



ForeFlight

SEARCH & RESCUE

Guide



ForeFlight

A Boeing Company

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DEFINITIONS

Abbreviation	Definition
CAP	Civil Air Patrol
CFR	Code of Federal Regulations
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
GARS	Grid Area Reference System
GPS	Global Positioning System
ILS	Instrument Landing System
LAT/LONG	Latitude/Longitude
MGRS	Military Grid Reference System
SAR	Search and Rescue
UTM	Universal Transverse Mercator

INTRODUCTION

ForeFlight Mobile includes a Search and Rescue feature that allows pilots to plan a search and rescue flight. This guide provides detailed information about enabling the feature, displaying map overlays, defining a search pattern, entering various latitude and longitude formats, and sharing the flight plan.

This guide is not a complete guide on conducting search and rescue operations. Instead, this guide provides the necessary information to use ForeFlight Mobile for flight planning and execution.

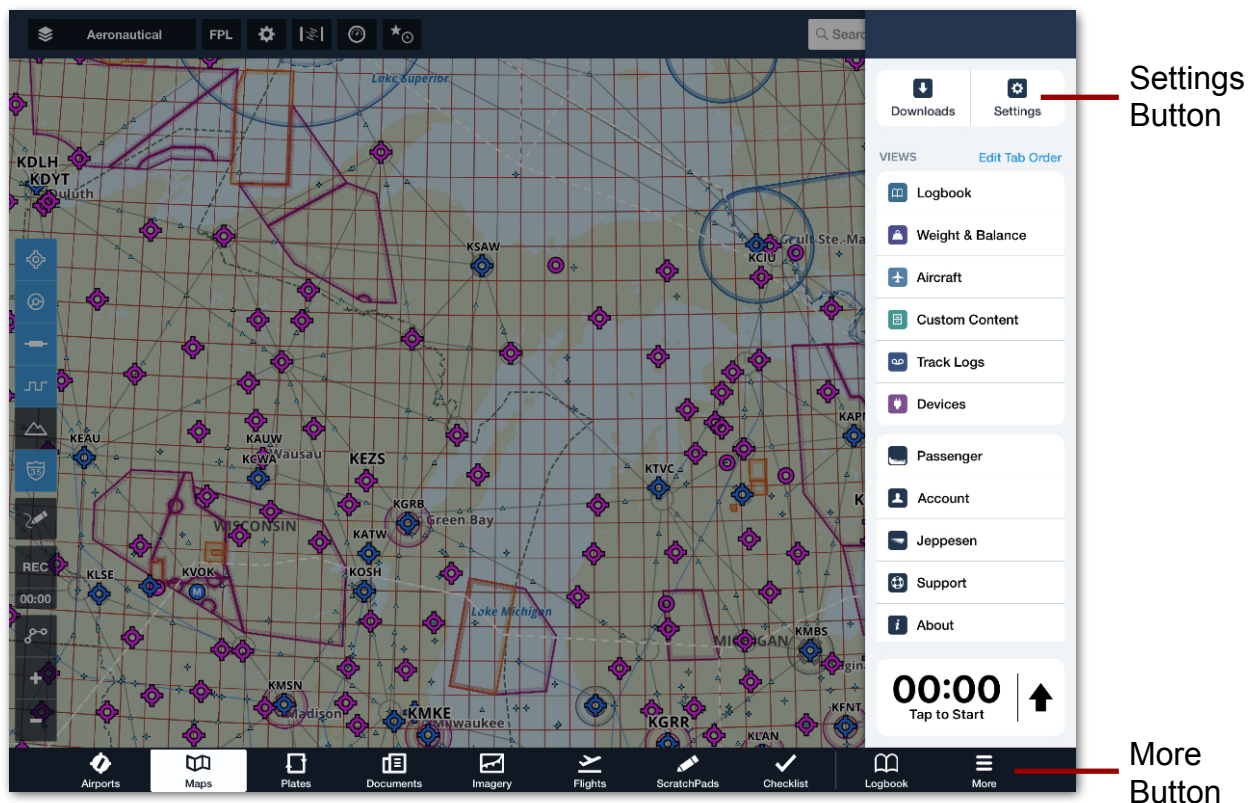
Further, this guide only discusses the Search and Rescue feature. For information on using ForeFlight Mobile as a whole, refer to the ForeFlight Mobile Pilot's Guide available in ForeFlight Mobile under **Documents > ForeFlight (Drive) > ForeFlight Mobile Guide**, or online at www.foreflight.com/support/pilots-guide/.

SETTINGS

The Search and Rescue feature has minimal settings. There are options to enable the Search and Rescue feature, view waypoints as lat/long values, and select the type of coordinate format to be displayed. This section describes each setting available.

All the settings described in this chapter are found in the app. To find the settings:

1. Go to the **More** page.
2. Select **Settings**.



App settings are found in the app under **More > Settings**

1. SETTINGS

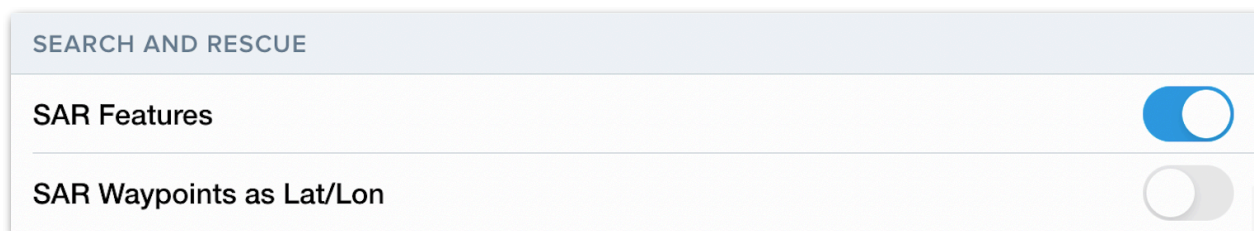
1.1 Turning on SAR Features

Search & Rescue (SAR) features are available within ForeFlight Mobile. With SAR features turned on, users can

- Display SAR grids on the Maps page. See [SAR Grid Overlays](#).
- Add SAR patterns to a flight plan using the Procedure Advisor on the Maps page. See [Search & Rescue Patterns](#).

By default, SAR features are disabled. To enable SAR features:

1. Tap **More**.
2. Tap **Settings**.
3. Scroll down to the SEARCH AND RESCUE section.
4. Turn SAR Features on by sliding the switch to the right.



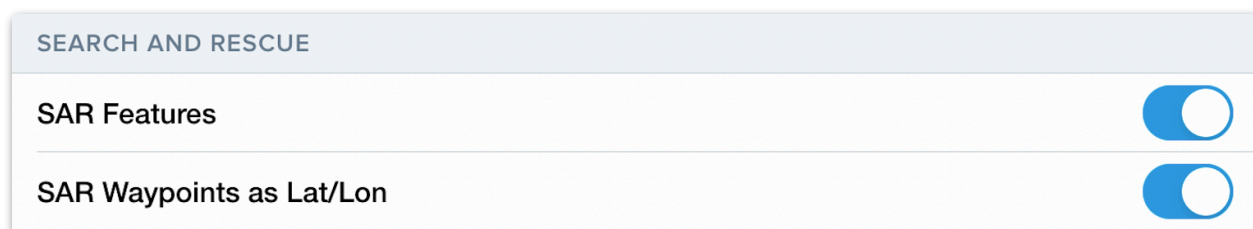
SAR Features enabled

1. SETTINGS

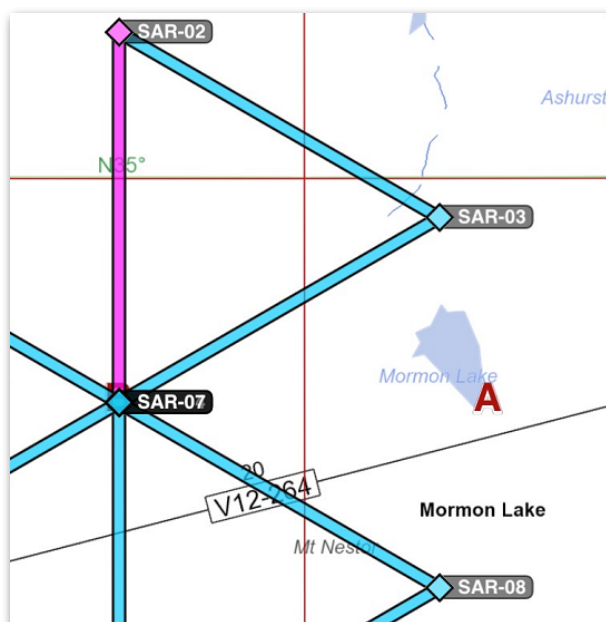
1.2 Displaying SAR Waypoints

SAR patterns entered in a flight plan are defined by waypoints. By default, waypoints are named sequentially, starting with SAR-01 (e.g., SAR-01, SAR-02, etc.). The waypoints can also be displayed as coordinates. To display SAR waypoints as coordinates:

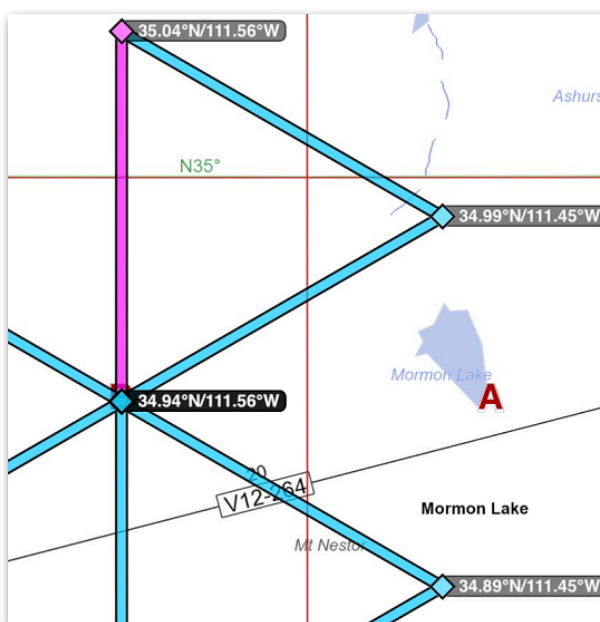
1. Tap **More**
2. Tap **Settings**.
3. Scroll down to the SEARCH AND RESCUE section.
4. Turn SAR Waypoints as Lat/Lon ON.



SAR Waypoints as Lat/Lon enabled



SAR waypoints (Default)



Lat/Long SAR waypoints (Enabled)

1. SETTINGS

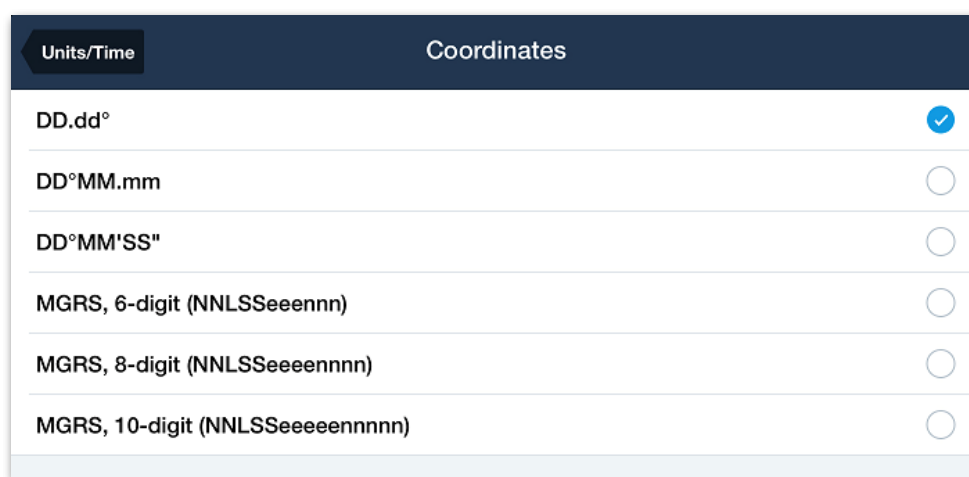
1.3 Setting Lat/Long Coordinate Format

ForeFlight Mobile supports multiple coordinate formats. Coordinates can be entered into the app (see [Latitude & Longitude Formatting](#)) in any supported format. To avoid confusion when viewing lat/long coordinates, ensure that the display format selection in Settings matches what will be used for entry. Lat/Long SAR waypoints can be entered and displayed in the following formats:

- DD.dd°
- DD°MM.mm
- DD°MM'SS"
- MGRS, 6-digit
- MGRS, 8-digit
- MGRS, 10-digit

To set the Lat/Long format that is displayed in the app:

1. Tap **More**
2. Tap **Settings**
3. Scroll to the Preferences section
4. Select **Units/Time**
5. Select **Coordinates**
6. Select the coordinate format desired



Coordinate options

Note: Regardless of the display format selected, when a flight is exported coordinates are automatically converted to an ATC-friendly format (DD.dd°)

SAR GRID OVERLAYS

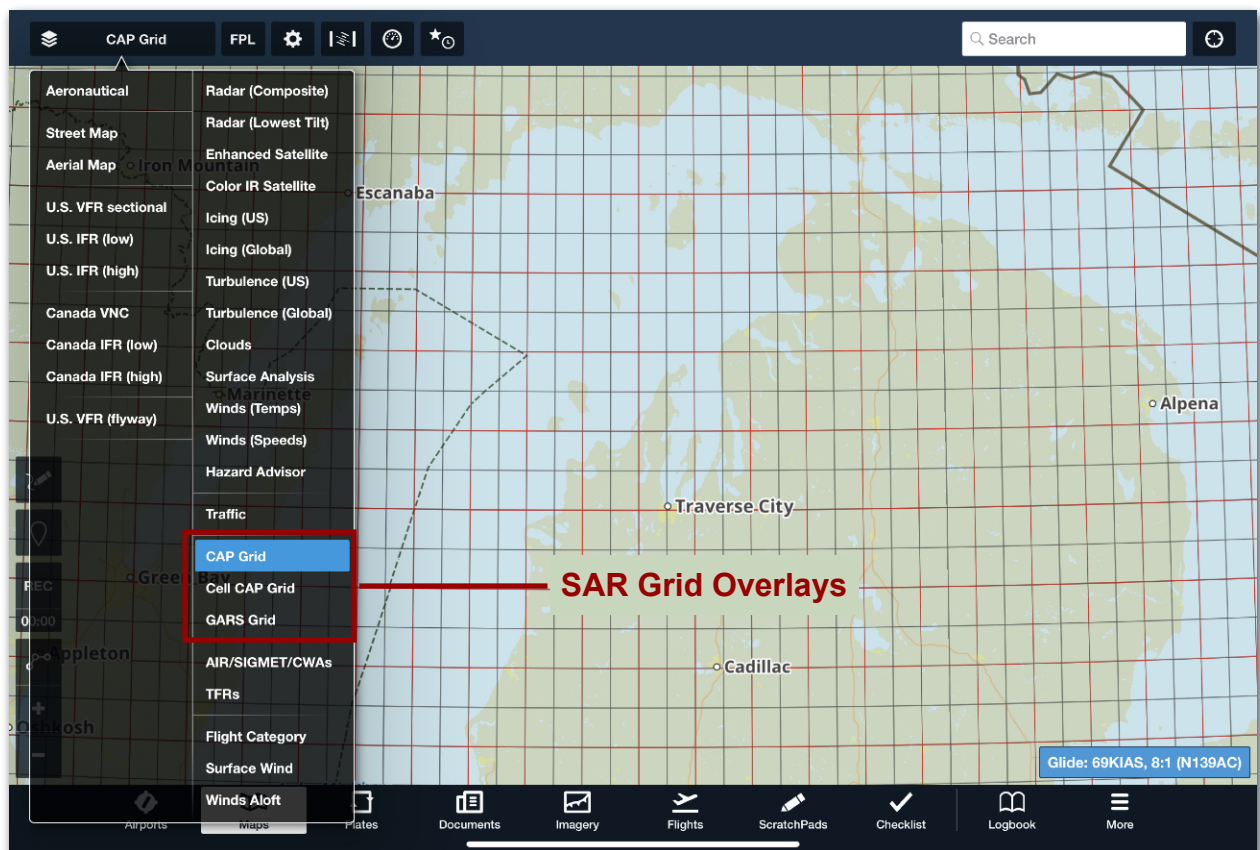
With the SAR features **enabled**, three SAR Grid overlays are available in the Maps page layer selector menu:

- CAP Grid
- Cell CAP Grid
- GARS Grid

For information on entering grid identifiers as waypoints in a route, refer to [Grid Identifiers as Waypoints](#).

2.1 Selecting a Grid Overlay

To view the grid overlay options, go to the Maps page. Choose the Layer Selector menu in the upper left. The grid overlays will be listed in the right-hand column. Tap on the grid type that will be required for the flight.



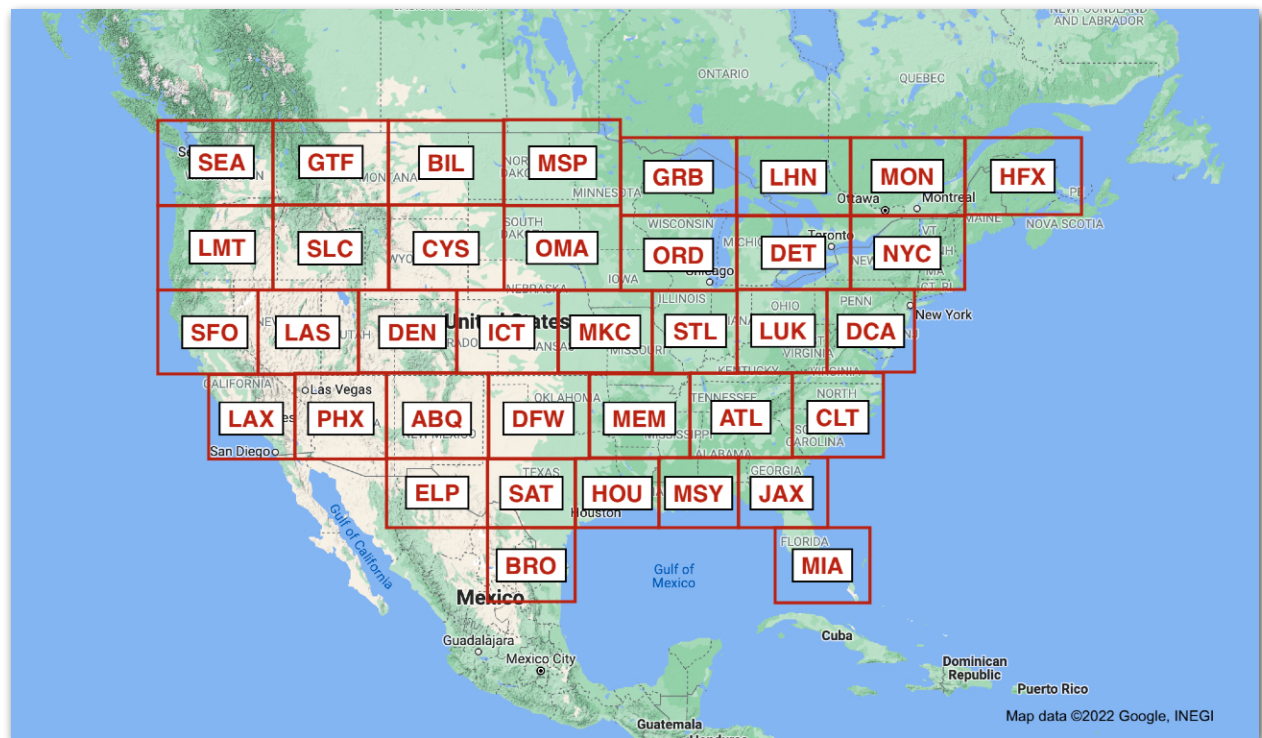
When a grid overlay is selected, zoom in and out to show or hide the grid divisions and labels dynamically.

2. SAR GRID OVERLAYS

2.1.1 CAP Grid

The CAP (Civil Air Patrol) Grid consists of 15-minute quadrangle grid squares covering the continental U.S. There are 37 squares of varying sizes.

Grid squares are named after an airport identifier within its boundaries. In the waypoint name, the three-letter airport identifier is used. For example, the Chicago grid identifier is ORD for O'Hare International Airport.



U.S. CAP Grid quadrangles with airport codes

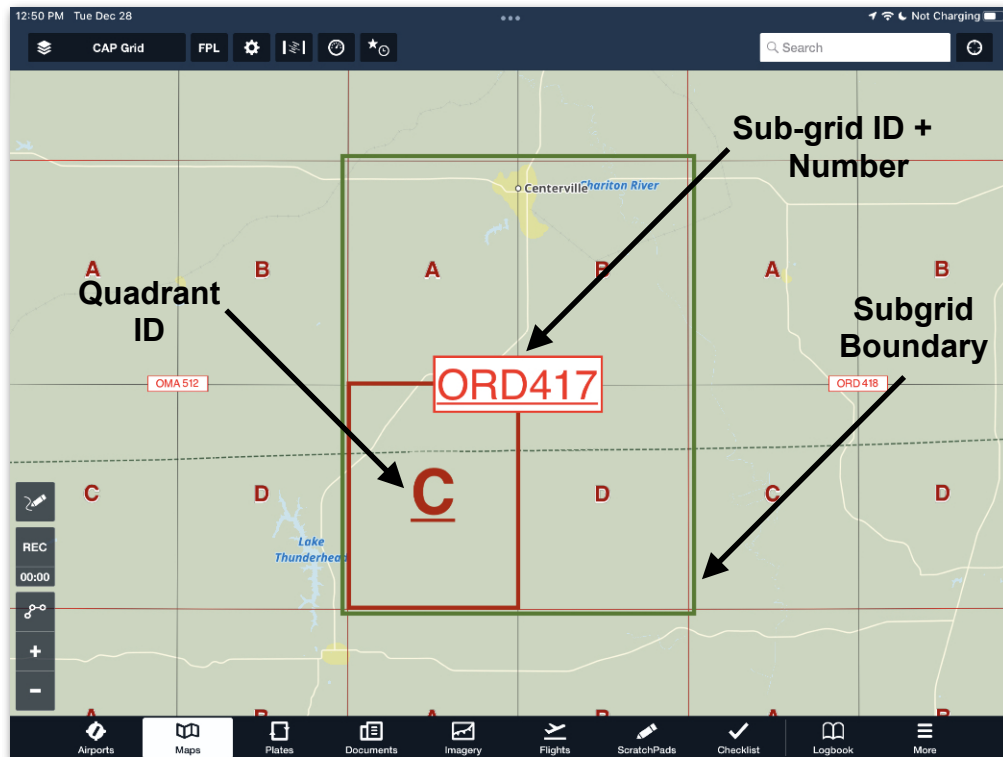
Locations within the CAP Grid are identified by the major grid ID (i.e., ORD), sub-grid number, and quadrant letter.

The sub-grid number is a 1-, 2-, or 3-digit number indicating the sub-grid (numbering left to right, top to bottom) within the major grid. Each major grid may have between 384 to 576 sub-grids.

The sub-grids are further divided into four sub-grids (7.5-minute quadrangles). The four sub-grids are identified by the letters A, B, C, and D (left to right, top to bottom).

2. SAR GRID OVERLAYS

Example: ORD417C. ORD indicates the Chicago grid. 417 is the designated sub-grid within the Chicago grid. “C” indicates the lower-left quadrant within the 417 sub-grid.



CAP Grid ORD417C sub-grid and quadrant

2. SAR GRID OVERLAYS

2.1.2 Cell CAP Grid

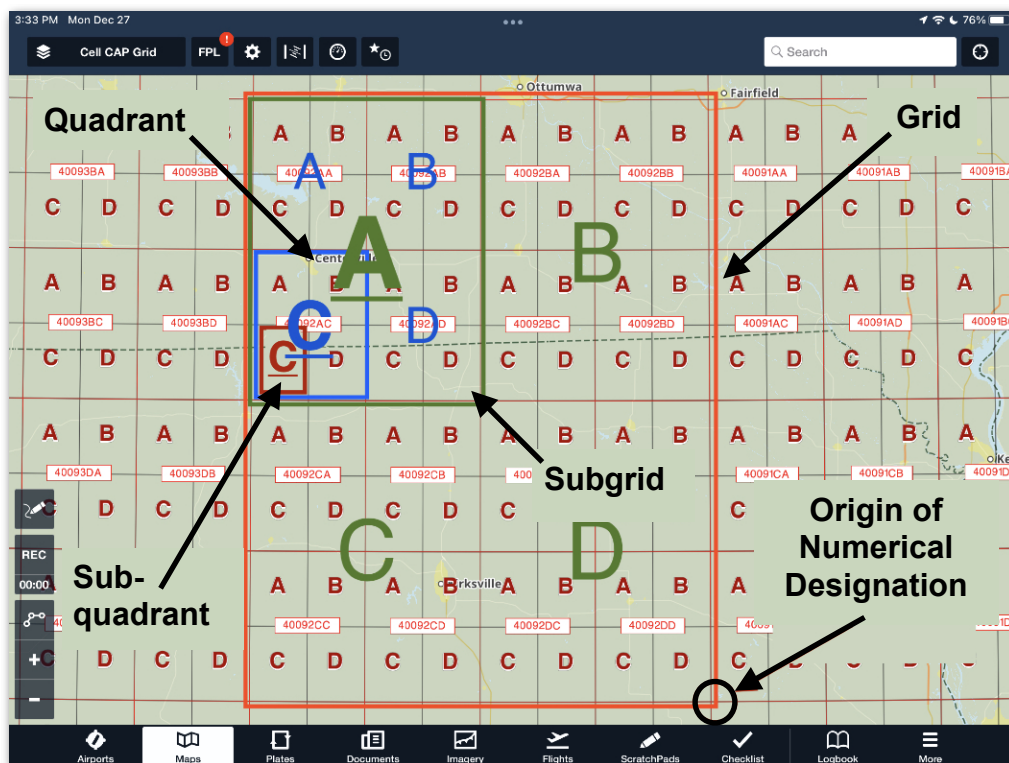
The Cell CAP Grid system covers the continental U.S. It is comprised of grids, sub-grids, quadrants, and sub-quadrants. The Cell CAP Grid contains squares measuring one degree of latitude by one degree of longitude. The grid square is designated by shortened degree coordinates from the grid's lower right corner (southeastern-most). The first two numbers are the first two digits of the latitude. Numbers 3 through 5 are the first three digits of the longitude. If the longitude is a two-digit value, a leading zero is added.

Grids are comprised of four sub-grids. Sub-grids are identified by the letters A, B, C, and D (left to right, top to bottom).

The sub-grid squares are further divided into four quadrants. The quadrants are identified by the letters A, B, C, and D (left to right, top to bottom).

Quadrants are divided into four sub-quadrants. The sub-quadrants are identified by the letters A, B, C, and D (left to right, top to bottom).

Example: 40092ACC. 40092 represents the 40° latitude and 092° longitude grid. "A" designates the sub-grid. "C" designates the lower-left quadrant within the sub-grid. The second "C" pinpoints the lower-left sub-quadrant.



Cell CAP Grid 40092ACC

2. SAR GRID OVERLAYS

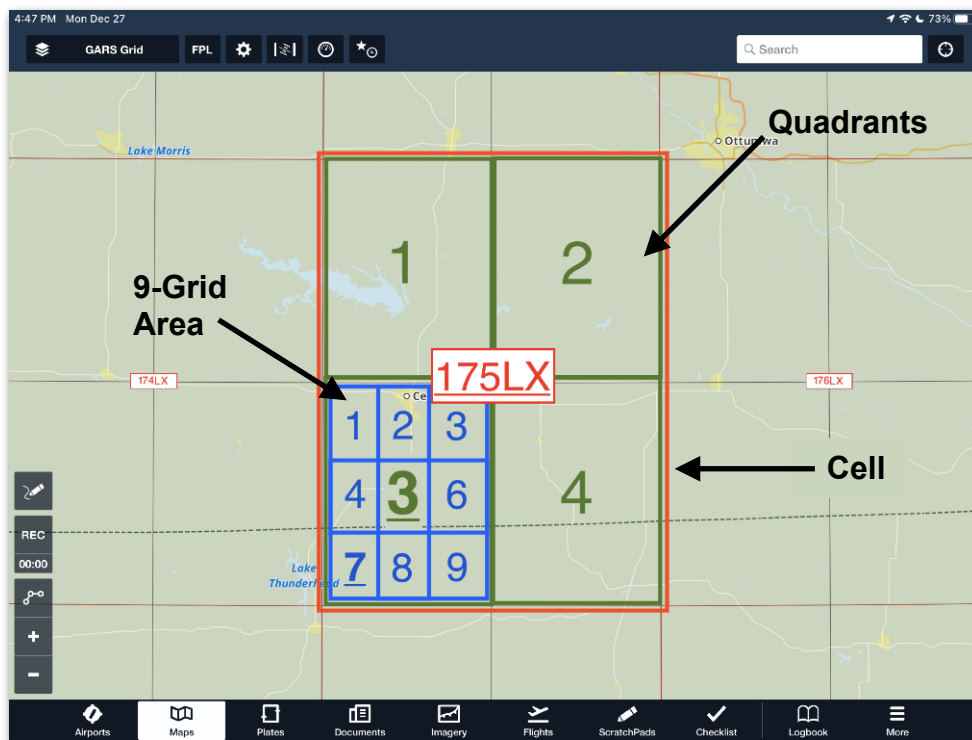
2.1.3 GARS Grid

The GARS system is a global grid, but in ForeFlight Mobile, the Gars Grid overlay only covers a majority of North America.

The Grid Area Reference System (GARS) grid is made up of 30-minute Cells. The first three digits are the longitudinal band and are numbered from 001 to 720. Numbers start at the 180-degree meridian and move eastward. The two letters are the 30-minute latitudinal band and range from AA - QZ (South to North).

The 30-minute Cells are divided into four 15-minute quadrants (1 through 4) and nine 5-minute areas (9-Grid Area).

Example: 175LX37.175 is the longitudinal band. LX represents the 30-minute latitude. 3 represents the 15-minute quadrant. 7 is the lower-left 5-minute area in a nine-quadrangle grid.



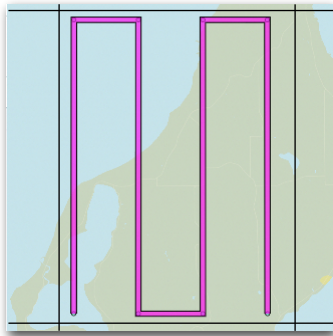
GARS Grid 175LX37

SEARCH & RESCUE PATTERNS

ForeFlight Mobile supports seven types of customizable search patterns. Each pattern can be drawn on the map and included in a flight plan.

3.1 Types of SAR Patterns

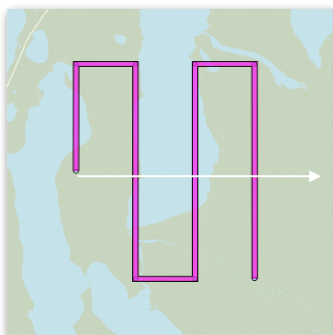
SAR patterns are chosen based on several factors. These can include the last known position, a flight plan, and wind or current drift. Click one of the patterns below to learn more about creating that stand-alone SAR pattern in a flight plan.



Grid Aligned - This pattern is confined to a single CAP Grid, Cell CAP Grid or GARS Grid (must use “GARS@” before the coordinates). Customization is offered for the initial desired track (N, S, E, W), the initial turn direction (Left or Right), the line spacing (0.5 - 9.9nm), and a buffer from the grid lines (0 - 3.0nm). Grid Aligned is the only search pattern confined to a grid.

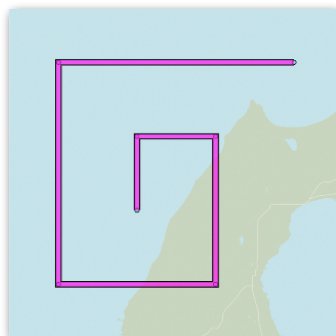


Circle - This pattern is used when searching a radius around a specific waypoint (grid identifier, navaid, aviation waypoint, user waypoint, or coordinates). The only customization of this pattern is the radius (0.5 - 30.0nm).

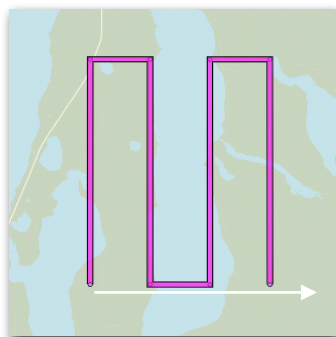


Creeping Line - This pattern is used when a search will be conducted on both sides of a search area that starts at an initial waypoint (grid identifier, navaid, aviation waypoint, user waypoint, or coordinates) and moves in a specified direction. Customization is offered for the initial desired track (°T), the initial turn direction (Left or Right), leg length (1.0 - 499.9nm), spacing (0.05 - 29.9nm), and the number of legs (1 - 40).

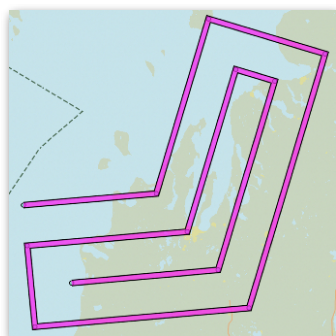
3. SEARCH & RESCUE PATTERNS



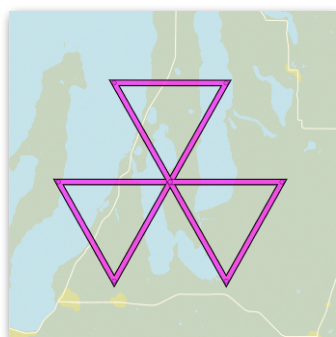
Expanding Square - This pattern is used to start at a specific location and then conduct an expanding square search that radiates from the starting waypoint (grid identifier, navaid, aviation waypoint, user waypoint, or coordinates). Customization is offered for the initial desired track ($^{\circ}$ T), the initial turn direction (Left or Right), spacing (0.05 - 29.9nm), and the number of legs (1 - 60).



Parallel - This pattern is used to search only one side of a search area that starts at an initial waypoint (grid identifier, navaid, aviation waypoint, user waypoint, or coordinates) and moves in a specified direction. Customization is offered for the initial desired track ($^{\circ}$ T), the initial turn direction (Left or Right), leg length (1.0 - 499.9nm), spacing (0.05 - 29.9nm), and the number of legs (1 - 40).



Route Search - This pattern is used to conduct a search along a specified route. The pattern will expand either side of the route as passes are added. Customization is offered for spacing (0.05 - 29.9nm) and the number of passes (1 - 4).



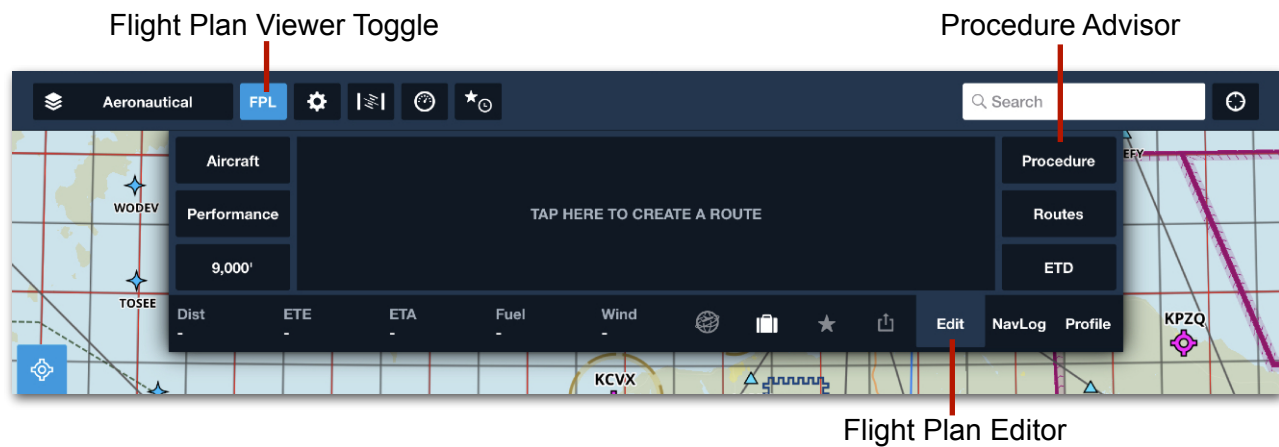
Sector - This pattern is used to conduct a search in a rotating direction while repeatedly passing over the origination waypoint (grid identifier, navaid, aviation waypoint, user waypoint, or coordinates). Customization is offered for the initial desired track ($^{\circ}$ T), the initial turn direction (Left or Right), and leg length (0.5 - 10.0nm).

3. SEARCH & RESCUE PATTERNS

3.2 Adding a Search Pattern to a Flight Plan

Search & Rescue patterns are created and defined on the Maps page within the Flight Plan (FPL) Editor. To add a search pattern:

1. Tap **FPL** to display the Flight Plan Editor.
2. Select the **Edit** button in the lower right corner of the Flight Plan Editor.
3. Tap **Procedure** on the right side of the flight plan viewer to view the Procedure Advisor.
4. Select **Search and Rescue**.
5. Select **Pattern** and choose from the list of options.
6. Fill in pattern definitions. The following pages provide a detailed overview of definition for each type of pattern.
7. Tap **Add to Route** to add the selected pattern to your route.
8. Tap **Close** to close the Procedure Advisor.



Note: By default, the last type of search pattern used is displayed.

3. SEARCH & RESCUE PATTERNS

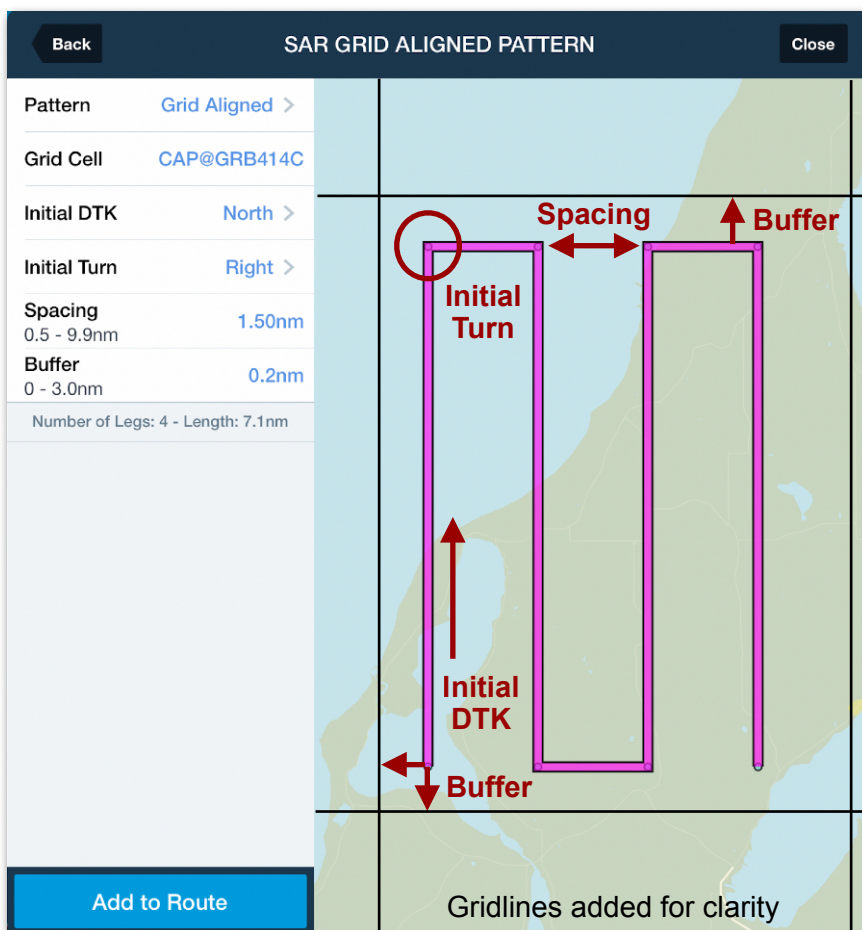
3.3 Pattern Setup and Definitions

This section describes how to add the various Search and Rescue patterns to a Flight Plan (FPL) on the Maps page.

3.3.1 Grid Aligned (Parallel Grid, Grid Search)

To add a **Grid Aligned** search pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Grid Aligned**.
2. Enter the pattern definitions for the following fields:
 - a. **Grid Cell:** search pattern grid reference point where the search pattern will take place (see **Grid Locations as Waypoints**).
 - b. **Initial DTK:** the direction of the initial track (North, South, East, or West).
 - c. **Initial Turn:** the direction of the first turn (Left or Right) after the initial leg.
 - d. **Spacing:** the distance in nautical miles between legs (0.5-9.9nm).
 - e. **Buffer:** the distance in nautical miles from the edge of the grid border (0-3.0nm).
3. Tap **Add to Route**.



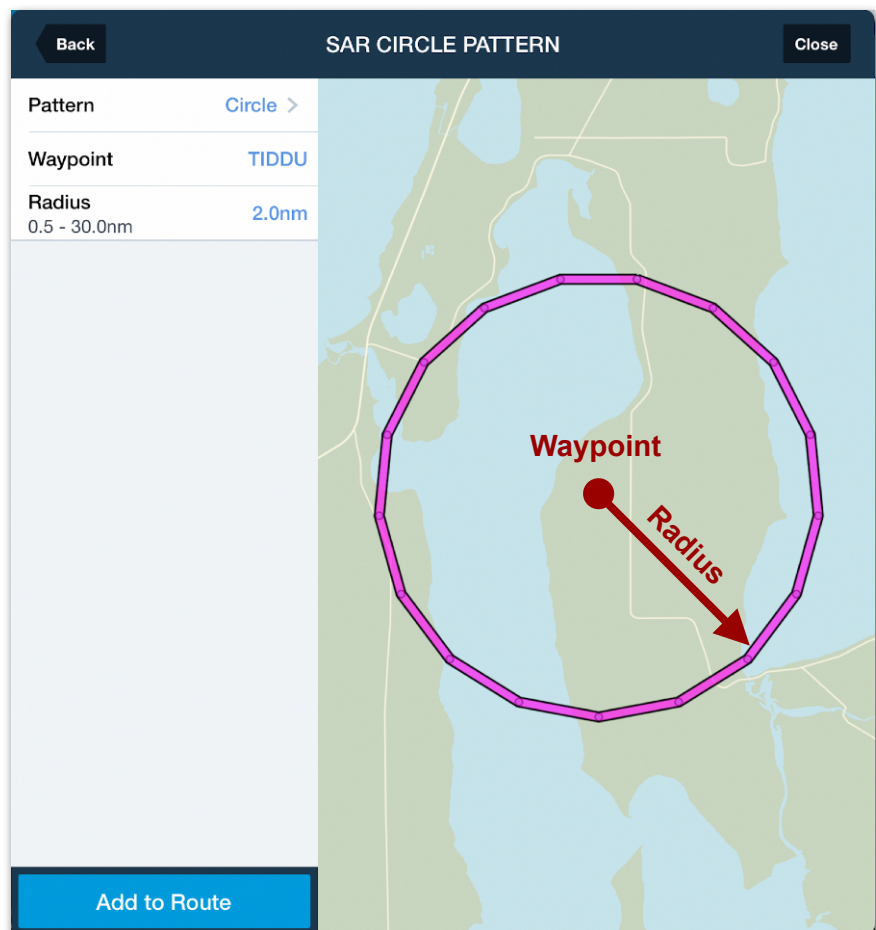
Grid Aligned Definitions

3. SEARCH & RESCUE PATTERNS

3.3.2 Circle

To add a **Circle** search pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Circle**.
2. Enter the pattern definitions for the following fields:
 - a. **Waypoint**: a waypoint that will define the center of the search circle. A waypoint can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Radius**: a value between 0.5 and 30.0 nautical miles.
3. Tap **Add to Route**.



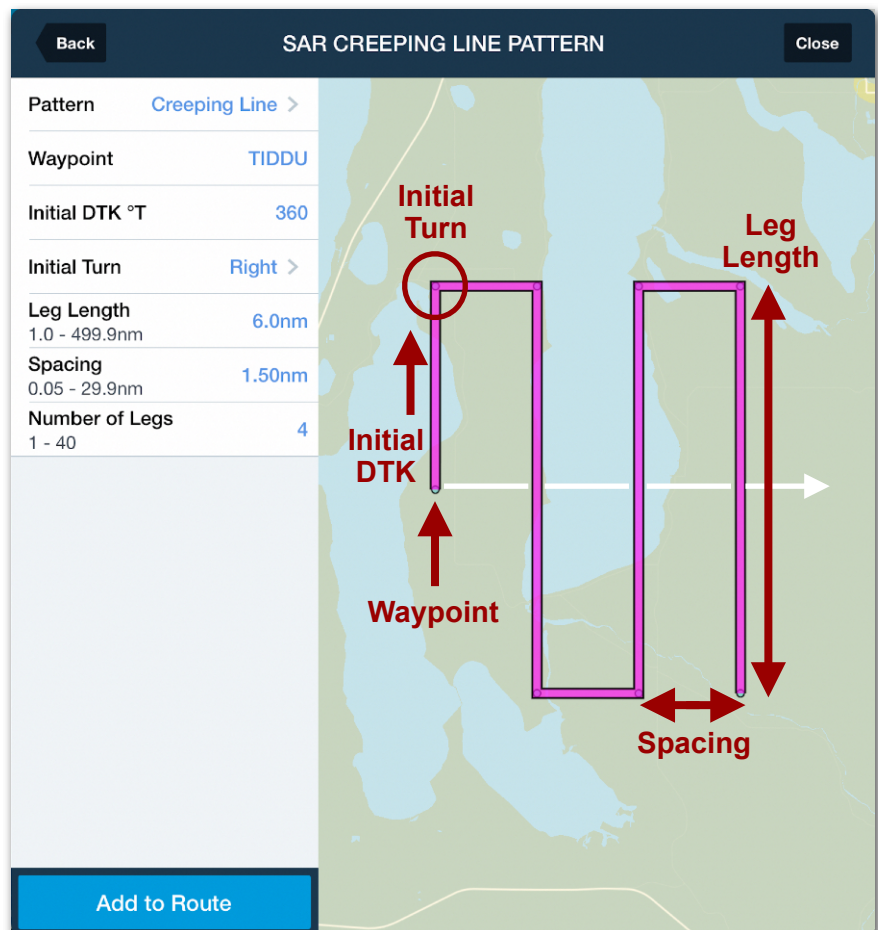
Circle Definitions

3. SEARCH & RESCUE PATTERNS

3.3.3 Creeping Line

To add a **Creeping Line** search pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Creeping Line**.
2. Enter the pattern definitions for the following fields:
 - a. **Waypoint:** starting waypoint, which can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Initial DTK °True:** initial desired course from the starting waypoint in degrees true (001 - 360).
 - c. **Initial Turn:** the direction of the first turn (Left or Right) after the initial leg.
 - d. **Leg Length:** length of each leg flown (between 1.0-499.9 nautical miles).
 - e. **Spacing:** the distance between legs in nautical miles (0.5-29.9 nm).
 - f. **Number of Legs:** select how many legs (between 1-40) will be flown.
3. Tap **Add to Route**.



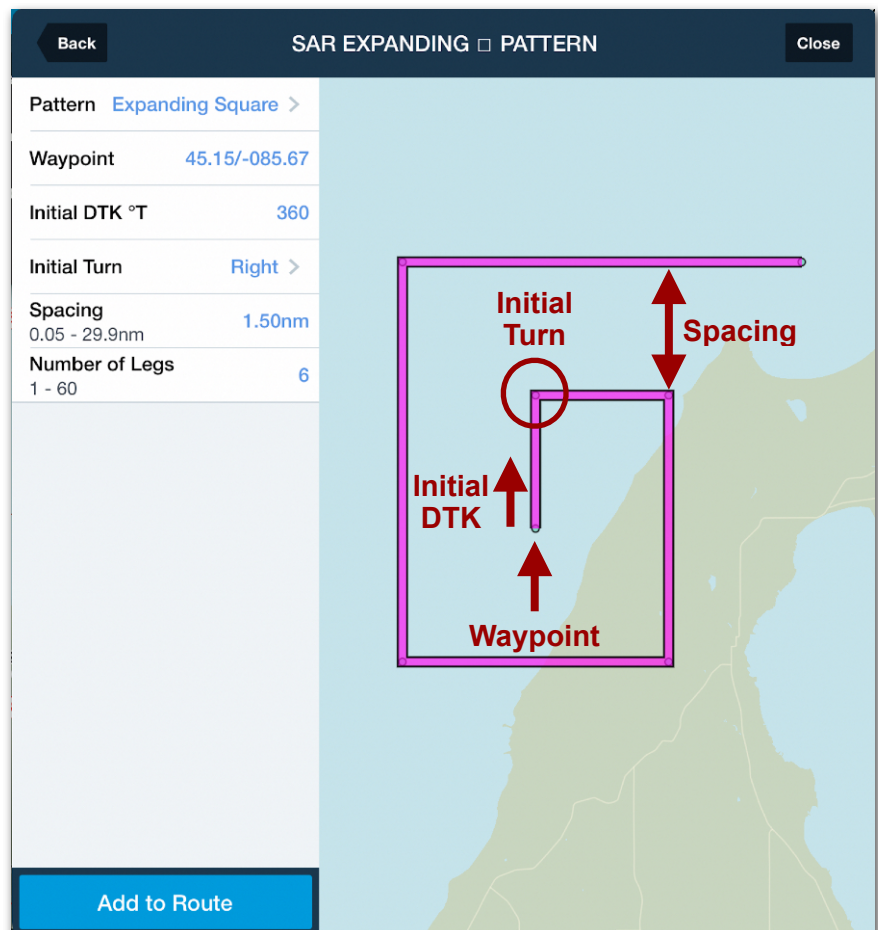
Creeping Line Definitions

3. SEARCH & RESCUE PATTERNS

3.3.4 Expanding Square

To add an **Expanding Square** search pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Expanding Square**.
2. Enter the pattern definitions for the following fields:
 - a. **Waypoint:** starting waypoint, which can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Initial DTK °T:** initial desired course from the starting waypoint in degrees true (001 - 360).
 - c. **Initial Turn:** the direction of the first turn (Left or Right) after the initial leg.
 - d. **Spacing:** enter a value between 0.5-29.9 nautical miles that defines the distance between parallel legs.
 - e. **Number of Legs:** select how many legs (between 1 and 60) will be flown.
3. Tap **Add to Route**.



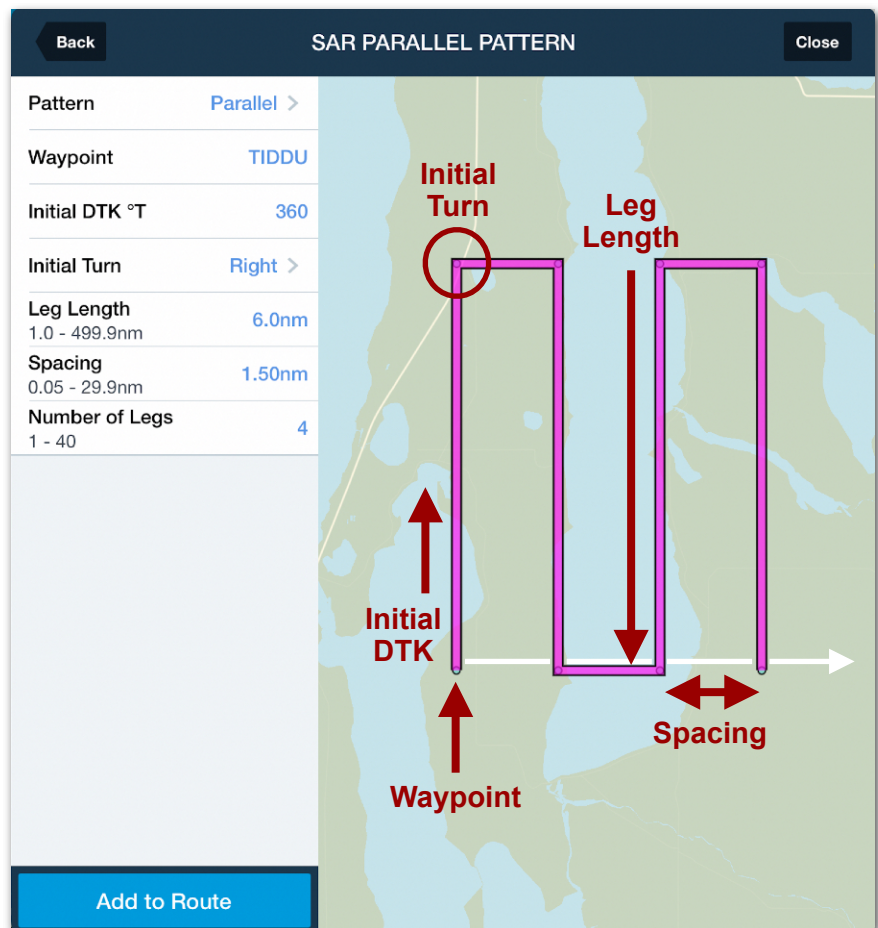
Expanding Square Definitions

3. SEARCH & RESCUE PATTERNS

3.3.5 Parallel

To add a **Parallel** search pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Parallel**.
2. Enter the pattern definitions for the following fields:
 - a. **Waypoint:** starting waypoint, which can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Initial DTK °T:** initial desired course from the starting waypoint in degrees true (001 - 360).
 - c. **Initial Turn:** the direction of the first turn (Left or Right) after the initial leg.
 - d. **Leg Length:** the length of each leg in nautical miles(1.0-499.9 nm).
 - e. **Spacing:** the distance between legs in nautical miles (0.5-29.9 nm).
 - f. **Number of Legs:** the number of legs (1-40) to be flown.
3. Tap **Add to Route**.



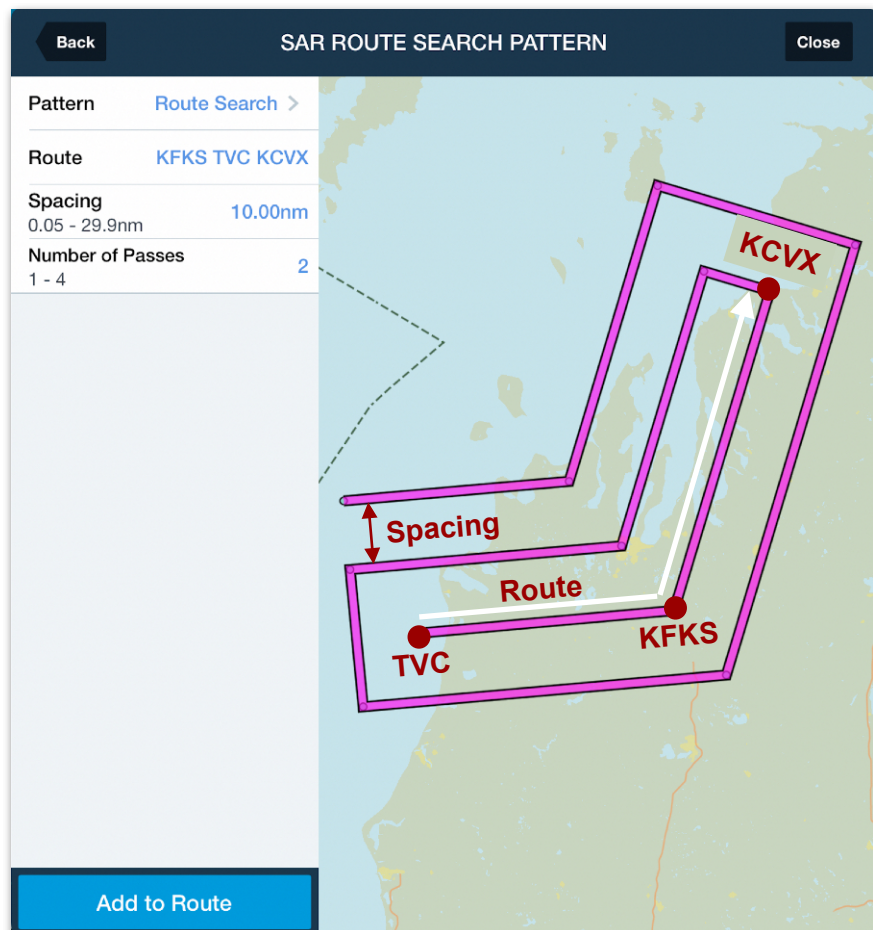
Parallel Definitions

3. SEARCH & RESCUE PATTERNS

3.3.6 Route Search

To add a **Route Search** pattern:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select Route Search.
2. Enter the pattern definitions for the following fields:
 - a. **Route:** enter at least two search area waypoints, which can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Spacing:** the distance between legs in nautical miles (0.05-29.9 nm).
 - c. **Number of Passes:** the number of passes to be flown (1-4).
3. Tap **Add to Route**.



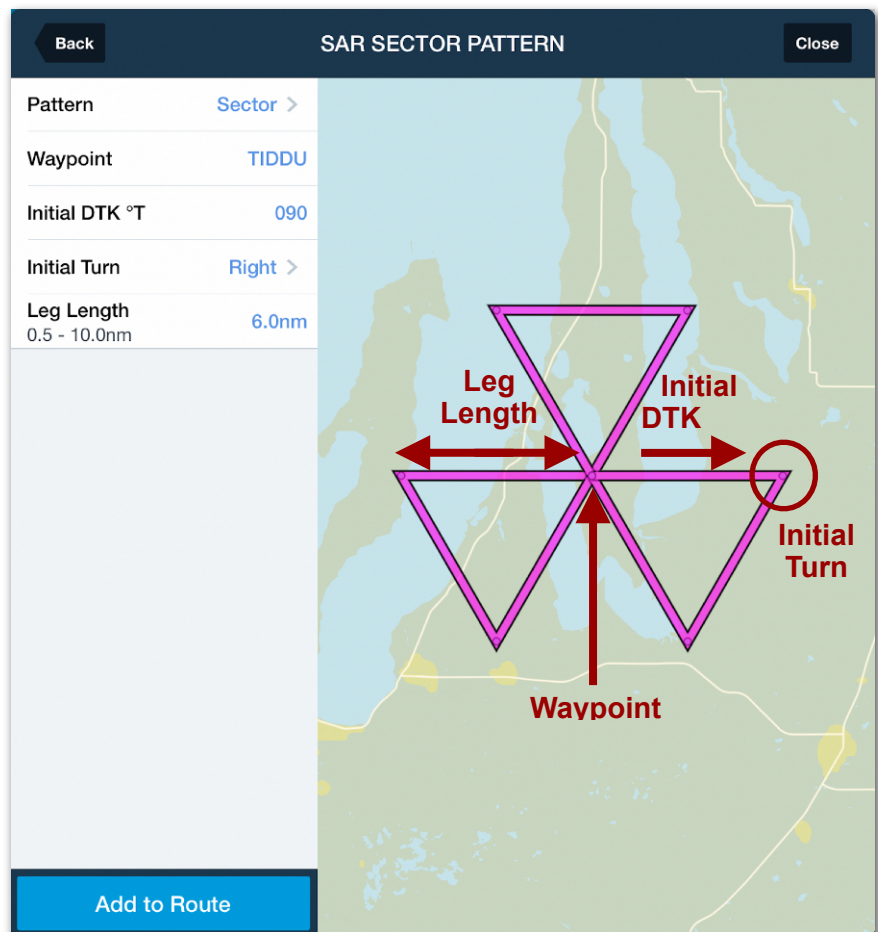
Route Search Definitions

3. SEARCH & RESCUE PATTERNS

3.3.7 Sector

To add a **Sector** search:

1. Go to **FPL > Edit > Procedure > Search and Rescue > Pattern** and select **Sector**.
2. Enter the pattern definitions for the following fields:
 - a. **Waypoint:** starting waypoint, which can be a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.
 - b. **Initial DTK °True:** initial desired course from the starting waypoint in degrees true (1 - 360).
 - c. **Initial Turn:** the direction of the first turn (Left or Right) after the initial leg.
 - d. **Leg Length:** the length of each leg in nautical miles (0.5-10.0nm).
3. Tap **Add to Route**.



Sector Definitions

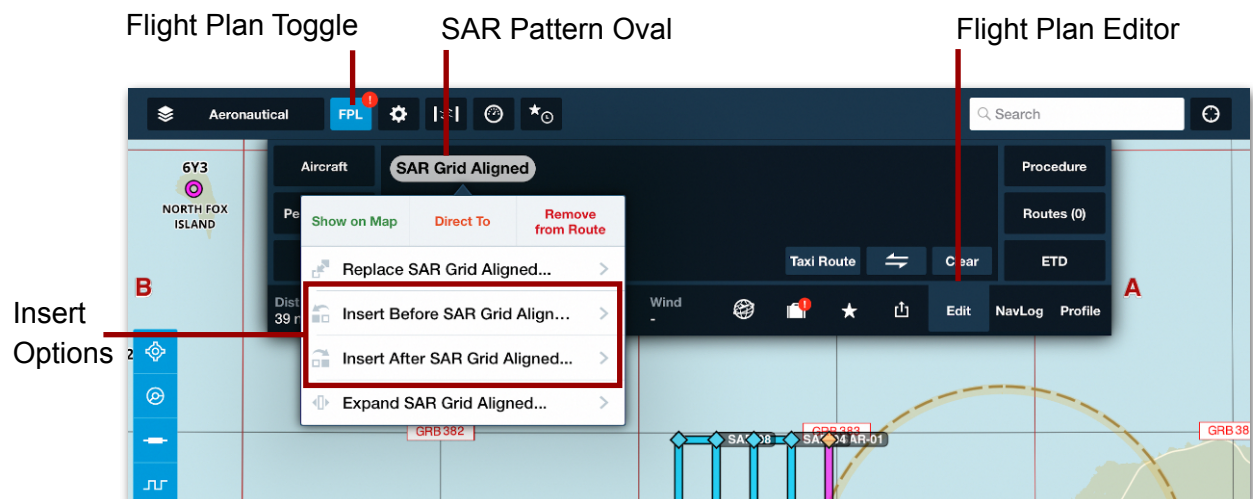
SAR FLIGHT PLAN MODIFICATION

Flight plans can include both waypoints and a SAR pattern. The waypoints can be grid identifiers, nav aids, aviation waypoints, user waypoints, or coordinates (see [Adding Waypoints to a Flight Plan](#) on this page). Flight plans can be modified to show individual waypoints within a search pattern, allowing search pattern waypoint editing ([Expanding a SAR Pattern](#)). Also, flight plans can be created that with multiple search patterns ([Include Multiple SAR Patterns](#)). The following pages will describe each of these three scenarios.

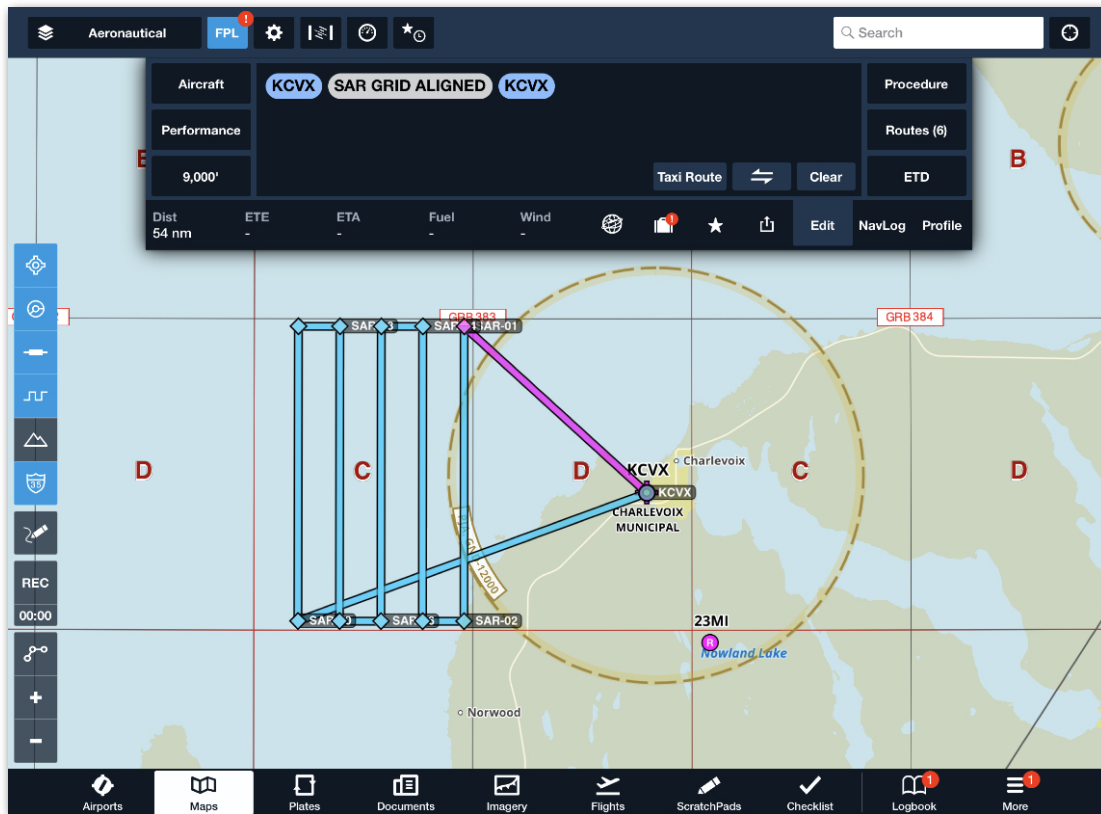
4.1 Adding Waypoints to a Flight Plan

Waypoints may be added to a flight plan that includes a search pattern. This may be desirable for en route planning to and from the search area. To add waypoints to a flight plan with a search pattern:

1. Add a SAR pattern to the flight plan as described in [Adding a Search Pattern](#).
2. On the Maps page, select **FPL**.
3. Tap **Edit** in the lower right corner of the flight plan viewer.
4. Tap the gray-colored search pattern oval.
5. Tap either the **Insert Before [Pattern type]...** or **Insert After [Pattern type]...** button. A popover will appear to allow entry of a waypoint.
6. In the popover, enter a grid identifier, nav aid, aviation waypoint, user waypoint, or [coordinates](#).
7. Tap **Insert**.



4. SAR FLIGHT PLAN MODIFICATION



SAR pattern with departure and destination waypoints added

Waypoints may also be added after the SAR pattern by tapping in the Flight Plan (FPL) editor. To do so,

1. Tap in the flight plan editor after the gray SAR pattern oval. A blue cursor will appear, and a keyboard will be displayed.
2. Use the keyboard to enter a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates** and then select **Return**.

Additionally, touch-planning may be used. To do this:

1. Place a finger on the map, over a location to add to the flight plan, and hold it there for a second. A slide-over will appear that provides a list of waypoint options to add (**coordinates**, airport, navaid, waypoints, Etc.)
2. Tap on the item to be added from the slide-over to add it to the end of the flight plan.

For details on working with the flight plan editor, refer to the ForeFlight Mobile Guide available in ForeFlight Mobile under **Documents > ForeFlight (Drive) > ForeFlight Mobile Guide**, or online at www.foreflight.com/support/pilots-guide/.

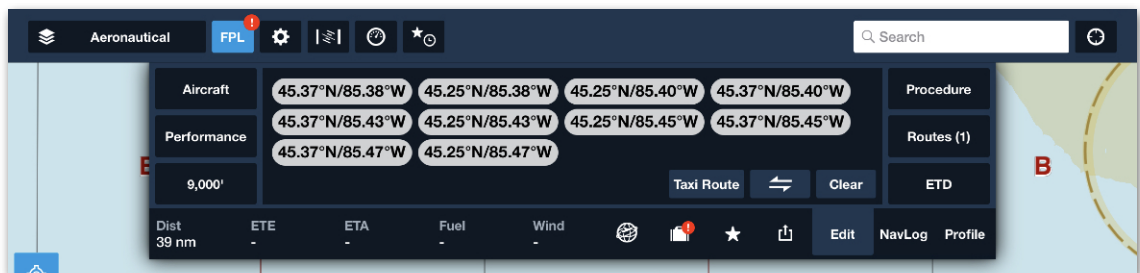
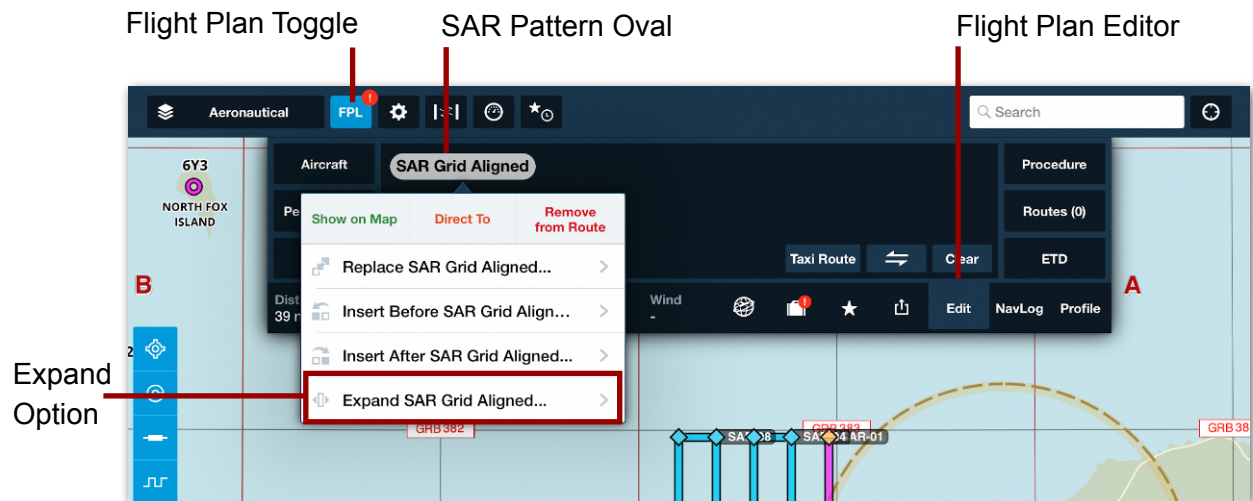
4. SAR FLIGHT PLAN MODIFICATION

4.2 Expanding a SAR Pattern

It may be desirable to add or remove waypoints in a search pattern. Expanding the SAR pattern into individual waypoints (coordinates) allows users to remove individual pattern waypoints or add waypoints to the pattern. Additionally, users can add more SAR patterns once the SAR pattern oval is expanded.

To expand a SAR pattern:

1. Add a SAR pattern to the flight plan as described in [Adding a Search Pattern](#).
2. On the Maps page, select **FPL**.
3. Tap **Edit** in the lower right corner of the flight plan viewer.
4. Tap the gray-colored search pattern oval.
5. Tap **Expand SAR [Pattern type]...** The single SAR route oval will be replaced by its component waypoints (coordinates). Individual waypoints can now be added or deleted.



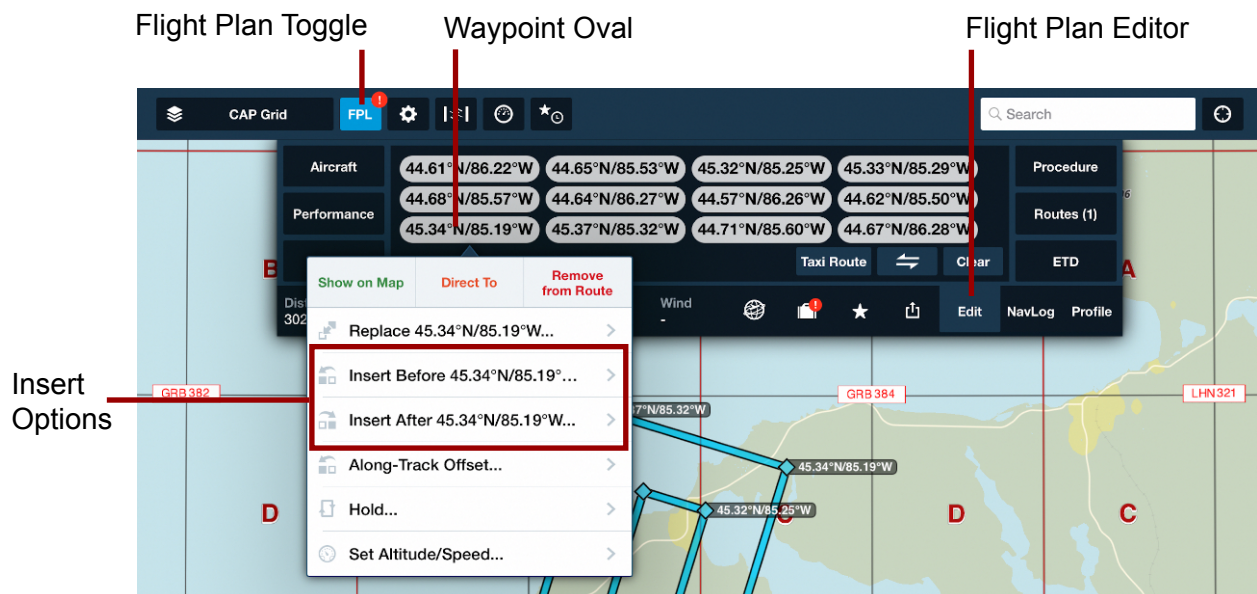
SAR pattern expanded into individual waypoints

4. SAR FLIGHT PLAN MODIFICATION

4.2.1 Adding Waypoints to an Expanded Flight Plan

To add waypoints to an expanded flight plan:

1. On the Maps page, select **FPL**.
2. Tap **Edit** in the lower right corner of the flight plan viewer.
3. Tap on a gray-colored coordinate oval where the new waypoint will be placed before or after.
4. Tap either the **Insert Before [Coordinates]...** or **Insert After [Coordinates]...** button. A popover will appear to allow entry of a waypoint.
5. Enter a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates** in the popover.
6. Tap **Insert**.



Waypoints may also be added after all the waypoints by tapping in the Flight Plan (FPL) editor. To do so,

1. Tap in the flight plan editor after the last gray SAR pattern oval. A blue cursor will appear, and a keyboard will be displayed.
2. Use the keyboard to enter a grid identifier, navaid, aviation waypoint, user waypoint, or **coordinates**.

4. SAR FLIGHT PLAN MODIFICATION

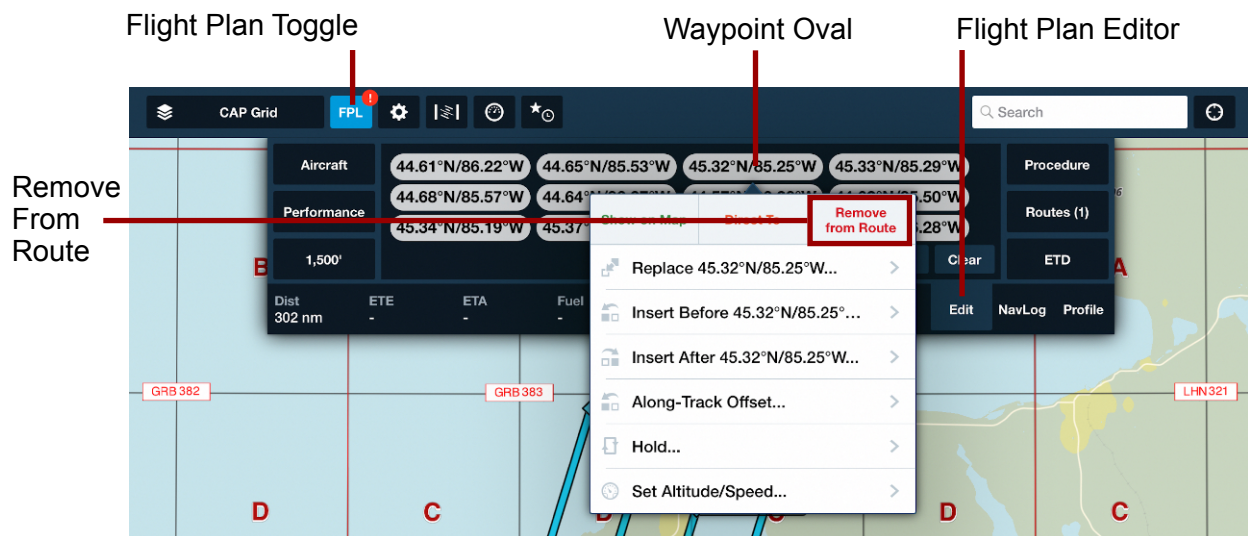
Additionally, touch-planning may be used. To do this:

1. Place a finger on the map over a location to add to the end of the flight plan and hold it there for a second. A slide-over will appear that provides a list of options to add a waypoint as coordinates or as a nearby waypoint navaid, etc.
2. Tap on the item to be added in the slide-over to add it to the end of the flight plan.

4.2.2 Removing Waypoints from an Expanded Flight Plan

To remove a waypoint from an expanded flight plan:

1. On the Maps page, select **FPL**.
2. Tap **Edit** in the lower right corner of the flight plan viewer.
3. Tap on the waypoint oval in the flight plan editor that is to be removed. A pop-over will appear.
4. Select **Remove from Route**.



For additional details on working with the flight plan editor, refer to the ForeFlight Mobile Guide available in ForeFlight Mobile under **Documents > ForeFlight (Drive) > ForeFlight Mobile Guide**, or online at www.foreflight.com/support/pilots-guide/.

4. SAR FLIGHT PLAN MODIFICATION

4.3 Multiple SAR Patterns in a Flight Plan

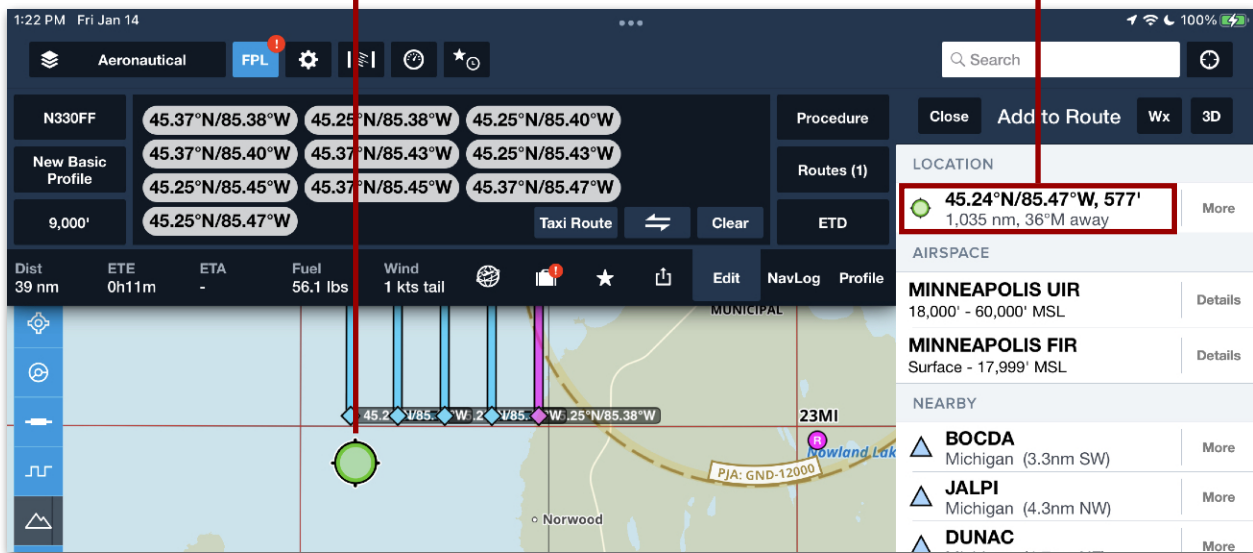
The FPL editor can display only one SAR pattern oval at a time. However, an additional SAR pattern can be added to a flight plan by expanding the initial SAR pattern oval. The Route Search pattern is the only pattern that does not allow for a second pattern to be added.

To add an additional SAR pattern, follow these steps:

1. Add a SAR pattern to the flight plan as described in [Adding a Search Pattern](#).
2. Expand the SAR pattern as described in [Expanding a SAR Pattern](#).
3. Insert a placeholder waypoint after the initial expanded SAR pattern.
 - a. Touch the map at the desired place for more than one second.
 - b. From the slide over, tap on the lat/long location.

Touch map (1 second) to
add placeholder waypoint

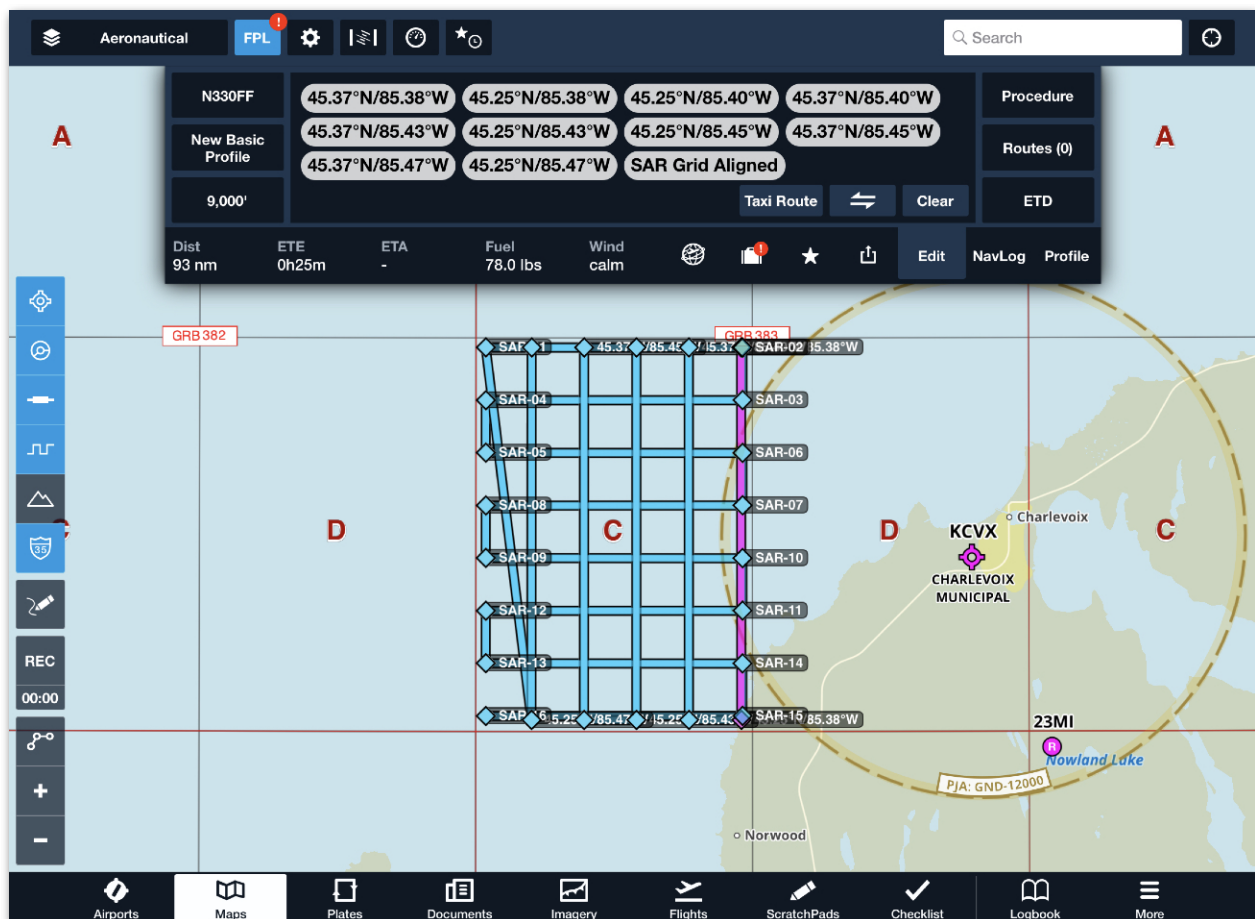
Tap the lat/long value to
add to route



Note: If a user attempts to add an additional SAR pattern after the last waypoint in the flight plan, the search pattern oval will be placed before the last waypoint. Adding a placeholder waypoint allows the app to place the additional SAR pattern after the existing pattern.

4. SAR FLIGHT PLAN MODIFICATION

4. Add the next SAR pattern by tapping on **Procedure** the right side of the flight plan viewer.
5. Select **Search and Rescue**.
6. Select **Pattern** and choose from the list of options.
7. Fill in pattern definitions as described in [Adding a Search Pattern](#).
8. Tap **Add to Route** to add the selected pattern to your route.
9. Tap **Close** to close the Procedure Advisor.
10. Delete the placeholder waypoint, which should be the last waypoint in the route editor.
 - a. Tap on the waypoint oval that you want to remove.
 - b. Select **Remove from Route**.



Multiple SAR patterns in a flight plan

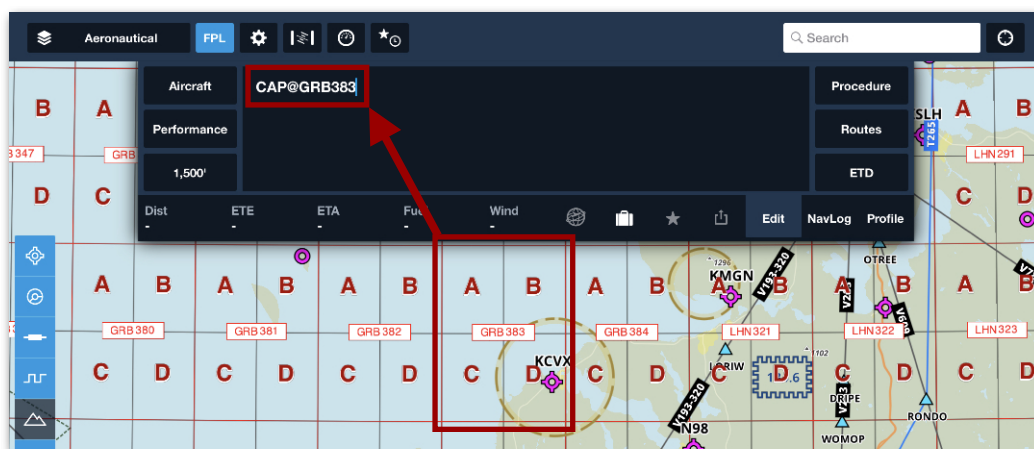
GRID IDENTIFIERS AS WAYPOINTS

Grid identifiers can be searched for or used as waypoints in a flight plan. When entering a grid location identifier, a waypoint will be added as a lat/long location in the flight plan. The lat/long is the point at the center of the specified grid location identifier. Grid identifier locations will display even if the accompanying grid overlay is not displayed. See [SAR Grid Overlays](#) for details about grids.

5.1 CAP Grid Waypoint Format

CAP Grid identifiers can be entered as waypoints (See [CAP Grid](#) for grid details). The following two formats are supported:

Sub-Grid ID: CAP@AAANNN where AAA is the Grid Identifier and NNN is the Grid Number (leading zeros are not necessary if the grid number is less than 100). **Example:** CAP@GRB383.



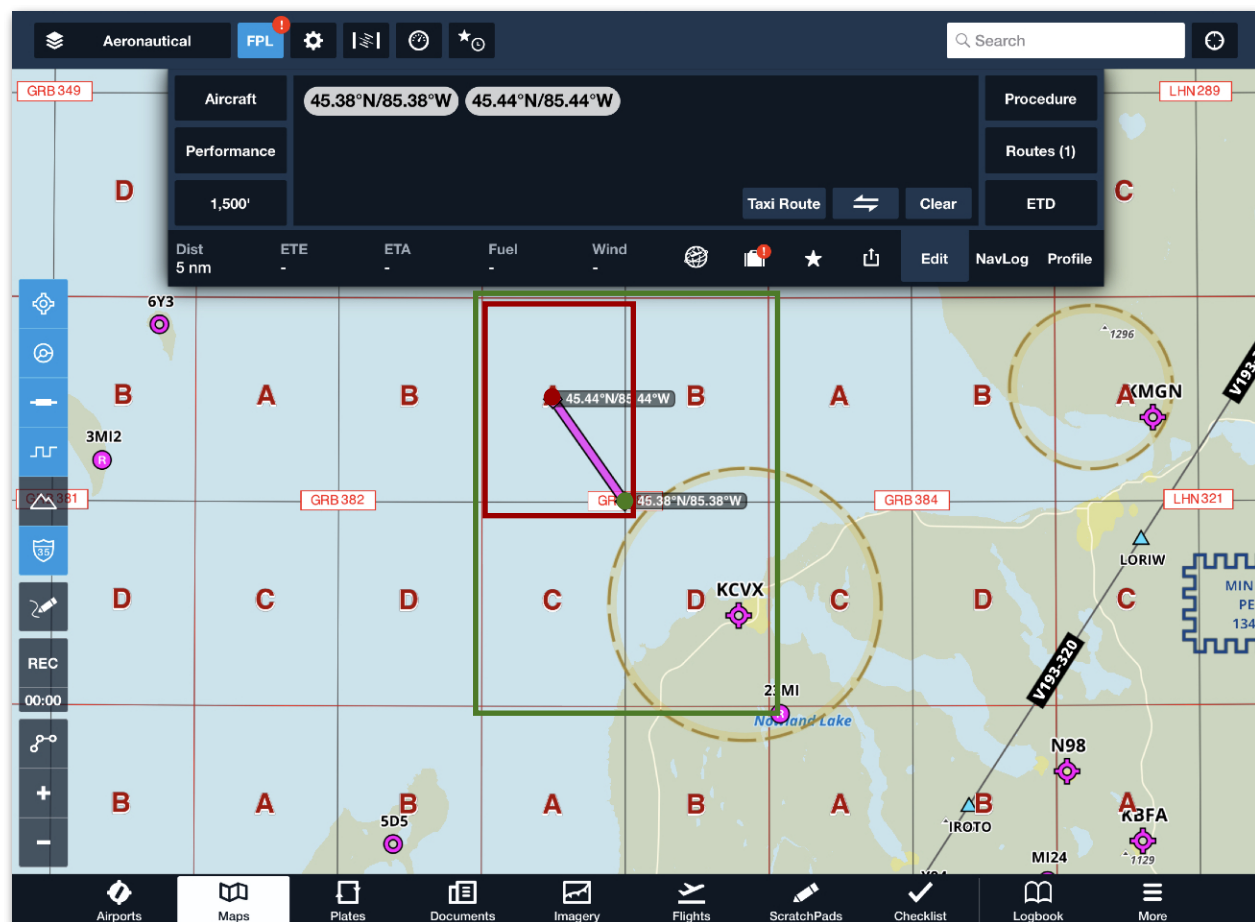
Sub-Grid ID entered as a waypoint (before selecting Return)

Sub-Grid ID with Quadrant ID: CAP@AAANNNQ where AAA is the Grid Identifier, NNN is the Grid Number, and Q is the quadrant (A, B, C, or D). **Example:** CAP@GRB383A.



**Sub-grid ID + Quadrant ID entered as a waypoint
(before selecting Return)**

5. GRID IDENTIFIERS AS WAYPOINTS



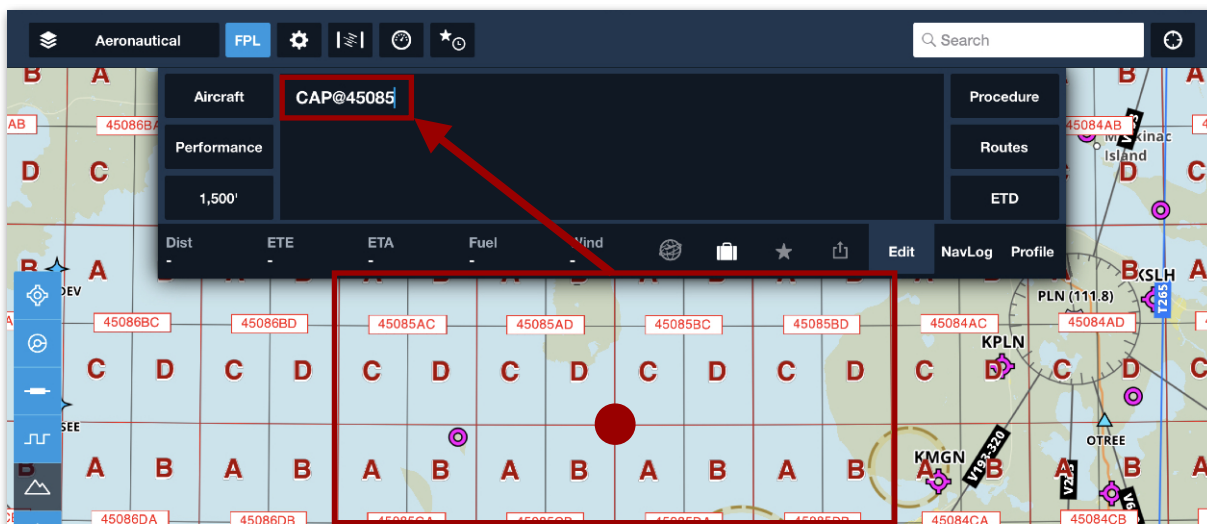
CAP@GRB383 and CAP@GRB383A displayed as lat/long waypoints in the center of their respective sub-grid or quadrant.

5. GRID IDENTIFIERS AS WAYPOINTS

5.2 Cell CAP Grid Waypoint Format

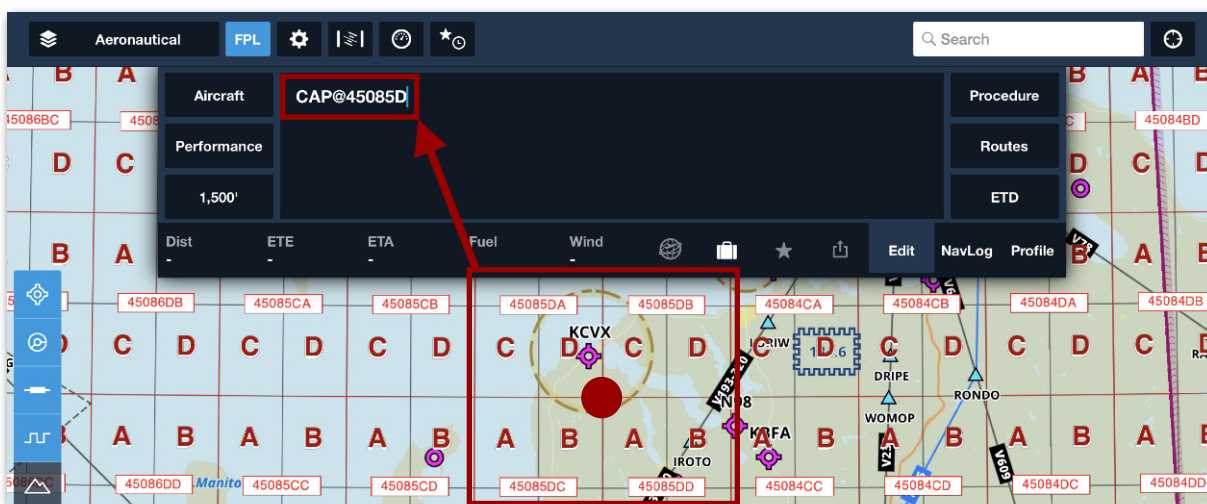
Cell CAP Grid identifiers can be entered as waypoints (See [CAP Grid](#) for grid details). Once entered, the waypoint will be converted to lat/long coordinates. The following four formats are supported:

Grid Designation: CAP@LLNNN, where LL is latitude and NNN is longitude (leading zeros must be entered if longitude is less than 100). **Example:** CAP@45085.



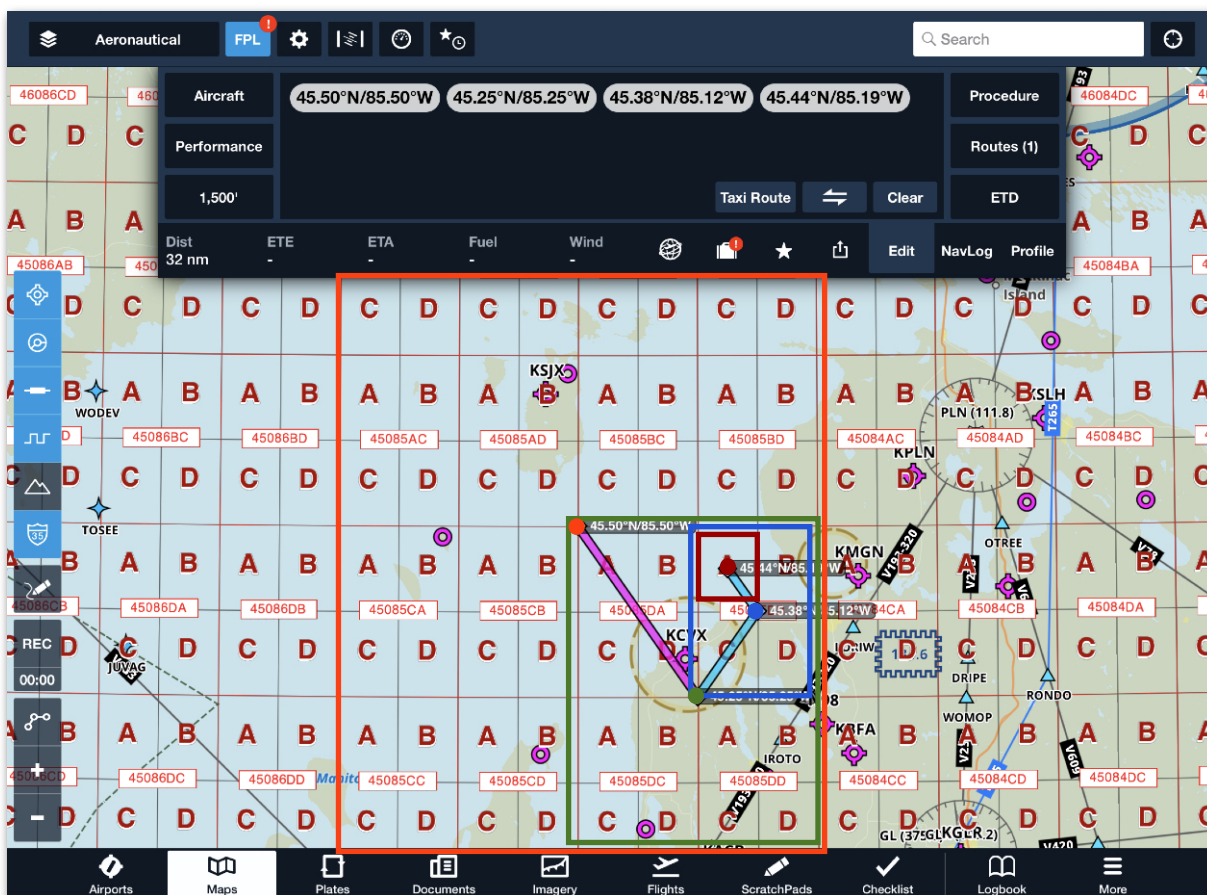
Grid designation entered as a waypoint
(before selecting Return)

Grid with Sub-Grid Designation: CAP@LLNNNS, where LL is latitude, NNN is longitude, and S is the sub-grid (A, B, C, D). **Example:** CAP@45085D.



Grid with Sub-Grid designation entered as a waypoint
(before selecting Return)

5. GRID IDENTIFIERS AS WAYPOINTS



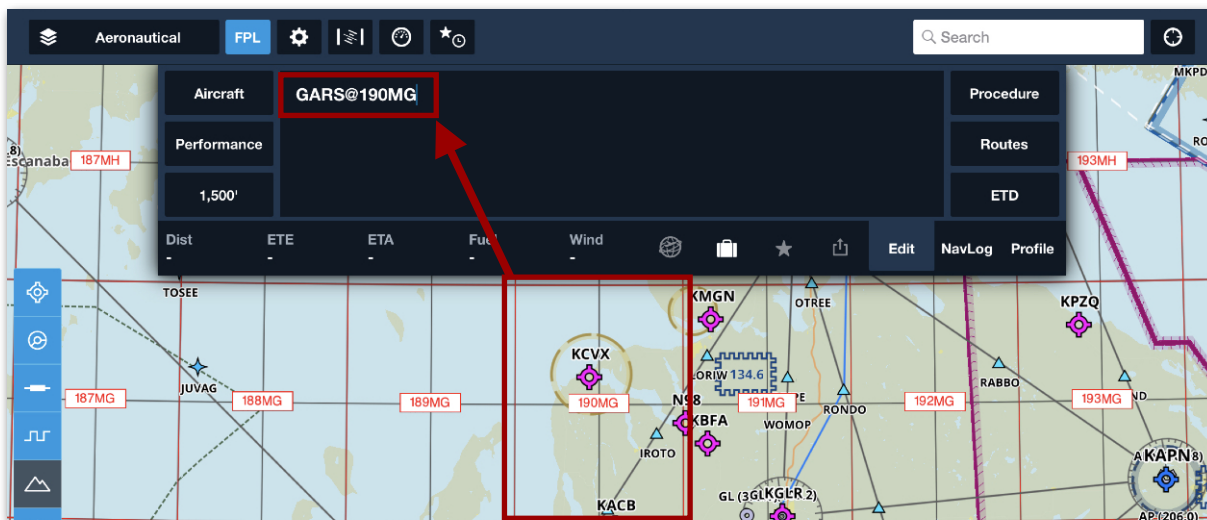
CAP@45085, CAP@45085D, CAP@45085DB, CAP@45085DBA displayed as lat/long waypoints in the center of their respective grid, sub-grid, quadrant, and sub-quadrant.

5. GRID IDENTIFIERS AS WAYPOINTS

5.3 GARS Grid Waypoint Format

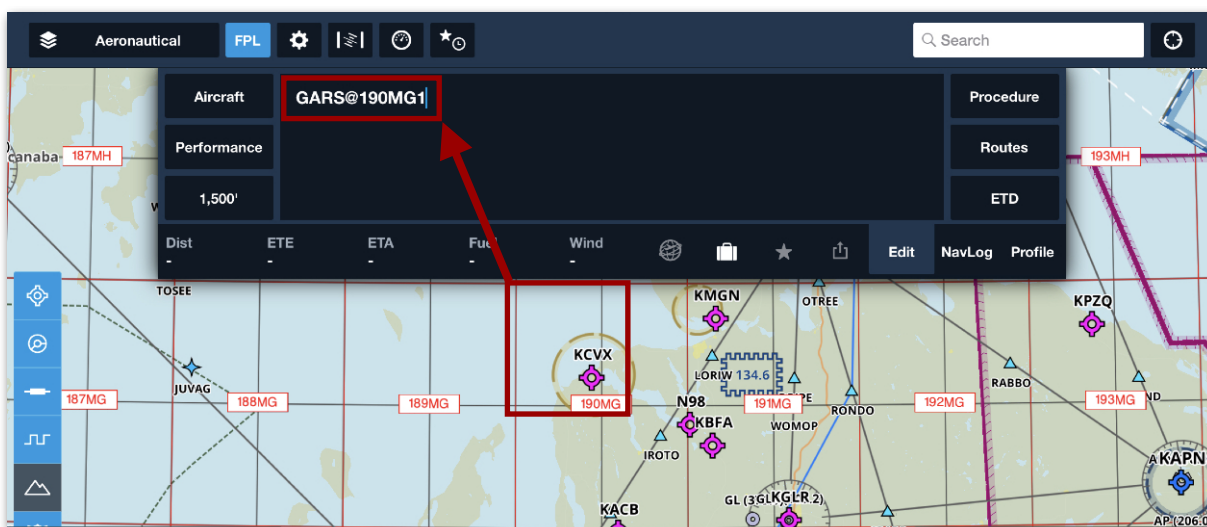
GARS Grid identifiers can be entered as waypoints (See [GARS Grid](#) for grid details). The following formats are supported:

Cell: GARS@NNNLL, where NNN is the 30-minute longitudinal band numbered starting at the 180-degree meridian (leading zeros must be entered if the longitude is less than 100) and moving eastward. LL is the 30-minute latitudinal band. **Example:** GARS@190MG.



**GARS grid with Cell designation entered as a waypoint
(before selecting Return)**

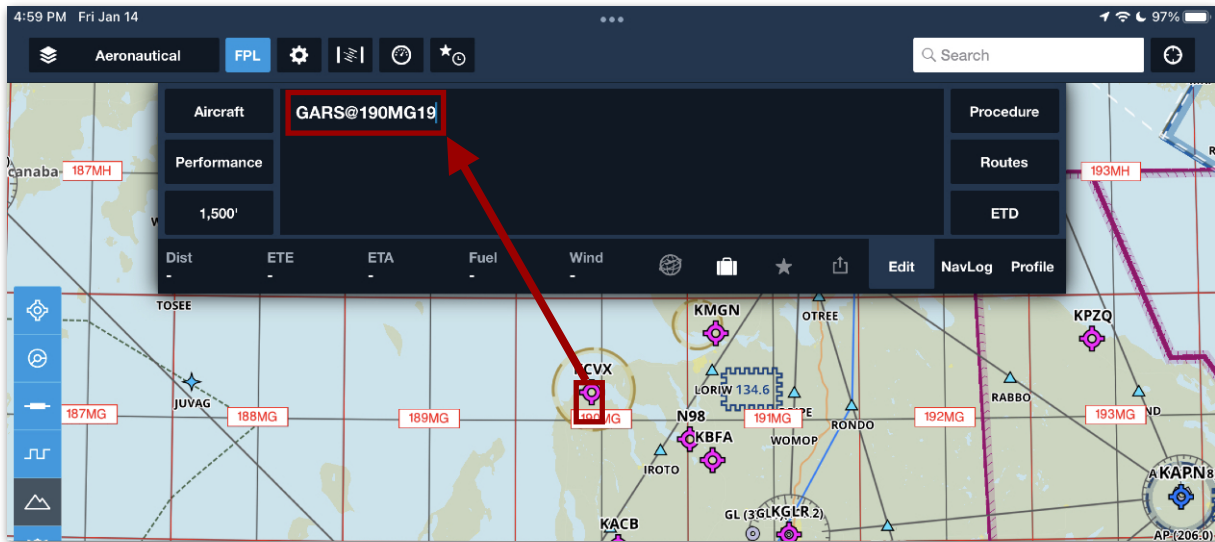
Quadrant: To find a quadrant center, type GARS@NNNLLQ where NNN is the longitudinal band, LL is the latitudinal band, and Q is the quadrant (1-4).
Example: GARS@190MG1.



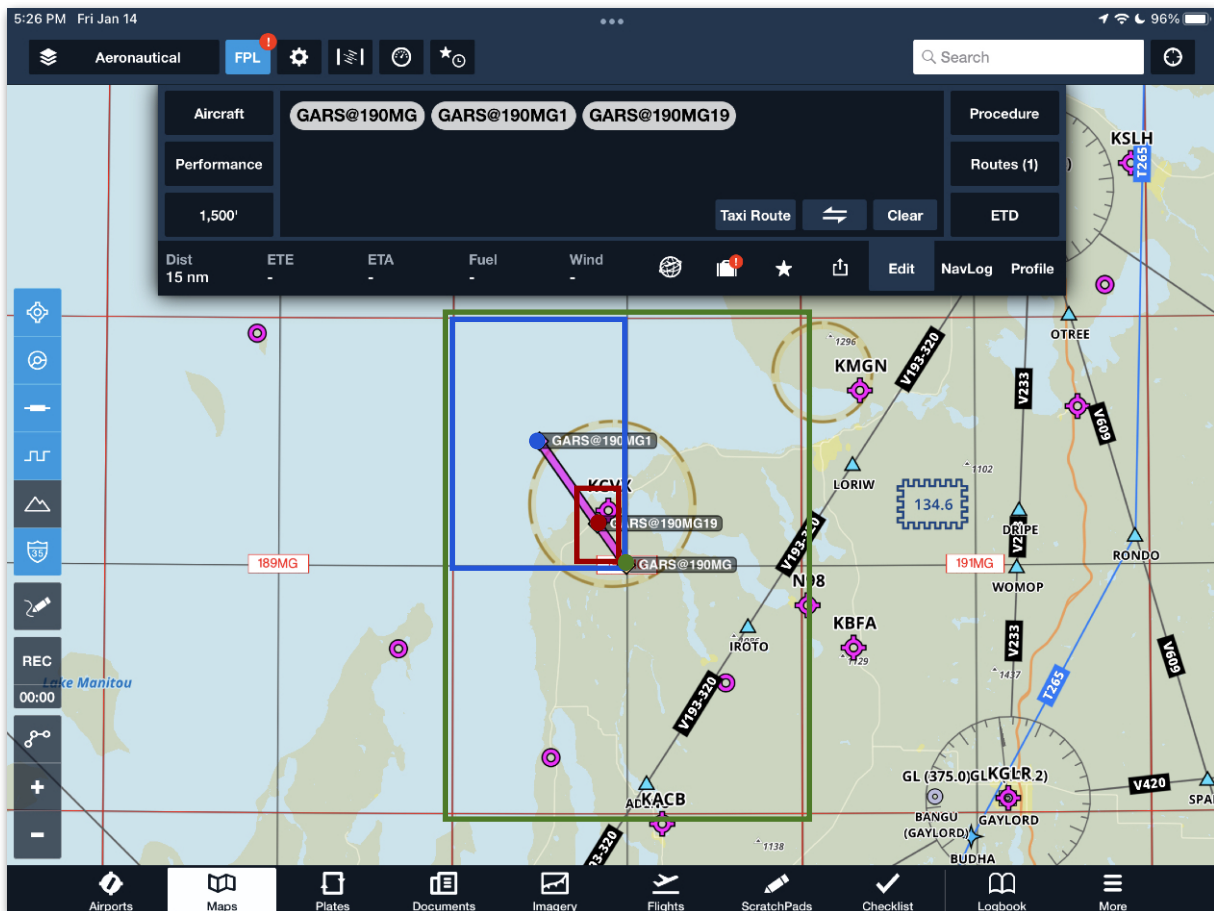
**GARS grid with Cell designation entered as a waypoint
(before selecting Return)**

5. GRID IDENTIFIERS AS WAYPOINTS

9-Grid Area: To find a sub-area center, enter GARS@NNNLLQA where NNN is the longitudinal band, LL is the latitudinal band, Q is the quadrant (1-4), and A is the 9-grid area (1-9). **Example:** GARS@190MG19.



**GARS grid with 9-Grid Area designation entered as a waypoint
(before selecting Return)**



GARS@190MG, GAR@190MG1, and GARS@190MG19 displayed waypoints.

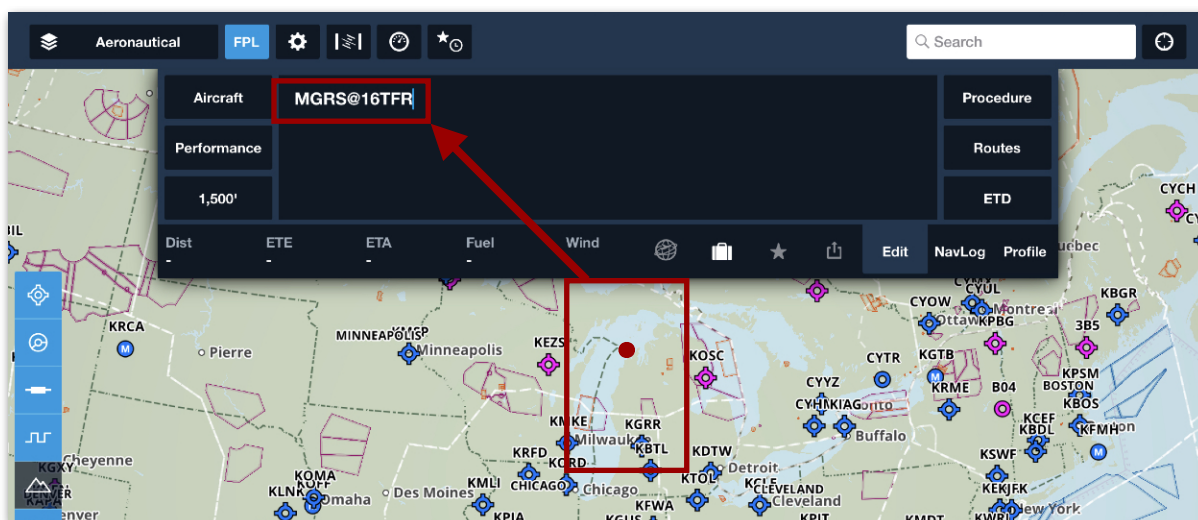
5. GRID IDENTIFIERS AS WAYPOINTS

5.4 MGRS Waypoint Format

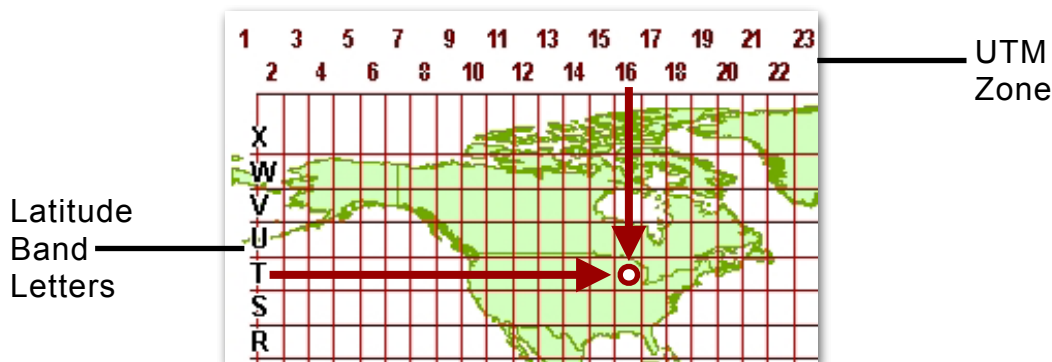
Military Grid Reference System (MGRS) coordinates can be entered as waypoints even though no MGRS grid map overlay is available in ForeFlight Mobile (see the MGRS Grid chart at the end of this section). Once entered, the MGRS waypoint is converted to lat/long coordinates unless you have an MGRS coordinate format selected in **Settings > Units/Time > Coordinates**. The following formats are supported:

MGRS@NNLSS: This format has a precision of precision level 100 km and is helps locate the major area of the grid. NN is the 6° wide UTM zone number with leading zero included. L is the latitude band. SS designates 100,000m grid square within the zone.

Example: MGRS@16TFR. 16 is the UTM zone, T is the latitude band, and FR is the 100,000m grid square.



**MGRS grid designation entered as a waypoint
(before selecting Return)**



MGRS@16TFR on the MGRS Grid

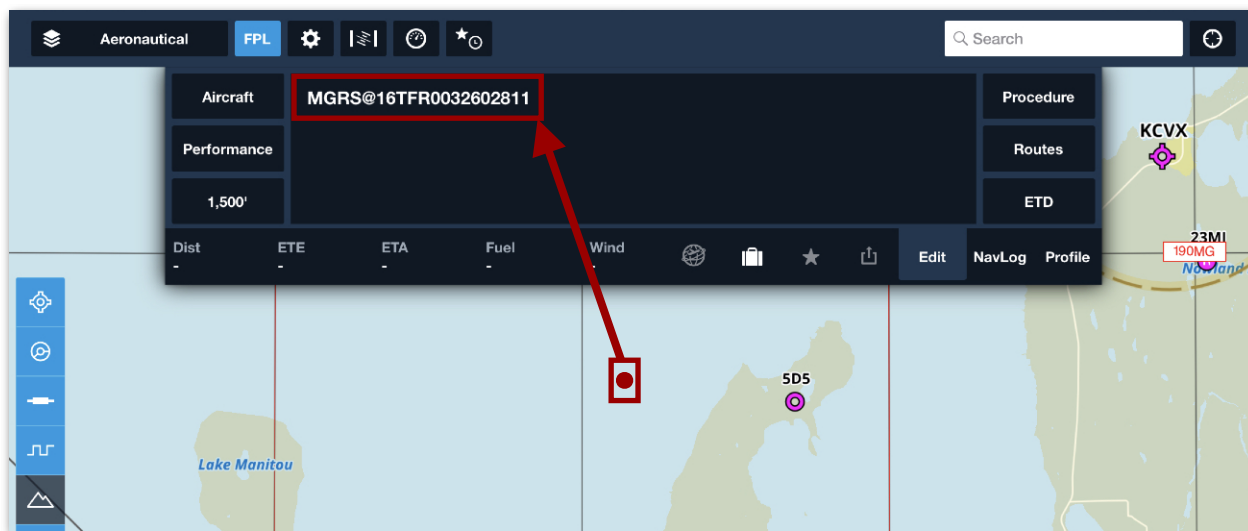
5. GRID IDENTIFIERS AS WAYPOINTS

MGRS@NNLSSeeennn (6 digits): This format has a precision level of 100 meters. NN is the 6° wide UTM zone number with leading zero included. L is the latitude band, SS designates 100,000m grid square within the zone, and eee and nnn represent the Easting and Northing values within the 100,000m grid square.

MGRS@NNLSSeeennnn (8 digits): This format has a precision level of 10 meters. NN is the 6° wide UTM zone number with leading zero included. L is the latitude band. SS designates 100,000m grid square within the zone, and eeee and nnnn represent the Easting and Northing values within the 100,000m grid square.

MGRS@NNLSSeeennnnnn (10 digits): This format has a precision level of 1 meter. NN is the 6° wide UTM zone number with leading zero included. L is the latitude band. SS designates 100,000m grid square within the zone, and eeeee and nnnnn represent the Easting and Northing values within the 100,000m grid square.

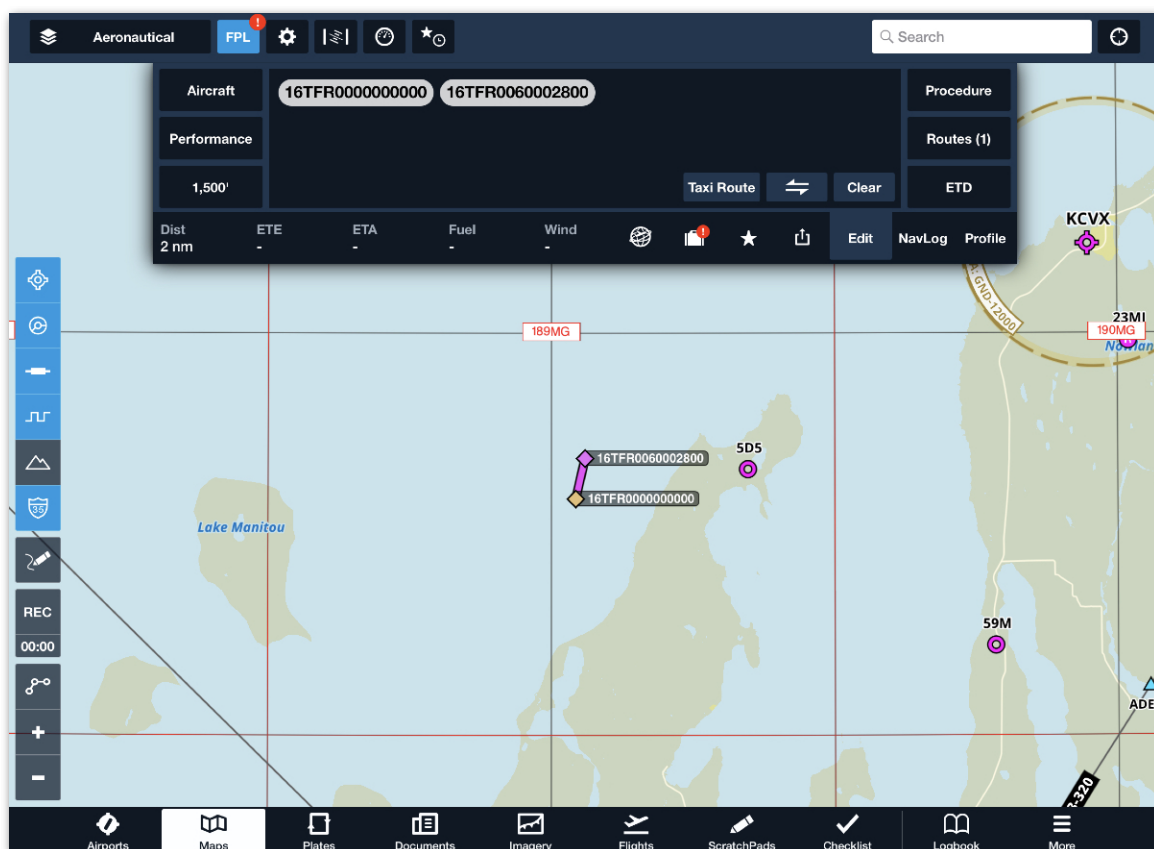
Example: MGRS@16TFR0032602811. 16 is the UTM zone, T is the latitude band, and FR is the 100,000m grid square. 00326 represents the Easting value, and 02811 represents the Northing value within the 100,000m grid square.



**MGRS grid (10 digit) designation entered as a waypoint
(before selecting Return)**

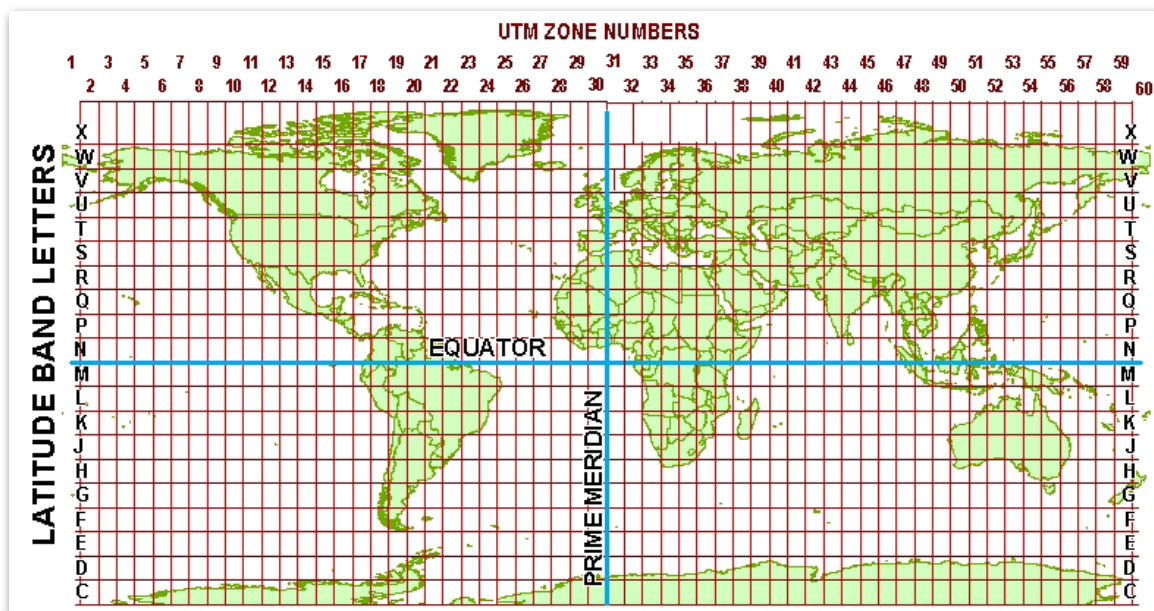
NOTE: MGRS coordinates *with* easting & northing coordinates can also be entered without the leading MGRS@. For example: 15RTM40007000.

5. GRID IDENTIFIERS AS WAYPOINTS



MGRS@16TFR and MGRS@16TFR0032602811 added as waypoints. The coordinate format setting is set to MGRS, 10-digit (NNLSSeeeeennnnn).

The following illustration of the MGRS grid zones has been provided to assist with visualizing the MGRS grid zones.



MGRS grid zones

LATITUDE & LONGITUDE FORMATTING

ForeFlight Mobile allows the use of multiple lat/long coordinate formats. Coordinates can be entered in the Maps view search box, in the flight plan editor, or when creating custom waypoints.

6.1 Supported Lat/Long Coordinate Formats

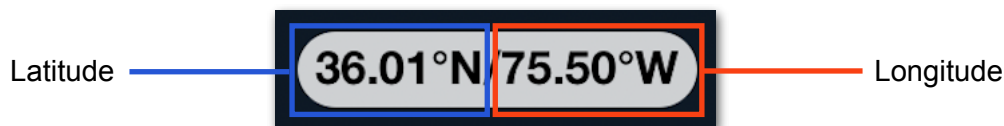
The following three formats are supported for *entering* lat/long coordinates within ForeFlight:

- Decimal Degrees (DD.dd)
- Degrees, Minutes, Seconds (DD°MM'SS)
- Degree Minutes (DD°MM.mm)

6.2 Formatting of Lat/Long Coordinates

When entering lat/long coordinates into ForeFlight Mobile, use the following formatting information:

- **DD** represents latitude and is always limited to two numbers (00-90).
- **DDD** represents longitude and is three numbers (000-180) long. If the longitude value is only two numbers, a leading zero must be used for all formats except for DD.dd, which can use a leading zero or have it omitted.
- **dd** represents decimal degrees (decimal fraction of a degree). This value will be between 00-99 when using two-digit resolution.
- **MM** represents minutes. MM values must be between 00 and 59 since minutes are sexagesimal (base 60).
- **mm** represents decimal minutes (00-99).
- **SS** represents seconds. SS values must be between 00 and 59 since seconds are sexagesimal (base 60).



To change the format displayed within the ForeFlight app, see [Setting Lat/Long Coordinate Format](#) of this guide.

6. LATITUDE & LONGITUDE FORMATTING

6.3 Hemisphere Denoting of Latitude Coordinates

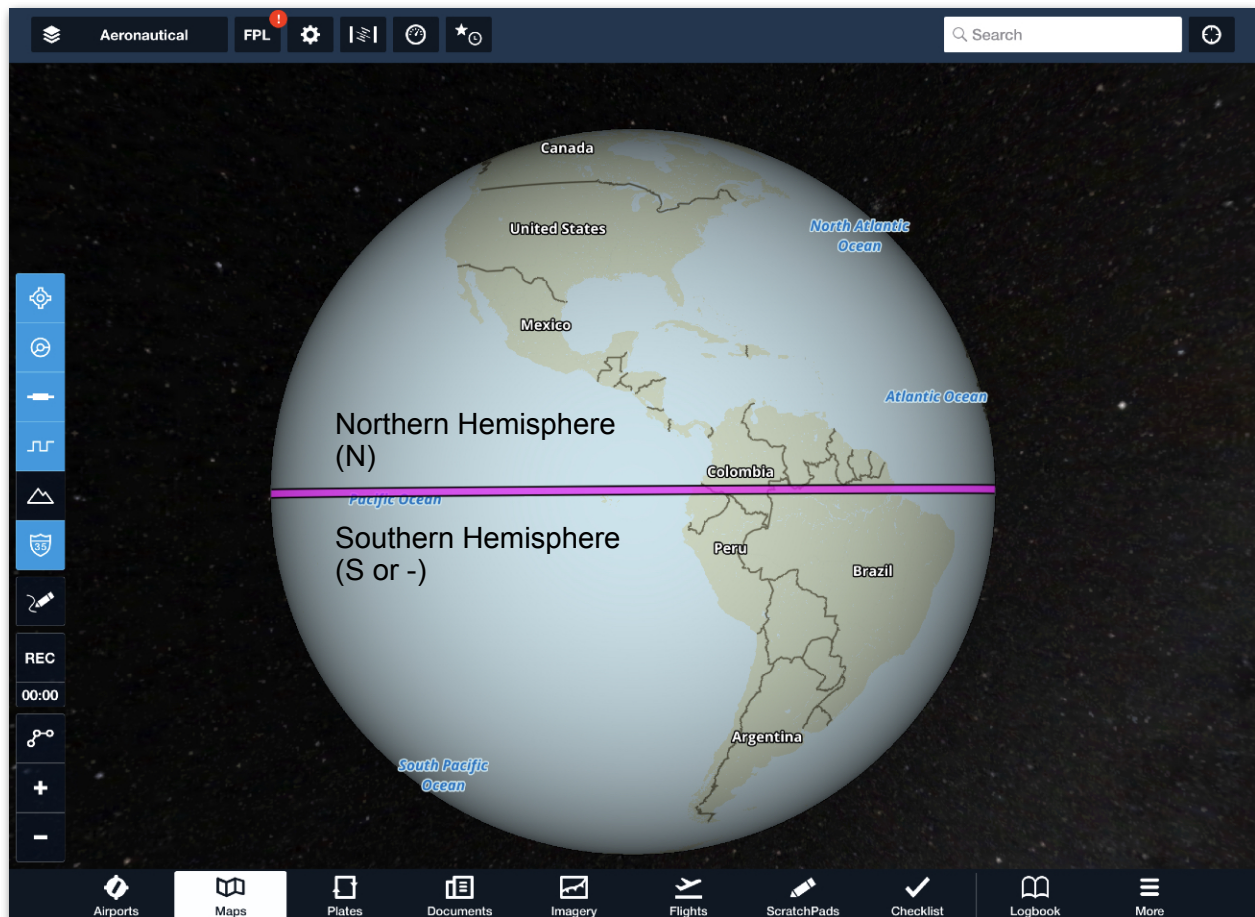
A latitude value between 0° and 90° is in the Northern hemisphere. A latitude value between 0° and -90° is in the Southern hemisphere.

When using letters to denote the latitude hemisphere, add N to the end of a Northern hemisphere value (0° to 90°). Add S to the end of a Southern hemisphere value (0° to -90°).

Example: $34^{\circ}12'42''\text{N}$ would be 341242N in the DD°MM'SS" format.

If letters are not used, add nothing to the beginning of a latitude value in the Northern hemisphere (0° to 90°). Add a minus (-) sign before a latitudes value in the Southern hemisphere (0° to -90°).

Example: $34^{\circ}12'42''\text{N}$ would be 341242 in the DD°MM'SS" format.



Northern and Southern hemispheres relative to the equator

6. LATITUDE & LONGITUDE FORMATTING

6.4 Meridian Denoting of Longitude Coordinates

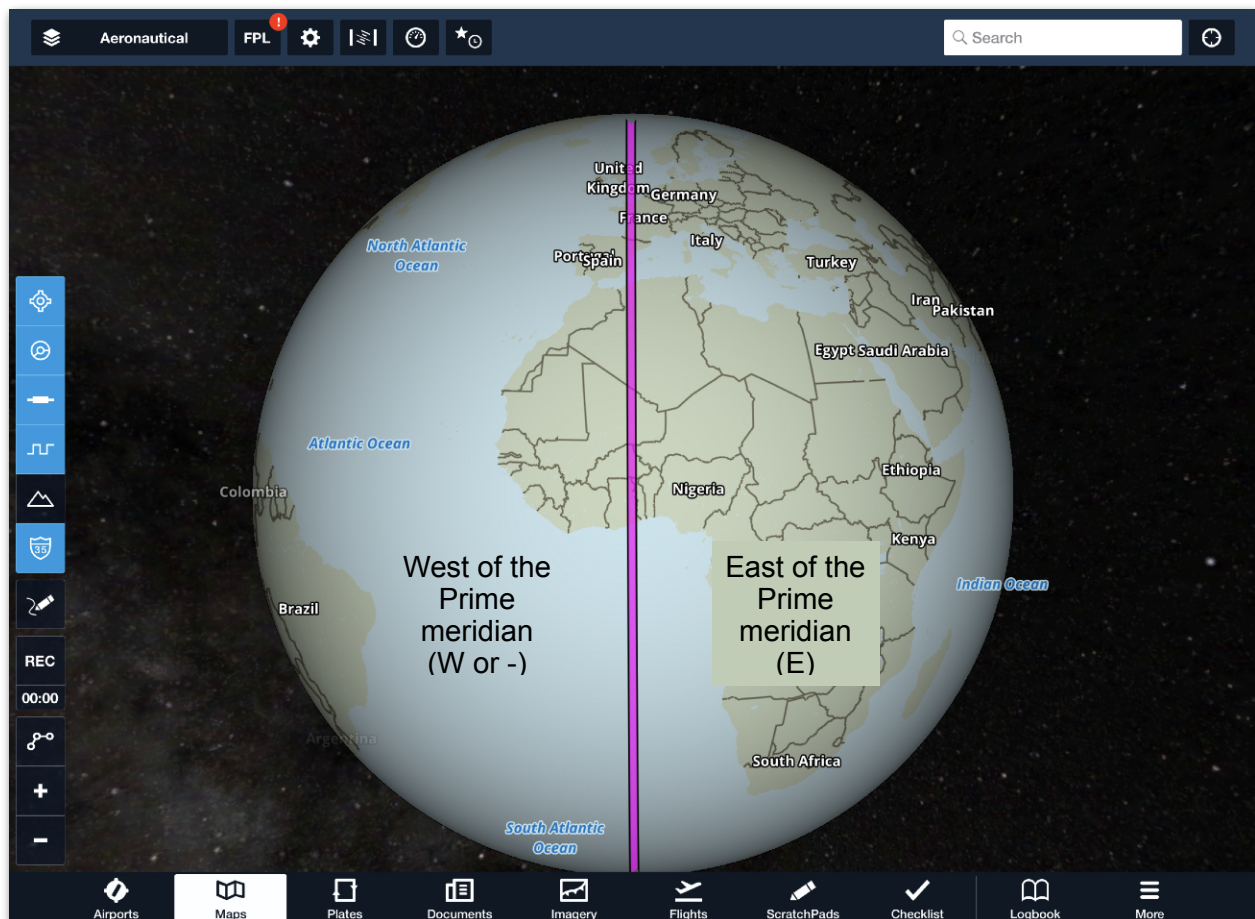
A longitude value between 0° and 180° is East of the Prime meridian. A longitude value between 0° and -180° is West of the Prime meridian.

When using letters to denote the longitude meridian, add E (East) to the end of the longitude value that is East of the Prime meridian (0° to 180°). Add W (West) to the end of a longitude value West of the Prime meridian (0° to -180°).

Example: $118^{\circ}29'44''\text{W}$ would be 1182944W in the DD°MM'SS" format.

If letters are not used, add nothing to the beginning of a longitude value East of the Prime meridian (0° to 180°). Add a minus (-) sign before a longitude value West of the Prime meridian (0° to -180°).

Example: $118^{\circ}29'44''\text{W}$ would be -1182944 in the DD°MM'SS" format.



West and East of the Prime meridian

6. LATITUDE & LONGITUDE FORMATTING

6.5 Lat/Long Entry Example

Here is an example that shows how the supported formats can be used to enter the following DD°MM'SS" lat/long value into ForeFlight:

36°00'51"N / 75°30'04"W

Format	Equivalent Lat/Long Value	How It Is Entered in ForeFlight
DD.dd (with letters)	36.01°N/75.50°W	36.01N/75.50W
DD.dd (with a minus)	36.01°N/75.50°W	36.01/-75.50
DD°MM'SS" (with letters)	36°00'51"N/75°30'04"W	360051N/0753004W
DD°MM'SS" (with a minus)	36°00'51"N/75°30'04"W	360051/-0753004
DD°MM.mm (with letters)	36°00.86'N/75°30.07'	3600.86N/07530.07W
DD°MM.mm (with a minus)	36°00.86'N/75°30.07'	3600.86/-07530.07

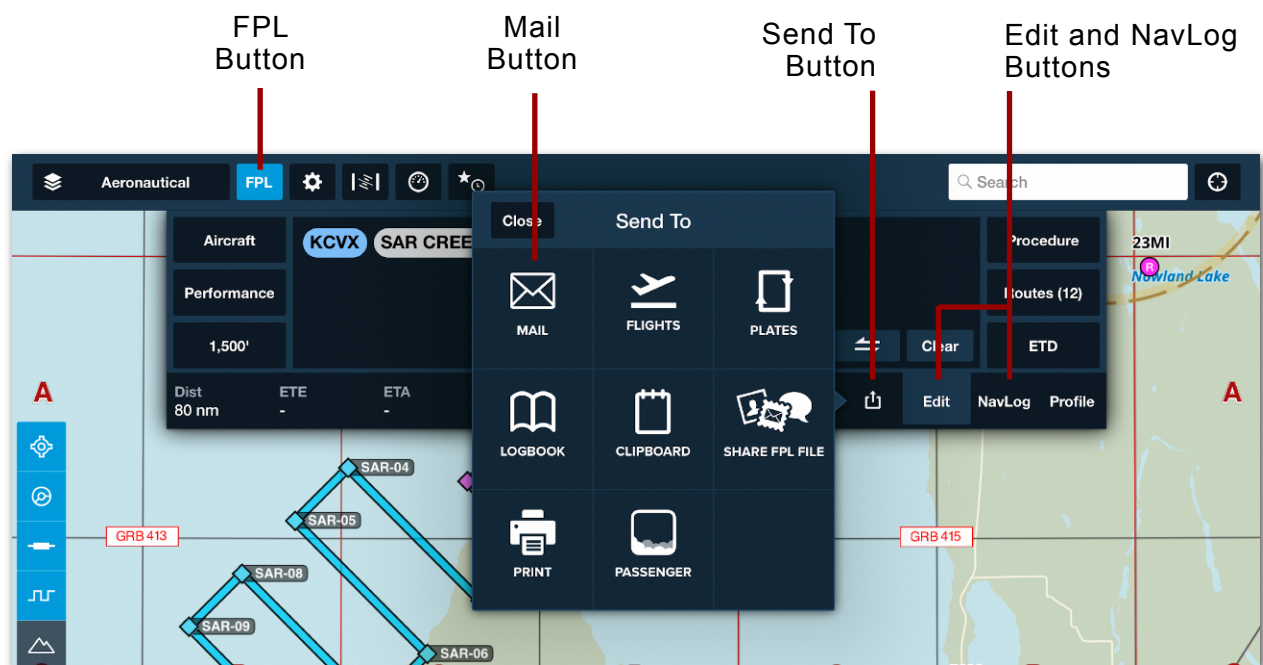
SHARING A FLIGHT PLAN

Flight operations and individuals need the ability to share flight plans with SAR patterns with others using ForeFlight Mobile. This section describes the sharing options available in the app.

7.1 Emailing a Flight Plan

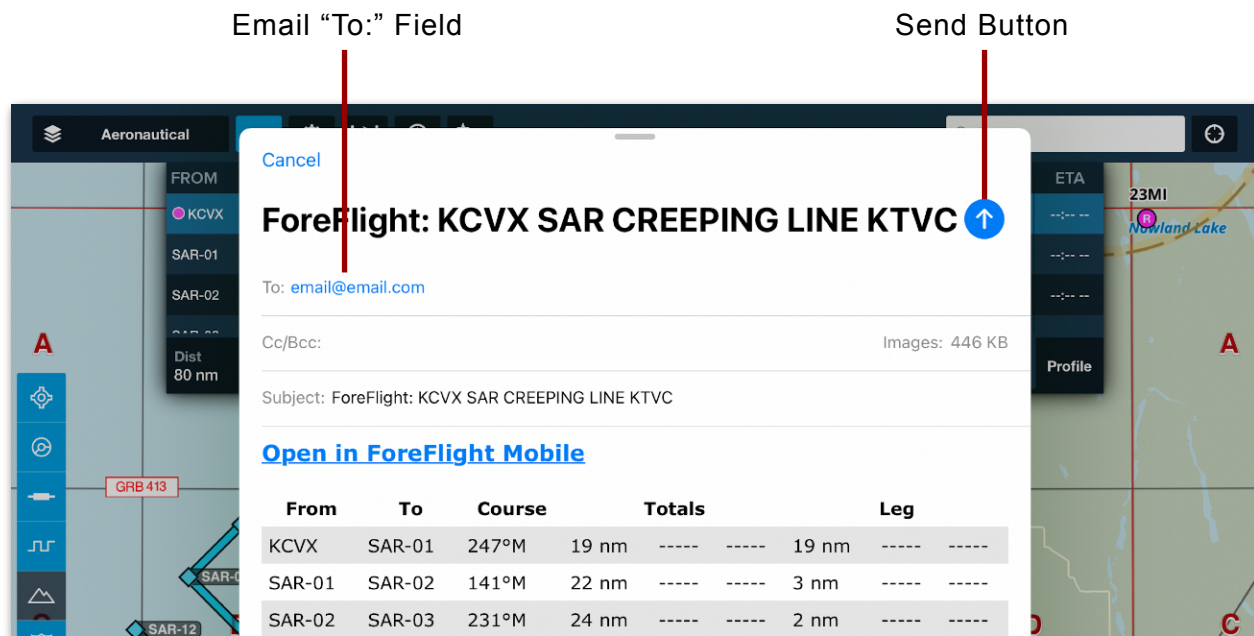
To email a flight plan already created to another person for use in ForeFlight Mobile, follow these steps:

1. Go to the **Maps** page.
2. Select the **FPL** button to view the flight plan viewer.
3. Select **Edit** or **NavLog** in the lower right corner of the flight plan viewer.
4. Select the **Send To** button.
5. Select **Mail**. An email pop-over will appear.



6. In the email pop-over, enter the recipient's email address in the "To:" field.
7. Select the **Send** button.

7. SHARING A FLIGHT PLAN



The email the recipient receives of the route that includes a SAR pattern will display waypoints in a table as "SAR-01, SAR-02", Etc. To view the route, the recipient must have ForeFlight installed on a device and have a ForeFlight subscription. The recipient will then:

1. Open the Mail app on their iPad or iPhone.
2. Open the email that contains the shared flight plan.
3. Tap **Open in ForeFlight Mobile**.

Link to import flight plan into recipients ForeFlight Mobile

ForeFlight: KCVX SAR CREEPING LINE KTVC

[Open in ForeFlight Mobile](#)

From	To	Course	Totals	Leg
KCVX	SAR-01	247°M	19 nm	19 nm
SAR-01	SAR-02	141°M	22 nm	3 nm
SAR-02	SAR-03	231°M	24 nm	2 nm
SAR-03	SAR-04	321°M	29 nm	5 nm
SAR-04	SAR-05	231°M	31 nm	2 nm

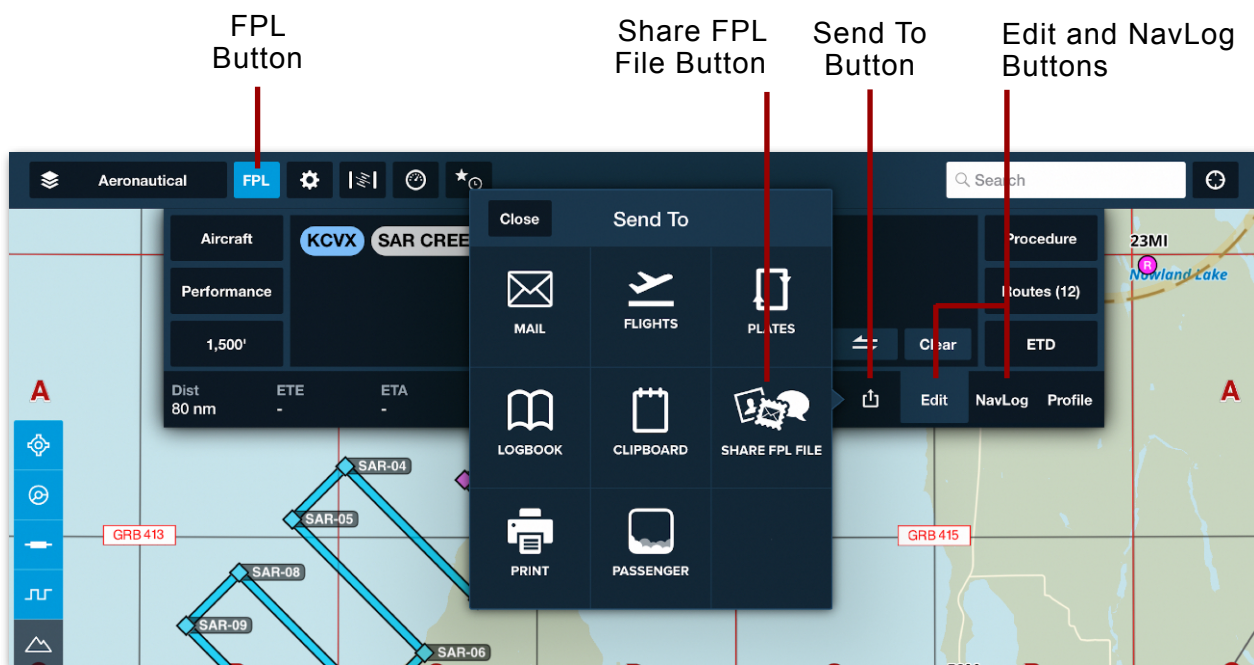
7. SHARING A FLIGHT PLAN

7.2 Sharing an FPL File

An FPL file contains flight plan information for use with ForeFlight. Users that have an FPL file can open the flight plan included in the file directly into ForeFlight Mobile.

To share an FPL file follow these steps:

1. Go to the **Maps** page.
2. Select the **FPL** button to view the flight plan viewer.
3. Select **Edit** or **NavLog** in the lower right corner of the flight plan viewer.
4. Select the **Send To** button.
5. Select **Share FPL File**. A pop-over will appear.
6. In the pop-over, there are options to send the file via AirDrop, Messages, Mail, Etc. Select the option desired.



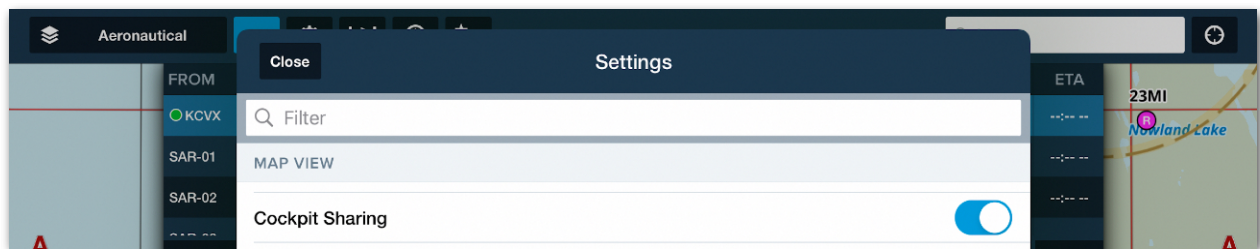
To view the route from the FPL file, the recipient must have ForeFlight installed on a device and have a ForeFlight subscription. The recipient will then choose to open the FPL file in ForeFlight.

7. SHARING A FLIGHT PLAN

7.3 Cockpit Sharing a Flight Plan

Cockpit Sharing allows a route to be shared with another device running ForeFlight Mobile when both devices are connected to the *same* Wi-Fi network. The Wi-Fi network can be either an Internet-connected Wi-Fi network or hotspot on the ground or a Wi-Fi-equipped ADS-B receiver like the Sentry family of portable ADS-B receivers.

Users that intend to use Cockpit Sharing must first activate Cockpit Sharing on each device. This is accomplished by going to **More > Settings** and under the Map View section, turn Cockpit Sharing on (slide the switch to the right).

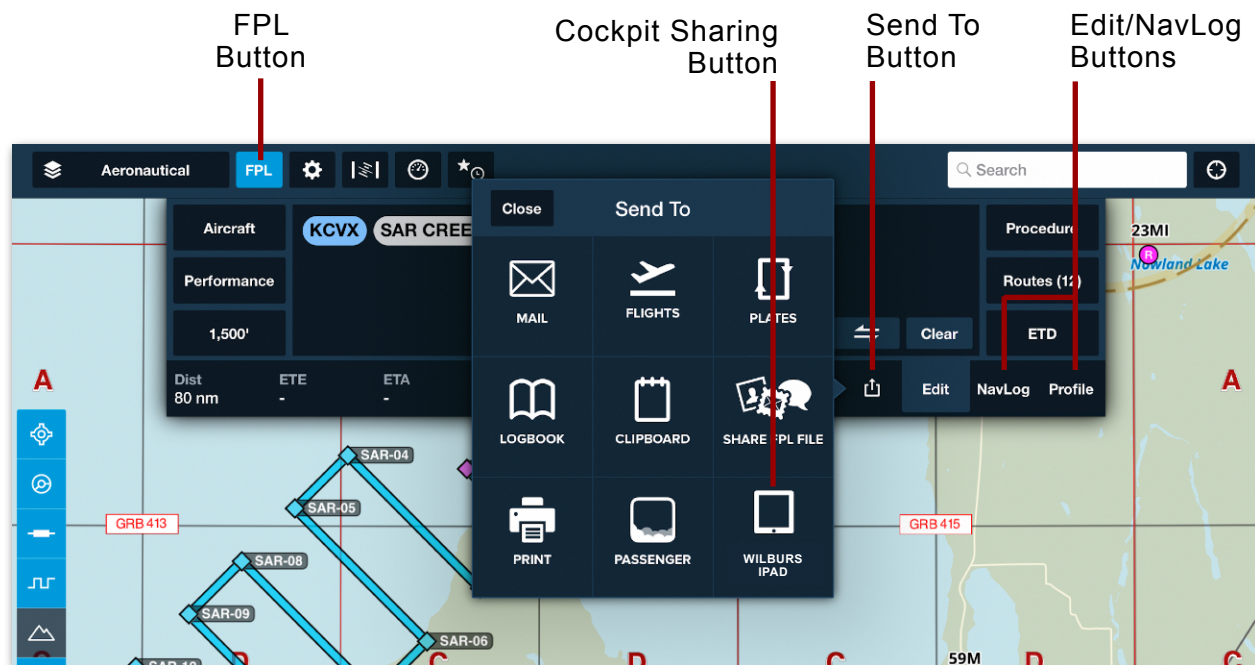


Cockpit Sharing turned on under More> Settings

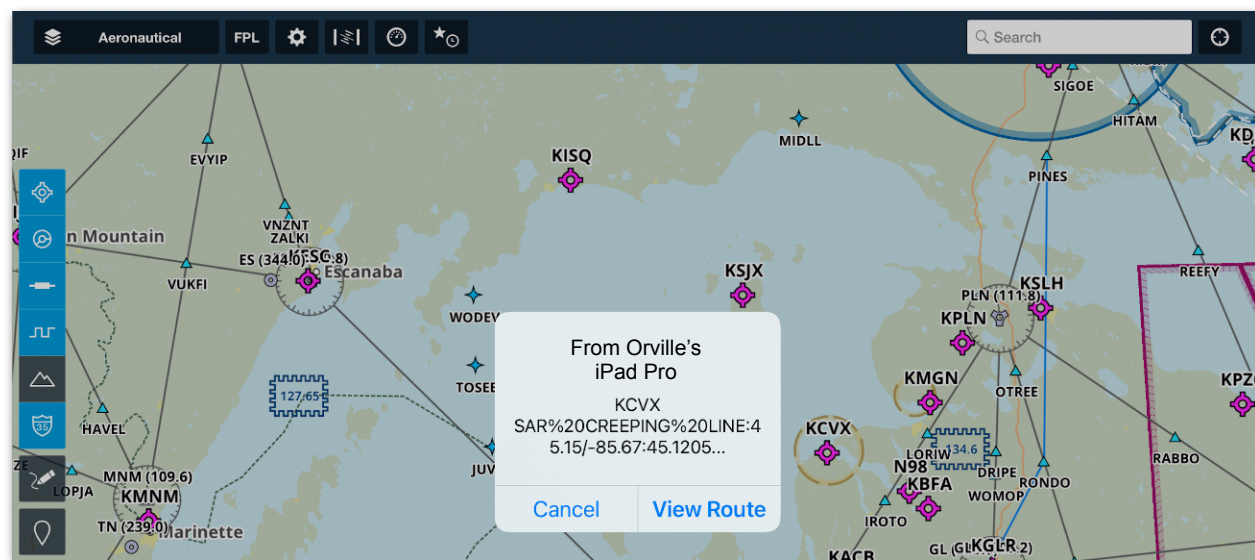
To send a flight plan to another iPad or iPhone that is running ForeFlight Mobile on the same Wi-Fi network:

1. Go to the **Maps** page.
2. Select the **FPL** button to view the flight plan viewer.
3. Select **Edit** or **NavLog** in the lower right corner of the flight plan viewer.
4. Select the **Send To** button.
5. Select the listed device.
6. In the pop-up, there are options to send the file via AirDrop, Messages, Mail, Etc. Select the option desired.

7. SHARING A FLIGHT PLAN



The recipient will see a pop-up on the receiving iPad or iPhone. To add the flight plan to ForeFlight on the recipient's device, tap **View Route** to load the route, or tap **Cancel** to ignore the route sharing request.



Cockpit Sharing pop-up on the recipients iPad.

CHANGE HISTORY

Version	Date	Change Summary
14.0	January 2022	<ul style="list-style-type: none">• Updated style, content, and images
9.4	October 2017	<ul style="list-style-type: none">• Updated for style and consistency
7.1	June 2015	<ul style="list-style-type: none">• Updated screenshots for new Procedure Advisor design
6.0	April 2014	<ul style="list-style-type: none">• Updated screenshots to match new user interface
5.4.2	October 2013	<ul style="list-style-type: none">• Added multiple SAR patterns section• Updated UI of Expand SAR Pattern button
5.4.1	September 2013	<ul style="list-style-type: none">• Added Expand SAR Pattern button• Updated SAR Route Workflow section
5.4	September 2013	<ul style="list-style-type: none">• Initial guide publication

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ForeFlight

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