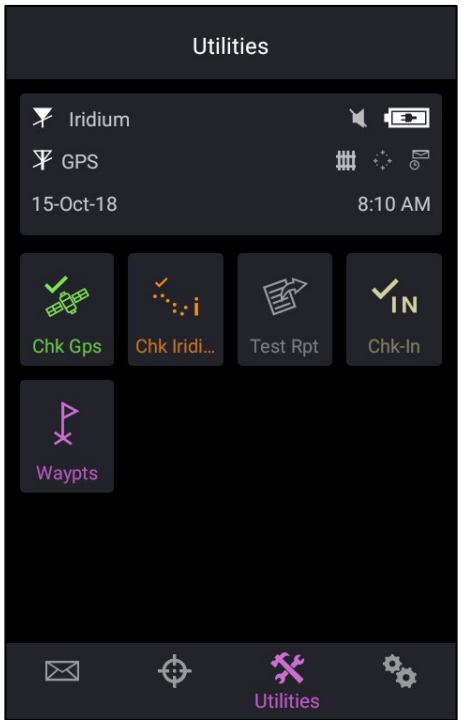


Figure 38: Utilities Menu

6.1 CHK GPS

The Check GPS [*Chk GPS*] option forces the device to turn on its GPS receiver and to continuously update and display GPS data in real-time. The GPS receiver remains on until you leave this screen by pressing the back button. Use the *Reset Ephemeris* soft key (see **Figure 39**) to force an erase of the saved ephemeris in its memory and download a new set of ephemeris data. Be careful not to deplete the battery power by staying on this option for too long.

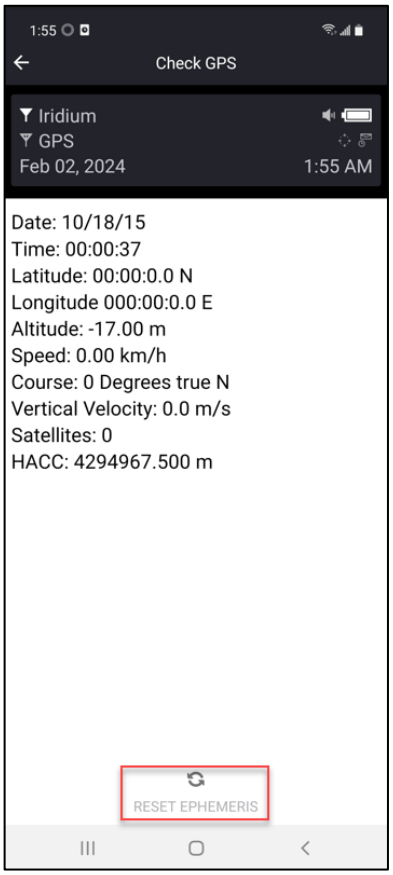


Figure 39: **Reset Ephemeris *Key***

Monitor the accuracy of the position by observing the HACC. HACC stands for horizontal accuracy in meters. HACC is defined as the radius of a circle centered on the true value that contains the GPS measurement. Thus, a position fix with ten meters' HACC accuracy indicates that it is within ten meters of the true position—the higher the HACC value, the less accurate the GPS measurement.

The Check GPS option is a good indicator of whether the GPS receiver has sufficient signal to initiate a Waypoint or a Test Report when located in a challenging environment, e.g., in dense foliage or around urban settings with tall buildings. You can monitor HACC in real-time to ensure it converges to a small and stable value (usually less than 25 meters). At that point, it is certain that a 3D fix can be obtained with the most current ephemeris data being updated and saved. You can then go back to the *Utilities* menu to send a test report. When the GPS receiver cannot acquire a fix, HACC gradually increases and at some point, stops at a value of

4294967.500. It is an indication that the surrounding obstructions prevent the GPS receiver from obtaining a fix and you should move on to a different location.

6.2 CHK IRIDIUM

The Check Iridium [*Chk Iridium*] function forces the device to turn on its Iridium transceiver and continuously update and display signal strength in real-time. The Iridium transceiver remains on until you leave this screen by pressing the back button. Be careful not to deplete the battery power by staying on this option for too long.

6.3 TEST RPT

When the Test Report [*Test Rpt*] option is selected, the device immediately turns the GPS receiver on to update its location data. The location information is continuously updated and displayed in real-time whether there is a valid fix or not. Similar to the Chk GPS option, you can monitor HACC to determine if a valid fix is possible. Once a valid fix is obtained, the GPS receiver is turned off and the most recent 3D fix information is displayed on the screen. This information (called test report) can be forced to send to a NOC server by pressing *Send*. A test report has the same format as a regular position report and is treated as such by a NOC. Sending a test report will not disrupt or change the tracking reporting rate.

The *Test Rpt* option is a good diagnostic tool used to ensure proper operation of the GPS receiver and the Iridium transceiver. It can also be used to manage battery life by turning off tracking mode and strategically sending on-demand location reports. It can be considered as "manual tracking mode."

6.4 CHK-IN

Use the Check-In [*Chk-In*] option to send a quick message with a single, easily accessed button. When you press the Chk-In button, a second screen appears requesting confirmation. Once confirmed, the device sends out a reserved canned message code representing a Chk-In message. If the Texting/Inc GPS option is enabled, GPS location is attached to the Chk-In message. Chk-In messages with GPS location take longer to complete because the device must acquire a GPS fix first.

6.5 WAYPTS

Use the Waypoints [*Waypts*] menu to acquire, view, save, delete, or send a waypoint to a NOC. Devices can save many waypoints in their memory. SatTerm can be used to retrieve waypoints saved on the device.

A waypoint is a GPS location that you want to identify and mark with a specific nametag for future reference.

To add a waypoint:

1. Select **New**. The device immediately turns the GPS receiver on to acquire a fix.
2. Select one of the following options:
   - Go back without further action.
   - Reacquire a new GPS fix.
   - Label the point.

   NOTE: Select the **Label** option to open a full keyboard to enter the waypoint label. Labels can also be modified later if you decide to save the waypoint.
3. Save the waypoint.
4. Select **Add** to save the waypoint into the device's nonvolatile memory for later retrieval.
5. After saving a waypoint, you can also send it to a NOC server. The server differentiates waypoint reports from normal tracking reports by their short codes.

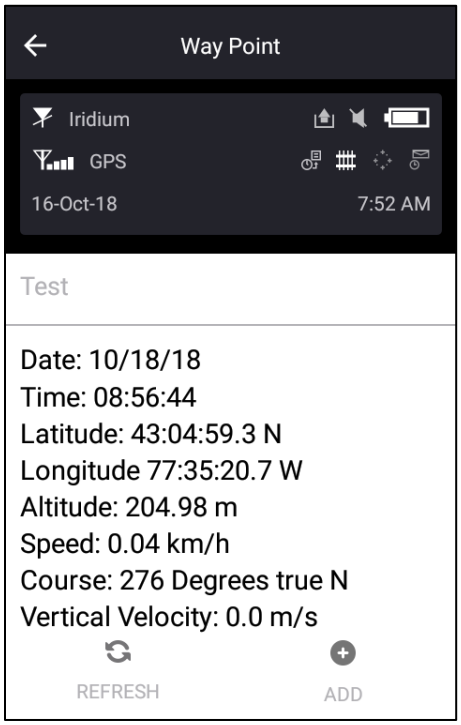


Figure 40: Waypoint Add Screen

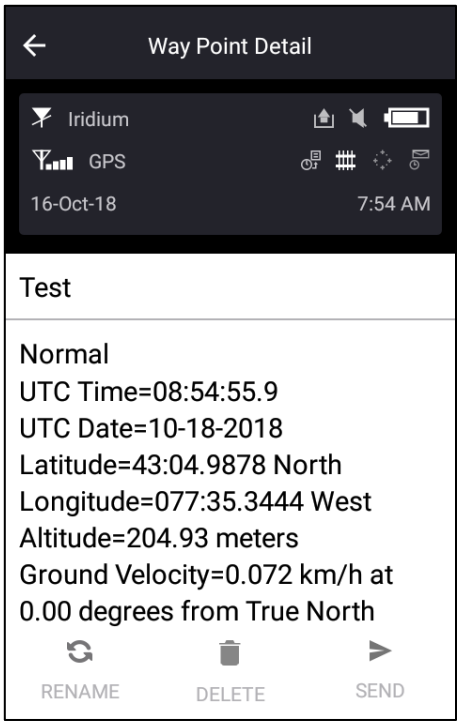
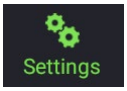


Figure 41: Waypoint Selected

7 SETTINGS MENU



Use the *Settings* menu to view and customize the hardware settings. The settings menu also provides an easier way to view device info and allows resetting the device to default tracking settings.

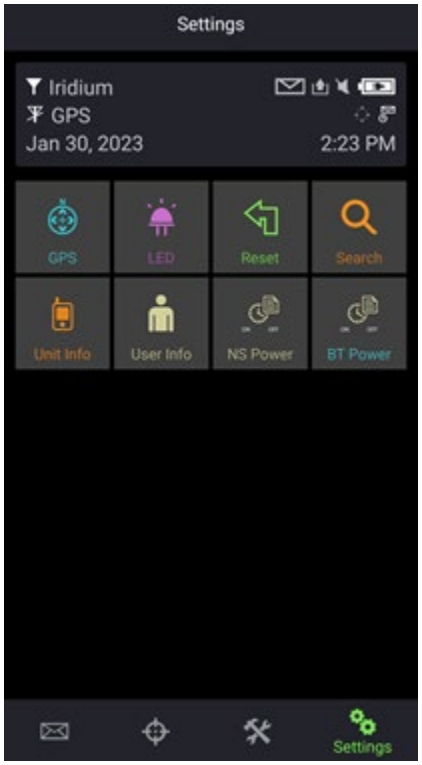


Figure 42: Settings Menu

7.1 GPS

The *GPS* menu provides access to the *Position Format* and *Position Model* options.

Use Position Format to select one of four different GPS position formats to be displayed when the app outputs GPS data. Do not confuse this option with the *Format* option under Tracking, which defines the format of position report to be transmitted to a NOC.

Use Position Model to formulate the static and dynamic characteristics of the GPS receiver. By default, the portable model is used as it is suitable for most applications. However, for those requiring functionality at high altitudes, speeds, or accelerations, select an alternate model.

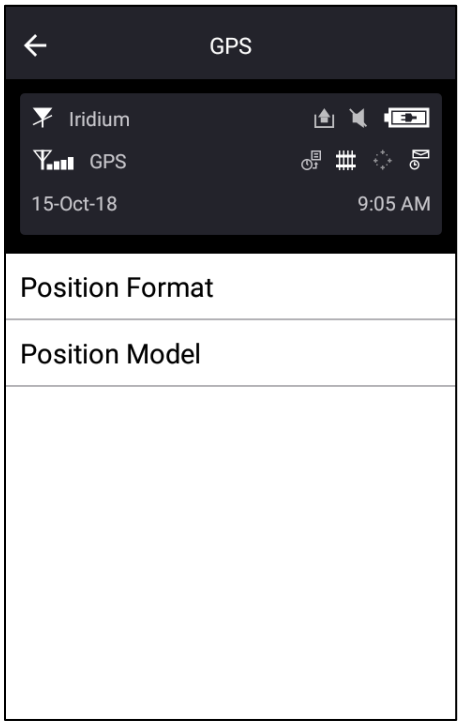


Figure 43: GPS Screen

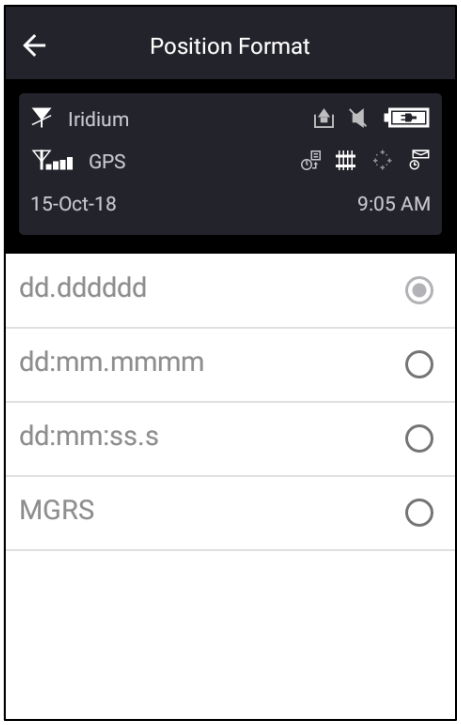


Figure 44: Position Format Screen

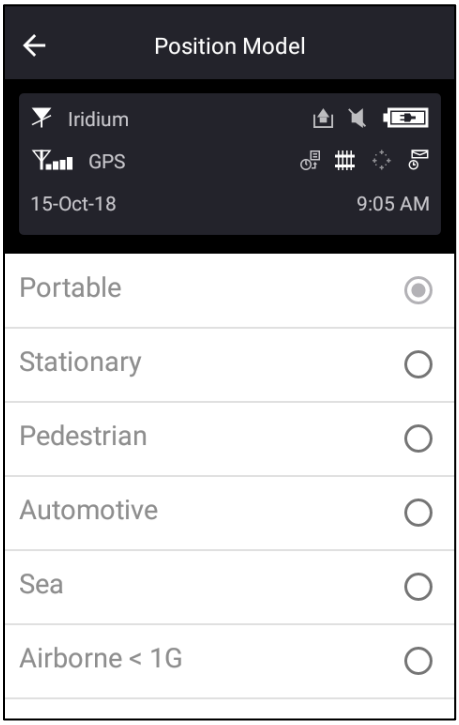


Figure 45: Position Model Screen

- **Portable** (default setting): Suitable for most situations; for applications with low accelerations; maximum altitude of 12 km; maximum velocity of 310 m/sec; maximum

vertical velocity of 50 m/sec; sanity check type: altitude and velocity; maximum position deviation: medium.

- **Stationary:** Used in timing applications (antenna must be stationary) or other stationary applications; velocity is constrained to 0 m/s; zero dynamics assumed; maximum altitude of 9 km; maximum velocity of 10 m/sec; maximum vertical velocity of 6 m/sec; sanity check type: altitude and velocity; maximum position deviation: small.
- **Pedestrian:** Applications with low acceleration and low speed, as a pedestrian would move; assuming low accelerations; maximum altitude of 9 km; maximum velocity of 30 m/sec; maximum vertical velocity of 20 m/sec; sanity check type: altitude and velocity; maximum position deviation: small.
- **Automotive:** Used for applications that can be compared with the dynamics of a passenger car; assuming low vertical acceleration; maximum altitude of 6 km; maximum velocity of 84 m/sec; maximum vertical velocity of 15 m/sec; sanity check type: altitude and velocity; maximum position deviation: medium.
- **Sea:** Recommended for applications at sea; assuming zero vertical velocity; maximum altitude of 500 m; maximum velocity of 25 m/sec; maximum vertical velocity of 5 m/sec; sanity check type: altitude and velocity; maximum position deviation: medium.
- **Airborne < 1g:** Used for applications that must handle a higher dynamic range than a car and higher vertical accelerations; no 2D position fixes supported; maximum altitude of 50 km; maximum velocity of 100 m/sec; maximum vertical velocity of 100 m/sec; sanity check type: altitude; maximum position deviation: large.
- **Airborne < 2g:** Recommended for typical airborne environment; no 2D position fixes supported; maximum altitude of 50 km; maximum velocity of 250 m/sec; maximum vertical velocity of 100 m/sec; sanity check type: altitude; maximum position deviation: large.
- **Airborne < 4g:** Only recommended for an extreme dynamic environment; no 2D position fixes supported; maximum altitude of 50 km; maximum velocity of 500 m/sec; maximum vertical velocity 100 m/sec; sanity check type: altitude; maximum position deviation: large.

7.2 LED

The LEDs are specific to the connected device. For information on LEDs, refer to the general description document for the device.

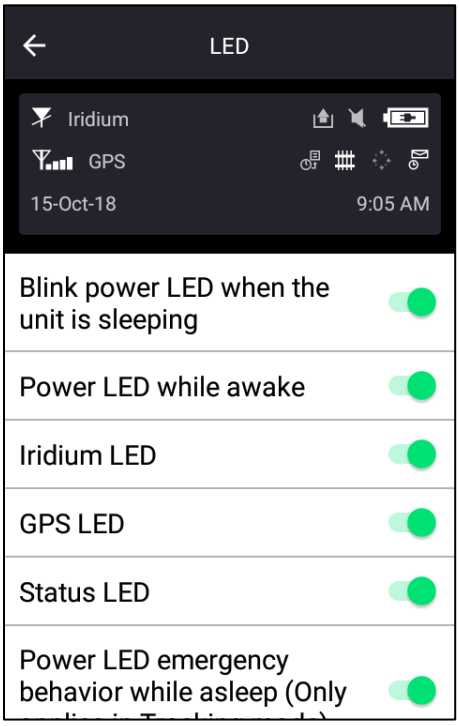


Figure 46: LED Screen

Power LED While Asleep (Normal and Emergency)

The *Power* ⏻ LED has two illumination modes when the device is asleep. While in tracking mode with emergency active, the LED blinks rapidly (once every 2.5 seconds); otherwise, the LED blinks slowly (once every 5 seconds). Using these settings, the emergency and normal behavior can be turned on and off independently. If the emergency behavior is turned off, the device returns to using the normal behavior.

Power LED While Awake (Normal)

While the *Power* ⏻ LED is awake in normal mode, the LED remains solid. Using this setting turns on and off this functionality.

Emergency Awake LED Sequence

This switch sets whether to display the Emergency LED Sequence. In this state, all six (6) LEDs blink simultaneously at a one-second interval for as long as the emergency mode is active, and the device is awake. If the emergency behavior is turned off, the device returns to the normal behavior.

Iridium LED

This switch sets whether to display the Iridium (*IRDM*) LED. When enabled, the Iridium LED stays solid when the Iridium signal strength is between 3–5 bars, blinks when the Iridium signal strength is between 1–2 bars and stays off when the Iridium signal strength is at 0 bars.

GPS LED

This switch sets whether to display the *GPS* LED. When enabled, the GPS LED stays solid when there is a valid GPS position fix, blinks when there is 2D fix or using dead reckoning and stays off when unable to obtain a position fix.

Status LED

This switch sets whether to display the Status (*STAT*) LED. When enabled, the LED stays solid if the last transmission was successful, blinks if the last transmission was unsuccessful, and stays off if transmission has not been successful. This LED is reset to be off when switching between tracking and command mode.

Battery LED

This switch sets whether to display the Battery (*BATT*) LED. When enabled, the LED stays solid when the charge is over 80% or charge complete. When under 80%, the LED blinks for 1.25 seconds while on, or 0.25 seconds while off. When under 20%, the LED blinks for 0.125 seconds while on, or 1 second while off. When the device is charging, the LED blinks for 1.25 seconds while on, or 0.25 seconds while off.

Bluetooth LED

This switch sets whether to display the Bluetooth LED while Bluetooth is connected or turned on.

Charging Sequence LED

This parameter sets whether to display the charger LED sequence when first connected to USB. When power is on, the Battery, GPS, Iridium, and Status LEDs blink in clockwise sequence for 3 seconds, in that order.

7.3 RESET

The *Reset* option restores all setup parameters back to the manufacturer's settings. When *Reset* is selected, a screen appears with the current settings and a confirmation message asks whether to reset these current settings back to the manufacturer's default settings.

7.4 SEARCH

Use the *Search* option to set the search parameters for canned messages, contact list, and mailboxes. These parameters allow for narrower or broader filtering for improved sorting of messages and contacts.

7.5 UNIT INFO

The *Unit Info* option displays the model number, Iridium module's IMEI number, Iridium FCC ID, Iridium IC ID, and the device's firmware version.

7.6 USER INFO

The *User Info* screen displays information about the device's user. To add user info, connect the device to SatTerm and add the information from there. Once added, the User Info is updated upon entering the screen.

7.7 DEVICE POWER

This feature keeps the SHOUT device turned on while it is operating in tracking mode and Bluetooth or USB are connected. When both become disconnected, it will remain on for a minimum period of time (default setting: 10 minutes) to allow the user to reconnect. Other settings or activities may be running that could keep the SHOUT device turned on. The power button can always be used to turn off the device. The default is "Always On" (see **Figure**

47). When the device power is “Always On” it ignores any Power timeout setting. Once both USB and Bluetooth are no longer connected, a countdown is started for a number of minutes set with the <delay > parameter. When the timer counts to zero the SHOUT device will be allowed to sleep.

1. With the device set to “Always On” (default), select the applicable power time out (see **Figure 47**).
2. To turn off “Always On” slide the switch to **OFF** and select the applicable power time out (see **Figure 48**).

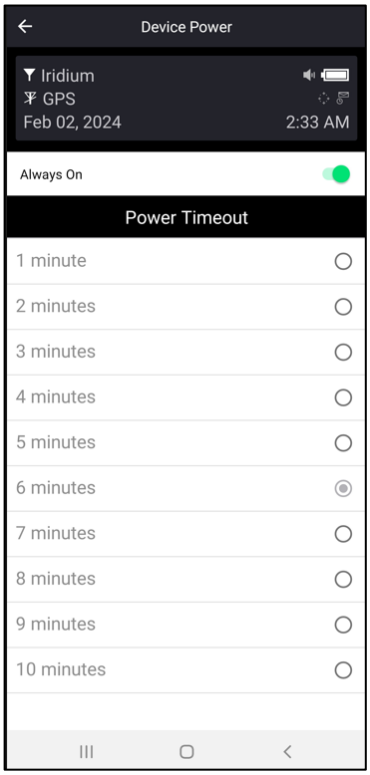


Figure 47: Power Always On

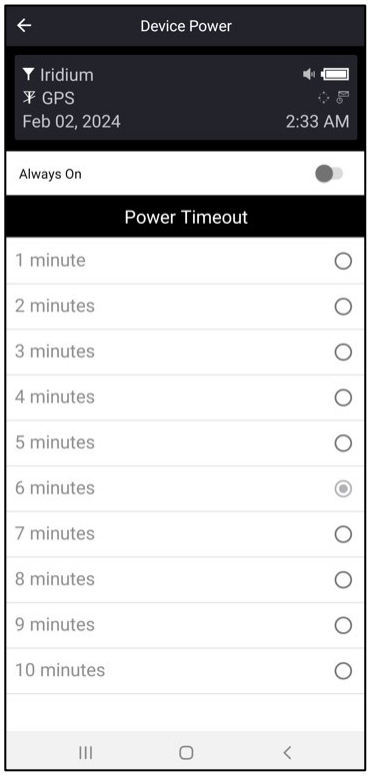


Figure 48: Set Power Timeout

7.8 BLUETOOTH POWER

This feature keeps the Bluetooth turned on while it is operating in tracking mode and Bluetooth or USB are connected. When both become disconnected, it will remain on for a minimum period of time (default setting: 10 minutes) to allow the user to reconnect. Other settings or activities may be running that could keep the Bluetooth turned on. The BT

(Bluetooth) button on the device can turn off the Bluetooth feature. The default is “Always On” (see Figure 49). When the device power is “Always On” it ignores any Power timeout setting. However, once both USB and Bluetooth are no longer connected, a countdown starts for a number of minutes set with the <delay > parameter. When the timer counts to zero the Bluetooth is connection is lost.

1. With the Bluetooth set to “Always On” (default), select the applicable power time out (see **Figure 49**).
2. To turn off Bluetooth “Always On” slide the switch to **OFF** and select the applicable power time out (see **Figure 50**).

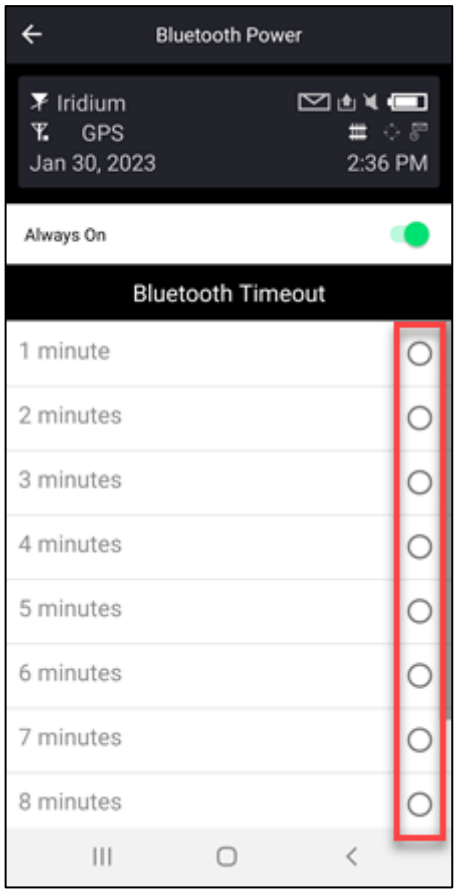


Figure 49: Bluetooth Always On

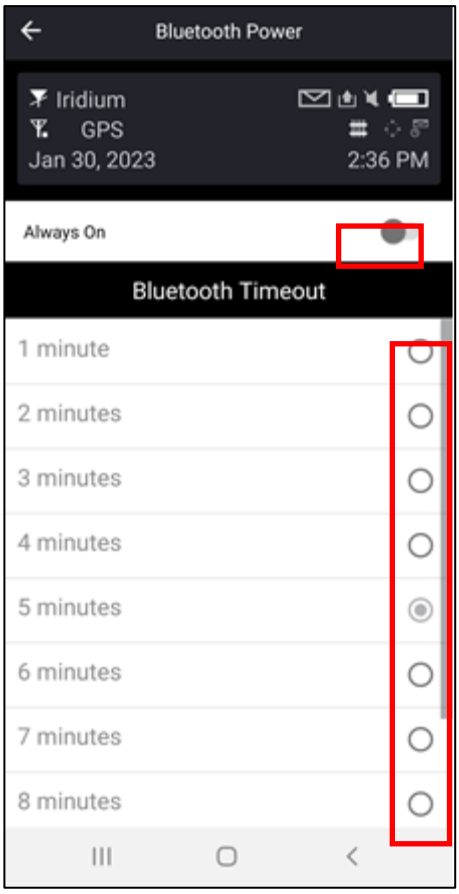


Figure 50: Set Bluetooth Timeout