

ForeFlight Mobile

Pilot's Guide

ForeFlight
A Boeing Company

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DEFINITIONS

Abbreviation	Definition
AC	Advisory Circular
AI	Artificial Intelligence
AI	Attitude Indicator
ACARS	Aircraft Communications Addressing and Reporting System
ADIZ	Air Defense Identification Zone
ADS-B	Automatic Dependent Surveillance - Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
AFM	Aircraft Flight Manual
AFTN	Aeronautical Fixed Telecommunication Network
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
ALT	Altitude
ALTRV	Altitude Reservation
APV	Approach with Vertical Guidance
AR	Authorization Required
ASDA	Accelerate Stop Distance Available
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATFMX	Air Traffic Flow Management Exempt
ATIS	Automatic Terminal Information Service
ATN	Aeronautical Telecommunications Network
BEW	Basic Empty Weight
BRNAV	Basic Area Navigation
CASA	Civil Aviation Safety Authority (Australia)
CFR	Code of Federal Regulations
COM	Communication

DEFINITIONS

Abbreviation	Definition
CPDLC	Controller Pilot Data Link Communication
CTOT	Calculated Takeoff Times
D-FIS	Data Link Flight Information Service
DA	Decision Altitude
DAT	Data
DEST	Destination
DLE	Delay
DME	Distance Measuring Equipment
DOF	Date of Flight
DVFR	Defense Visual Flight Rules
EET	Estimated Elapsed Time
EFC	Expect Further Clearance
ELT	Emergency Locator Transmitter
EOBT	Estimated Off-Block Time
ES	Extended Squitter
ETD	Estimated Time of Departure
ETP	Equal Time Point
FAA	Federal Aviation Administration
FANS	Future Air Navigation Systems
FFR	FireFighting
FIC	Flight Information Centre (Canada)
FIR	Flight Information Region
FL	Flight Level
FLTCK	Flight Check
FMC	Flight Management Computer
FMS	Flight Management System
FPL	Flight Plan

DEFINITIONS

Abbreviation	Definition
FS	Flight Suspension
FT	Feet
FPM	Feet Per Minute
GBAS	Ground Based Augmentation System
GLONASS	Global Navigation Satellite System
GLS	Glide Slope
GNE	Gross Navigational Error
GNSS	Global Navigation Satellite System
GPH	Gallons Per Hour
GPS	Global Positioning System
GPU	Ground Power Unit
GSL	Geometric altitude relative to Sea Level
HAZMAT	Hazardous Material
HEAD	Head of State
HLA	High Level Airspace
HFDL	High Frequency Data Link
HOSP	Hospital
HSI	Horizontal Situation Indicator
HUM	Humanitarian
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INMARSAT	International Marine/Maritime Satellite
INS	Inertial Navigation System
IRU	Inertial Reference Unit
kHZ	Kilohertz
KM	Kilometers

DEFINITIONS

Abbreviation	Definition
LDA	Landing Distance Available
LDTA	Landing Distance at Time of Arrival
LNAV	Lateral Navigation
LORAN	Long-Range Aid to Navigation
LPH	Liters Per Hour
LPV	Localizer Precision with Vertical Guidance
LRNS	Long Range Navigation System
LSALT	Lowest Safe Altitude
MARSA	Military Separation
MEA	Minimum En route Altitude
MEDEVAC	Medical Evacuation
MFB	Military Flight Bag
MHz	Megahertz
MLS	Microwave Landing System
MNPS	Minimum Navigation Performance Specifications
MOCA	Minimum Obstruction Clearance Altitude
MORA	Minimum Off-Route Altitude
MTSAT	Multi-functional Satellite Augmentation System
NAV	Navigation
NM	Nautical Miles
NOTAM	Notice to Air Missions
OEI	One Engine Inoperative
OPR	Operator
ORGN	Originator
OTS	Organized Track System
PBN	Performance Based Navigation
PDC	Pre-Departure Clearance

DEFINITIONS

Abbreviation	Definition
PDF	Portable Document Format
PER	Performance Category
PJA	Parachute Jump Area
PPH	Pounds Per Hour
RALT	En route Alternate Aerodrome
RCP	Required Communication Performance
REG	Registration
RF	Radius to Fix
RIF	Route to Revised Destination
RMK	Remarks
RNAV	Area Navigation
RNP	Required Navigation Performance
RPT	Regular Public Transport
RTF	Radiotelephone
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minimum
RWYCC	Runway Condition Code
SAR	Search and Rescue
SATCOM	Satellite Communication
SBAS	Satellite-Based Augmentation System
SEL	Selective Calling (SELCAL)
SELCAL	Selective Calling
SFRA	Special Flight Rules Area
SID	Standard Instrument Departure
STAR	Standard Terminal Arrival
STAYINF	Stay Information
STS	Special Handling Reason

DEFINITIONS

Abbreviation	Definition
SUR	Surveillance
SV	Synthetic Vision
TACAN	Tactical Air Navigation
TALT	Take-off Alternate
TEC	Terminal En route Control
TDZE	Touch Down Zone Elevation
TOC	Top of Climb
TOD	Top of Descent
TODA	Takeoff Distance Available
TORA	Takeoff Run Available
TSO	Technical Standard Orders
TYP	Type
UAT	Universal Access Transceiver
UHF	Ultra High Frequency
VDL	Very-High Datalink Frequency
VHF	Very-High Frequency
VNAV	Vertical Navigation
VOR	Very High Frequency Omnidirectional Radio Range
WAAS	Wide Area Augmentation System
WPR	Waypoint Position Reporting
YFR	Initially an IFR flight that changes to use other flight rules
ZFR	Initially a VFR flight that changes to use other flight rules



GETTING STARTED

ForeFlight Mobile is the essential aviation mobile application that combines preflight, in-flight, and post-flight tools into a single, intuitive mobile application. This guide will help to learn about and take advantage of all the capabilities available in ForeFlight Mobile.

ForeFlight should be installed on a device with the latest iPad or iOS operating system. For assistance with choosing an iPad, visit the **ForeFlight iPad Buying Guide**.

To get started, download ForeFlight Mobile from the Apple App Store. For more information, visit the **ForeFlight Getting Started Guide**.

About this Guide

This guide provides a detailed overview of ForeFlight Mobile. The first portion of the guide is divided into sections based on when a feature is likely to be used (e.g., Getting Started and Preflight). The remaining portions of the guide provide feature descriptions and is organized according to how the views appear in the toolbar (e.g., Airports, Maps, and Plates).

Additional guides for Filing Flight Plans, using Logbook, Checklist, Weight & Balance, and Search & Rescue are available in the ForeFlight Mobile **Documents** > **ForeFlight** drive.

NOTE: This guide presumes a basic level of iPad/iPhone proficiency. It is recommended that users new to iOS devices visit the **Apple iPad Support website** or view the **iPad Users Guide**.

PLAN COMPARISON

ForeFlight offers three plans for individual pilots and two plans for businesses. Each plan includes charts for one region with additional regions available for purchase. Runway Analysis is available as per tail (business) and per type (individual) add-on license. Visit **foreflight.com/buy** to purchase a license. Refer to the table below to determine which features are included with a subscription plan.

	Individual			Business	
Features	Starter	Essential	Premium	Pro	Performance
Aeronautical Map	✓	✓	✓	✓	✓
High-Resolution Base Map	✓	✓	✓	✓	✓
Flight Planning	✓	✓	✓	✓	✓
Flight Plan Filing	✓	✓	✓	✓	✓
Weather	✓	✓	✓	✓	✓
En Route Charts	✓	✓	✓	✓	✓
Airport Data	✓	✓	✓	✓	✓
FBO Information	✓	✓	✓	✓	✓
Global Navigation Data	✓	✓	✓	✓	✓
ForeFlight Airport Diagrams	✓	✓	✓	✓	✓
Jeppesen VFR Procedures	✓	✓	✓	✓	✓
Optional Data Packages	✓	✓	✓	✓	✓
Weight & Balance	✓	✓	✓	✓	✓
Logbook	✓	✓	✓	✓	✓
Checklist	✓	✓	✓	✓	✓
Avionics Connectivity	✓	✓	✓	✓	✓
Printable NavLog	✓	✓	✓	✓	✓
Documents Catalog	✓	✓	✓	✓	✓
Flight Notifications	✓	✓	✓	✓	✓
Content Packs	✓	✓	✓		✓
Track Logs	✓	✓	✓	✓	✓
Breadcrumbs	✓	✓	✓	✓	✓

PLAN COMPARISON

	Individual			Business	
Features	Starter	Essential	Premium	Pro	Performance
Internet Traffic	✓	✓	✓	✓	✓
Plates on Maps		✓	✓	✓	✓
Synthetic Vision		✓	✓	✓	✓
Hazard Advisor		✓	✓	✓	✓
Hazard Alerts		✓	✓	✓	✓
Profile View		✓	✓	✓	✓
Cloud Documents		✓	✓	✓	✓
Traffic Breadcrumbs		✓	✓	✓	✓
Icing, Turbulence Map Layers		✓	✓		✓
Surface Analysis Map Layer		✓	✓	✓	✓
Performance Profiles			✓		✓
3D View			✓		✓
Optimized Routing			✓		✓
Takeoff & Landing Performance			✓		✓
Runway Analysis (Add-on license required)			✓		✓
Pre-Departure Clearance (PDC)			✓		✓
Digital ATIS (D-ATIS)			✓		✓
Fuel Load Planner			✓		✓
Limit Checks			✓		✓
Integrated JetFuel X Prices			✓		✓
FBO Fuel Orders			✓		✓
Trip Assistant			✓		✓
Files in Flights			✓		✓
Marked Positions			✓		✓
ForeFlight on the Web	✓	✓	✓	✓	✓

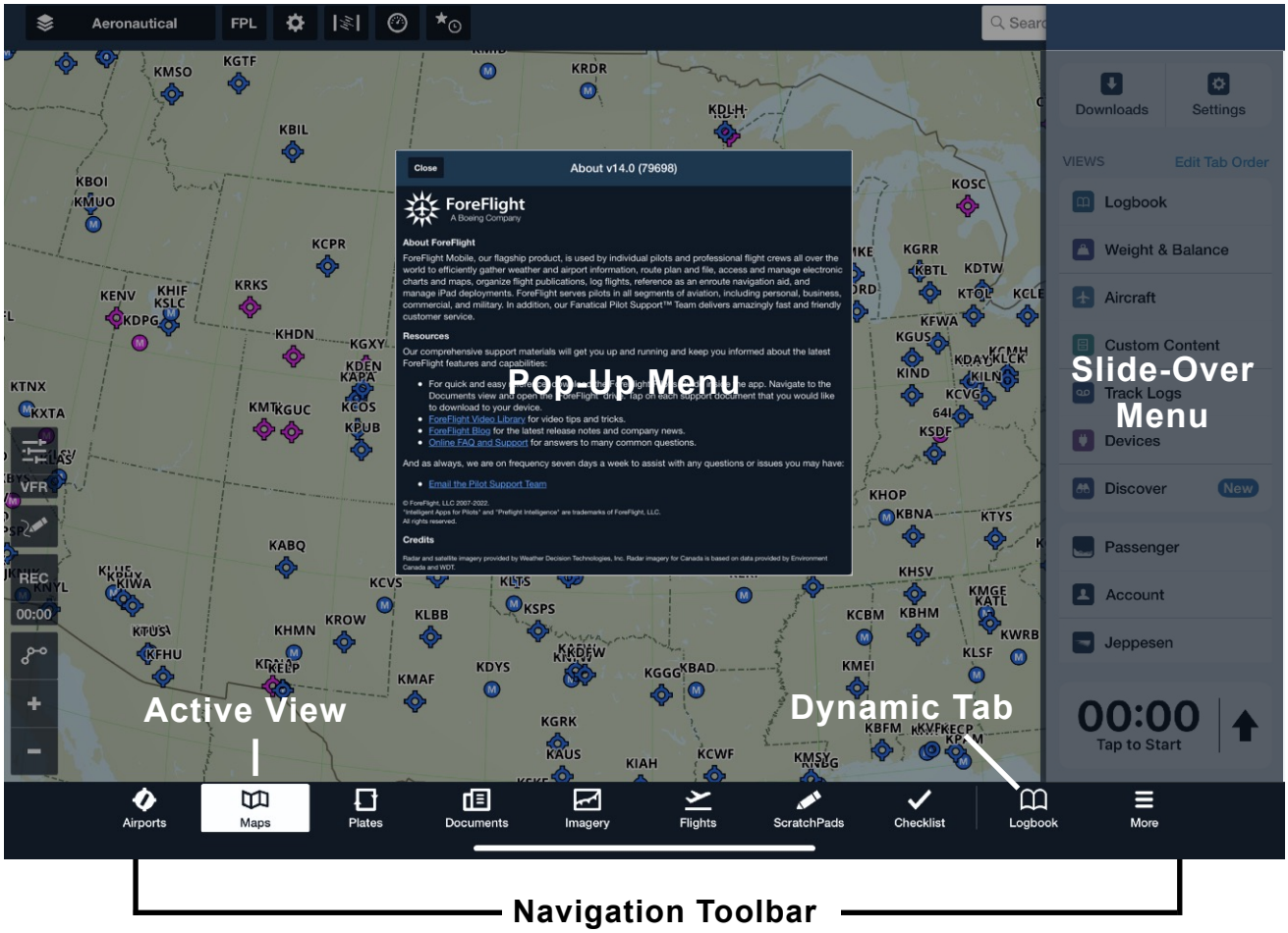
DESIGN

The Design chapter discusses how ForeFlight Mobile is organized and how to navigate the various views. The chapter also discusses how to customize the appearance of ForeFlight with the App Theme setting.

1.1 Navigation

ForeFlight Mobile is comprised of various views (also commonly referred to as pages). Each view represents a distinct aspect of ForeFlight functionality such as Airports, Maps, and Plates. Views either display full-screen or in a pop-up modal over the active view.

Access a view by tapping a tab in the navigation toolbar or the slide-over menu (via the More tab). This functionality is described later in this section.



1.1.1 Navigation Toolbar

The navigation toolbar is always depicted at the bottom of the screen. The order of tabs in the navigation toolbar can be customized. Toolbar order does *not* synchronize between devices.

1.1.2 More Menu and Navigation Toolbar

The number of tabs in the navigation toolbar dynamically adjusts between five to ten tabs based on available screen size and device orientation. The order of the More menu determines which tabs are included in the toolbar and how they are ordered.

For example, if a device displays six tabs in portrait mode, the top six items in the More menu are displayed in the navigation toolbar. The view at the top of the More menu is displayed on the left side of the navigation toolbar. Tabs are sorted from left to right according to how they appear in the More menu.

If a tab is not visible in the navigation toolbar, it is available in the **More** slide-over menu.

1.1.3 Customizing Tab Order

To edit tab order:

1. Tap **More**
2. Tap **Edit Tab Order**
3. Touch-hold the 3-stacked-line icon next to the tab to be moved
4. Slide the tab up or down to the desired position
5. Tap **Save**.

To restore the original default tab order:

1. Tap **More**
2. Tap **Edit Tab Order**
3. Tap **Restore to Default Order**
4. Tap **Save**.

1.1.4 Dynamic Tab

The tab to the left of the More is dynamic and will change as different items are selected from the More menu. The dynamic tab allows the last selected item, not otherwise displayed in the navigation toolbar, to be displayed for quick access.

1.2 Timer/Stopwatch

The bottom of the More menu includes a count down timer and a count up stopwatch. Tap the arrow to change between count up or count down mode. Only one timer can run at a time. If the timer or stopwatch is active, tapping the arrow will stop the timer and change to the other style.

1.2.1 Stopwatch (Count Up Mode)

Tap the stopwatch to begin counting up from zero. Tap it again to stop the count. Tap it once more to reset the count to zero.

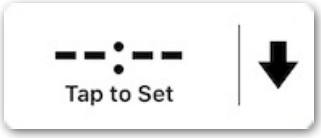


Stopwatch

1.2.2 Timer (Count Down Mode)

Tap the timer to set a duration in hours, minutes, and seconds. Select whether the timer will repeat and set the number of repetitions after the initial countdown. Tap the timer to start the countdown, and tap it again to stop and clear the count.

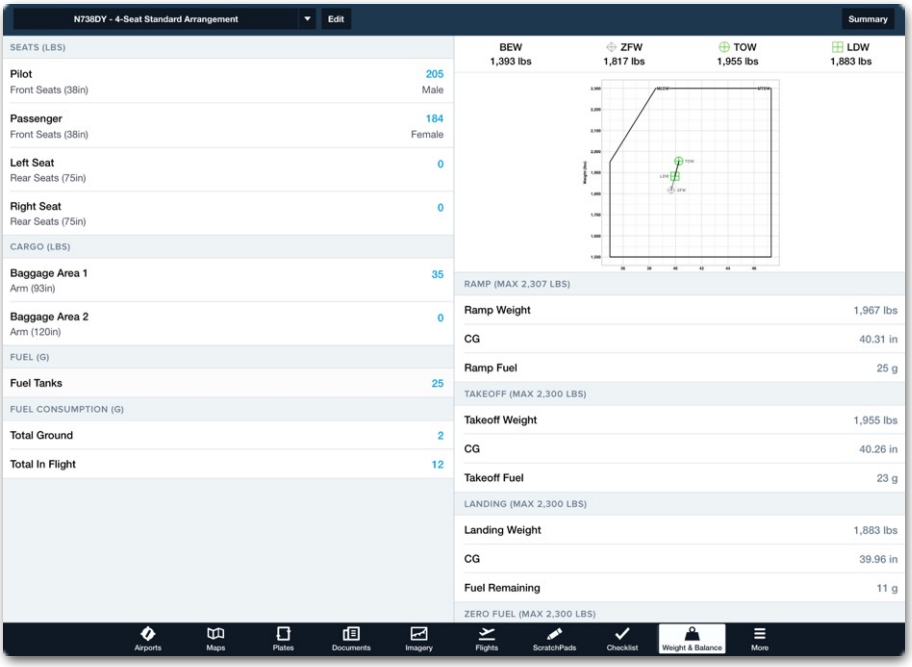
ForeFlight provides in-app audio and visual alerts when the timer counts down to zero. If ForeFlight is in the background or closed when the timer expires, the device will display an iOS notification with the same information. Enable ForeFlight iOS notifications in the iPad or iPhone **Settings** app > **Notifications**.



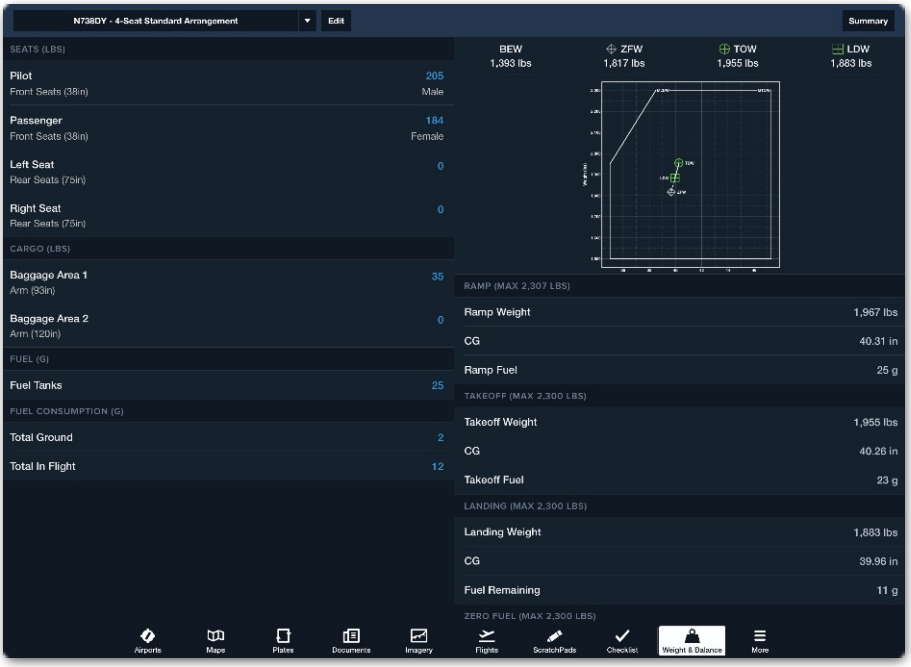
Timer

1.3 App Theme

ForeFlight Mobile can be displayed in a light or dark theme. The color theme is adjusted under **More** > **Settings** > **App Theme**. See Settings for additional information See **Settings** for additional information.



Light Theme



Dark Theme

1.4 Keyboard

A keyboard will display when a text field is opened, e.g., via the search bar, flight plan edit window, Text ScratchPad, etc. There are two categories of keyboard: System and Aviation. Each category has a QWERTY and numeric style, a total of four distinct keyboards.

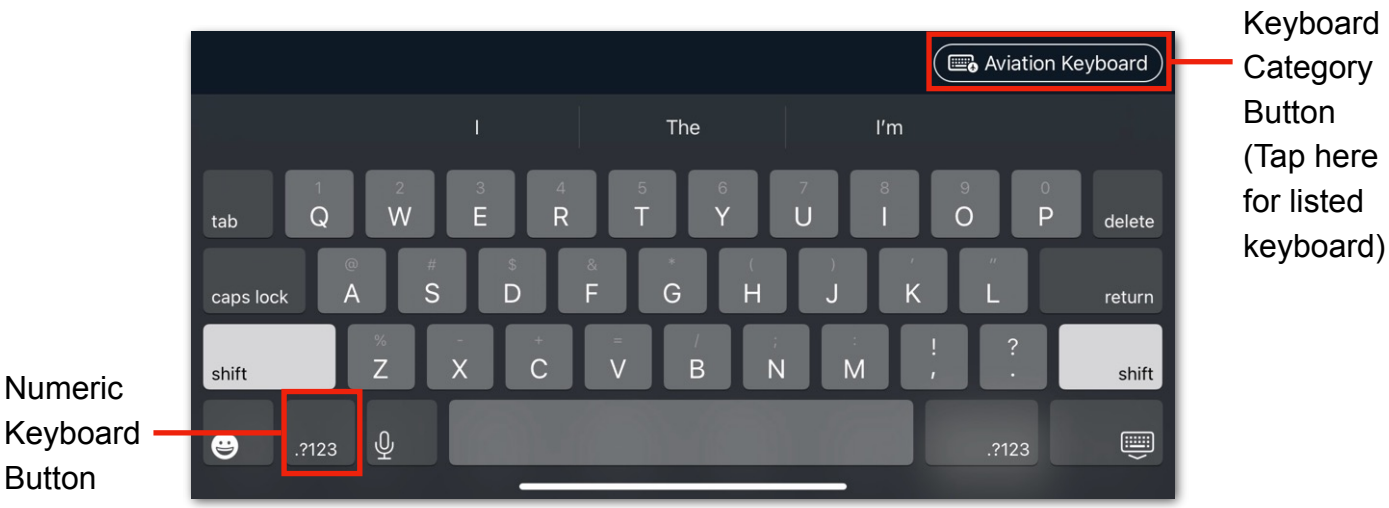
The Aviation keyboard category can be enabled or disabled by selecting **More** > **Settings** > **Show Aviation Keyboard** in the Preferences section.

If the Aviation keyboard is enabled in Settings, the displayed keyboard can be changed to the keyboard shown on the keyboard category button by tapping it.

The last keyboard format displayed before closing will recall when the keyboard is opened again.

1.4.1 System Keyboard

The System QWERTY keyboard is the default setting. To display the numeric/symbol keyboard, tap the **[.?123]** button. To display the QWERTY keyboard, tap the **[ABC]** button.



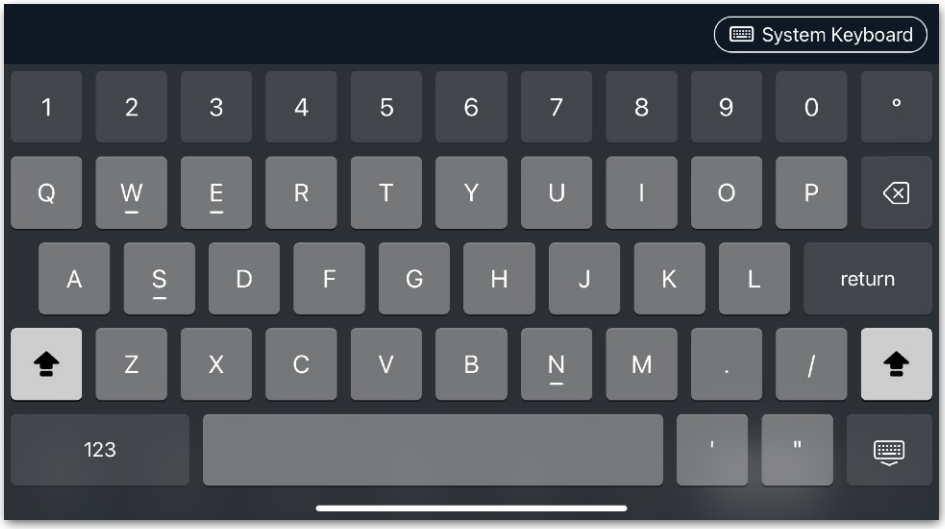
System QWERTY Keyboard

1.4.2 Aviation Keyboard

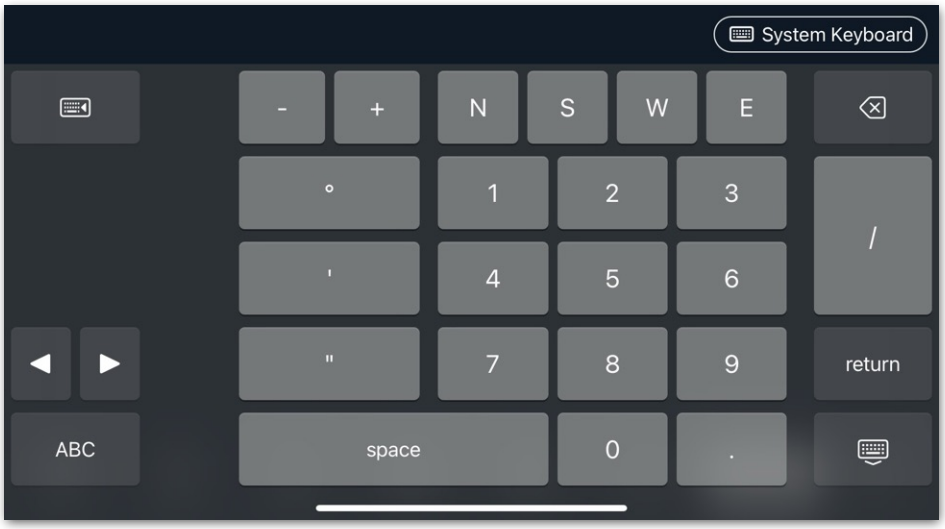
The Aviation keyboard displays an aviation-specific QWERTY layout with numbers and symbology for navigation.

The numeric Aviation keyboard is a condensed version with only numbers and navigation symbology. To display the numeric/symbol keyboard, tap the **[.?123]** button. The numeric keyboard can be left or right justified by tapping the **[Keyboard]** button.

To display the QWERTY keyboard, tap the **[ABC]** button.



Aviation QWERTY Keyboard

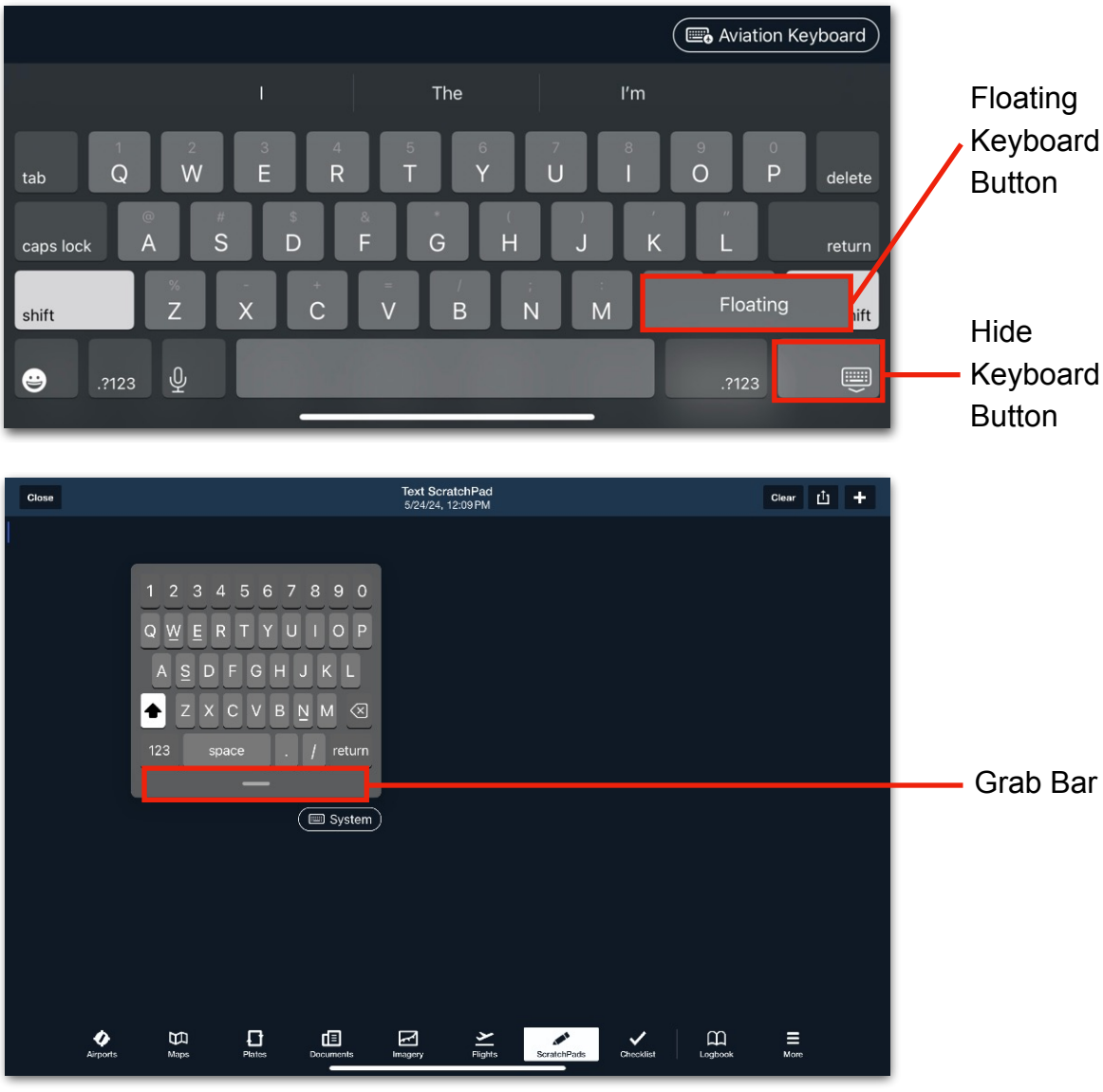


Aviation Numeric Keyboard

1.4.3 Floating Keyboard

Any keyboard can be unanchored from the bottom of the screen to float where desired. This is called a floating keyboard. To float the keyboard, ensure the System keyboard is displayed, tap and hold the **Hide Keyboard** button, a **Floating** button will appear, slide the finger to **Floating** the button and release.

The keyboard will resize and can be moved. Tap and drag the **grab bar** at the bottom of the keyboard, move to desired location and lift the finger. To close the keyboard, tap anywhere outside of a text entry field. When the keyboard is reopened it will appear in the same place that it was closed. To re-anchor, drag the **grab bar** to the bottom of the screen and release.

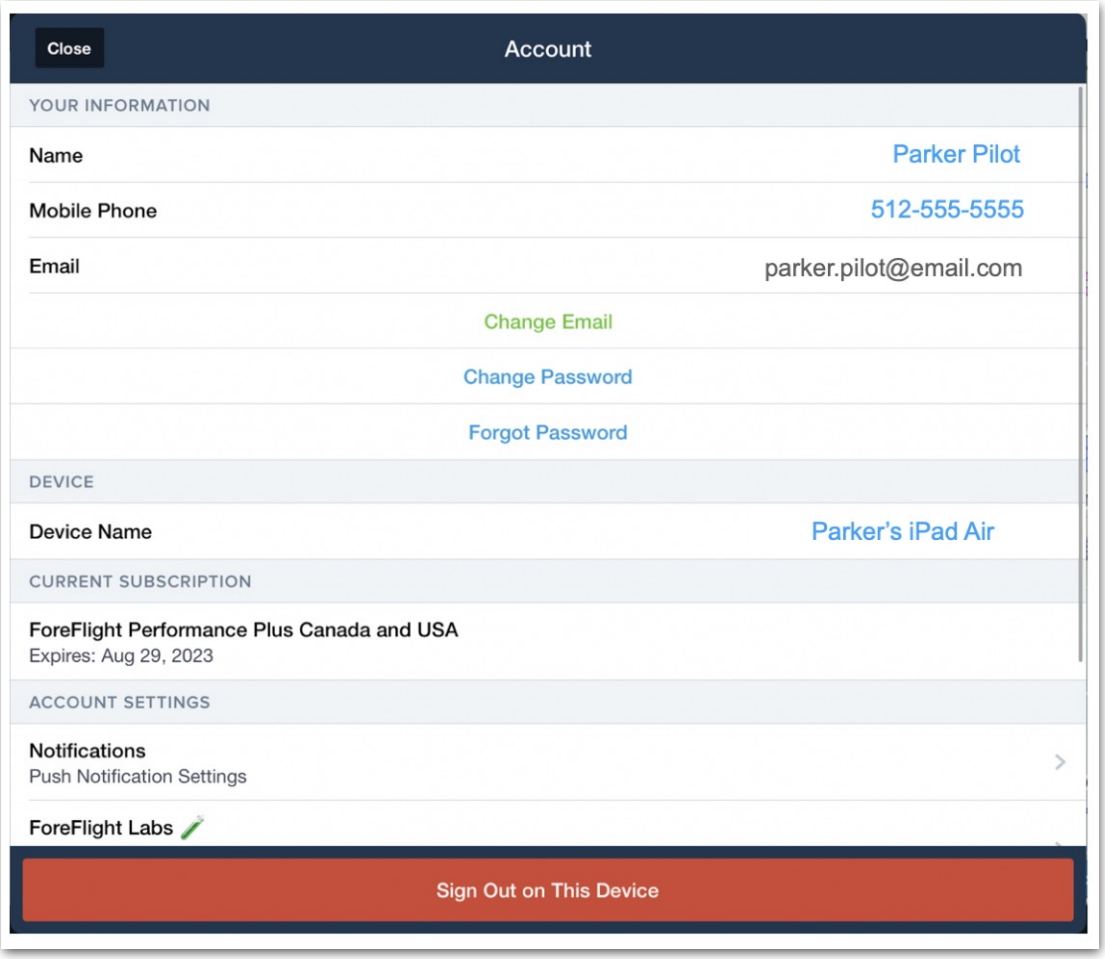


Floating Keyboard

ACCOUNTS

The Accounts view displays subscription details and contact information. Select **More** > **Account** to view or edit the following information.

- Account login
- Subscription
- Pilot name
- Phone number
- Email address
- Account Password
- Device Name
- Notifications
- ForeFlight Labs



ForeFlight Mobile Accounts Menu

2.1 Subscriptions

When downloading ForeFlight Mobile for the first time, a 30-day free trial begins automatically. The free trial includes all Premium features, excluding the items listed below:

- Submitting comments
- Submitting fuel price updates
- Filing flight plans
- Specialized add-ons such as Dispatch or Runway Analysis.

After the free trial, a paid subscription is required. Subscriptions may be purchased at any time, the trial does not have to expire. Unused portions of a trial do not receive credit.

ForeFlight subscriptions can be purchased at **foreflight.com/buy** (recommended) or in the app. To purchase additional items, such as Jeppesen charts, Dispatch, or Runway Analysis, must be used **foreflight.com/buy**.

NOTE: The trial period will include standard data from all regions. When converting the plan from a trial to one of ForeFlights user plans, operational regions must be selected.

2.2 Device Names

Device names are displayed on other devices that are signed into ForeFlight Mobile and on the **ForeFlight Web Account** page. There are two methods for assigning a name to a device. The method depends on the current operating system.

Devices with iOS or iPadOS 16 and later can assign a name within the ForeFlight Mobile app under **More** > **Account** > **Device Name**. To specify the device name:

1. Open ForeFlight and tap **More** > **Account**.
2. Tap the **Device Name** field and enter the name to be associated with the device.
3. Select **Close** in the upper left corner of the Account view.

Devices that have not yet updated to iOS or iPadOS 16 can be named within the iPad or iPhone Settings app by selecting **General** > **About** > **Name**.

2.3 Managing Devices

ForeFlight Mobile requires sign in to manage devices (internet connection required).

To sign in to an account:

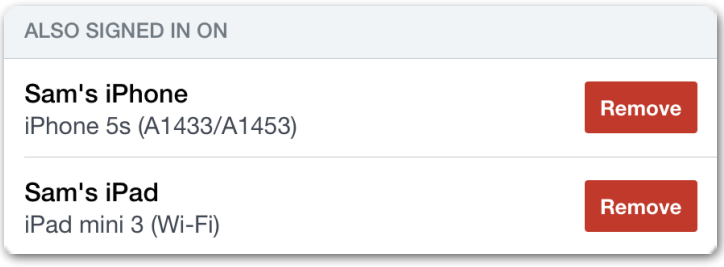
1. Tap **More** > **Account** > **Sign In**
2. Enter the account email address (username)
3. Tap **Next**
4. Enter the password
5. Tap **Sign In**.

If the password has been forgotten , enter the email address associated with the account and tap **Forgot Password**. A password reset email will be sent to the address entered.

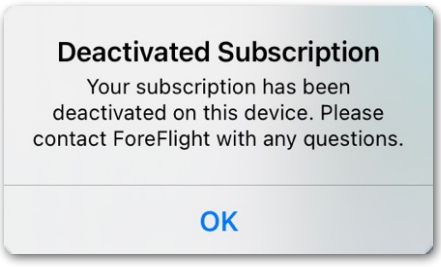
To sign out of an account, tap **More** > **Account** > **Sign Out on This Device** > **Sign Out**.

2.3.1 Removing Devices

Signed-in devices are depicted on the Accounts page. Remove a device from an account by tapping **More** > **Account** > **Remove** > **Remove Device** and entering the ForeFlight credentials. Devices removed from an account receive a Deactivated Subscription pop-up and are signed out of the account. Removed devices lose access to all synced data. Removing a device is recommended for lost or stolen devices.



Remove Device Button



Removed Device Message

Foreflight.com/manage may be used to change an email address, password, and management of devices associated with an account.

2.4 Notifications

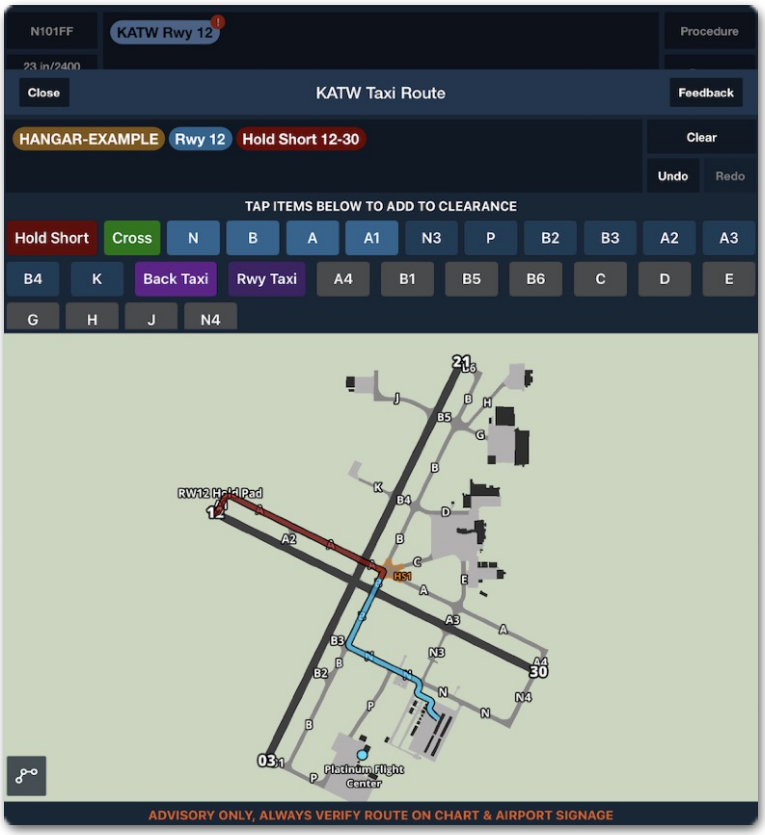
Receive new feature releases, special offers, and event push notifications by selecting **More** > **Account** > **Notifications** and turning on Marketing Push Notifications. This setting affects all devices signed in to an account. A change made on one device is reflected on all other devices.

2.5 ForeFlight Labs

ForeFlight Labs is a collection of beta features that needs feedback. Lab features are disabled by default. Enable features independently in **More** > **Account** > **ForeFlight Labs**. ForeFlight Labs features are limited by subscription plan. Only features available within a subscription level are visible in ForeFlight Labs.

2.5.1 Taxi Routes

Taxi Routes is a Premium, ForeFlight Labs feature that provides an interactive and contextually-aware taxi route editor.



Taxi Routes

To access Taxi Routes, tap the Taxi Route button at the bottom of the Maps FPL window or at the top of the Plates view. Alternatively, tap the bubble for any airport in the route and tap **Edit Taxi Route** to open the Taxi Route Editor for that airport.

The current position is the starting point when at an airport. If a User Waypoint is created at a location on the airport, the user waypoint will show as a location option in brown, such as “HANGAR-EXAMPLE".

ForeFlight automatically creates a taxi route between the two specified points. Edit the route by tapping taxiway names, hold short and crossing locations, back taxi or runway taxi instructions, and other options.

The taxi route is displayed on the moving map and airport diagram in Plates. Tap the route on the map to clear it or to make additional edits. To remove the Taxi Route, tap the route line and choose **Clear**.

Taxi Route is not supported at all airports. The Taxi Route map is not interactive and is for advisory purposes only.

2.5.2 Save Annotations Confirmation

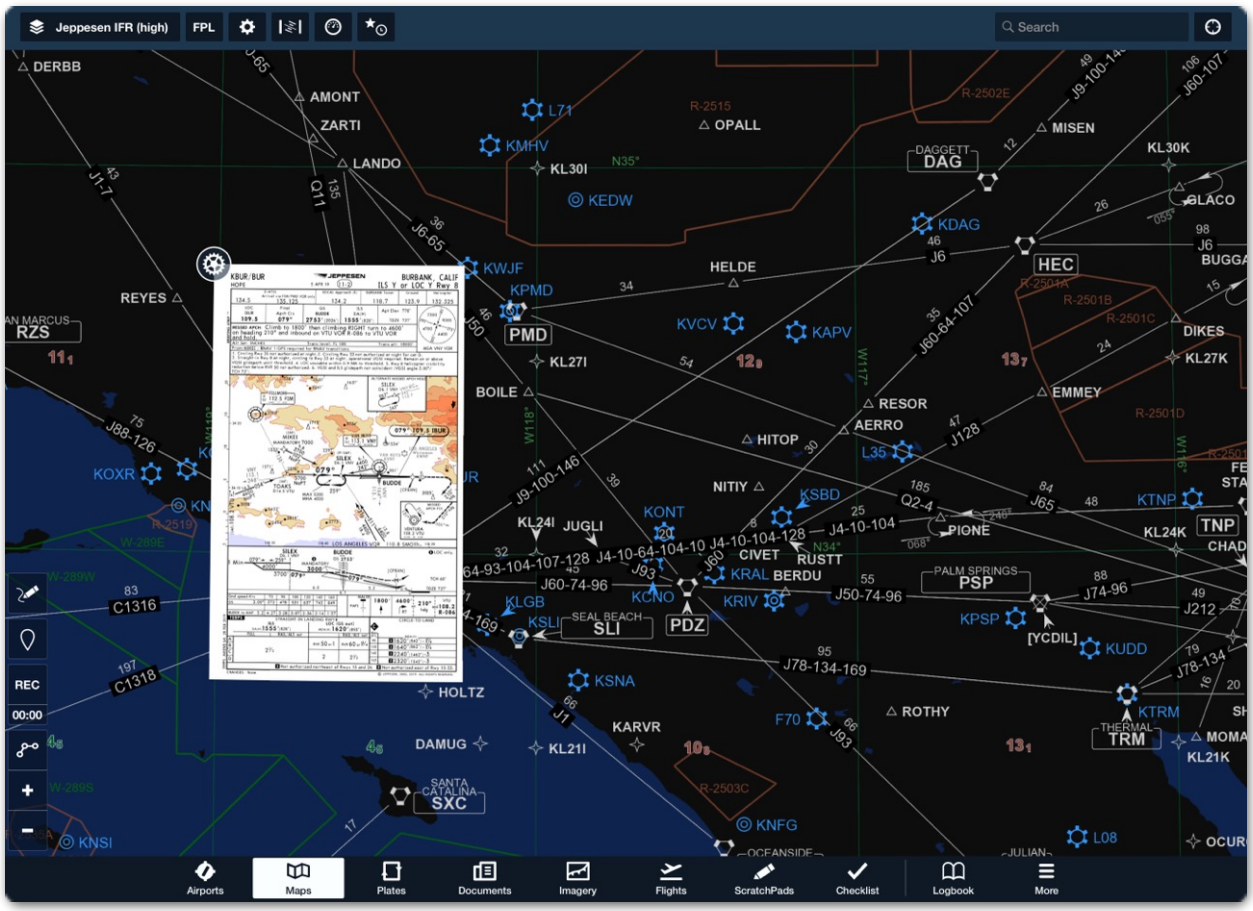
The Save Annotations Confirmation feature, available for business accounts beginning with ForeFlight Mobile version 16.2, is enabled by selecting **More** > **Accounts** > **ForeFlight Labs**.

With Save Annotations Confirmation selected, after saving, shared documents with annotations become read-only.

JEPPESEN

Jeppesen terminal and en route charts can be viewed in ForeFlight Mobile by linking an existing electronic Jeppesen chart subscription or by purchasing Jeppesen charts alongside a ForeFlight subscription.

Jeppesen charts purchased through ForeFlight are automatically available for download on the mobile devices signed in to an account. Linked Jeppesen charts must be installed on a device from the **More** > **Jeppesen** view before they can be downloaded. Linked charts require an available seat for each device installing the charts. Up to six unique Jeppesen accounts can be linked to ForeFlight.



Jeppesen Charts in ForeFlight Mobile

3.1 Purchasing Jeppesen Coverage

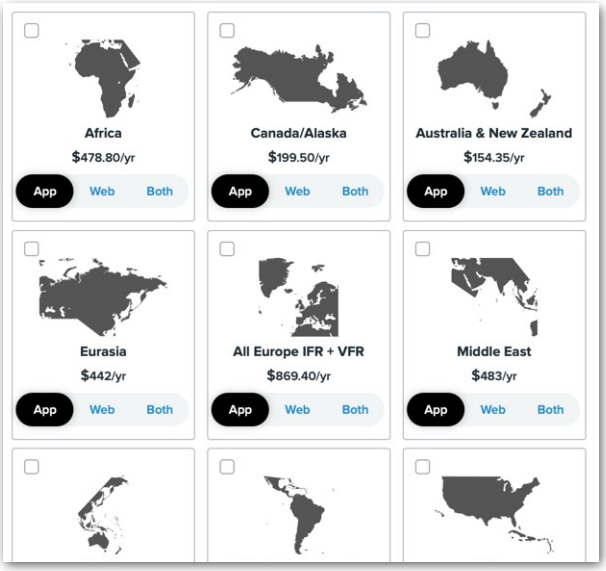
Jeppesen regions are available for purchase through ForeFlight. Coverage is available for app coverage, web coverage, or both. Customers with individual ForeFlight accounts can purchase coverage exclusively at **foreflight.com/buy**.

ForeFlight Business customers can add Jeppesen charts to their subscription by contacting **sales@foreflight.com**.

Jeppesen coverage purchased through ForeFlight includes terminal charts for the selected region and global en route charts. All terminal procedures for the selected region are included except for those that Jeppesen designates as part of a special chart coverage. Special chart coverage is generally reserved for military airfields. Contact **team@foreflight.com** to inquire about Jeppesen special chart coverage for the airports in a region.

When Jeppesen coverage is purchased for ForeFlight Mobile, the available coverage is depicted in **More** > **Jeppesen** > **Jeppesen Downloads**. After purchasing coverage, the charts can be downloaded in **More** > **Downloads**. When Jeppesen coverage is purchased for ForeFlight Web, the charts are available from within the Airport Details popup menus on the Maps View or Flights View, or in Dispatch.

If purchasing additional Jeppesen coverage from ForeFlight, delete and reinstall the currently downloaded Jeppesen terminal procedures to view the new coverage. To delete Jeppesen terminal procedures, select **More** > **Downloads** and swipe from right to left on the Jeppesen Terminal Procedures download.



Jeppesen Regions

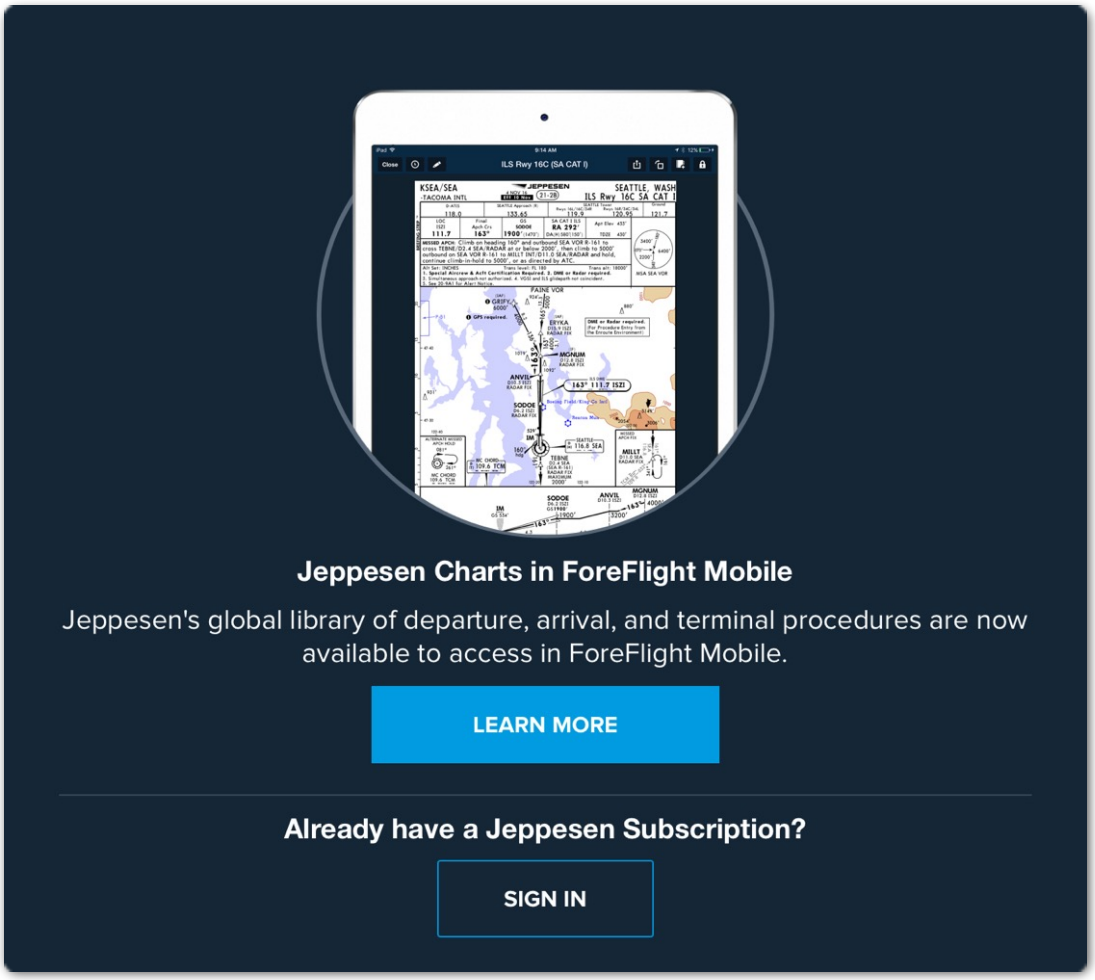
3.2 Linking Jeppesen Accounts

Link up to six Jeppesen accounts using ForeFlight Web or ForeFlight Mobile. Linked Jeppesen account *details* are visible on all devices and ForeFlight Web.

3.2.1 Linking Jeppesen with ForeFlight Mobile (Individual Accounts)

To link a Jeppesen account with ForeFlight Mobile, select **More** > **Jeppesen** > **Sign In** and enter the Jeppesen credentials.

The electronic coverage associated with the Jeppesen account is depicted after establishing the link. Jeppesen charts must be installed (and downloaded) on a device before they can be viewed. Linking a Jeppesen account with ForeFlight Mobile in-app is available exclusively for individual ForeFlight accounts.

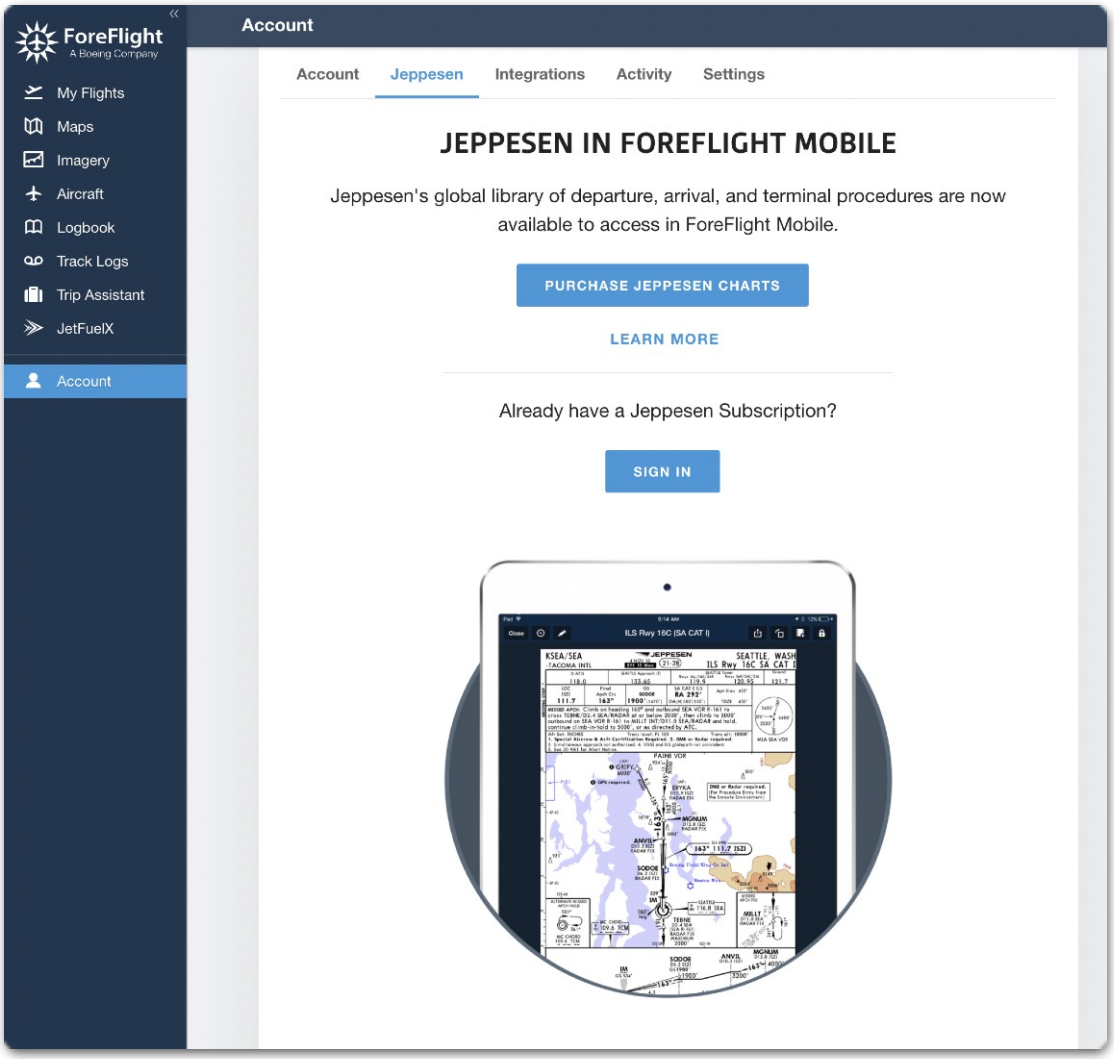


Jeppesen Sign In Menu

3.2.2 Linking Jeppesen with ForeFlight Web

To link a Jeppesen account with **ForeFlight Web**, select **Account** > **Jeppesen** and sign in with Jeppesen credentials.

Business accounts linking Jeppesen must use an administrator account. Linked Jeppesen coverage is visible to all users on the ForeFlight account. ForeFlight administrators can remove Jeppesen coverage from any device on the account from the **Account** > **Jeppesen** view.



Jeppesen Integration Page - ForeFlight Web

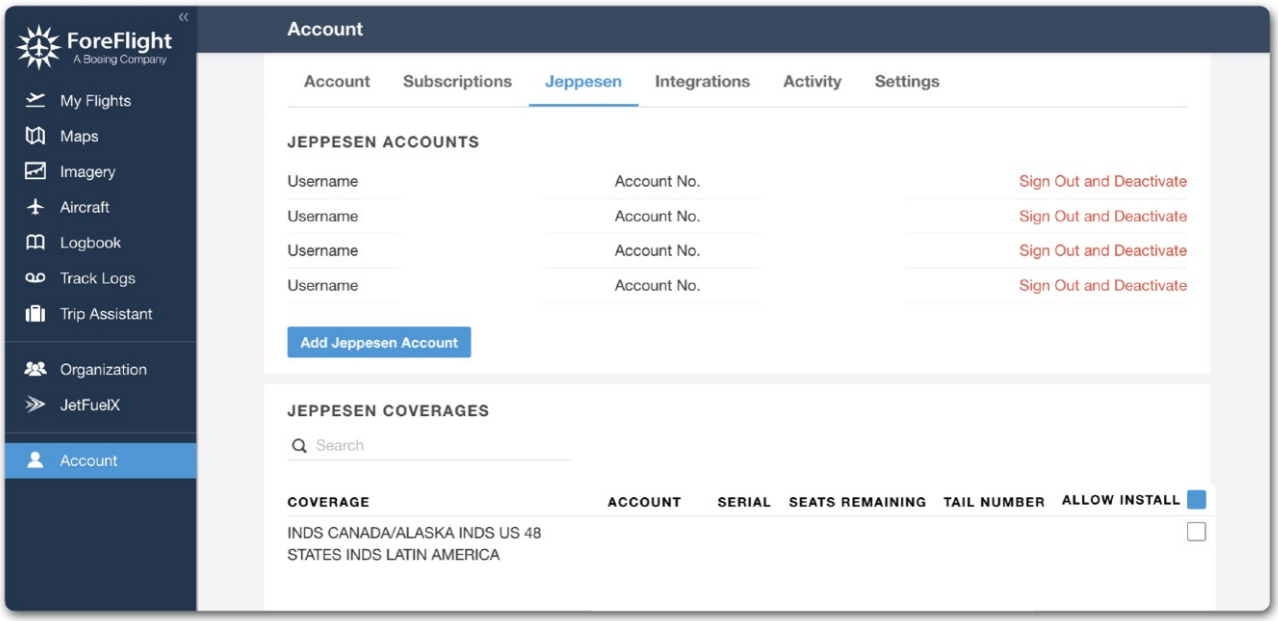
3.3 Multiple Jeppesen Accounts

Up to six Jeppesen accounts can be simultaneously linked to ForeFlight. However, only one Jeppesen-linked coverage can be installed on a device at a time. It is not possible to install multiple linked coverages.

The Jeppesen charts available for download combine purchased coverage and linked coverage. For example, if South America coverage is purchased through ForeFlight, and two linked Jeppesen coverages are established (Europe and Africa), the devices can download the purchased (South America) coverage and have the option to install either Europe or Africa, but not both.

Multi-pilot ForeFlight account managers can link Jeppesen accounts using the ForeFlight web application. All iOS devices on a multi-pilot account automatically sign in to Jeppesen when an administrator links the account. Pilots can install and download any coverage included in the linked Jeppesen account. Account managers can see which users have installed coverages under the *Installed* section of the Jeppesen tab on the web.

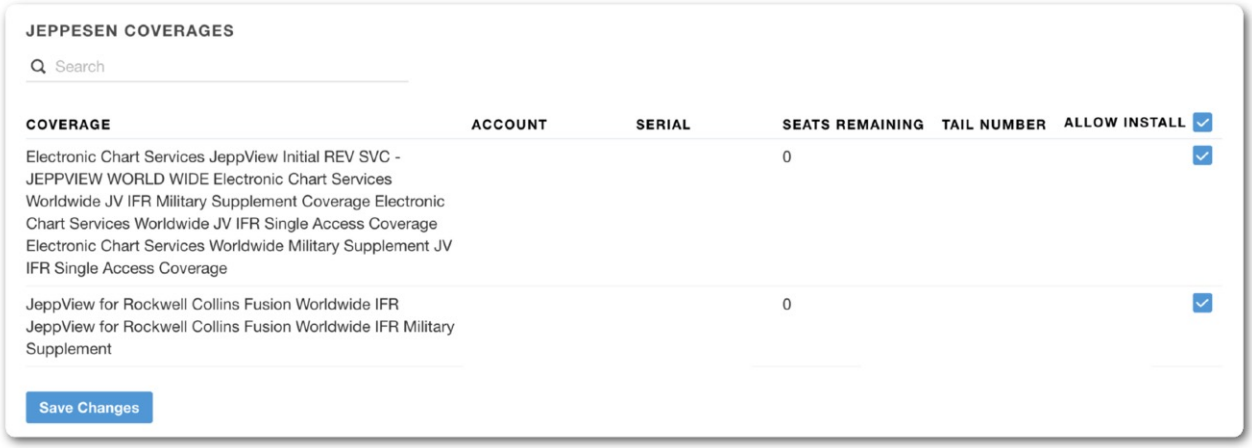
Pilots of a multi-pilot account cannot independently sign in to a Jeppesen account. Account administrators are the only accounts permitted to add or remove Jeppesen accounts. Individual pilots can install and uninstall Jeppesen coverage without administrator approval, provided seats are available.



Multiple Linked Jeppesen Accounts

3.3.1 Allowing Jeppesen Installs

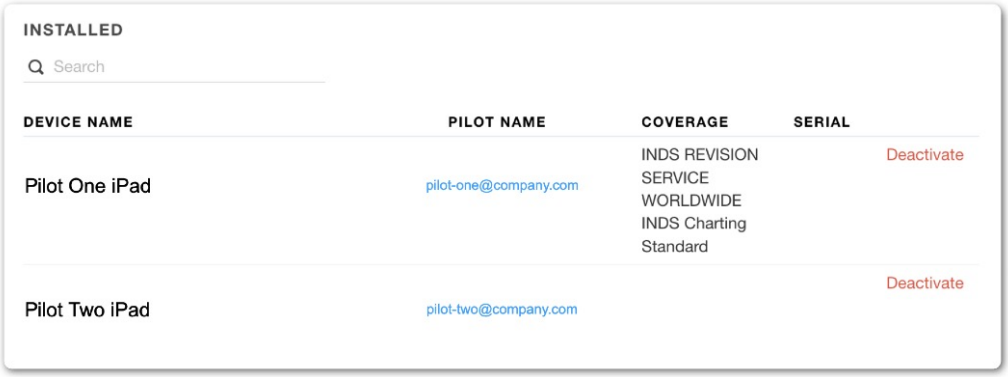
ForeFlight multi-pilot accounts structured as an organization can enable the ability to install Jeppesen coverage on ForeFlight. Click **Allow Install** to permit users within the organization to install and download the selected coverage. If the coverage should not be installed on ForeFlight, deselect **Allow Install** and choose **Save Changes**.



Jeppesen Allow Install

3.3.2 Removing Coverage

Remove coverage from a device by clicking **Deactivate** in the Jeppesen Installed section. This will uninstall the coverage and remove the downloaded charts from the device. The user will still be signed into the Jeppesen account. Deactivating Jeppesen coverage immediately frees up a seat for another pilot.

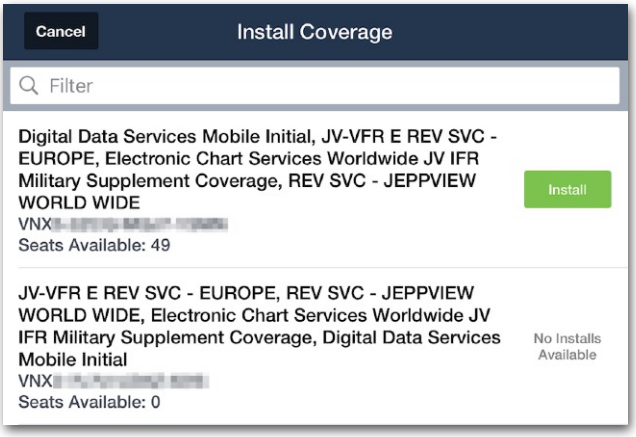


Removing Coverage

CAUTION: Removing Jeppesen coverage from a multi-pilot ForeFlight account deletes all associated Jeppesen chart downloads from the pilot's device.

3.4 Installing Linked Charts

Install Jeppesen charts on an iPad or iPhone by tapping **More** > **Jeppesen** > **Install Coverage** > **Install**. Once coverage is installed on a device, it is immediately available for download.



Jeppesen Coverage Available to Install

Each time Jeppesen charts are installed on a device, the device uses one of the available Jeppesen seats. The number of seats available is displayed on the **More** > **Jeppesen** page. If there are no available seats, the charts will not be available for installation. Purchase additional seats or remove the coverage from another device if additional installations are required.

Linked Jeppesen coverage information updates automatically in the app when a device is connected to the Internet. If the information shown is not what is expected (such as, the Seats Available does not change after removing coverage on another device), tap **Reload** one time. If reloading once does not resolve the issue, contact the Pilot Support Team at team@foreflight.com for assistance.



Reload Button

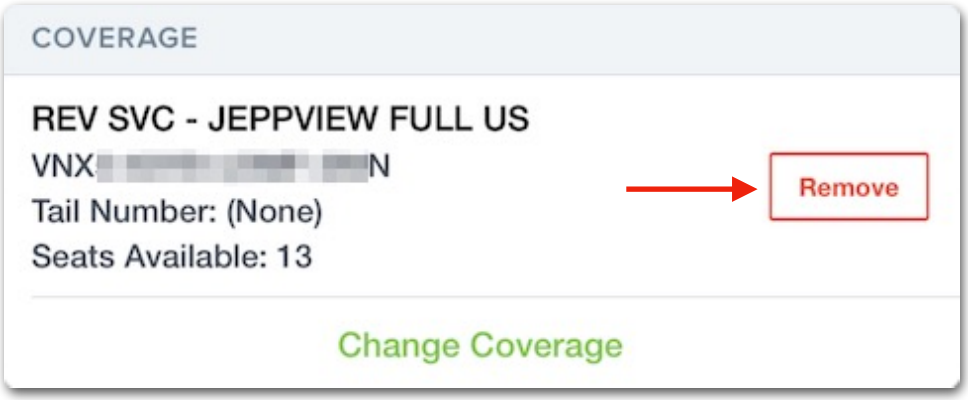
NOTE: Only one linked Jeppesen coverage can be installed at a time. It is not possible to *install* multiple linked coverages.

3.5 Changing Coverage

To uninstall the current coverage and install a different one, select **More** > **Jeppesen** > **Change Coverage.** Removing coverage from a device immediately removes the downloaded charts and documents for that coverage.

3.6 Removing Jeppesen Charts

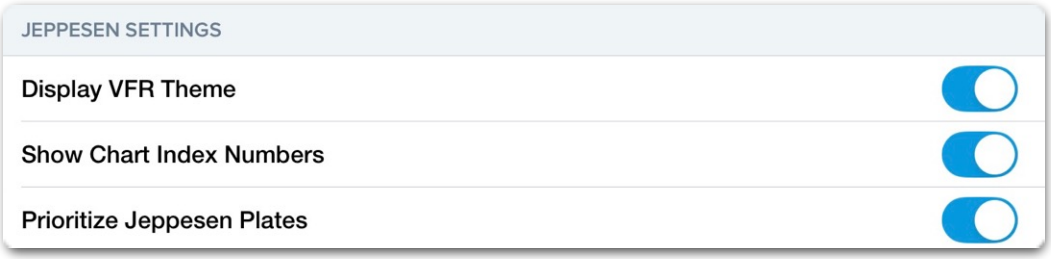
Installed Jeppesen coverage is listed in the *Coverage* section. Tap **Remove** to uninstall the current coverage from the device. Removing coverage from a device immediately removes the downloaded charts and documents for that coverage and frees up the seat for someone else.



Jeppesen Coverage Remove button

3.7 Jeppesen Settings

Jeppesen settings are available in the Jeppesen view. Select **More** > **Jeppesen** to access the settings.



Jeppesen Settings

Display VFR Theme - enables the Jeppesen (VFR) en route chart and VFR terminal procedures (Europe). This setting is disabled by default. When the Display VFR Theme setting is disabled, the Jeppesen (VFR) chart is removed from the Maps drop-down menu, and VFR terminal procedures are removed from the Procedures list.

Show Chart Index Numbers - displays the procedure index number below the procedure name in chart lists. Jeppesen index numbers (at the top of every terminal procedure) are usually three or four digit numbers enclosed in an oval. The index number helps to sort airports within a city and procedures within an airport.

Prioritize Jeppesen Plates - the default setting uses Jeppesen sources when a chart is automatically displayed and lists Jeppesen charts at the top of selection lists. Disable to use non-Jeppesen sources as the default.

3.8 Viewing Jeppesen Charts

Jeppesen charts and terminal procedures are available on the Maps, Airports, and Plates views. Display en route charts by selecting them from the map layer menu.

3.8.1 Terminal Procedures

Jeppesen terminal charts appear at the top of the procedures list. It is not possible to display FAA, NavCanada, or EuroControl charts above Jeppesen terminal charts. Jeppesen Terminal procedures are the default and will display automatically in the following scenarios.

- Tapping **Show Airport Diagram** in the FPL Route Editor
- Adding an approach using Procedure Advisor
- Display the airport taxi diagram automatically upon landing.

NOTE: An Essential or higher subscription is required to overlay plates on the Maps view. If Jeppesen terminal charts are added to a Starter plan, they will only be viewable in the Plates and Airports views.3.8.2 En route Charts

All Jeppesen accounts include *global* VFR and IFR en route charts, no matter what terminal procedure coverage is purchased. Jeppesen en route charts are dynamic and customizable. Additional chart details are displayed while zooming in. Jeppesen en route charts support always-up labels. Jeppesen global en route charts are approximately 1GB in size.

NOTE: Jeppesen en route charts are not available when using the following devices: iPad Mini 1, iPad 2, iPad 3, and iPhone 5 and earlier.

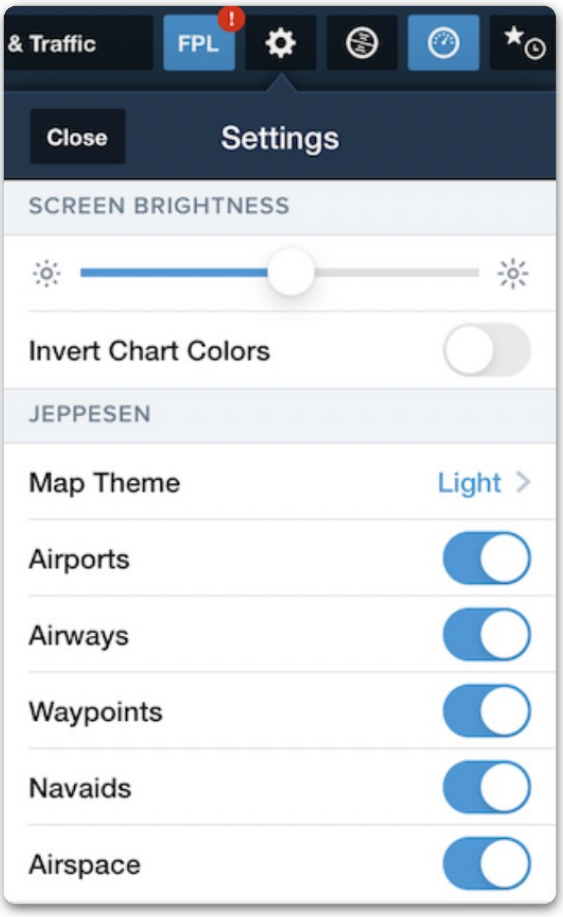
En route charts are available in the Maps view layer selector, at the top just under the Aeronautical layer.

3.9 Jeppesen Map Settings

Selecting any Jeppesen en route chart adds the Jeppesen-related settings to the Map Settings menu.

The selections only apply to the selected layer allowing a mix of map settings for each Jeppesen en route chart type. Refer to the following page for additional information.

The following table lists the map settings available with each Jeppesen en route chart type and what they do.



Jeppesen Settings

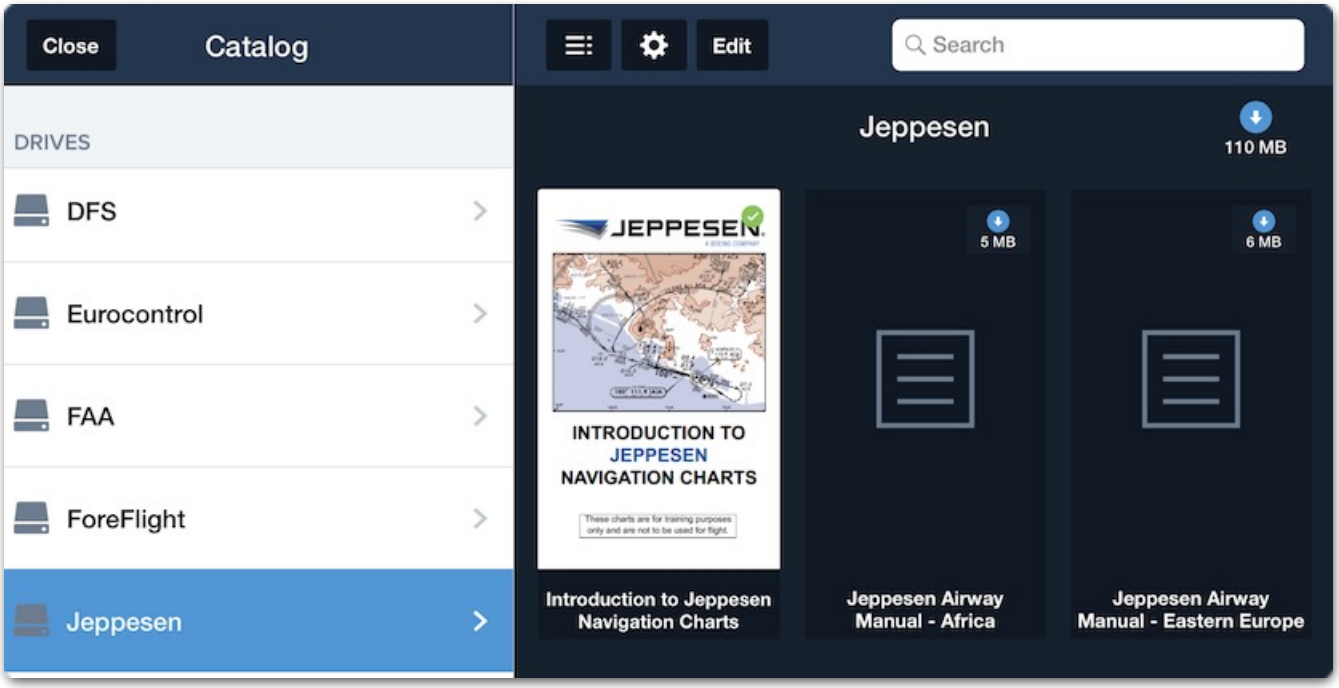
3. JEPPESEN

	Jeppesen VFR	Jeppesen IFR (low)	Jeppesen IFR (high)
Map Theme	Choose between a Light and Dark map theme. The Dark Theme inverts black and white while preserving other colors.		
Airports	Show or hide airport markers and labels, including private airports and helipads. Zooming into large airports will reveal their runway configuration.		
Airways	Show or hide VFR corridors and IFR low airways, including labels, MEAs, MOCAs, and radials from navaids.	Show or hide IFR low airways, including labels, MEAs, MOCAs, and radials from navaids.	Show or hide IFR high airways, including labels, altitudes and radials from navaids.
Waypoints	Show or hide VFR waypoints and IFR low waypoints.	Show or hide IFR low waypoints.	Show or hide IFR high waypoints.
Navaids	Show or hide navigation aids and labels, including NDBs, VOR-TACANs, and VOR-DMEs.		
Airspace	Show or hide airspace boundaries and labels, including controlled airspace, Mode C, MOAs, SUAs, ADIZ, FIRs, and ARTCC radio frequencies.		
Cultural	Show or hide cultural labels, including spot elevations, urban areas, railway lines, parachute jumping areas and magnetic longitude lines.	N/A	N/A
Roads	Show or hide major highways, roads, and streets.	N/A	N/A

3.10 Jeppesen Documents

Purchasing Jeppesen coverage or installing a linked Jeppesen account adds the Jeppesen document catalog to the device. The Jeppesen document catalogs adds Jeppesen Airway Manuals for the installed coverage.

Jeppesen documents will remain on the device for as long as the Jeppesen coverage is installed. Jeppesen Airway Manuals can be printed but cannot be shared via email.

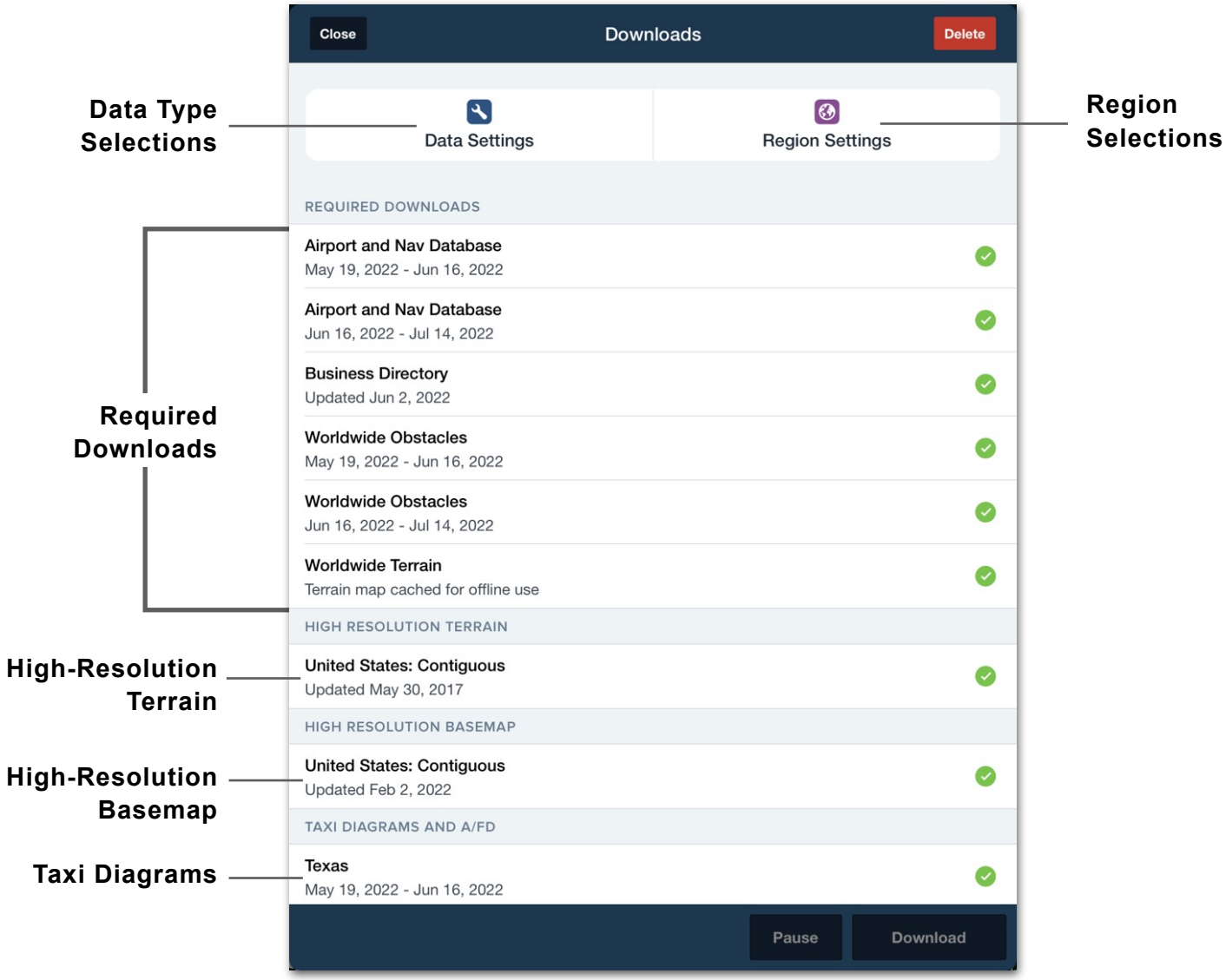


Jeppesen Documents

DOWNLOADS

Charts and aeronautical data can be viewed online but must be downloaded for offline use. When using ForeFlight for the first time, required downloads are automatically installed. Required downloads include an airport and navigation database, business directory (FBO data), obstacle database, and terrain database.

Select **More** > **Downloads** to access the Downloads view. The Downloads view displays all installed data with a green checkmark. Tap **Data Settings** and **Region Settings** to make download selections.



Downloads View

4.1 Download Selections

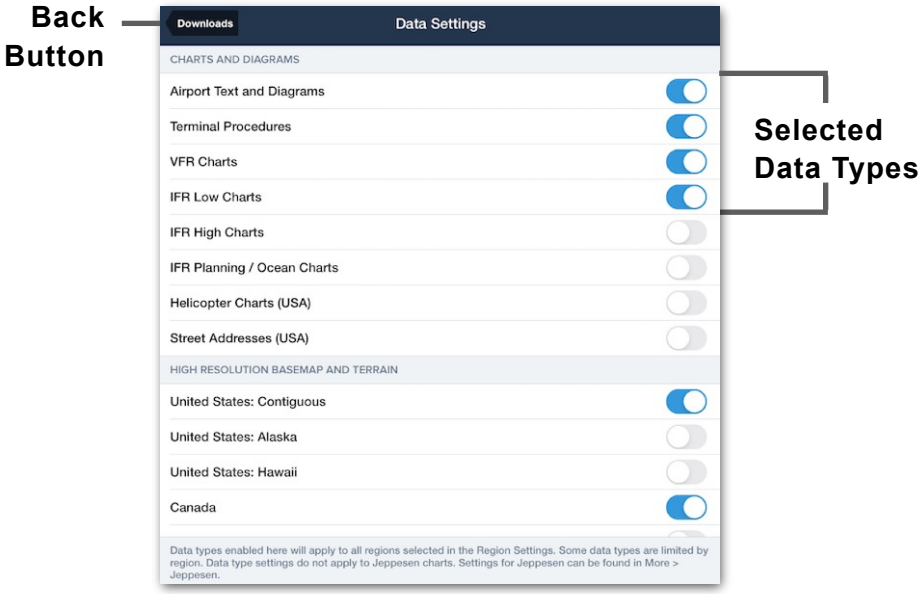
All charts, terminal procedures, and high-resolution download selections are optional. Download selections are not synced between devices and must be made on each device signed into the account. Download selections are divided into two sections, Data Settings, and Region Settings. Choose the type of data to be downloaded for offline use in **Data Settings**. Select the states, provinces, and countries in **Region Settings**.

NOTE: The following Data and Region settings in the downloads view have no effect on **Jeppesen** charts.

4.1.1 Data Settings

Data Settings consist of various types of data. Each selected data type will be downloaded for the chosen regions (if available). It is not possible to have different data settings for different regions.

High-resolution basemap and terrain downloads are not associated with region settings. Selecting a high-resolution basemap and terrain download installs the data regardless of subscription type and region settings. After making data setting selections, tap the **Downloads** back button to return to the Downloads view to make region selections or to begin downloading.



Data Settings

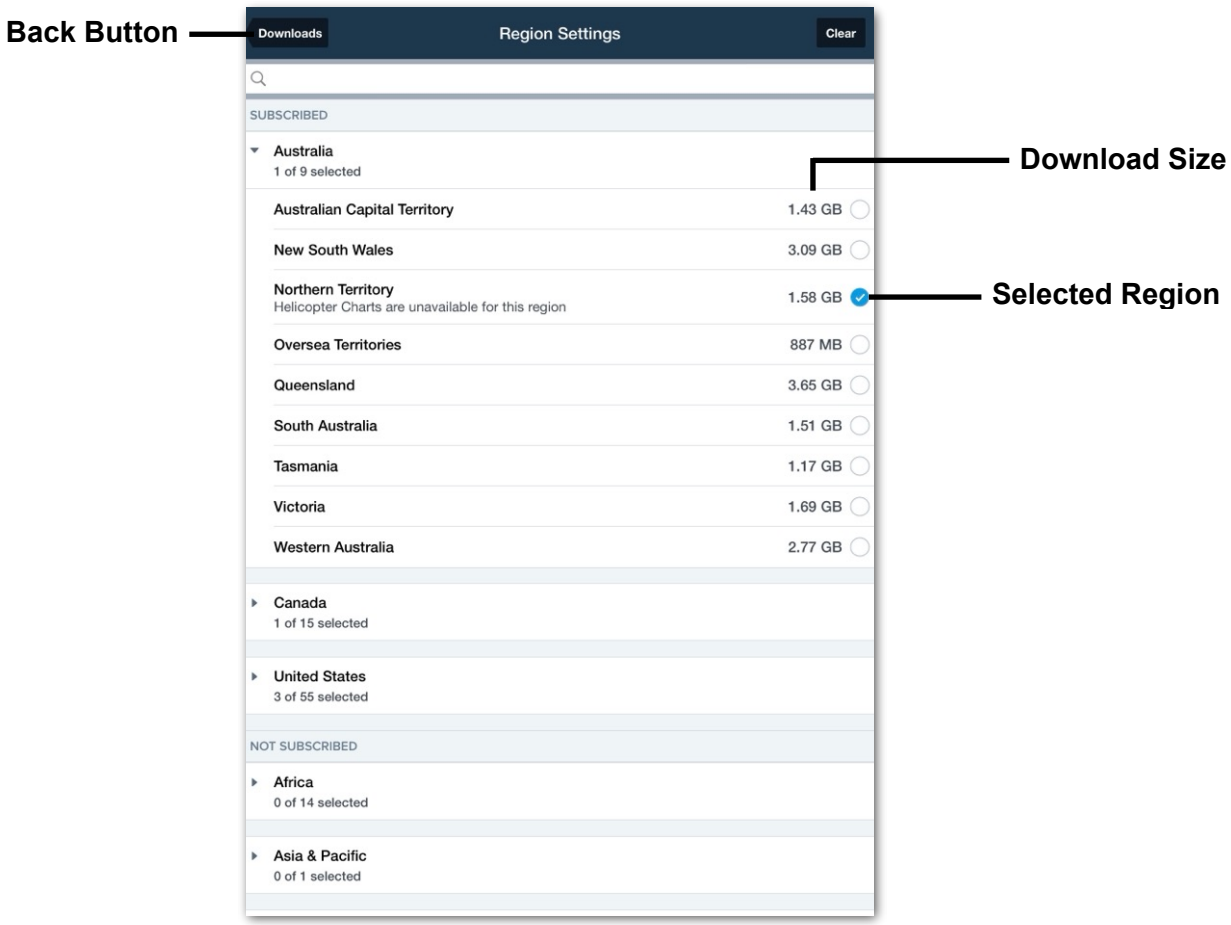
4.1.2 Region Settings

Region settings are divided into nine regions: United States, Canada, Europe, Africa, Asia Pacific, Australia, Latin America, Middle East & South Asia, and New Zealand. Regions can only be selected if they have been purchased. To buy additional regions, visit **foreflight.com/buy**.

NOTE: Some regions are currently under development. As new regions are released, announcements will be made via ForeFlight Marketing.

Tap a region to expand the menu. The download size (e.g., 924 MB) is listed to the right of the state, province, country, or region. Download size is dynamic and varies based on the selected data types (e.g., IFR Low Charts) and available data. A message is displayed after selecting the region if a data type is unavailable.

After region selections have been made, tap the **Downloads** back button to return to the Downloads view to make data setting selections or to begin downloading.



Region Settings

4.2 Downloading Data

After selecting data types and regions, tap the **Downloads** back button in the upper toolbar. Downloads not already installed on a device become available for download immediately (internet connection required).

To install an individual download, tap the blue arrow. To download all pending downloads, tap **Download** at the bottom of the screen. The number of pending downloads and the size of pending downloads are displayed at the bottom of the Downloads view.



Pending Downloads

A progress bar is displayed at the bottom of the view when actively downloading data. The progress bar depicts the size of the active downloads.



Active Downloads

Stop all downloads anytime by tapping the **Pause** button at the bottom of the Downloads view. Stop individual downloads by tapping the pause button associated with the download. Downloads will continue where they left off when resumed.

Completed downloads display a green checkmark. When all pending downloads are complete, the **Download** button is disabled.

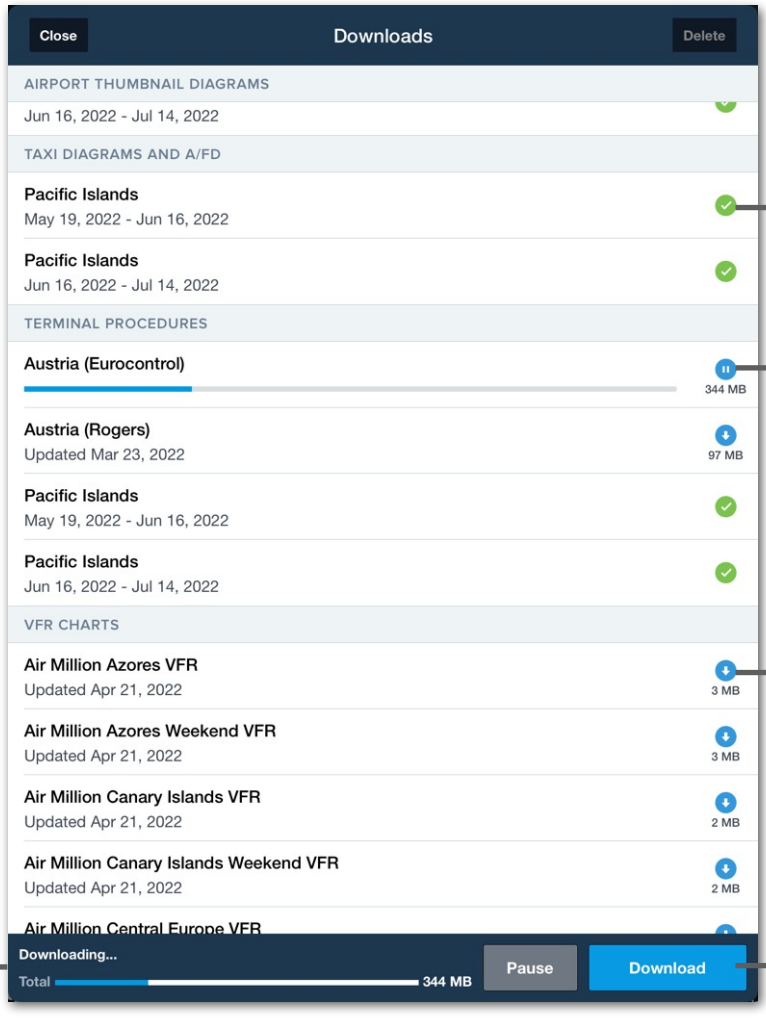
If data has not yet been downloaded to the device, ForeFlight will display the data over the air using an internet connection. Viewing data over the air should only be done on the ground. Cellular internet connections are often unreliable when in flight. Charts viewed over the air in-flight may be unavailable or appear blurry as a result. It is recommended to download any data needed for flight prior to takeoff.

NOTE: Blurry charts are an indication that charts are not downloaded.

4.2.1 Updating Downloads

Aeronautical data is updated every 28 days. En route charts are updated every 56 days. Updated aeronautical information becomes available for download approximately five days before the current data expires.

When updated data is available for download, a red badge with a number appears on the **More** button. The number on the badge corresponds to the number of downloads available for the next data cycle. Select **More** > **Downloads** and tap the **Download** button to download the future data cycle. ForeFlight will continue to display the current data until the expiration date, also known as the changeover date. ForeFlight automatically displays the new data at the changeover date and removes the expired data from a device. Changeover occurs at a specific time of day **based on the current geographical location**.



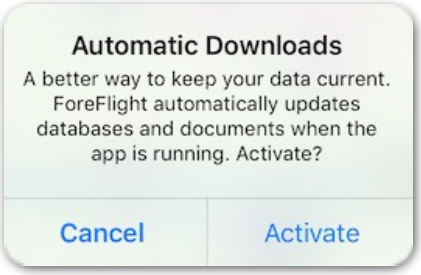
Downloading Data

4.2.2 Automatic Downloads

ForeFlight can automatically download new data when ForeFlight is open and connected to the internet. Automatic downloads do not occur when connected to Gogo or Satcom Direct in-flight internet. To automatically download data, the following criteria must be met:

- Automatic downloads enabled.
- Active internet connection (Wi-Fi or Cellular).
- One hour or more since manually downloading.
- The device has sufficient storage available.

When downloading data for the first time, a pop-up appears with an option to enable automatic downloads. Automatic downloads can also be enabled or disabled in **More** > **Settings** > **Automatic Downloads**.



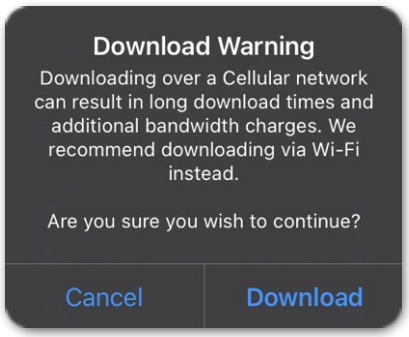
Automatic Download pop-up

4.2.2.1 Downloads over cellular

ForeFlight can download data using a cellular network. Select **More** > **Settings** > **Allow Downloads over Cellular** to enable or disable this feature.

If **Allow Downloads over Cellular** is disabled and an attempt to download data over cellular is made, a pop-up warning message is displayed.

If **Download** is selected in the pop-up message, the **Allow Downloads over Cellular** setting is automatically enabled, and future downloads over cellular will be possible.



Cellular Data Warning

4.2.3 Background Downloads

Background downloads allow pending downloads to be downloaded when ForeFlight remains active (not closed) in the background or while the device is asleep. Background downloads are enabled in **More** > **Settings > Background Downloads**.

All pending downloads are consolidated and downloaded in a single file when background downloads are enabled. Background downloads may take longer than those done in the foreground. The red downloads indicator will no longer display on the ForeFlight icon once downloading is complete. Data downloaded in the background is not installed until ForeFlight Mobile is opened to the foreground.

If downloading is started while the device is connected to Wi-Fi, downloads will automatically stop if disconnected from Wi-Fi. Downloads started while the device is connected to cellular data will continue downloading in the background using cellular data.

WARNING: Data downloaded in the background is installed the next time ForeFlight Mobile is opened to the foreground. Failure to perform this step can result in charts not being installed in a timely fashion. It is recommended to open ForeFlight before a flight to allow data to install. Further, before flight, view needed charts to confirm that the most current version is installed and make use of the **Pack feature**.

NOTE: Disabling background downloads is recommended when downloading over a slow internet connection or when storage space is limited

Background downloads may pause if the device battery charge becomes low. Charging the device while downloading in the background is recommended.

4.2.4 Data Changeover Times

Aeronautical data becomes effective and is displayed at a specific time on the changeover date according to published regional standards.

For a given device, the changeover time is determined by its *current geographical location,* not the data itself. For example, European data becomes effective at 0901Z if the device is located in the United States.

Device Location	Changeover Time
Europe, South Africa, Brazil, and Taiwan	0000Z
Australia	1200Z the day before changeover date
New Zealand, South Korea	1600Z the day before changeover date
North American regions, regions not mentioned	0901Z

Data changeover times by region

ICAO guidance specifies that aeronautical information should be effective on the designated effective date at 00:00 UTC. However, national and local authorities often change the effective time to allow for implementation during the local night or at other times due to local operational considerations. When an effective time other than 00:00 UTC is used, ICAO requires that it be published in the official Aeronautical Information Publication (AIP) of that country. Check NOTAMs and contact local ATC for information.

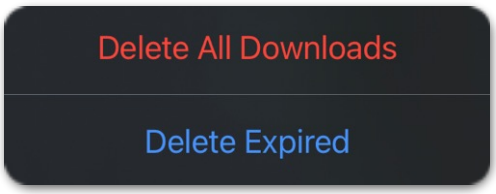
NOTE: Change-over time for aeronautical data is determined by precise geo-location. If device geo-location cannot be determined, the device iOS Region setting is used instead.

4.3 Deleting Downloads

Expired data is deleted automatically, with some exceptions. If new data does not replace expired data, the expired data will remain on the device.

To delete an individual download (expired or active), swipe a finger from right to left across the entry. If the deleted data is selected in the download settings, data will be prompted to be download again.

Downloads can also be deleted by tapping **Delete** > **Delete All Downloads** or **Delete Expired** at the top of the Downloads view. Deleting all downloads removes all installed downloads from a device. Deleting expired downloads only removes data that has expired and is still on the device.



4.3.1 Packed and Unselected Downloads

Charts downloaded to a device that are not part of a selected region in region settings, such as charts downloaded with Pack, are stored in the *Packed and Unselected Regions*. Deleting these charts when they are no longer needed or device memory is limited is recommended.

4.4 Preflight Download Check

Ensure data is downloaded before every flight. To preflight data, follow these steps.

1. Disconnect the device from Wi-Fi (if applicable) and enable *Airplane Mode*. This will keep ForeFlight from retrieving data over the Internet, as would happen in flight.
2. Open ForeFlight Mobile, go to the **Airports** page, and view airports along the route. Verify airport procedures indicate they are **Saved** on the Airports or Maps views.
3. Open Maps and select any en route charts needed in flight. Zoom in to the destination airports and ensure the charts are not blurry.

4.5 Troubleshooting Downloads

ForeFlight data is hosted on a network of servers around the world. When a download is started, the data comes from the closest server to provide fast and reliable downloads.

Download time can vary depending on the amount of data being downloading. For example, if downloading all items for the United States, approximately 10GB of data is downloaded. Even on a fast Wi-Fi connection, this will take significant time.

ForeFlight *recommends* only downloading data for regions flown within or near. Doing so will save significant time and disk space. If a download fails, ForeFlight automatically reattempts the download. If a red error message shows on the download, the additional attempts were unsuccessful and the download will need to be manually attempted.

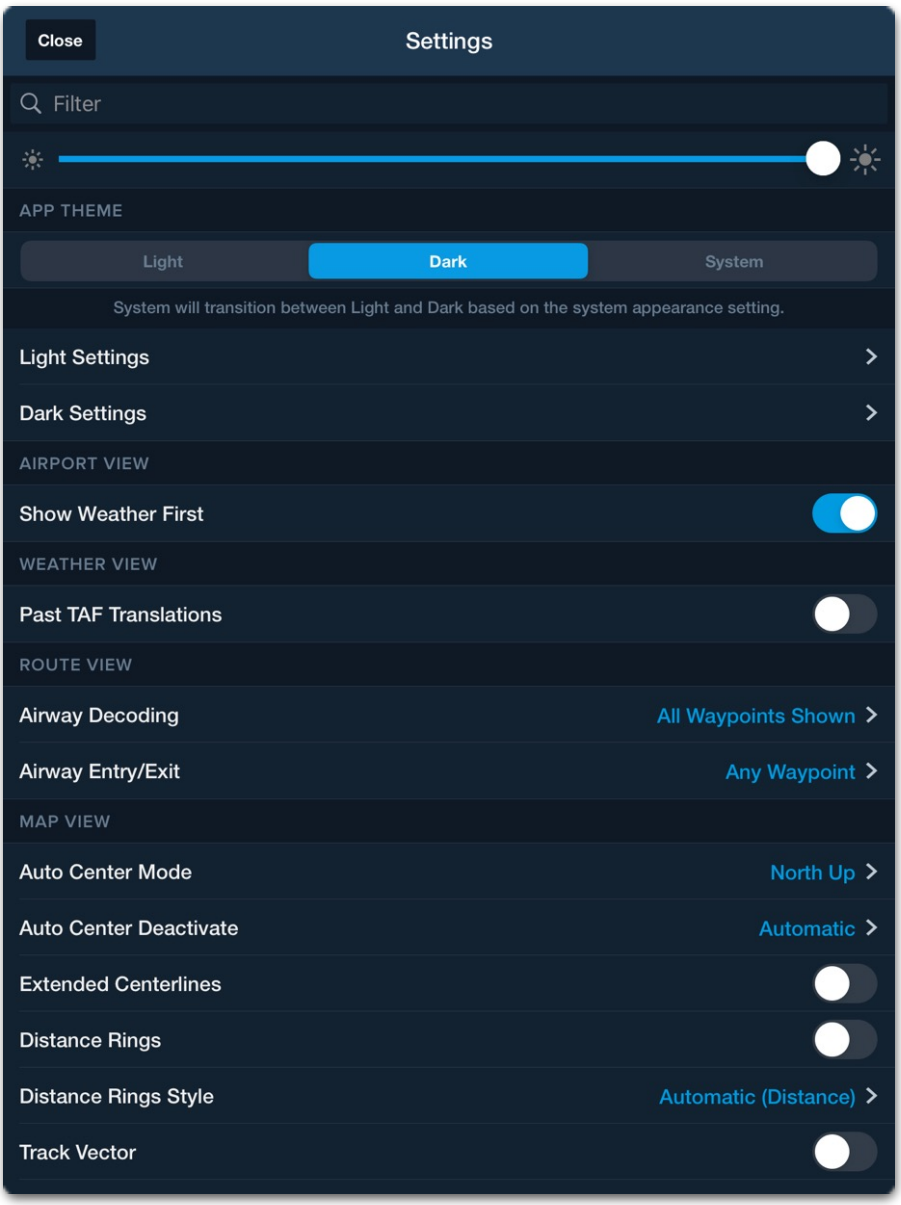
Troubleshooting tips:

- Reboot the iPad.
- Use another network or cellular data.
- Reboot the router.
- Temporarily disable or delete Virtual Private Networks (VPN).
- Temporarily disable or delete anti-virus applications.

SETTINGS

Settings customize the ForeFlight experience. Select **More** > **Settings** to access the main settings view, which contains the majority of settings available for ForeFlight Mobile. ForeFlight Mobile settings do not sync between devices.

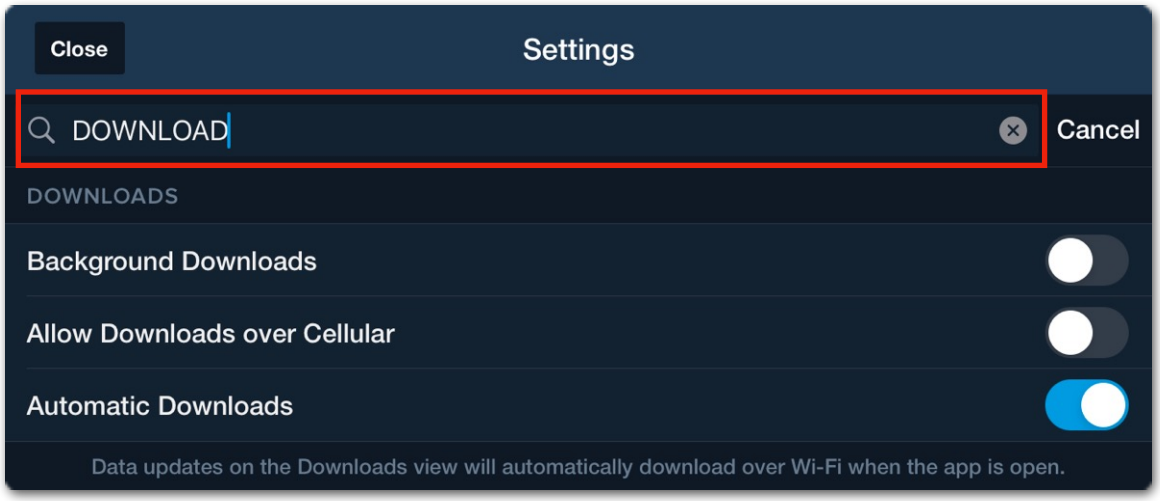
Settings specific to a feature may also be found within that feature view. For example, map-related settings can be found in the main settings menu and on the Maps view by tapping the **Map Settings** (gear) button. Logbook settings are exclusively available in **More** > **Logbook** > **Settings.**



Main Settings Menu

5.1 Search Bar

The search bar near the top of the Settings menu filters the settings shown. The search bar is dynamic, and search results are updated as the term is typed. Due to the number of available settings, the use of the search bar is recommended.



Searching for Downloads with the Search Bar

5.2 Brightness Slider

The brightness slider matches the iOS device's brightness setting and can be used instead.



Brightness Slider

5.3 App Theme

App Theme allows users to choose between a **Light**, **Dark**, or **System** theme. When **System** theme is selected, ForeFlight automatically selects light or dark theme based on the iPad/iPhone iOS settings.

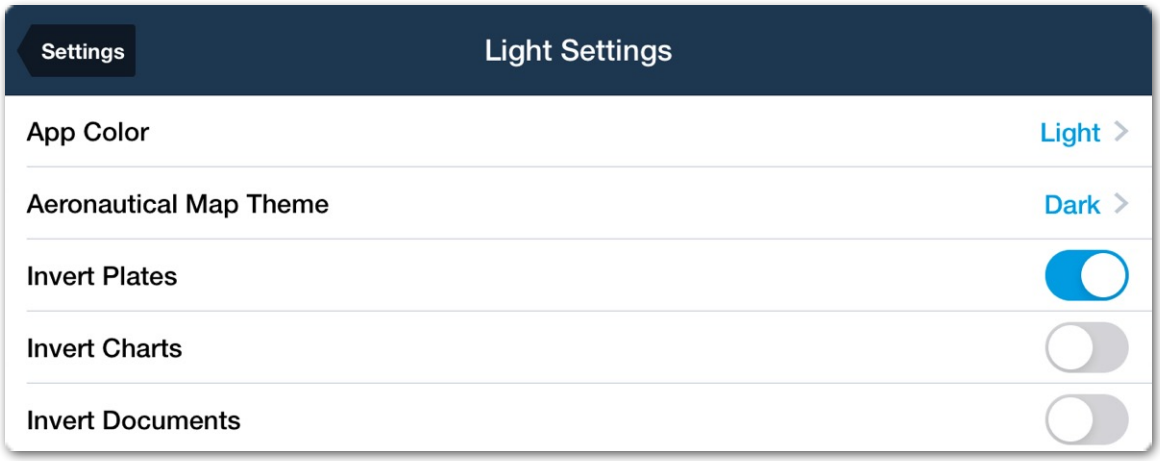
Light and dark themes provide additional settings for adjusting the individual elements within ForeFlight. For example, when the dark theme is enabled, the color of the plates can be inverted. The individual Light and Dark settings ultimately determine the appearance of ForeFlight.

5.3.1 Light and Dark Settings

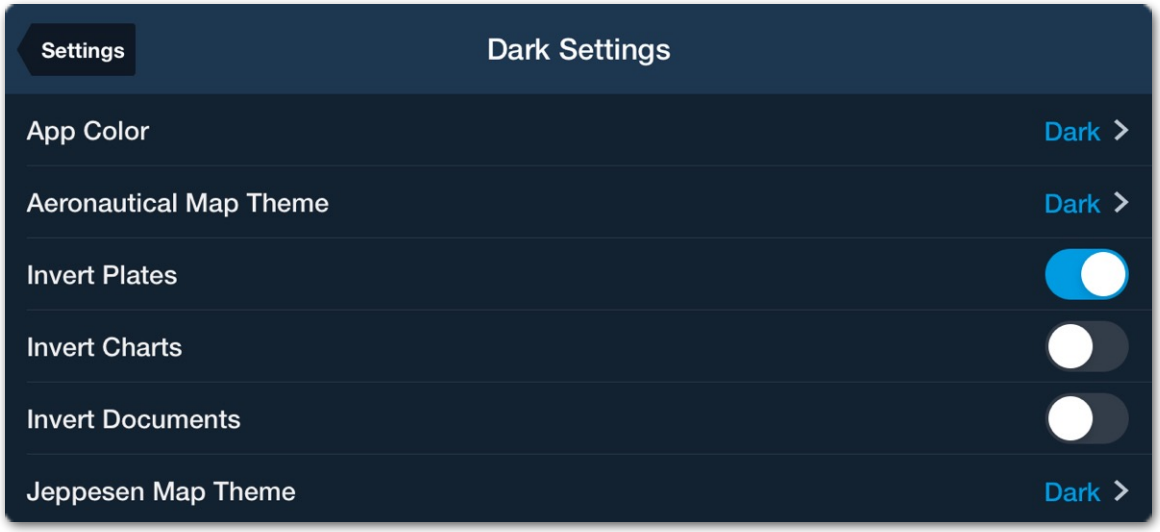
Light and dark settings specify the *App Color*, *Aeronautical Map Theme*, and whether to invert the color of Plates, Charts, and Documents.

The **Light** setting results in menus with white backgrounds. The **Dark** setting results in menus with a dark blue background. The **Aeronautical Map Theme** controls whether the ForeFlight base map should be **Light** (tan), **Dark** (dark blue), or **Classic** (light brown).

Inverted plates and documents use black backgrounds and white text. When inverted colors are enabled, the colors on plates, charts, and documents are also inverted. Plates, charts, and documents can be inverted with the light or dark theme.



Light Settings



Dark Settings

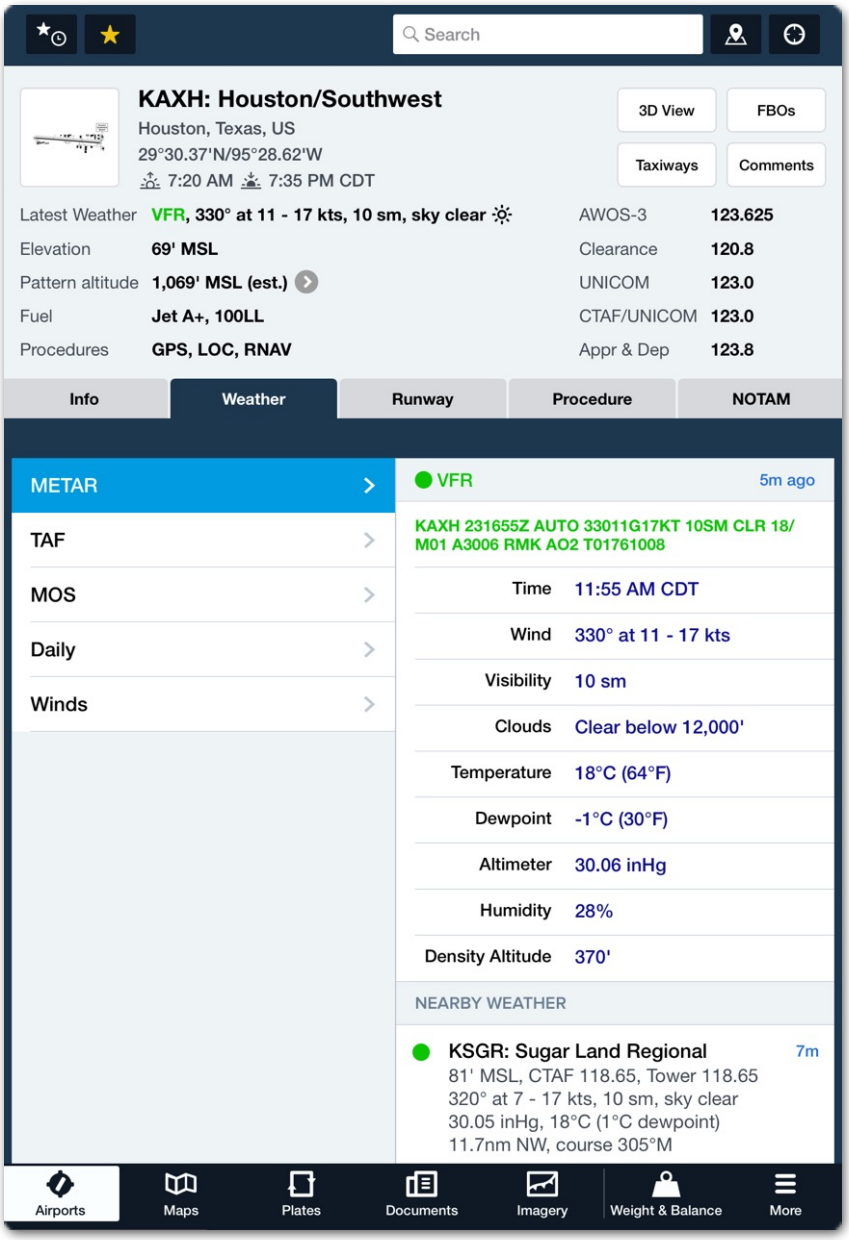
5.4 Airport View

The following Airport View settings are available in the main settings menu.

5.4.1 Show Weather First

Display the airport *METAR* when the Airports view is selected. This settings also displays the airport METAR first in the **sidebar** when an Aeronautical map airport icon is tapped.

If this setting is disabled, the Airports view displays the last viewed tab, and the Maps sidebar displays the airport info tab.



Airport View - Show Weather First Enabled

5.5 Weather View

The following Weather View settings are available in the main settings menu.

5.5.1 Past TAF Translations

Displays expired TAF forecast periods in the various weather views when enabled. When disabled, expired TAF forecast periods are hidden from view.

5.6 Route View

The following Route View settings are available in the main settings menu.

5.6.1 Airway Decoding

Select between **All Waypoints Shown** and **Bends Only**. The **Bends Only** setting hides waypoints along an airway that do not cause a course change. VORs and NDBs will always be shown in an airway. When **Bends Only** is enabled, some smart airway labels are not displayed.

5.6.2 Airway Entry/Exit

Specifies if a route should start and end at any waypoint or at a navaid when using the Route Editor.

5.7 Breadcrumbs

Breadcrumbs are a thin green line indicating the path since takeoff. The following breadcrumb-related settings are available in the **Breadcrumbs** section of the main settings menu.

5.7.1 Breadcrumbs

Enable or disable breadcrumbs on the map.

5.7.2 Breadcrumbs Clear After

The Breadcrumbs Clear After setting controls the time that Breadcrumbs remain on the map after landing. If a takeoff is not detected after the last landing within the selected time, Breadcrumbs are automatically cleared from the map. Default time is 15 minutes. Time selections are:

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 4 hours.

5.7.3 Breadcrumbs Activation Altitude & Groundspeed

Breadcrumb activation can be specified to begin displaying at a specified altitude and groundspeed. All combinations of altitude and groundspeeds are supported.

Altitude selections are:

- 50 feet
- 100 feet
- 250 feet.

Groundspeed selections are:

- 0 knots
- 20 knots
- 40 knots.

5.8 Ownship

The Ownship section in the Settings menu provides options for customizing the aircraft icon on various ForeFlight views.

5.8.1 Ownship Marker

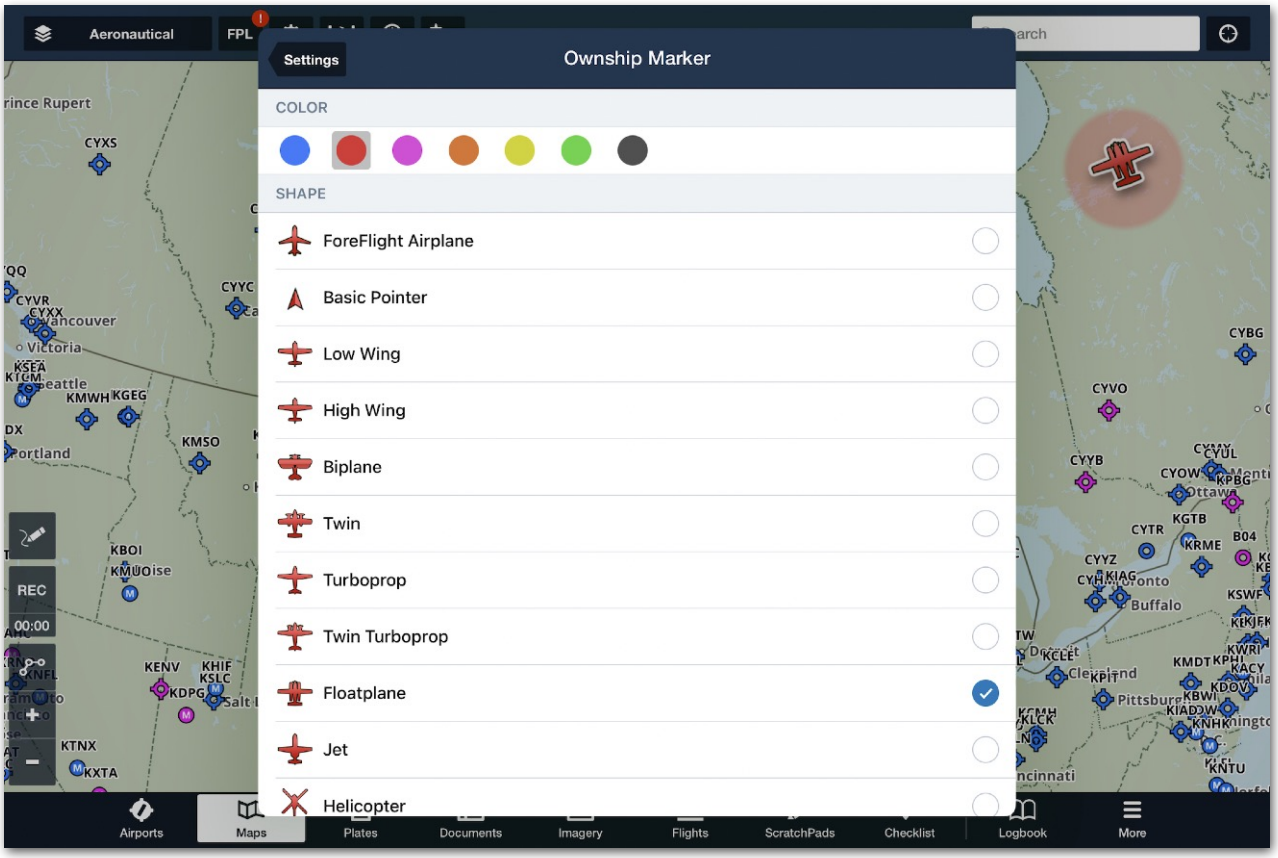
Ownship Marker determines the *color* and *shape* of the aircraft position icon displayed on the Maps, Track Logs, and Plates views. If the icon is not displayed, enable it as described in **Enable Ownship**.

5.8.1.1 Color

The default aircraft icon color is **blue**. When a new color is selected, it applies to the aircraft icon and the animated position pulse on the Maps and Plates views.

5.8.1.2 Shape

The default aircraft icon shape is the **ForeFlight Airplane**. Additional aircraft profiles may be selected.



Aircraft Position Icon: Setting Color and Shape

5.8.2 Ownship Distance Rings

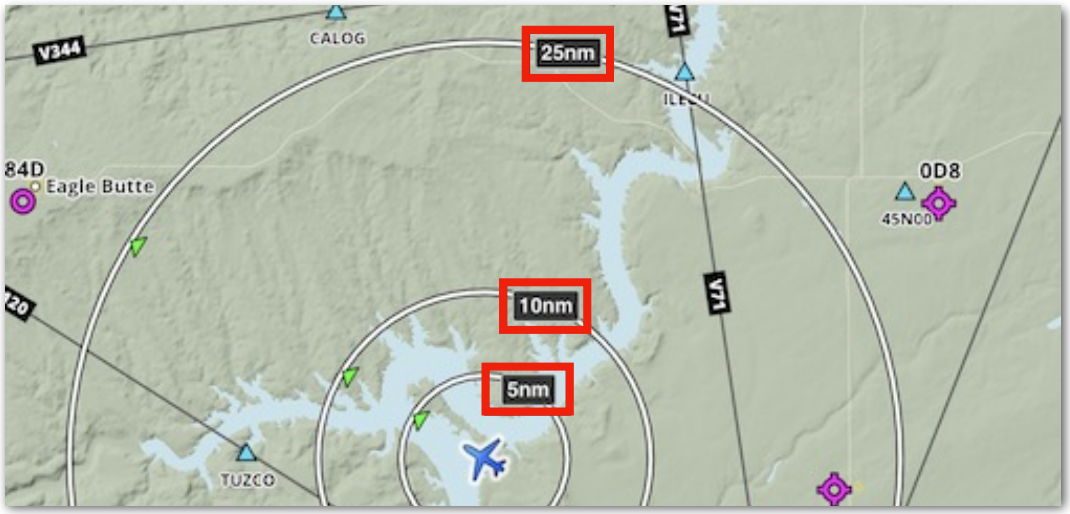
The Ownship Distance Rings setting displays concentric rings around the position on the map representing distance or time from the aircraft.

5.8.2.1 Displaying Ownship Distance Rings

To enable the rings, tap **More** > **Settings** and toggle on the **Ownship Distance Rings** switch. If a **time-based** distance ring has been selected, the aircraft must be moving greater than 10 knots to display the rings.

5.8.2.2 Reading Ownship Distance Rings

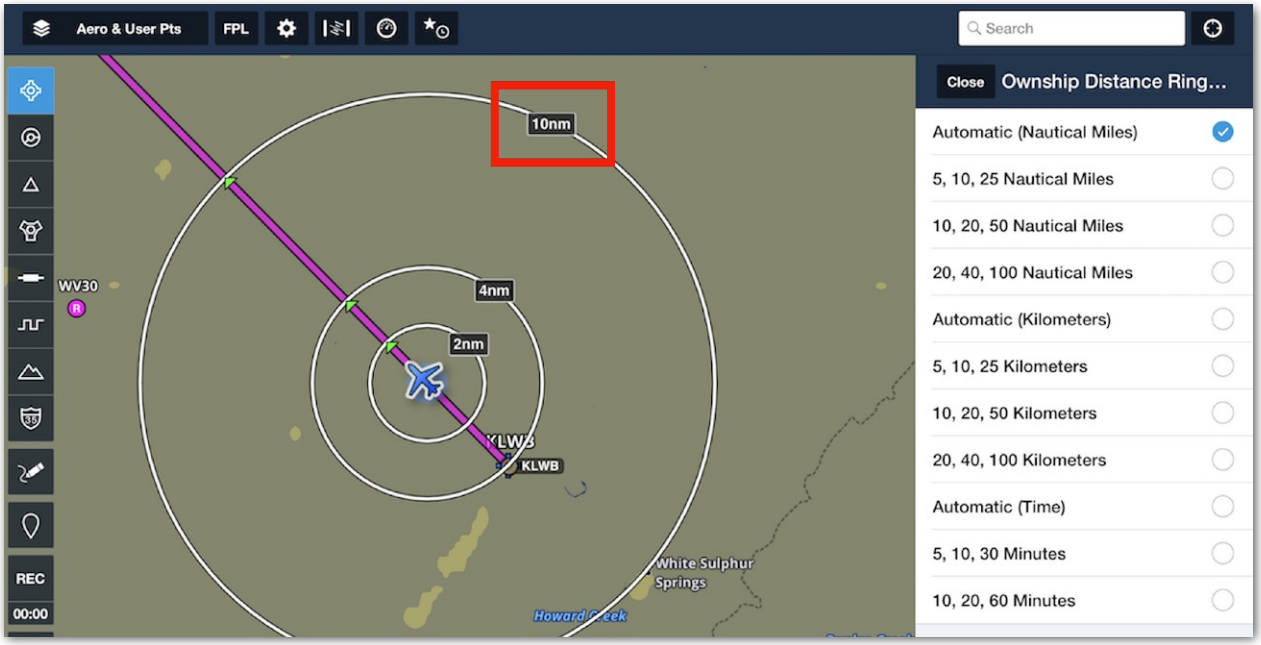
Green triangles on the rings indicate the current ground track. Black labels on each ring display the **distance or time** from the aircraft. These labels always display to the right of the aircraft between the two and three o'clock positions.



Distance labels are displayed off the starboard wing.

5.8.3 Ownship Distance Rings Style

Ownship Distance Rings can display distance by time (minutes) or length (NM or km). To set the preferred style, with Ownship Distance Rings showing on the map, tap a ring label to reveal the sidebar. Select the preferred type from the list. Alternatively, go to **More** > **Settings** > **Ownship Distance Rings Style**. When any **Automatic** style is selected, ring scales adjust automatically as the map is zoomed in or out.



Tap a ring label to reveal the style slide-over.

5.8.4 Enable Ownship

Enable Ownship specifies when the GPS location is displayed.

- **Always** displays the location on the map when GPS accuracy is 100 meters or better. The location marker is hidden if GPS accuracy is worse than 100 meters.

  ForeFlight displays a dot with a pulsing halo when no motion is detected. When motion is detected, ForeFlight displays the selected current location marker oriented in the direction of the ground track with the pulsing halo.

  Aircraft position is also displayed on approach plates and airport diagrams with an Essential or higher subscription.

  When **Always** is selected, location is displayed on plates with a pulsing halo if GPS accuracy is 25 meters or better. If GPS accuracy exceeds 25 meters, the

pulsing halo is hidden from plates. If GPS accuracy exceeds 100 meters, the location marker and pulsing halo are hidden.

The location marker is hidden if GPS data is not received for 20 seconds.

- **Never** hides the location marker on maps and plates at all times.
- **Limited** hides the location marker when GPS location accuracy degrades below 50 meters on the ground, 200 meters in the air, or if GPS data has not been received within the past 5 seconds.
  - **In Flight** displays the location marker when the speed is more than 80 knots.
  - **Airport Map** displays the location marker when the speed is less than 80 knots.

NOTE: When ownship is disabled, ownship-related settings (auto-center, breadcrumbs, distance rings, track vector, etc.) are also automatically disabled.

5.8.5 Ownship Not For Navigation

When enabled, this setting adds an **Ownship not for navigation** label to the top right corner of the Maps view and top left corner of the Plates view.

5.9 Map View

The following map-related settings are available in the Map View section of the main settings menu.

5.9.1 Auto Center

Auto Center Mode determines map orientation. The map can be oriented north up or track up. **Track Up Centered** and **Track Up Forward** require the map to be centered on ownship location with detectable motion.

With Ownship enabled (**More** > **Settings** > **Preferences** > **Enable Ownship**), tap the auto-center (bullseye) button in the upper toolbar to center the map on the current location. When auto-center is enabled, the button is highlighted. If the map is not centered on the current location, the map will orient north up.

5.9.2 Auto Center Deactivate

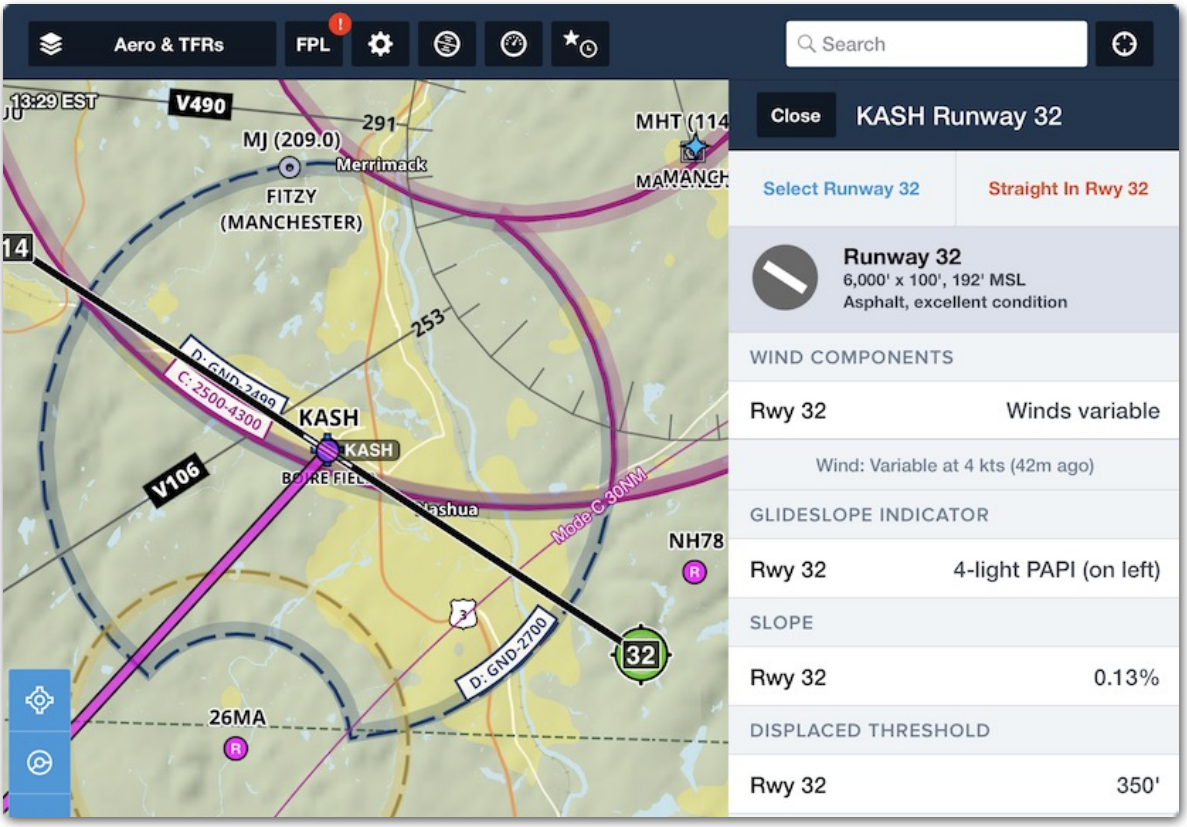
Auto Center Deactivate controls if the map can be panned without first *manually* disabling auto center. The **Automatic** setting disables auto-center when the map is

panned. The **Manual** setting requires deactivation of auto-centering by first tapping on the auto center button, enabling panning.

5.9.3 Extended Centerlines

Extended Centerlines control whether extended runway centerlines are displayed on the map. Extended centerlines are proportional to the runway length. For every 1000 feet of runway, ForeFlight shows a 1 NM extended centerline. For example, a 5000-foot runway displays a 5 NM extended centerline. Extended centerlines are only depicted for the runways at the airports in the route.

An extended centerline runway label can be tapped to display information about the runway, including winds, length, surface type, lighting, elevation, and associated procedures.



Extended Centerlines

5.9.4 Track Vector

Track Vector displays a vector (line) in front of the aircraft icon.

5.9.5 Track Vector Length

The Track Vector Length setting controls the length of the track vector based on a specified distance (in nautical miles) or the distance that will be covered given the current speed and specified amount of time (in seconds or minutes).

While the track direction is changing at more than two degrees-per-second (i.e., the aircraft is turning), the track vector changes to a curve in the direction of the turn.



Track Vector in a Turn

5.9.6 Route Labels

Route Labels control whether the waypoints in the route have labels on the map. Labels are dynamic and will adjust to prevent overlapping. Route labels must be enabled to display approach procedure waypoints and minimum descent altitudes.

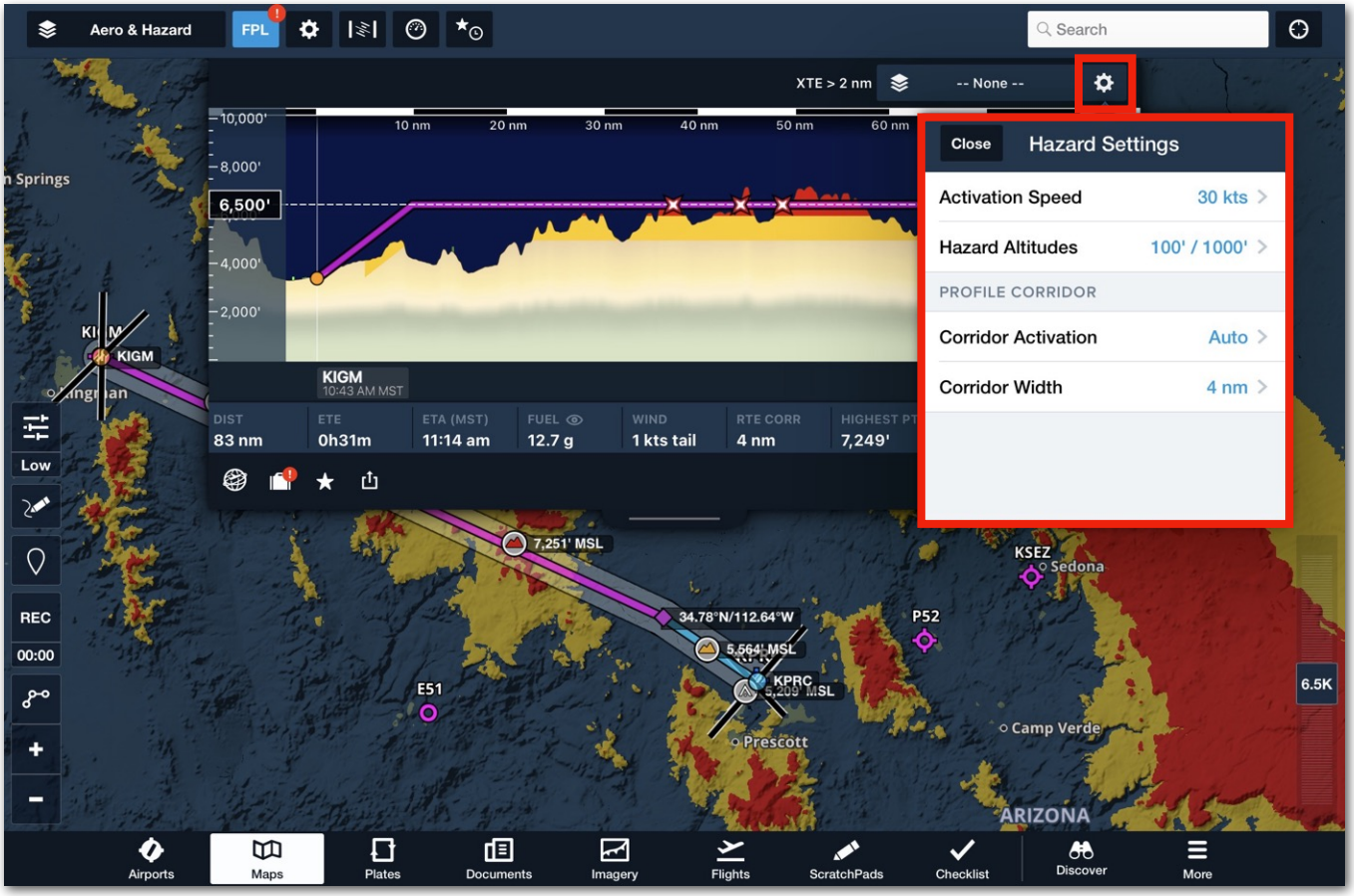
5.9.7 Hazard Settings

The Hazard Settings menu controls the behavior of the Hazard Advisor, Profile View, and Profile Corridor, all of which require an Essential or higher subscription. There are four hazard-related settings described below: **Activation Speed**, **Hazard Altitudes**, **Corridor Activation**, and **Corridor Width**.

5.9.7.1 Displaying Hazard Settings

The Hazard Settings menu can be displayed in one of the following ways:

- In the Navigation Toolbar, tap **More** > **Settings** and then scroll down to the Map View list and tap **Hazards**.
- On the Maps view, tap the **Map Layer Selector**, turn on the **Hazard Advisor** layer, and tap the settings (gear) icon to the right of the **Map Legend** at the bottom of the screen.
- On the Maps view, tap **FPL** to open the Route Editor, tap **Profile** to open the Profile view, and tap the settings (gear) icon on the bottom edge of the Profile view drawer.



Hazard Settings - Maps View

5.9.7.2 Activation Speed

This setting controls when the *selected* **Hazard Advisor** altitude automatically changes to the current GPS altitude of the device.

5.9.7.3 Hazard Altitudes

This setting controls the red and yellow coloration given to hazardous terrain and obstacles on the **Hazard Advisor** map layer and **Profile View**. By default, the **Normal** configuration colors terrain and obstacles yellow if they are within 1,000 ft below the aircraft and red if they are within 100 ft below the aircraft. However, there are three additional configurations for different helicopter operations.

5.9.7.4 Corridor Activation

This setting controls when the **Profile Corridor** appears around the route line: **Show** (always), **Hide** (never), or **Automatic** (whenever the Profile View or Hazard View is displayed).

5.9.7.5 Corridor Width

This setting controls the area around the aircraft or the entire route inside which obstacles presenting a collision risk are displayed. Changing this setting has the following effects:

- The Profile Corridor, if enabled, expands or contracts around the route line according to the Corridor Width. This may change the **highest-point markers** displayed along each leg.
- On the Hazard Advisor map layer, when the Profile Corridor is active, Corridor Width determines how far from the route centerline hazardous obstacles are displayed on the map.
- On the Profile View, terrain and obstacles within half the distance of the selected Corridor Width are shown. For example, when the width is 8 NM, obstacles and terrain 4 NM on either side of the route centerline are depicted in the Profile View.
- On the Profile View, the current Corridor Width is displayed as the "Route Corridor" value in the top right corner.

5.9.8 Map Touch Action

Map Touch Action controls the behavior of IFR and VFR charts. This setting is only available when an IFR or VFR en route chart is selected.

- **No Action** results in no map overlap changes when tapping on the map.
- **Bring chart to front** moves the chart to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.
- **Bring chart to front with legends** moves the chart, chart legend, and chart border to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

5.9.9 Cockpit Sharing

Cockpit Sharing allows sharing routes between devices running ForeFlight Mobile when connected to the same Wi-Fi network.

5.9.10 Show Annotations on Map

Show Annotations on Map determines if terminal procedure plate or airport diagram annotations are displayed on a plate when sent to Maps. This setting is also available on the Maps view. Tap the plate when depicted on the map to enable/disable **Show Annotations**.



Approach Plate with Annotations

5.9.11 Auto-Receive Panel Flight Plans

Auto-Receive Panel Flight Plans loads *new* routes from connected Garmin navigators without user input. When disabled, new routes generate a pop-up notification with an option to load into ForeFlight.

5.9.12 Four-color Radar

Four-color Radar enables radar in a low-resolution, four-color scheme that complies with dBZ-to-color mapping standards defined by the Radio Technical Commission for Aeronautics.

5.9.13 Reported Turbulence Max Age

Limits the maximum age of reported turbulence to 2, 4, or 6 hours.

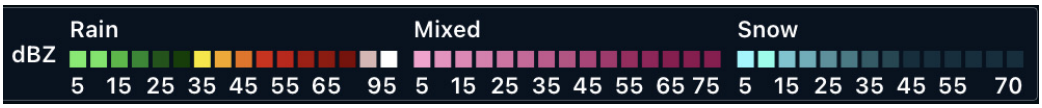
5.9.14 Internet Radar Coverage

Internet Radar Coverage displays the area of available radar coverage while connected to the Internet. Areas without coverage display a transparent mask with hash marks and “Radar not available” labels.

5.9.15 Show Map Legend

The **Show Map Legend** setting displays a legend at the bottom of the Maps view when any of the following layers are selected.

- Radar
- Enhanced Satellite
- Hazard Advisor
- Color IR Satellite
- Icing and Turbulence
- Clouds
- Winds (Temps/Speeds)



Map Legend (Radar)

5.9.16 Marked Positions

Marked Positions display a button on the left side of the Maps view. Tap the button to drop a green position marker at the current location. See **Marked Positions** for additional information.

5.10 Layer Selector

The following Layer Selector settings are available in the main settings menu.

5.10.1 Multiple Selections

Allows the map’s layer selector to remain open while selecting various map layers. Tap outside the layer selector to close it.

5.10.2 Auto Zoom to Custom Content

Adjusts the maps zoom level and positioning to display the entire custom content map layer when selected.

5.11 Annotations

The following Annotations settings are available in the main settings menu.

5.11.1 Show Control

Displays the annotation button on the left side of the Maps view.

5.11.2 Auto Apple Pencil Drawing

Automatically activates annotations on the Maps, Documents, and Plates views when touching the screen with an Apple Pencil.

5.11.3 Annotations Timeout

Specifies the amount of time before annotation mode is automatically disabled. Screen touches with an Apple Pencil, stylus, or finger reset the annotation timeout countdown.

5.12 Checklist

The following Checklist settings are available in the main settings menu.

5.12.1 Speak

Reads the Challenge or Challenge & Response portion of a checklist aloud

5.13 Plate and Document Views

The following Plate and Document View settings are available in the main settings menu.

5.13.1 Lock Disables Buttons

Controls if the lock switch on the Plates and Documents views disables the buttons. The lock switch disables pan, zoom, and all button touches (including the navigation bar) when enabled. When disabled, the lock switch only locks the plate and document pan, zoom, and page changing.

5.14 Traffic

The following Traffic settings are available in the main settings menu.

5.14.1 Hide Distant Traffic (ADS-B/FLARM)

Hides ADS-B and FLARM traffic that is more than 15 nautical miles or 3,500’ (above or below) the current GPS position when connected to an ADS-B or FLARM receiver.

5.14.2 Traffic Breadcrumbs (ADS-B/FLARM)

Displays breadcrumbs for traffic targets that have been tapped. This feature requires an Essential or higher subscription and a connected ADS-B or FLARM receiver. See **Traffic Breadcrumbs** for more information.

5.15 Search and Rescue

The following SAR settings are available in the main settings menu. For additional information, see the Search and Rescue Guide, available in Documents > ForeFlight

5.15.1 SAR Features

Enable the SAR grid layers and SAR patterns.

5.15.2 SAR Waypoints as Lat/Lon

Displays SAR pattern waypoint labels as Latitude/Longitude instead of SAR-01, SAR-02.

5.16 Downloads

The following Downloads settings are available in the main settings menu. For additional information, see the **Downloads** chapter.

5.16.1 Background Downloads

Allow downloads to continue while ForeFlight is in the background. When enabled, all pending downloads are downloaded simultaneously. When disabled, ForeFlight must remain open during the download process, and downloads are done four at a time.

5.16.2 Automatic Downloads over Cellular

Allow downloads to be completed using cellular data. Turning this on is only recommended for devices with unlimited data plans.

5.16.3 Automatic Downloads

Allow ForeFlight to automatically download updates when they become available and when the device is connected to the Internet.

5.17 Pack

The following Pack settings are available in the main settings menu. See the **Pack** section for more information.

5.17.1 Enable Auto-Check

Automatically evaluates whether downloads are needed based on the planned route. When this setting is enabled, Pack displays a red exclamation badge when a new route is planned.

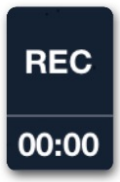
When disabled, Pack evaluates the route when the Pack suitcase button is tapped. It is not possible to automatically pack for flights. Auto-check only evaluates the route to see if new data can be downloaded.

5.18 Track Log

Track Log settings control how recordings are started. For more information, see the **Track Logs** chapter.

5.18.1 Enable Start/Stop Control

Displays the Track Log record [REC] button and the Track Log timer in the bottom-left of the Maps view. Tapping the **REC** button starts or stops a track log recording.



Track Log Record Button

5.18.2 Enable Auto Start/Stop

Automatically records Track Logs. Track Logs are started when ForeFlight is open and detects a takeoff (accelerating climb at a speed greater than 40 knots) and ends when ForeFlight detects a landing.

5.19 Flights

The following Flights settings are available in the main settings menu.

5.19.1 Briefing Format

Specifies the type of briefing generated for the device: Graphical HTML (U.S. only) or Graphical PDF (International). Flights outside the United States default to the Graphical PDF briefing.

5.19.2 Enable Fuel Orders

Displays the Fuel Order field on the Flights view. The Fuel Order field is used to create and send fuel orders to the destination FBO before the flight (Performance tier accounts only).

5.20 Taxi Diagram

The following Taxi Diagram settings are available in the main settings menu.

5.20.1 Auto Show Taxi

Displays the landing airport taxi diagram upon landing.

5.20.2 Show Taxi on Map

Displays the landing airport taxi diagram on the Maps view. When disabled, the taxi diagram is automatically displayed in the Plates view. (Essential plan or higher required).

5.21 Preferences

The Preferences section contains various settings.

5.21.1 Alerts

Alert settings control the behavior of in-app alerts. All alerts are displayed visually and can be announced audibly. See the **Alerts** chapter for more information.

Speak All Alerts plays alerts audibly via the device speaker or a connected headset. When toggled, a confirmation message is also played audibly. Use the iPad/iPhone volume buttons to adjust the volume.

5.21.2 Units/Time

The Units/Time menu contains the following settings:

- **Times** determine the timezone format. Local Time uses the device's timezone. Station Time uses the timezone of the weather station/airport. Zulu Time displays time in UTC/GMT.
- **Wind Speed** specifies wind speed units (Knots, Miles per hour, or Meters per second).
- **Pressure** specifies pressure units (Inches of mercury, hPa/millibars).
- **Temperature** specifies temperature units (Celsius, Fahrenheit, or Automatic). When automatic is selected, weather sourced from official aviation sources (METARs, TAF) is displayed in Celsius. Non-aviation sources (daily forecasts) use the iOS device temperature format setting.
- **Visibility** specifies visibility units (Statute miles, Kilometers).
- **Coordinates** setting determines how coordinates are displayed in ForeFlight.
  - DD.dd° degrees and hundredths of degrees.
  - DD°MM.mm - degrees, minutes, and hundredths of minutes.
  - DD°MM'SS" - degrees, minutes, and seconds.
  - MGRS 6-/8-/10-digit - Military Grid Reference System with three precision levels (more digits equate to greater precision).
- **Aircraft Speed** specifies airspeed and groundspeed units (Knots, Miles per hour, Kilometers per hour).
- **Distance** controls distance units (Nautical miles, Statute miles, or Kilometers).
- **Altitude Instruments** specifies the altitude unit of altitude-related instruments (GPS altitude, climb gradient, etc.).
- **Bearing and Track Instruments** include Ruler, Synthetic Vision, and Map Instruments. This setting specifies if the instruments are relative to magnetic or true north.
- **Runway Length** displays runway length in feet or meters.
- **Precip Amount** specifies the unit of precipitation reports in daily weather. The automatic setting uses the device's iOS region setting.

5.21.3 Allow Device to Sleep

When the Allow Device to Sleep setting is enabled, the iPad/iPhone is allowed to sleep after a period of inactivity. The device's iOS auto-lock setting determines the inactivity period. Disable Allow Device to Sleep to ensure the iPad/iPhone will not enter sleep mode while ForeFlight Mobile is running in the foreground.

5.21.4 Automatic Clock Check

Automatic Clock Check verifies that the device system time is set correctly. If it is found to be incorrect, an alert will display. Proper system time is essential for many features in the app. Enabling this setting is recommended.

5.21.5 Show Heliports

The Show Heliports setting displays heliports on the map when the Aeronautical Map is selected and the setting is enabled. The setting also determines if the nearby airports list includes heliports. This setting can also be adjusted on the Maps view. Tap the map settings (gear) button in the upper toolbar and select Airports when the Aeronautical map layer is selected.

5.21.6 Show Private Airports

The Show Private Airports setting displays private airports on the map when the Aeronautical Map is selected and the setting is enabled. The setting also determines if the nearby airports list includes private airports. This setting can also be adjusted on the Maps view. Tap the map settings (gear) button in the upper toolbar and select Airports when the Aeronautical map layer is selected.

5.21.7 Show Aviation Keyboard

Enable the aviation keyboard. See Aviation Keyboard for more information.

5.21.8 Start on Last Screen

The Start on Last Screen setting allows ForeFlight to open to the last view used when the app is closed. If this setting is disabled, ForeFlight opens to the Airports view.

5.21.9 Enable Diagnostic Logs

The Enable Diagnostic Logs setting records diagnostic information for troubleshooting purposes. This setting is enabled by default and should remain enabled unless the ForeFlight Pilot Support Team instructs otherwise. Disabling diagnostic logging limits the troubleshooting abilities of the Pilot Support team.

5.21.10 Performance Logging Level

The Performance Logging Level setting is used to diagnose issues with app performance. Do not set this to anything other than zero unless instructed by a ForeFlight support team member, as it may negatively impact healthy app performance.

5.21.11 Sync Data To/From Device

The **Sync Data To/From Device** setting is unique to each device. When this setting is enabled, the data types listed below are synced to the ForeFlight servers and available on each device signed into an account.

- Aircraft Profiles
- Favorite / Recent Routes
- Favorite Airports
- Documents (including Document Annotations)
- ScratchPads
- Briefings
- Navlogs
- Track Logs
- User Waypoints
- Logbook
- Weight & Balance
- Flights (including Messages and Files)
- Checklists

NOTE: Custom content (e.g., custom map layers and Content Packs) and plate annotations are not synced to an account.

5.21.12 Sync Large Files on Expensive Wi-Fi

Enable large files, such as documents, to be synced while connected to expensive Wi-Fi networks.

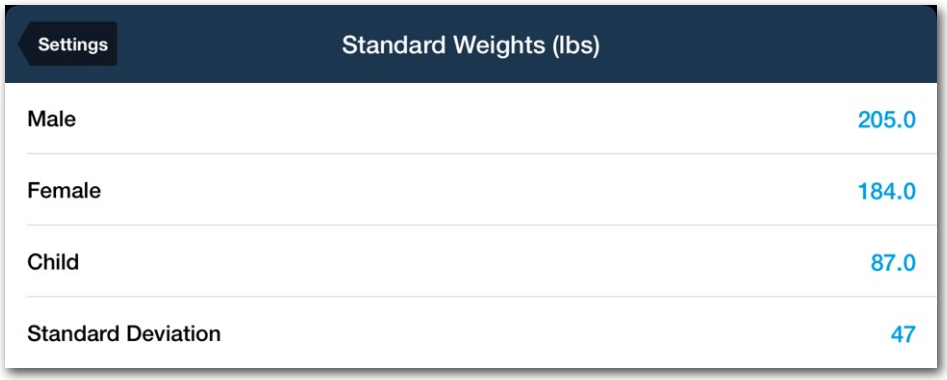
5.22 Weight and Balance

The following Weight and Balance settings are available in the main settings menu.

5.22.1 Standard Weights

The Standard Weights (lbs) setting specifies default weights for calculating weight and balance.

- **Male** defines the default weight for a male passenger or crew member.
- **Female** defines the default weight for a female passenger or crew member.
- **Child** defines the default weight for a child.
- **Standard Deviation** defines how much the standard weights are expected to deviate. This value is only applied when using the standard weights curtailment option (business or MFB subscription required).



Standard Weight Settings

MAP SETTINGS

Settings that are unique to the Maps view are found in map settings. Access map settings by tapping the settings (gear) button in the upper toolbar. Settings adjusted on the map are automatically synced with the main settings view. Map settings do not sync between devices. The following settings are available from the Maps view.

6.1 Screen Brightness

The brightness slider allows for additional *dimming* beyond the lowest device setting. At the highest setting, brightness matches the device setting.

6.1.1 Invert Chart Colors

The **Invert Chart Colors** inverts black and white colors on charts for improved low-light viewing (does not affect Street or Aerial maps). This setting does not affect the Aeronautical map and Jeppesen en route charts.

6.2 ForeFlight Map

The ForeFlight Map section controls elements related to the ForeFlight base map.

6.2.1 Map Theme

The Map Theme controls whether the ForeFlight base map is **Light** (tan), **Dark** (dark blue), or **Classic** (light brown).

6.2.2 Terrain

The Terrain setting offers three options:

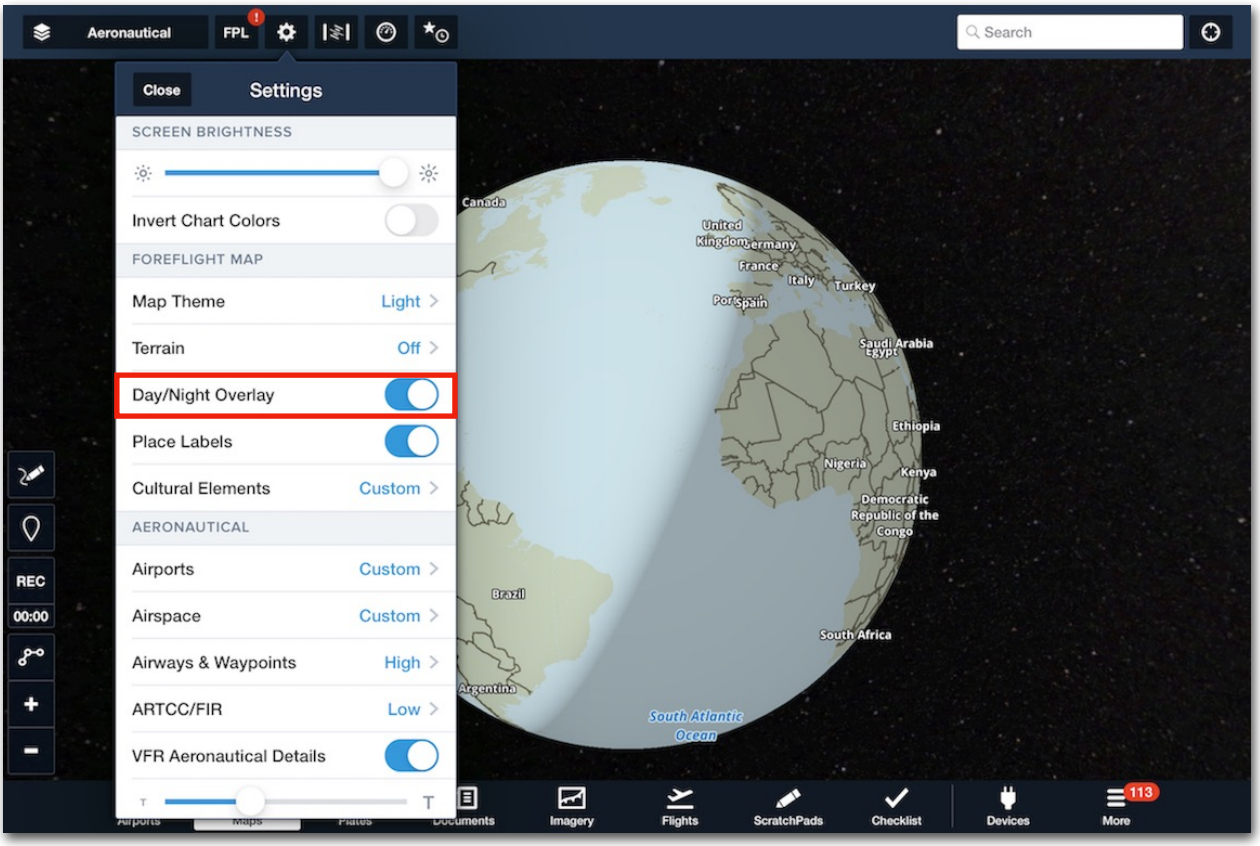
- **Off** - Terrain is not depicted on the base map.
- **Shaded Terrain** - uses grayscale shading to depict terrain.
- **Colored Terrain** - uses coloring to depict terrain.

Peaks, Passes, and Cables display mountain peaks, passes, and cables on the map. This data is available with the high-resolution terrain download.

6.2.3 Day/Night Overlay

The Day/Night Overlay feature allows users to switch to a view that displays the Earth with a light source resembling the sun. With this view, the world can be viewed in a way that shows both the illuminated and shaded areas of the world. The shaded side accurately represents the real-time shadowing of the Earth.

On the dark side of the Earth, zooming in will cause the shading to disappear to allow easy viewing of map data.



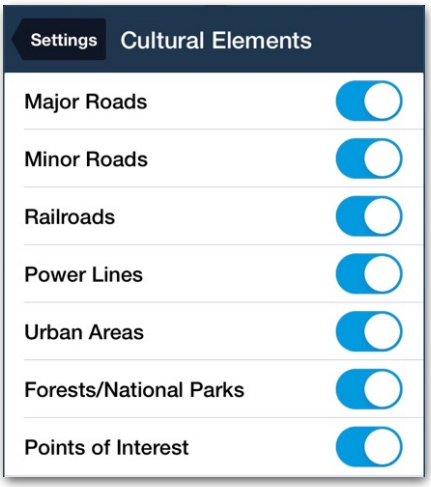
Day/Night Overlay Setting

6.2.4 Place Labels

The Place Labels setting adds text labels to the map that identify political and geographic features. Place labels are responsive to dynamic text sizing.

6.2.5 Cultural Elements

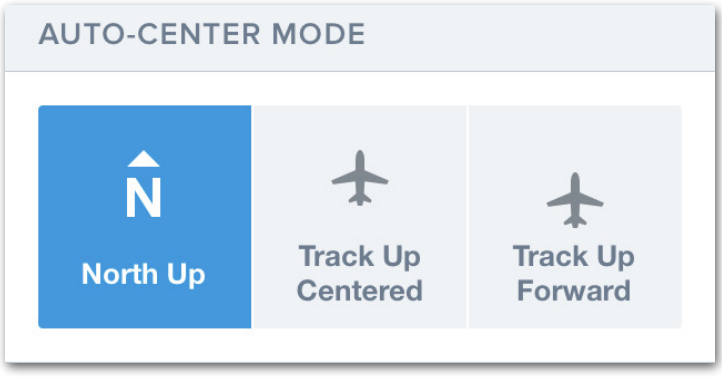
Cultural element settings allow the base map to be customized to show or hide elements such as roads, railroads, power lines, urban areas, forests/national parks, and points of interest.



Cultural Elements

6.3 Auto-Center Mode

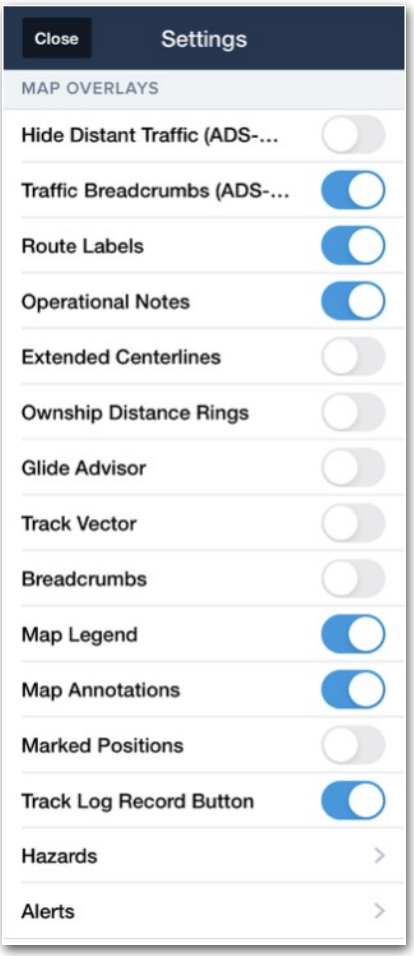
Auto Center Mode determines map orientation. The map can be orientated north up or track up. **Track Up** and **Track Up Forward** require the map to be centered on the current location, and motion must be detected. To center the map on the location, tap the auto-center button in the upper toolbar. When auto-center is enabled, the button is highlighted. If the map is not centered on the current location or if motion is not detected, the map is orientated north up.



Auto-Center Mode Settings

6.4 Map Overlays

The map overlay section contains various settings for the features that can be overlayed on the map. Map overlay settings are dynamic and only display a setting if the applicable map layer is selected. For example, the Four Color Radar setting is only displayed when Radar is selected.



Map Overlays Settings

6.4.1 Hide Distant Traffic (ADS-B/FLARM)

When enabled, this setting hides traffic more than 15 nautical miles or 3,500’ (above or below) the current GPS position. An ADS-B or FLARM receiver connection is required to see this setting.

6.4.2 Traffic Breadcrumbs (ADS-B/FLARM)

The **Traffic Breadcrumbs (ADS-B/FLARM)** setting determines whether or not to display breadcrumbs for a traffic target when tapped. An ADS-B or FLARM receiver connection and an Essential account or higher is required to see this setting. See **Traffic Breadcrumbs** for more information.

6.4.3 Route Labels

The Route Labels setting controls whether labels for the waypoints in a route are displayed on the map. Labels are dynamic and will adjust to prevent overlapping. Route labels must be enabled to display approach procedure waypoints and minimum descent altitudes.

6.4.4 Operational Notes

The Operational Notes setting adds Operational Note Flags to the Maps view when a route is planned. Operational Note Flags are a Performance-tier feature.

6.4.5 Extended Centerlines

The Extended Centerlines setting enables display of extended runway centerlines on the map. Extended centerlines are proportional to the runway length. For every 1,000 ft of runway, ForeFlight shows a 1 NM extended centerline. For example, a 5,000-foot runway displays a 5 NM extended centerline. Extended centerlines are only depicted for airports in a route.

Tapping an extended centerline will display runway information, including length, surface type, wind components, lighting, elevation, and associated procedures.

6.4.6 Ownship Distance Rings

The Ownship Distance Rings setting displays or hides concentric rings around the ownship marker, indicating distance or time from the aircraft. This feature is described in the **Ownship Distance Rings** section.

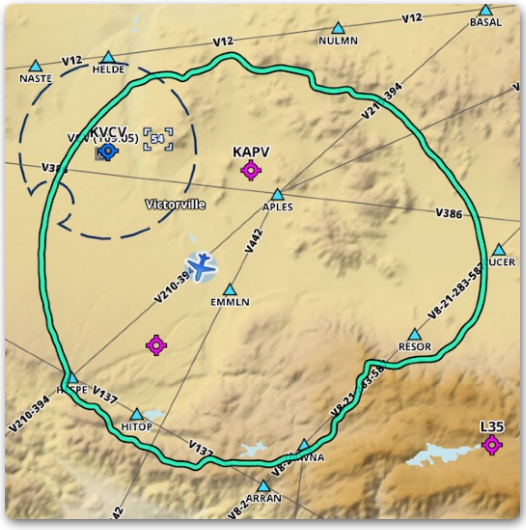
6.4.7 Glide Advisor

Glide Advisor uses the glide ratio, current GPS altitude, surrounding terrain, and winds aloft to present a ring showing glide range. Before use, Glide Advisor must be configured with best glide speed and glide ratio of the aircraft. These settings can be entered in the Aircraft profile or the map settings menu when Glide Advisor is enabled.

The Glide Advisor ring shows when GPS altitude is more than 200 ft AGL. When the Glide Advisor ring is displayed, a Glide Advisor label is shown in the lower-right corner of the map. Tap the label to select a different aircraft profile or adjust the glide characteristics. See images below for an example of the difference between flying over relatively flat terrain and rising terrain.



Flat Terrain



Rising Terrain

Glide Settings

Glide Settings are where the glide speed and ratio are defined for the Glide Advisor. The glide ratio defines how far the aircraft can glide while losing a unit of altitude at best glide speed. Refer to the Aircraft Flight Manual to determine the glide speed and ratio. For example, if the glide ratio is 8:1, enter 8 into the glide ratio field.

6.4.8 Track Vector

Track Vector displays a vector (line) in front of the ownship icon in the direction of travel. The track vector length is set in the main settings menu by selecting **More** > **Settings** > **Track Vector Length**.

6.4.9 Breadcrumbs

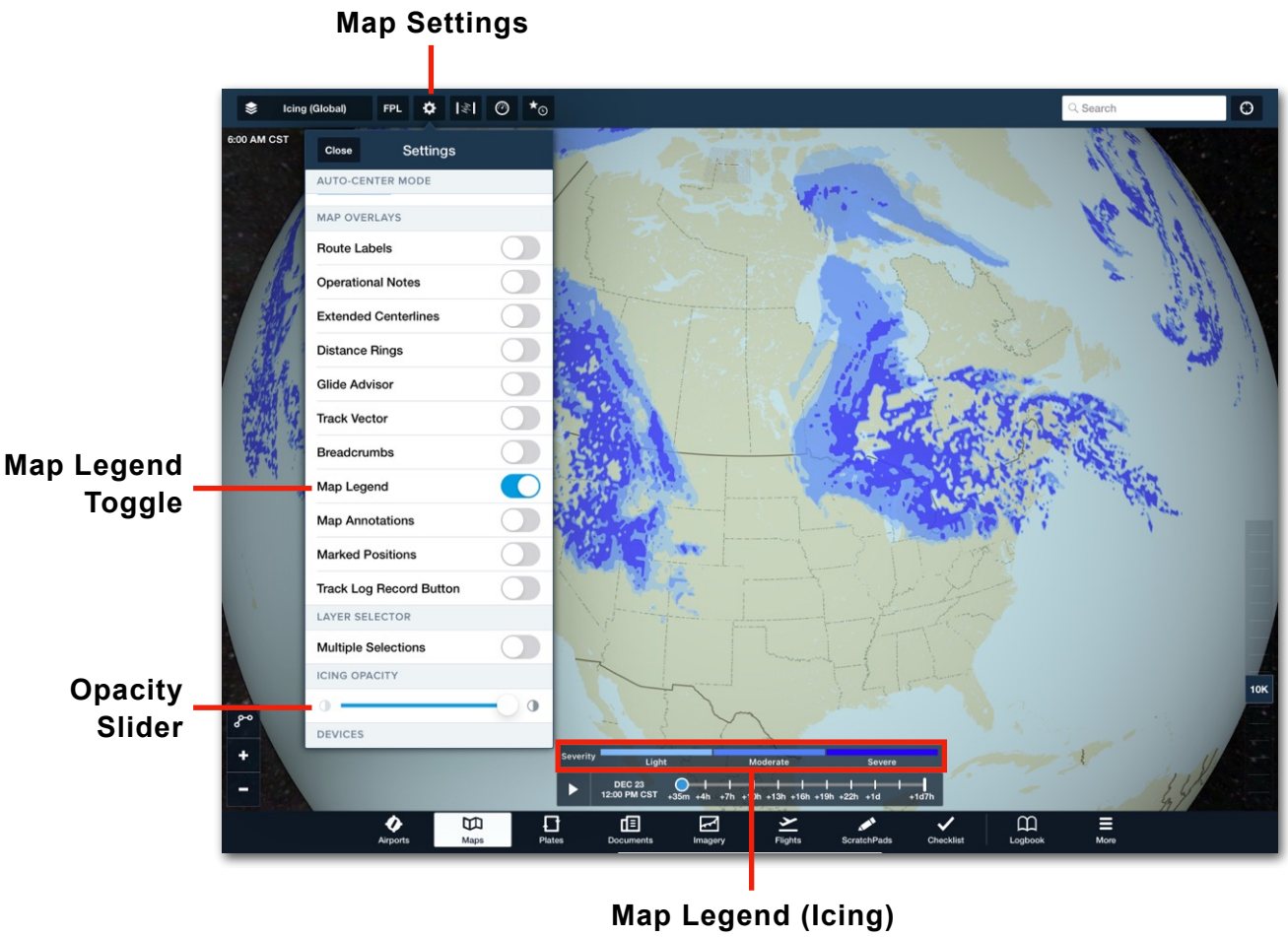
Breadcrumbs are a thin green line depicting the flight path since takeoff. See **Breadcrumbs** in the main settings menu by selecting for details.

6.4.10 Map Legend

Map Legend toggles a legend display at the bottom of the Map view when any of the following layers are selected:

- Radar
- Satellite (Enhanced)
- Satellite (Color IR)
- Icing
- Turbulence
- Clouds
- Winds (Temps)
- Winds (Speeds)
- Hazard Advisor.

IMPORTANT: The Map Legend displays weather data at **100% opacity**. If the opacity of a weather layer is adjusted using the **Opacity Slider**, the legend may no longer accurately reflect how the weather appears on the map.



6.4.11 Map Annotations

Map annotations display the annotation button on the left side of the map view. Tap the annotation button to enter annotation mode. Map annotation mode remains active after annotation inactivity for the amount of time specified in **More** > **Settings** > **Annotations Timeout**.

6.4.12 Marked Positions

Displays a button on the left side of the Map view. Tap the button to drop a green position marker at the current location. Marked Positions requires a Premium plan. See **Marked Positions** for additional information.

6.4.13 Track Log Record Button

Displays a **REC** button on the Map view for manually starting and stopping **Track Logs**. When enabled, the Track Log timer is displayed below the button indicating that a Track Log is actively recording.

6.4.14 LSALT Calculator

Enables LSALT calculations on the **FPL NavLog** and **Route Editor**.

6.4.15 Turbulence Max Age

Limits the maximum age of reported turbulence to 2, 4, or 6 hours.

6.4.16 Four-color Radar

Enables radar in a four-color scheme that complies with dBZ-to-color mapping standards defined by the Radio Technical Commission for Aeronautics.

6.4.17 Internet Radar Coverage

Displays the area of available radar coverage while connected to the Internet. Areas with no coverage display a transparent mask with hash marks and “Radar not available” labels. This option is only available when the Radar Map layer is enabled.

6.4.18 NOTAMs Settings

NOTAMs Settings enables filtering by NOTAM type. This setting is only available when the NOTAMs map layer is enabled. See the NOTAMs section for more information.

6.4.19 Map Touch Action

Map Touch Action controls the behavior of IFR and VFR charts. This setting is only available when an IFR or VFR en route chart overlay is enabled.

- **No Action** results in no map overlap changes when tapping on the map.
- **Bring chart to front** moves the chart to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.
- **Bring chart to front with legends** moves the chart, chart legend, and chart border to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

6.4.20 Hazards

The Hazard Settings menu controls the behavior of the Hazard Advisor, Profile View, and Profile Corridor, all of which require an Essential or higher subscription. See the **Hazard Settings** section for more information.

6.4.21 Alerts

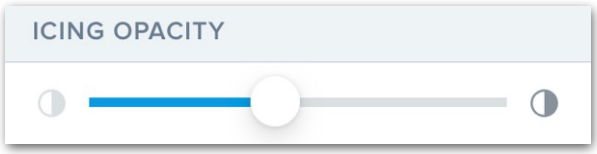
Alert settings control the behavior of in-app alerts. All alerts are displayed visually and can be announced audibly. See the **Alerts** chapter for more information.

6.5 Layer Selector

The layer selector section contains a single setting, **Multiple Selections**, which allows the map layer selector menu to remain open while selecting various map layers. Tap outside the layer selector to close it.

6.6 Opacity Slider

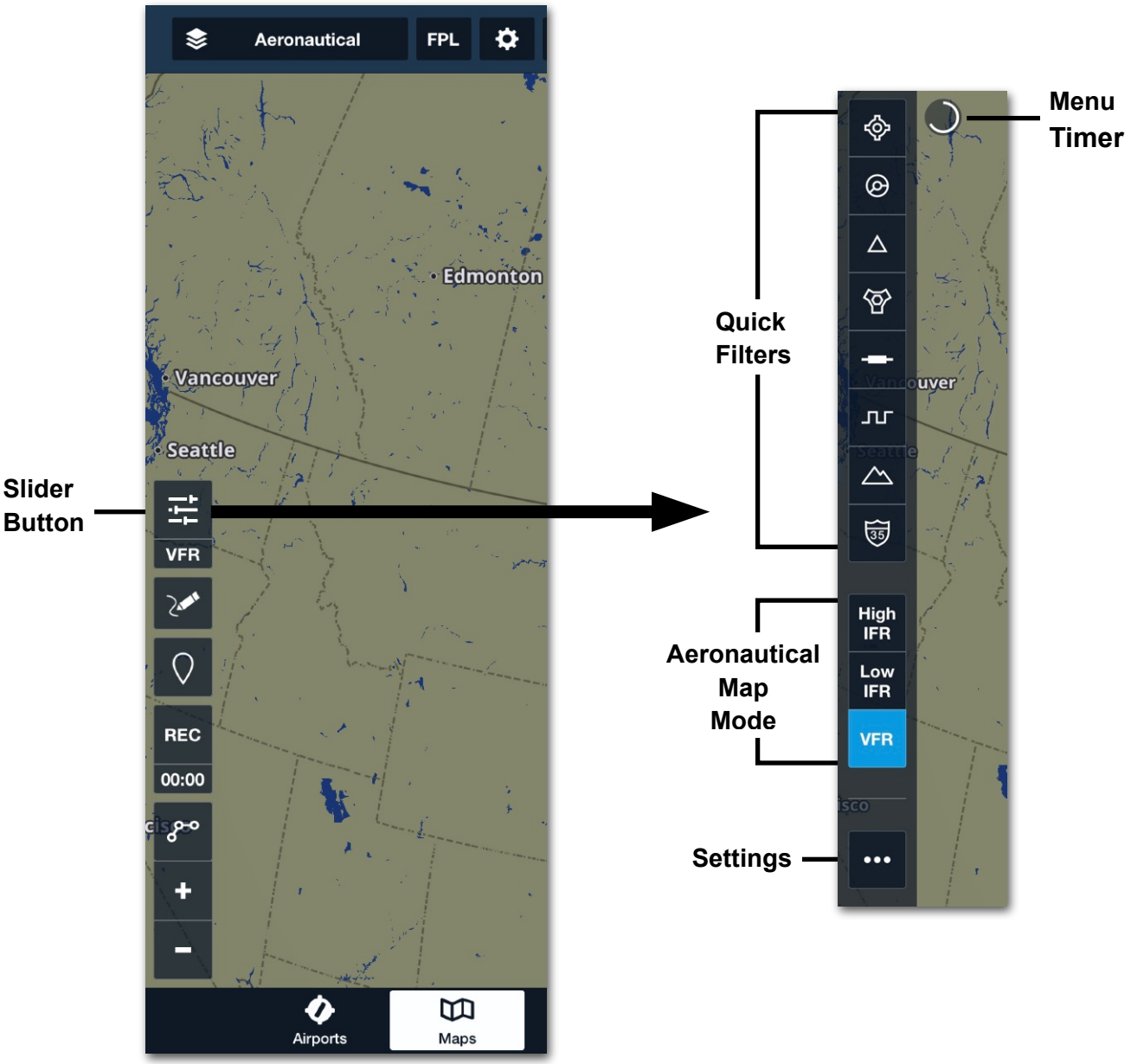
When a weather map layer or Hazard Advisor is selected, an opacity slider appears below the Multiple Selections setting. The slider adjusts map layer opacity.



Opacity Slider (Icing)

6.7 Aeronautical Settings

Settings to customize the **Aeronautical map** are available when the Aeronautical map layer is selected. When Aeronautical is not selected in the map layer menu, the slider button is hidden. To access the Aeronautical settings and quick filters press the slider button on the left side of the map screen. After the slider button is pressed the left side buttons will display the Quick Filters, Aero Map Modes, Settings button, and the menu timer.



Aeronautical Settings

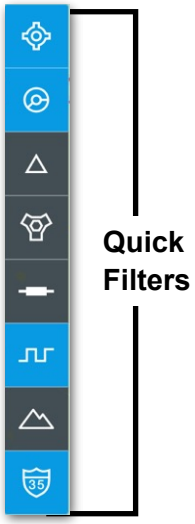
6.7.1 Menu Timer

The menu timer is a graphic representation of the time remaining for Aeronautical Settings menu displays. The menu timer can be set to 5 seconds through 30 seconds in 5-second increments.

6.7.2 Quick Filters

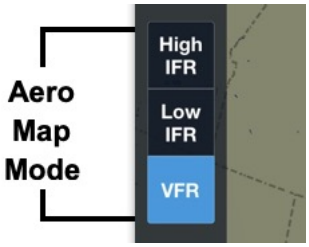
Quick Filters toggles the Aeronautical Map Layer quick filter buttons for Airports, Airspace, Waypoints, Navaids, Airways, ARTCC/FIR, Terrain, and Roads.

Quick filter buttons are located on the left side of the map and appear when Quick Filters are enabled and the Aeronautical Map is selected.



6.7.3 Aeronautical Map Mode Selector

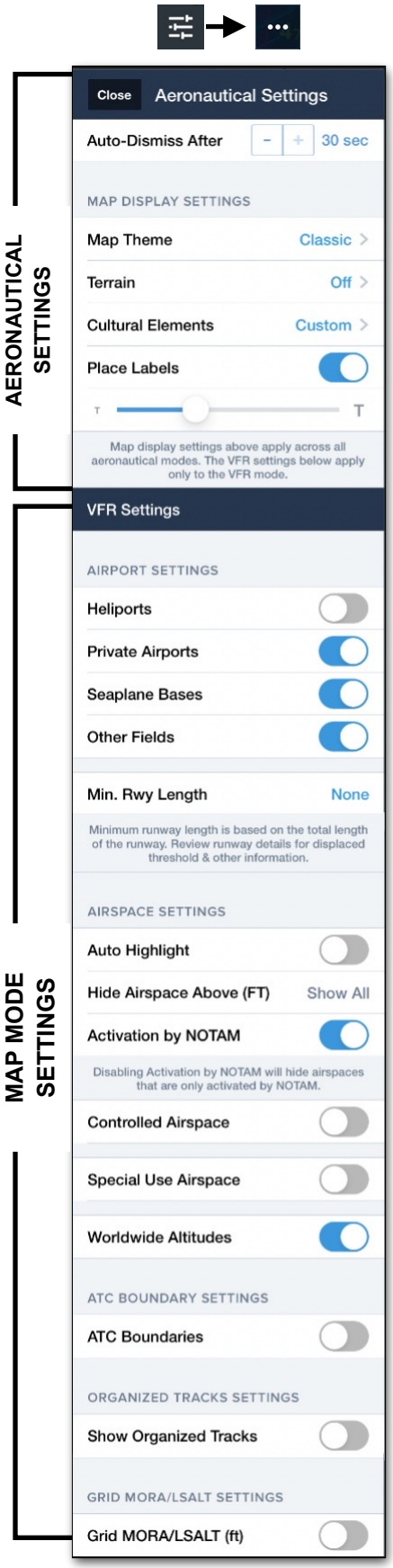
The Aeronautical Map mode selector buttons switch between customizable map modes: VFR, LOW IFR, or HIGH IFR. For customization details see **Aeronautical Map Mode Indicator**.



Aeronautical Map Mode Selector

6.7.4 Aeronautical Settings

The following settings are available in Aeronautical Settings and apply across all aeronautical modes. To open the menu, tap the slider button and then the three-dot settings button.



6.7.4.1 Auto-Dismiss After

Auto-Dismiss After sets the menu to auto-dismiss (close the menu). The timer may be set from 5 to 30 seconds in 5-second increments.

6.7.4.2 Map Display Settings

The following Map Display Settings in Aeronautical Settings are identical to the settings described in **6.2 ForeFlight Map**:

- **Map Theme**
- **Terrain**
- **Cultural Elements**
- **Place Labels**.

6.7.4.3 Text Size Adjustment

Below **Place Labels** is a slider for adjusting the map text size of aeronautical map elements. The full range of the slider is from 75% to 150%. The slider does not affect place labels or text on other maps or charts.

6.7.5 Aeronautical Map Mode Indicator

The **Aeronautical Map Mode** header bar (blue header bar below place labels) indicates the selected map mode: VFR, LOW IFR, or HIGH IFR. The settings below the bar allow configuration of the Aeronautical Map layer with different options for each mode independently. The settings are retained through mode changes, which offers the ability to maintain independent setting defaults for each map mode.

6.7.5.1 Airport Settings

Airport Settings determines the types of airports displayed when the Aeronautical layer is selected.

Heliports - displays or hides heliports on the Aeronautical Map. When enabled, heliports also appear in the nearby airport list.

Private Airports - displays or hides private airports on the Aeronautical Map. When enabled, private airports also appear in the nearby airport list.

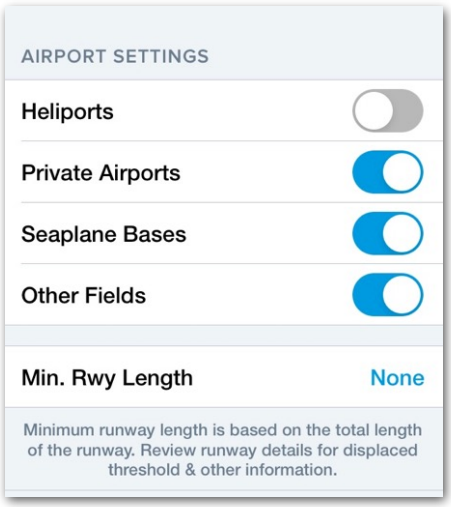
Seaplane Bases - displays or hides seaplane bases on the Aeronautical Map. When enabled, seaplane bases also appear in the nearby airport list.

Other Fields - displays or hides any airport types not classified as an airport, heliport, private heliport, or seaplane base, other fields also appear in the nearby airport list.

Min. Rwy Length - displays or hides airports based on the total length of their longest runway. By default, this field is set to **None**, and airports are displayed regardless of runway length. When changed to a number between 1,000 ft (304 m) and 10,000 ft (3,047 m), airports that do not meet the minimum runway length are hidden from the map. Heliports are also filtered when this setting is used.

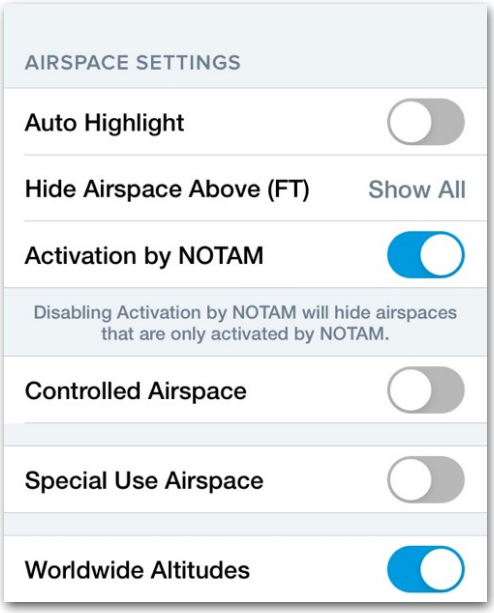
Setting a minimum runway length also displays a blue quick-access button on the lower portion of the map that can be used to view and change this setting. The quick-access button disappears when Min. Rwy Length is set back to **None**.

CAUTION: The Min. Rwy Length represents the total length of the runway *including* the displaced threshold. Review the relevant airport listings to determine the usable portion of each runway.



6.7.5.2 Airspace Settings

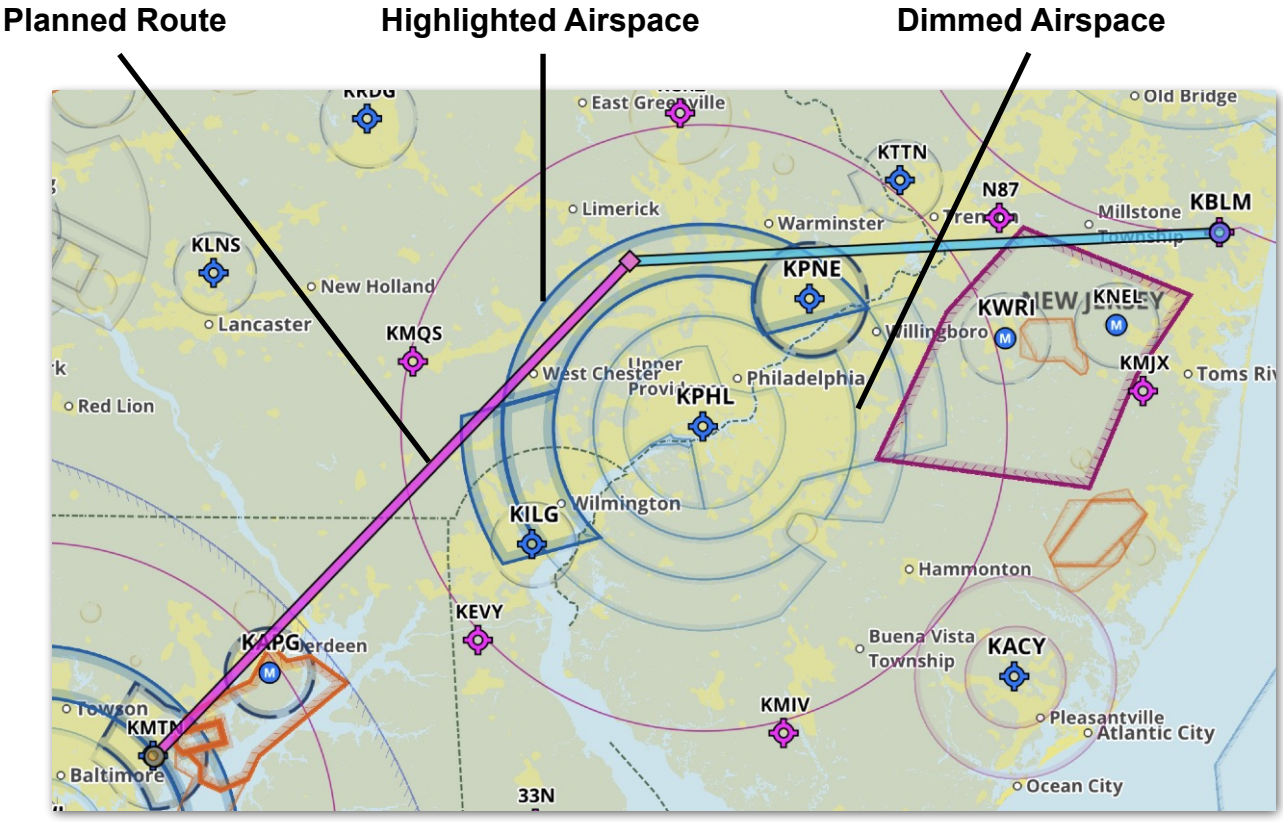
Airspace Settings controls the display of Aeronautical Map airspace.



Auto Highlight - evaluates the planned route and highlights airspace the planned route will intersect based on the selected climb, cruise, and descent profile or current in-flight track.

Airspace within 1,000 feet of the planned altitude and one nautical mile laterally of the route is highlighted. Airspace outside 1,000 feet and one nautical mile is visible but dimmed.

In-flight, airspace up to 50 NM ahead of the current track (also within +/- 1,000 feet of current altitude and within a one-nautical mile corridor) is highlighted.



Airspace Auto Highlighting

Hide Airspace Above filters airspace based on a user-specified altitude. Entering zero allows all airspace to show. Values from 5-499 are treated as flight levels. Altitude values of 500 or more are treated as feet. For example, 65 is treated as 6,500 ft. 320 is treated as 32,000 ft. 1000 is treated at 1000 ft.

When planning a flight or climbing within 1,000 ft of hidden airspace along the route, the hidden airspace is automatically displayed. The Hide Airspace Above value is displayed as a label in the lower-portion of the map.



Not Hidden vs Hidden Airspace Using Hide Airspace Above

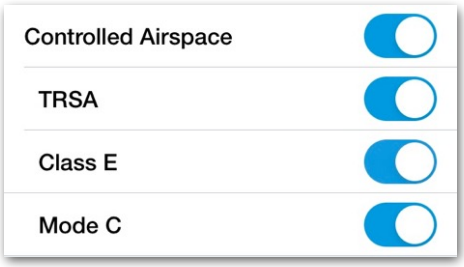
Activation by NOTAM - can display or hide controlled and special use airspaces that are activated by NOTAMs. By default, the switch is toggled on and the Aeronautical Map shows all airspace regardless of its source. Toggle the switch off to hide any airspace that is activated by a NOTAM. This can be useful for decluttering the map in particularly dense airspace regions.

CAUTION: Pilots are responsible for ensuring compliance with all active airspace, regardless of the Activation by NOTAM setting.

Controlled Airspace

The Controlled Airspace section allows for specific types of airspace to be filtered from the aeronautical map. Toggle a setting to hide or show the selected airspace.

- **Controlled -** Displays or hides the controlled airspace options below:
  - **TRSA** - Terminal Radar Surveillance Area
  - **Class E** - Surface class E airspace
  - **Mode C** - Airspace requiring a mode C transponder around class B airspace.

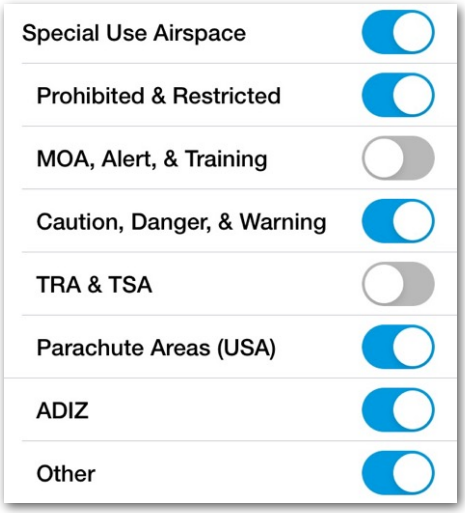


Controlled Airspace

Special Use Airspace

The Special Use Airspace (SUA) section allows for specific types of airspace to be filtered from the Aeronautical Map. Toggling a setting hides or shows all types of the selected airspace.

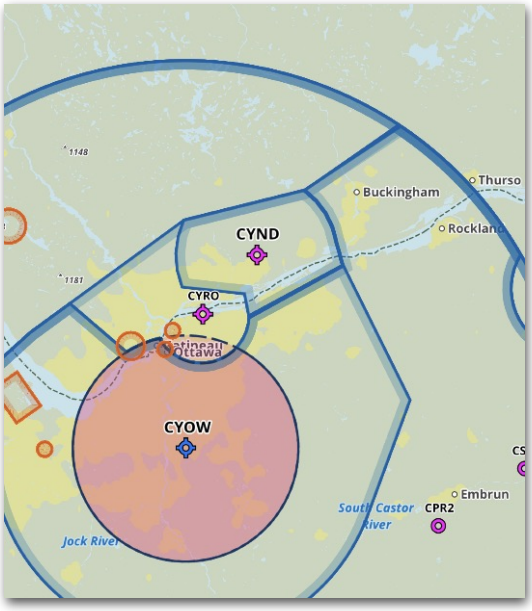
- **Special Use Airspace** - Displays or hides the SUA options:
  - **Prohibited & Restricted** - Prohibited and restricted areas
  - **MOA, Alert & Training** - Military Operating Areas, alert areas, and training areas
  - **Caution, Danger, & Warning** - Caution, danger and warning areas
  - **TRA & TSA** - Temporary Reserved Area and Temporary Segmented Area
  - **Parachute Areas (USA)** - Designated parachute jump areas (USA only)
  - **ADIZ** - Air Defense Identification Zone
  - **Other** - Other special use airspace.



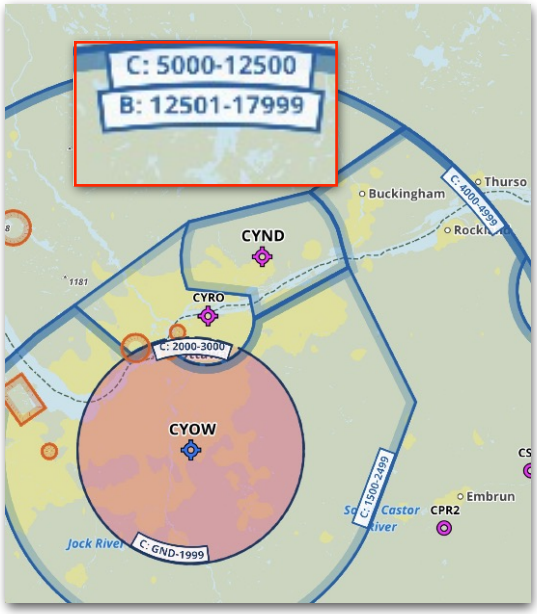
Special Use Airspace

Worldwide Altitudes

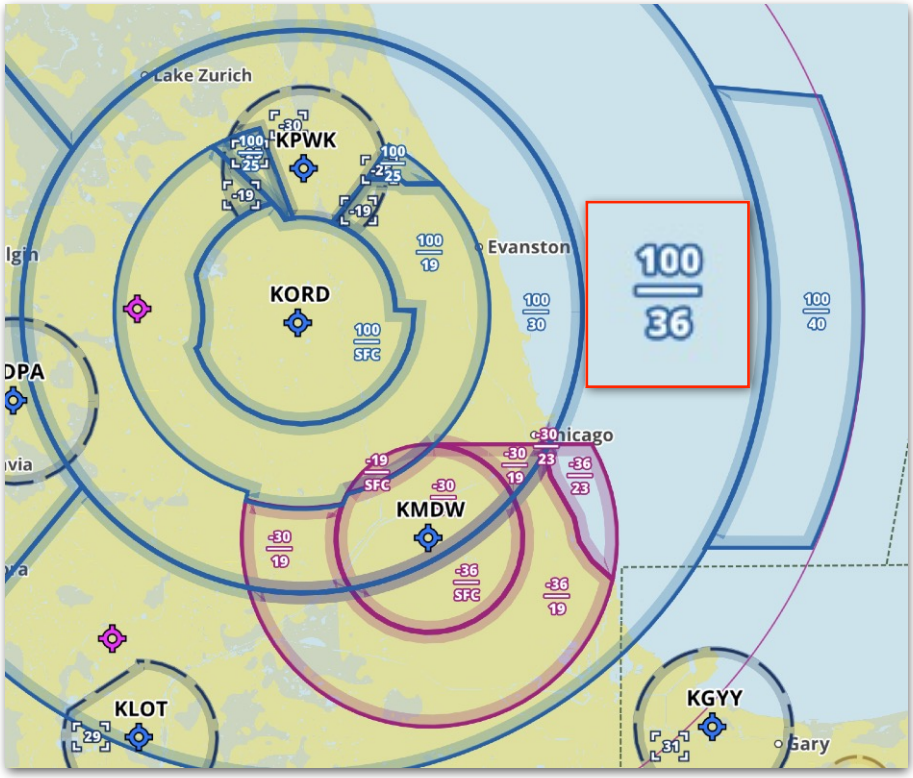
The labels depict the airspace class and vertical limits. When Worldwide Altitudes is off, indication of airspace class is not presented and altitude labels will not be shown on the map, except in the United States.



Worldwide Altitudes Disabled



Worldwide Altitudes Enabled



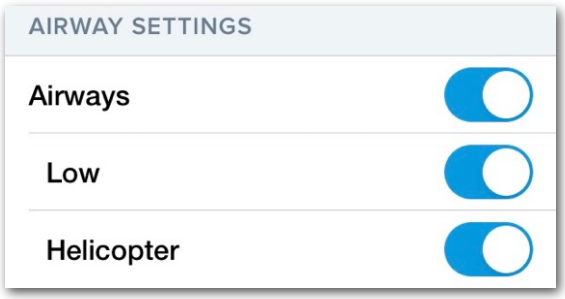
Altitude Labels with Worldwide Altitudes Disabled in USA

6.7.5.3 Airway Settings

The Airway Settings section allows low altitude and helicopter airways to be filtered from the aeronautical map.

- **Airways** displays or hides the waypoint options below. The **Airways** toggle in the **Airways Settings** section will mirror the Airways toggle on the Quick Filter**.**
  - **Low** toggles low altitude airways on and off.
  - **Helicopter** toggles helicopter airways on and off.

NOTE: The **Airway Settings** options are only displayed when **VFR** or **Low IFR** aero map modes are selected.



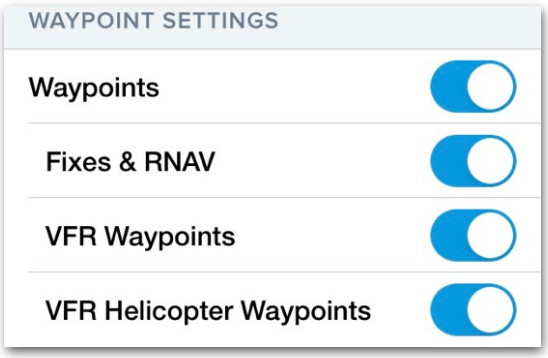
Airway Settings

6.7.5.4 Waypoint Settings

The Waypoints Settings section allows VFR, IFR, and RNAV waypoints to be filtered from the Aeronautical Map.

- **Waypoints** displays or hides the waypoint options below. The **Waypoints** toggle in the **Waypoint Settings** section will mirror the Waypoints toggle on the Quick Filter.
  - **Fixes & RNAV** toggles IFR and RNAV waypoints on and off.
  - **VFR Waypoints** toggles VFR waypoints on and off.
  - **VFR Helicopter Waypoints** toggles VFR helicopter waypoints on and off.

NOTE: The **Waypoint Settings** options are only displayed when **VFR** aero map mode is selected.

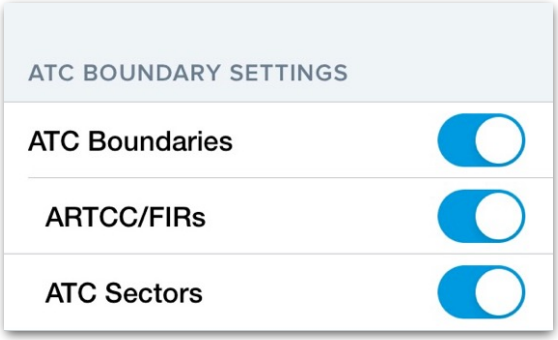


Waypoint Settings

6.7.5.5 ATC Boundary Settings

The **Aeronautical Map** can display Air Route Traffic Control Center (ARTCC), Flight Information Region (FIR), and **ATC Sector Boundaries**. There are three related settings:

- **ATC Boundaries** displays or hides the ATC Boundaries options below:
  - **ATRCC/FIRs** toggles global ARTCC and FIR boundaries on and off.
  - **ATC Sectors** toggles European ATC Sectors on and off. ATC Sectors are only available in Europe.

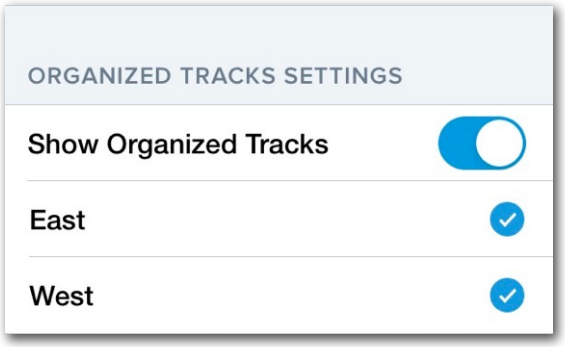


ARTCC/FIR Settings

6.7.6 Organized Track Settings

Display Organized Tracks described in **Organized Track Systems** section. Organized tracks require a Premium subscription.

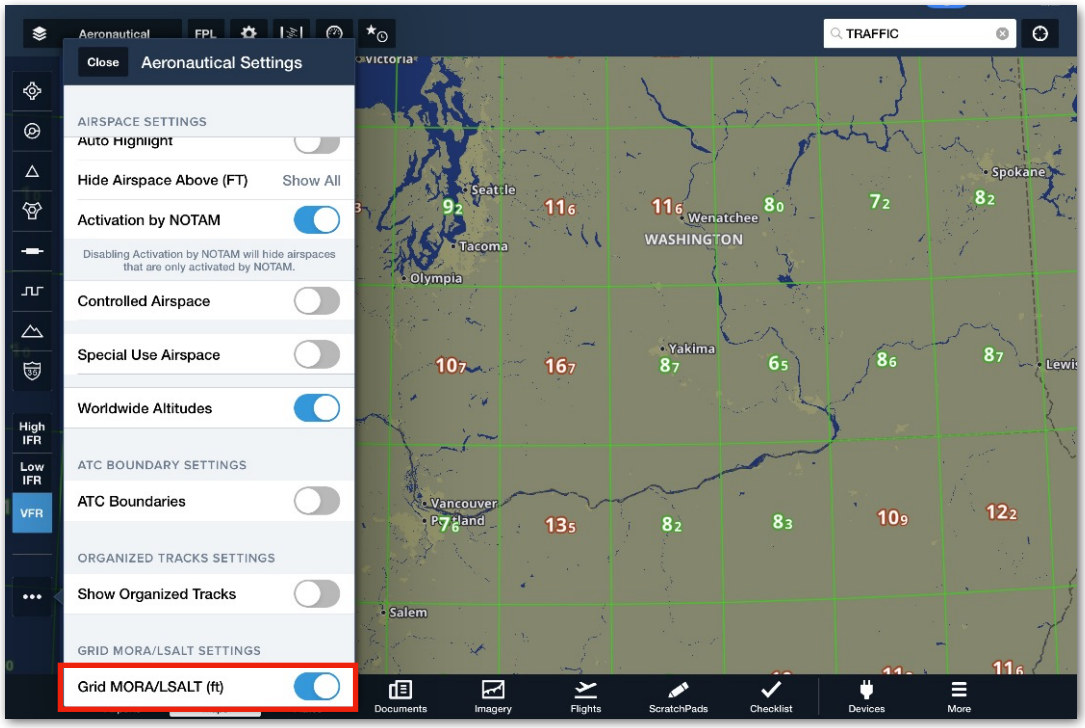
- **Show Organized Tracks** displays or hides the organized track options below:
  - **East** toggles East-bound organized tracks on and off.
  - **West** toggles West-bound organized tracks on and off.



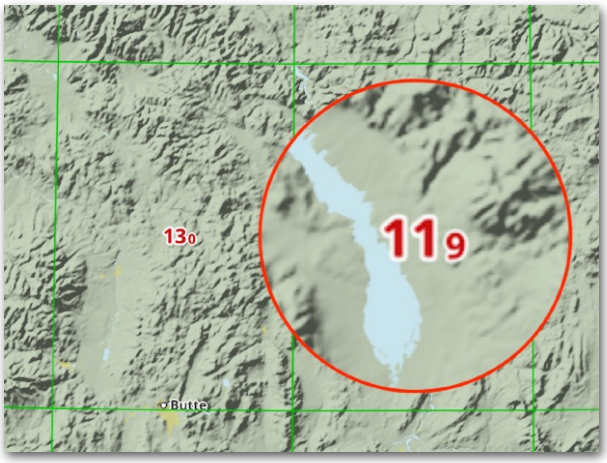
Organized Track Settings

6.7.7 Grid MORA/LSALT Settings

Grid Minimum Off-Route Altitude (MORA)/Lowest Safe Altitude (LSALT) (ft) is a world-wide 1° x 1° grid which provides an obstruction clearance altitude, in feet, within the grid square. Elevations 5,000 feet or lower have a minimum obstacle clearance of 1,000 feet. Elevations 5,001 feet or greater have a minimum obstacle clearance of 2,000 feet. Altitudes below 10,000 feet are displayed in green, while altitudes greater than or equal to 10,000 feet are red. In Australia **LSALT** is displayed below the altitude.



Grid MORA/LSALT Setting



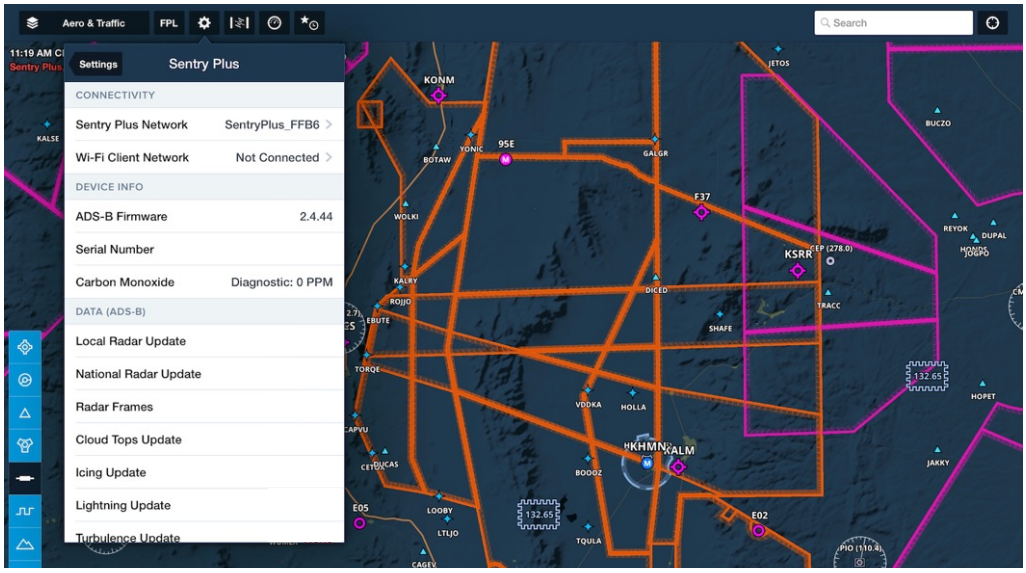
Grid MORA



Grid LSALT

6.8 Devices

Connected device appears at the bottom of the map settings menu when connected. Tap the connected device to view the same information available by selecting **More** > **Devices**. See the **ForeFlight Connect** chapter for additional external device information.



Map Settings - Device View

iOS FEATURES AND SETTINGS

There are a few handy iPad features to know about when using ForeFlight Mobile:

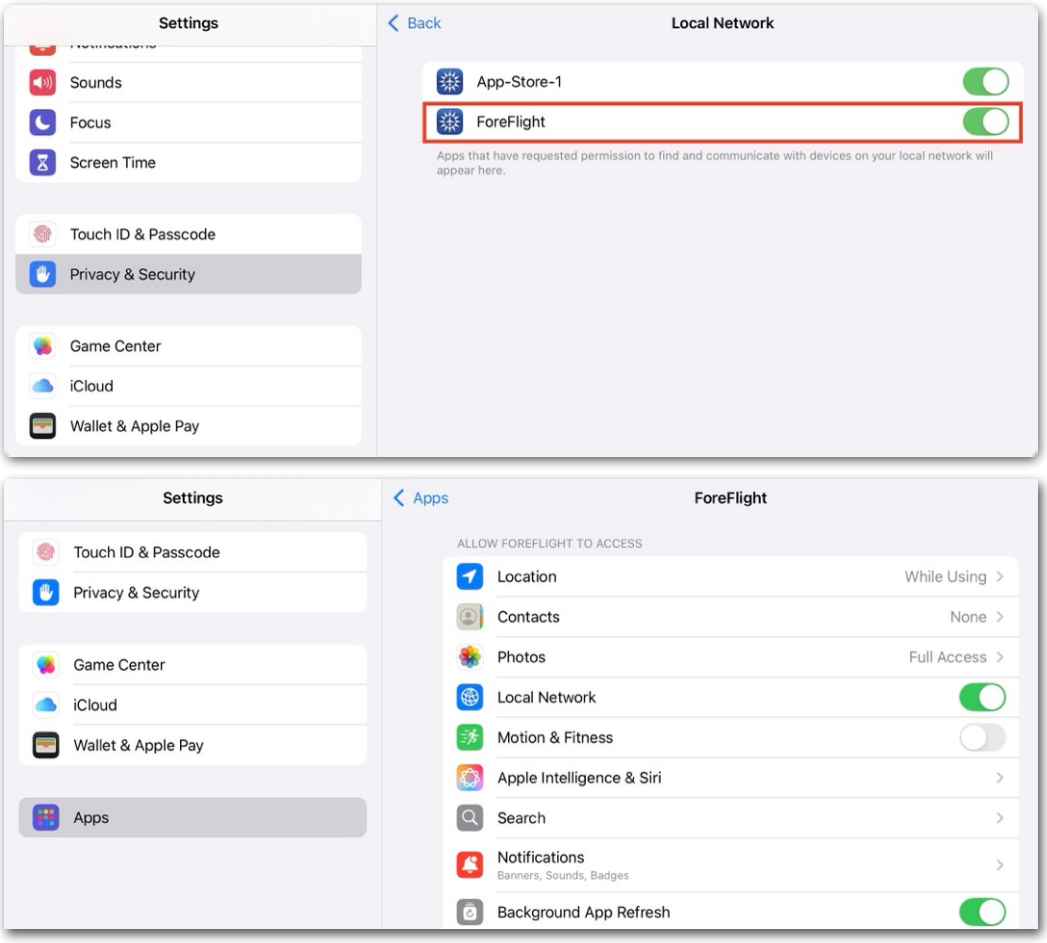
- **iOS Multitasking:** ForeFlight Mobile 12.4 and later on the iPad supports iOS Multitasking, allowing ForeFlight to be used in Split Screen or Slide Over with other apps at the same time.
- **Multiple Orientations:** The iPad supports portrait and landscape orientation. When an iPad is rotated from one orientation to another, an application typically alters its user interface to better take advantage of the space supplied.
- **Rotation Lock:** Having the screen rotate is not always desired. Rotation lock is helpful for preventing accidental rotation in turbulence. Newer iPads: Swipe down from the upper-right corner of the screen to open the Control Center and find the rotation lock soft-button. Older iPads: A physical switch is located above the volume buttons. When switched on, this prevents an application from changing its orientation. On some iPads, this switch instead functions as a mute switch. Change the function of this back to a lock switch by using the iPad Settings application. Tap General, and use the options in the Use Side Switch to: section. If this section is not displayed, the iOS operating system may need to be updated to enable this functionality.
- **Settings App:** The iPad includes a special application called Settings. Within Settings, the way the iPad and its applications behave can be modified. ForeFlight-specific settings are addressed in the Settings section of this guide. All ForeFlight settings are available in the *More* view of ForeFlight Mobile as well.
- **Brightness Control:** There is a brightness control accessible in iPad Settings app. It is also available for quick access in the Control Center by swiping-down from the top of the screen. This control is helpful for reducing brightness at night, or for dimming the screen during the day to preserve battery life.
  For night use, if the iPad brightness control set to full dim (slider all the way to the bottom) doesn't dim the screen enough, use the brightness slider in ForeFlight Mobile in the More view or at the top of the **Maps Settings** menu to dim the screen further. The ForeFlight brightness slider integrates with the iPad brightness slider, but allows for additional dimming beyond the lowest setting of the iPad slider.

7.1 iOS Network Settings

When ForeFlight Mobile is first opened, a pop-up will display requesting permission for ForeFlight to find and connect to devices on the local network. To permit this, tap **OK**.

If **Don't Allow** is tapped, but Local Network access is needed to be enabled later, do so in either of two areas in **Apple Settings**:

- **Privacy & Security** > **Local Network** > **ForeFlight**: ON
- **Apps > ForeFlight** > **Local Network**: ON

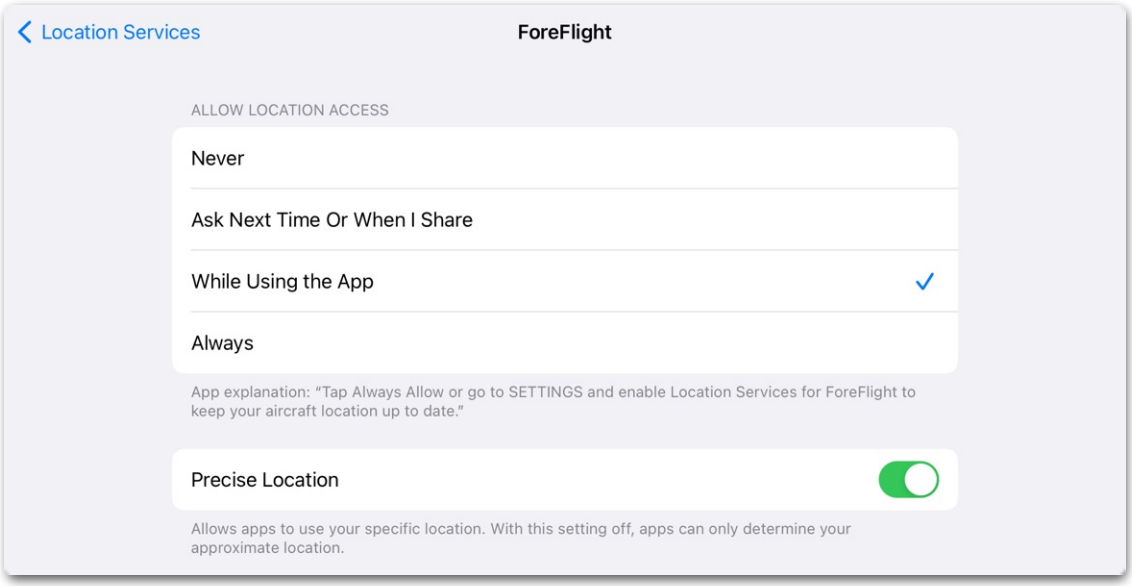


Network Settings

7.2 iOS Location Settings

For best position accuracy, enable *Precise Location* for ForeFlight Mobile (iOS14 and later). Open the Settings app and follow one of the two options:

- **Privacy** > **Location Services** > **ForeFlight** > **Precise Location:** ON
- **ForeFlight** > **Location** > **Precise Location:** ON



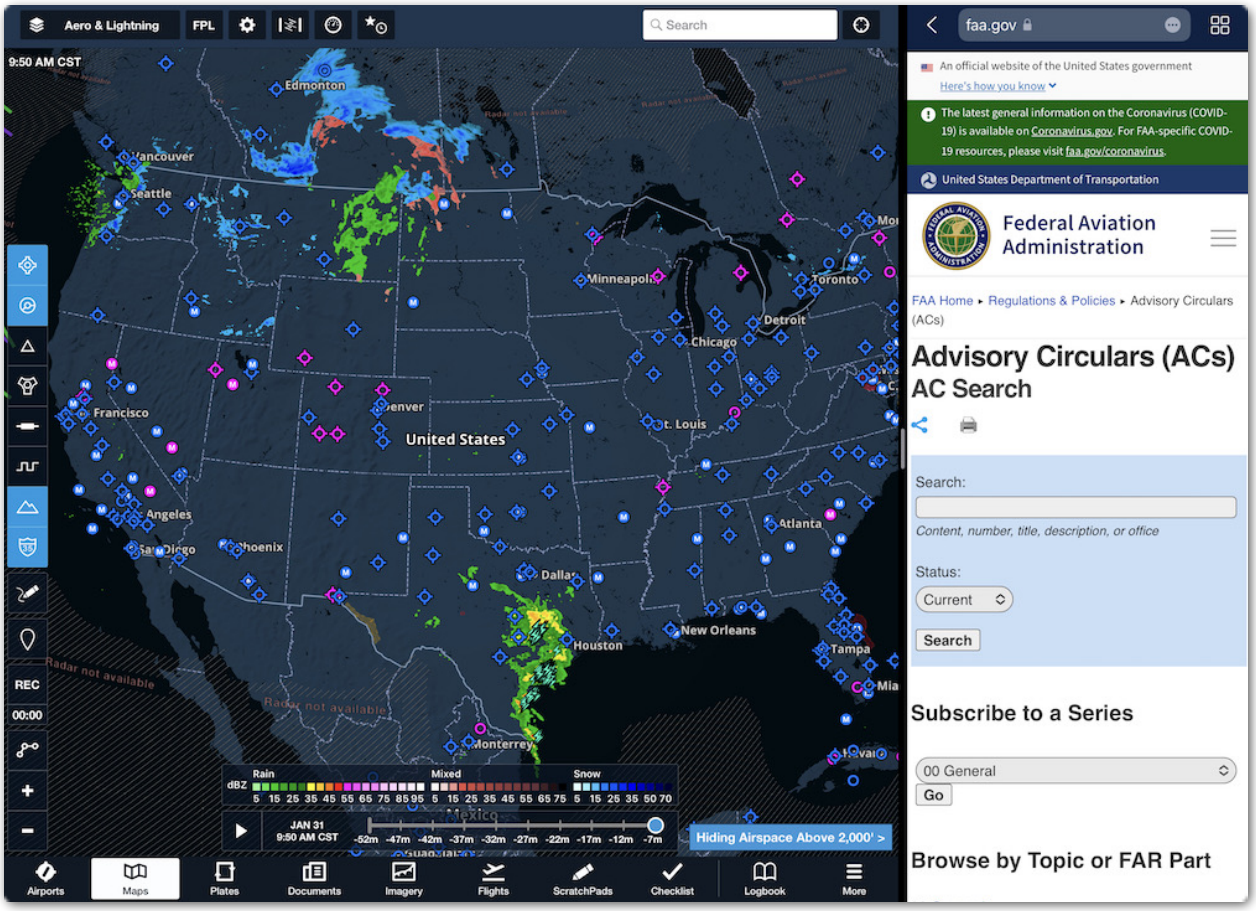
Location Services iOS 14 and later

7.3 iOS Multitasking and Split Screen

iOS Multitasking allows two apps to be used at the same time. ForeFlight Mobile supports Multitasking, Split Screen, and Slide Over, on compatible iPads.

For full details about how this works in ForeFlight Mobile, please take a few minutes to review this video: **Multitasking Support & Major Design Improvements**.

This article from Apple is an excellent resource for how Split Screen and Slide Over work on iPads: **Use multitasking on an iPad**.

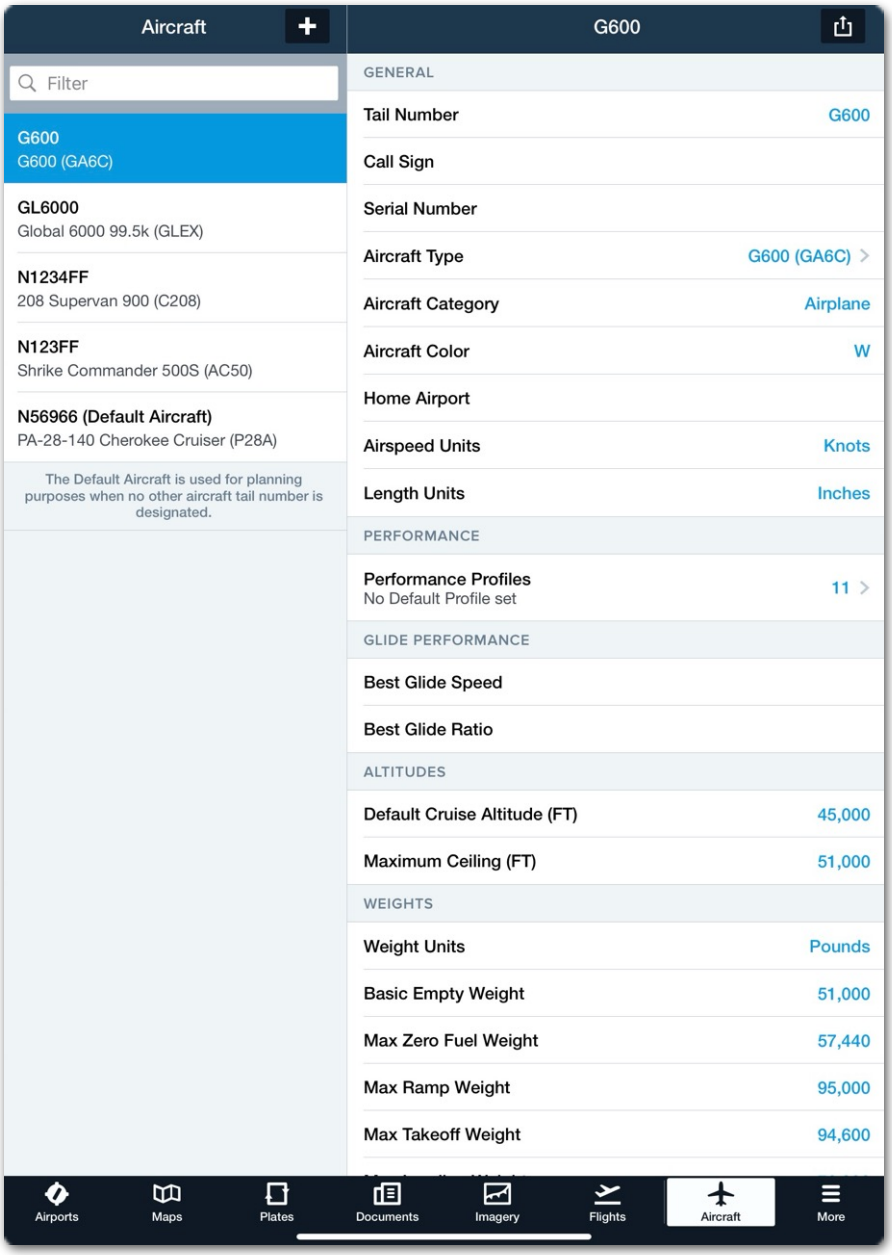


Multitasking with ForeFlight Mobile

AIRCRAFT

Successful flight planning begins with a complete aircraft profile. The Aircraft view is where aircraft profiles associated with an account are managed. When sync is enabled, aircraft profiles sync between the devices signed in to the account.

Select **More** > **Aircraft** to access the Aircraft view. Aircraft profiles can be managed with ForeFlight Web or ForeFlight Mobile. This guide primarily covers managing aircraft profiles with ForeFlight Mobile.

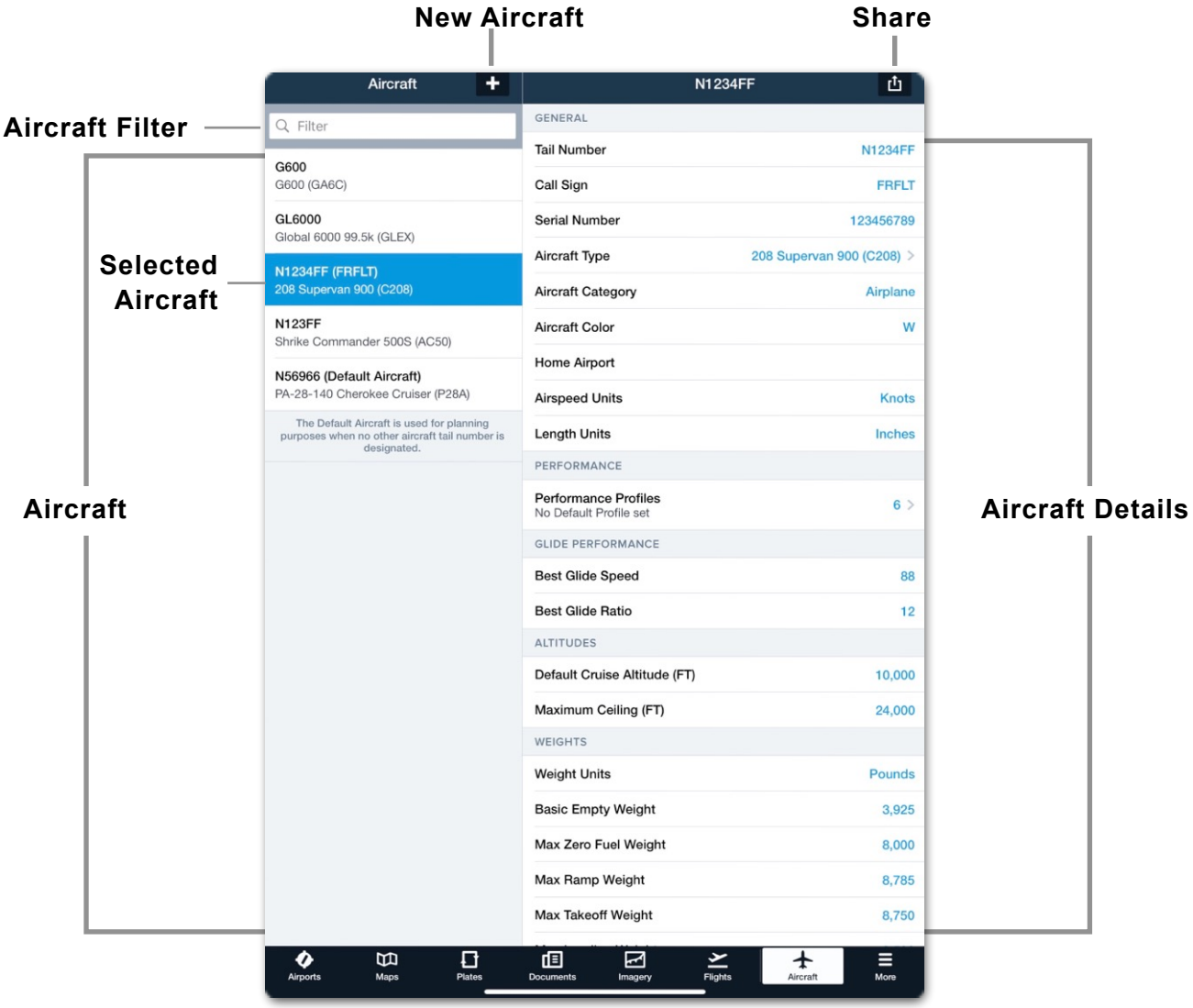


Aircraft View

8.1 Design

The Aircraft View is divided into two columns. The left column lists the aircraft associated with the account. Aircraft recently used for flight planning are listed at the top.

When the Aircraft view is displayed, tap any aircraft to make it the active aircraft. The *selected* aircraft is highlighted in blue, and its details are shown in the right column. Accounts with many aircraft profiles can use the search bar at the top of the list to filter the number of aircraft displayed. Filter aircraft by type or tail number. There are no practical limits to the number of aircraft profiles associated with an account. When using an iPhone, navigate between the aircraft list and detail view by tapping the **Aircraft** back button in the upper toolbar.



8.2 Creating an Aircraft Profile

To create a new aircraft profile, tap the [+] button in the upper toolbar and complete the aircraft details. Aircraft details are grouped into various sections. Some sections, such as the *Weights* section, may be automatically completed when an aircraft type is selected. If the automatically populated details are not correct, verify that the aircraft type is accurate, including any applicable supplemental type certificates (STC).

8.2.1 General

The General section is where basic information about the aircraft is specified. Manually enter or use the drop-down menus to complete the General section. Descriptions for each field are listed below.

Tail Number is for specifying the registration number, including the country code for the aircraft. Use only letters and numbers in the Tail Number field. The Tail Number field is copied to the filing form when filing a flight plan.

Call Sign is an optional field consisting of up to 7 alphanumeric characters (no special characters). It will show in the aircraft list after the tail number in parenthesis. The Call Sign field is copied to the filing form when filing a flight plan.

Serial Number is an optional field consisting of only letters and numbers.

Aircraft Type includes a built-in type code search engine. Enter the aircraft make or model in the search box. Scroll through the list to find the aircraft and select the appropriate type code.

NOTE: Ensure the aircraft type includes any applicable supplemental type certificates.

Aircraft Category offers a menu to select **Airplane**, **Rotorcraft**, or **Other**.

Aircraft Color is where the colors of the aircraft are entered. Use the color wheels to select the colors of the aircraft. The leftmost color is the base aircraft color.

Home Airport allows for the entry of the ICAO code for the airport where the aircraft is based.

Airspeed Units specify whether the aircraft shall use **Knots** or **MPH**.

Length Units specify if the aircraft uses Inches, Feet, Meters, Millimeters, or Centimeters to calculate weight and balance.

Ownership Status specify sole owner, co-owner, renter or none of the above.

8.2.2 Performance

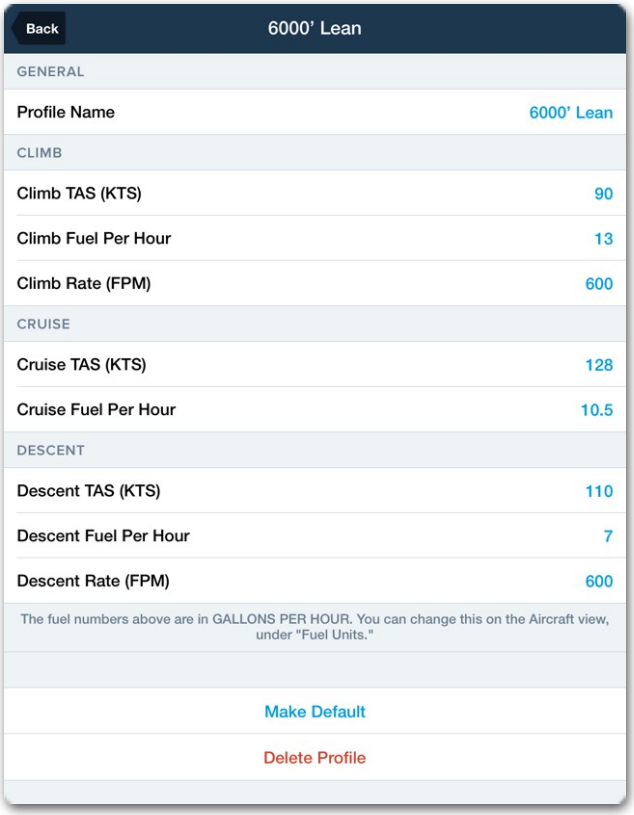
The Performance section lists the aircraft performance profiles, **Takeoff & Landing Performance**, and **Runway Analysis** settings. Performance profiles contain climb, cruise, and descent values for flight planning purposes.

There are three types of performance profiles. Aircraft can have multiple performance profiles of each type.

- Basic Performance Profiles
- By-Altitude Performance Profiles (Premium Required)
- ForeFlight Performance Profiles (Premium Required).

Basic Performance Profiles

The Basic Performance Profile is included with all plans. When creating a new aircraft, the basic profile must be manually completed. Basic profiles contain an individual set of climb, cruise, and descent values. Only the cruise values are required to generate flight planning results. However, completing the climb and descent fields is recommended. There are no limits to the number of basic profiles an aircraft can have.



Basic Performance Profile

By-Altitude Profiles

By-Altitude performance profiles are only available with Premium and Business Performance plans. The by-altitude profile is a custom, user-generated performance profile that specifies aircraft performance by altitude.

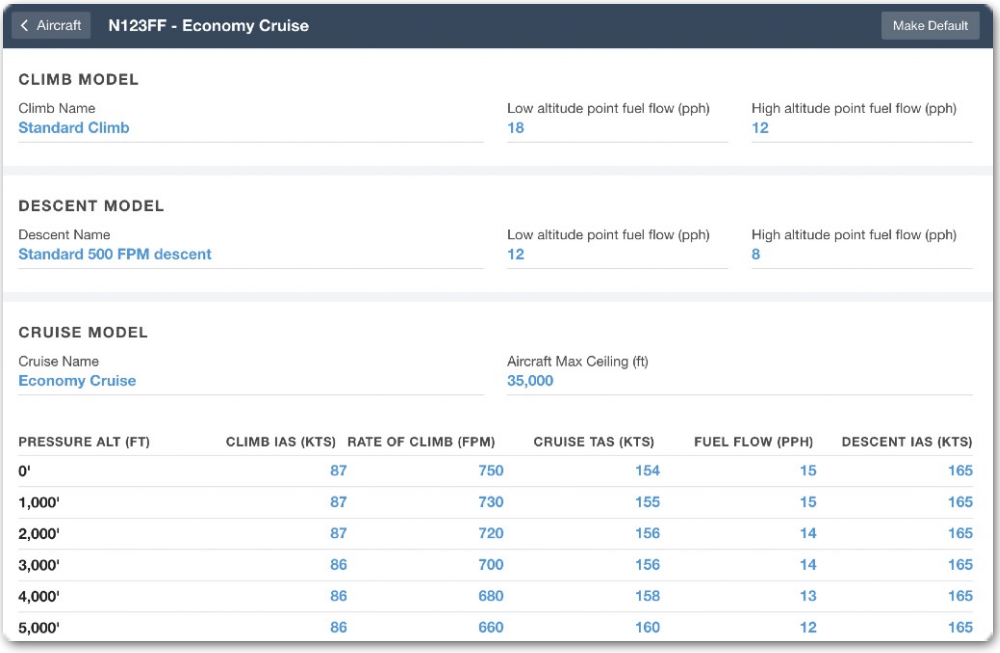
By-Altitude profiles can only be created with **ForeFlight Web**. To create a custom by-altitude profile, sign in to ForeFlight Web and select **Aircraft** from the sidebar. Select an aircraft > select + Add Basic Performance Profile > **By-Altitude Profile** in the performance section.

Enter climb and descent information for the aircraft. Include climb and descent fuel flow at low and high ends of the operating range. ForeFlight will interpolate climb and descent performance based on the entries.

CAUTION: Interpolation applies only to rows where all data fields are blank. Partially populated rows may generate incorrect fuel burn calculations.

Provide a name for the en route performance profile (e.g., Economy Cruise) and define the Max Ceiling. Enter aircraft performance for every row up to the max ceiling using the aircraft performance charts/tables. When the table is complete, select **Save** at the bottom of the screen.

Multiple custom profiles can be created if necessary. The custom profile can be set as the aircraft default by selecting **Make Default** near the top of the screen. Custom performance profiles can be selected in ForeFlight Mobile once complete.



PRESSURE ALT (FT)	CLIMB IAS (KTS)	RATE OF CLIMB (FPM)	CRUISE TAS (KTS)	FUEL FLOW (PPH)	DESCENT IAS (KTS)
0'	87	750	154	15	165
1,000'	87	730	155	15	165
2,000'	87	720	156	14	165
3,000'	86	700	156	14	165
4,000'	86	680	158	13	165
5,000'	86	660	160	12	165

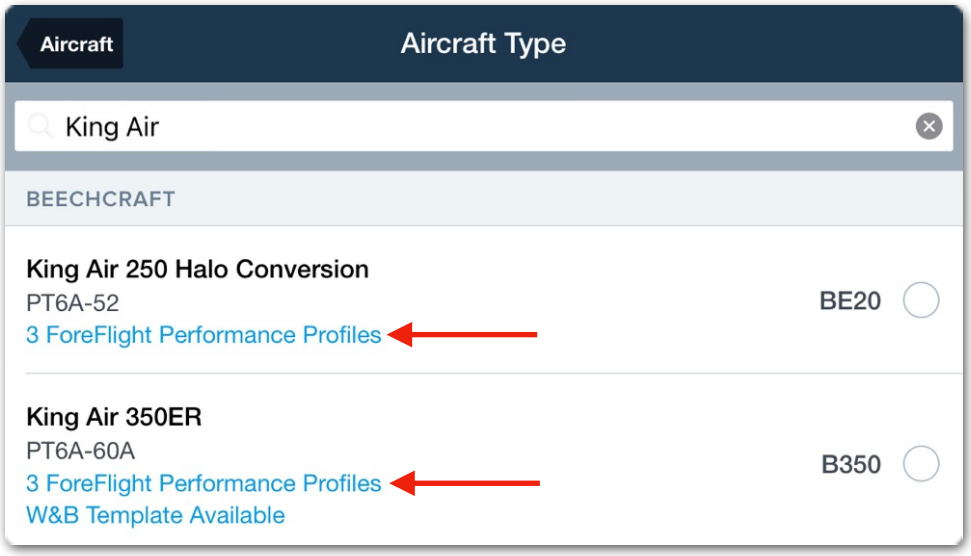
By-Altitude Performance Profile

ForeFlight Performance Profiles

ForeFlight performance profiles are only available with Premium or Business Performance plans. ForeFlight performance profiles are created by ForeFlight using aircraft manufacturer performance data.

ForeFlight performance profiles are comprised of detailed by-altitude climb, cruise, and descent models for highly accurate flight planning results. When selecting an aircraft type, the number of en route cruise performance models is depicted in blue.

Available manufacturer data determines the number of profiles. The number of available profiles should match the number of performance profiles in the Aircraft Flight Manual (AFM).



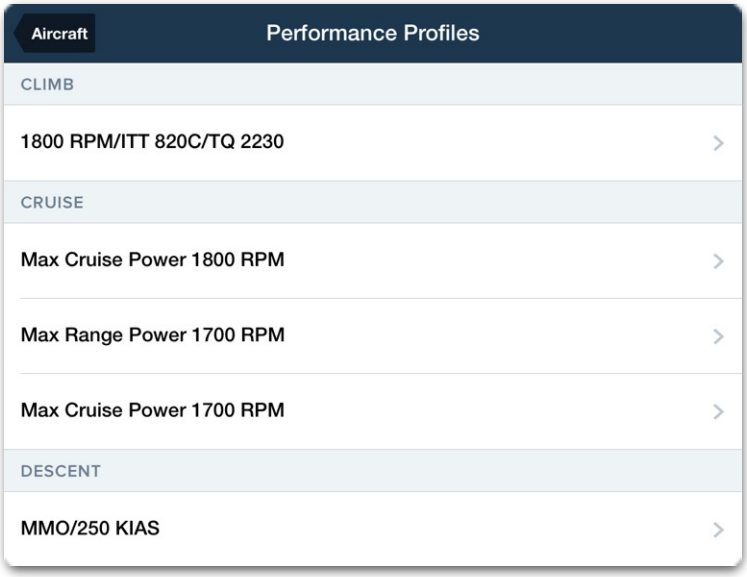
Available ForeFlight Performance Profiles (Cruise)

IMPORTANT: Ensure the correct aircraft type is selected including serial number, Supplemental Type Certificate (STC), Gross Weight Increase (GWI), and power plant conversion.

8. AIRCRAFT

When an aircraft with a ForeFlight Performance Profile is selected, the Performance section lists the available climb, cruise, and descent models. The profile names and values are derived from manufacturer data.

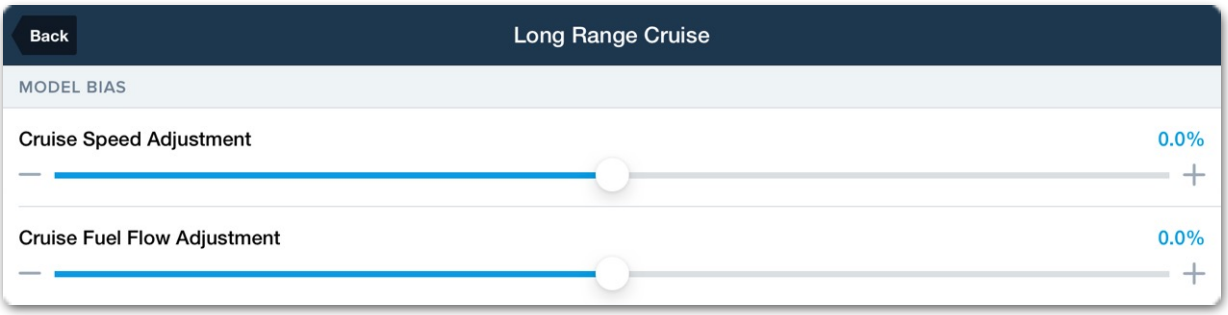
It is not possible to review specific performance values associated with a profile. For example, if the true airspeed for the Max Cruise Power 1700 RPM profile at FL180 and 4ºC is needed, ForeFlight is not able to do that. To determine specific values, refer to the performance section of the AFM.



Three Available Cruise Models

Performance Model Adjustments

If the aircraft does not achieve the same performance specified by manufacturer data, use the performance model adjustments to get more accurate flight planning results. Performance model adjustments are synced to the aircraft profile.



Cruise Model Adjustments

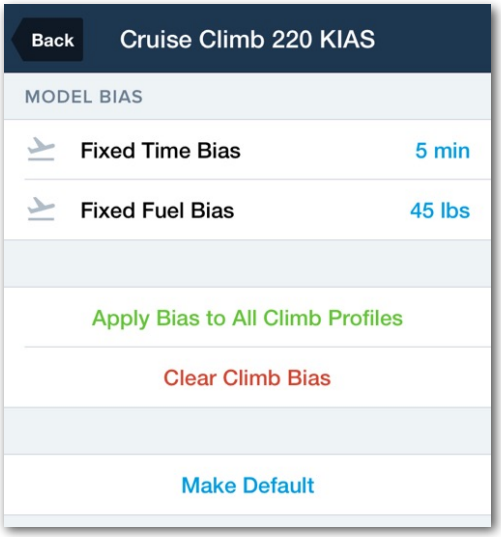
Model Adjustments (Climb and Descent)

Climb and descent performance models can be adjusted by a fixed time or fuel amount.

Climb biases are applied from the departure airport to the top of climb (TOC). Descent biases are applied from the top of descent (TOD) to the destination airport.

To determine how much bias to apply:

1. Plan a flight and generate a Navlog.
2. Conduct the flight and record actual time and fuel burn.
3. Compare the actual results to the Navlog.



Climb Model Bias

For optimal results, multiple flights should be conducted to discover if a trend exists. For example, if the aircraft consistently burns 45 *more* pounds of fuel before reaching TOC, *add* a 45 pound fuel bias to the climb model. Similarly, if the aircraft burn less fuel during descent, enter a negative descent bias.

Model Adjustments (Cruise)

Cruise model adjustments are specified with a percentage. For example, if ForeFlight consistently calculates an estimated time en route that is 10% more than the actual results, tap the cruise model being planned with and slide the **Cruise Speed Adjustment** to +10%.

A positive bias increases the planned true airspeed or fuel burn by the specific percentage. A negative bias reduces the planned true airspeed or fuel burn by the percentage specified.

Apply Bias to All

If the aircraft has more than one climb, cruise, or descent profile, tap **Apply Bias to All** to apply the bias to all the models. **Clear Bias** restores the profile to its original settings (zero bias). To make a performance profile the default for the aircraft, tap **Make Default**. **The default** profile calculates planning results when no other profile is selected.

NOTE: Mach-based performance profiles do not offer cruise bias sliders.

8.2.3 Glide Performance

The Glide Performance section allows for the specification of the all-engines off glide characteristics. Entering a value in this section will affect the display of the Glide Advisor on the map.

To enter the glide information, enter a whole or decimal number in the Best Glide Ratio field. For example, aircraft with an 8.5:1 glide ratio should enter 8.5. Similarly, aircraft with a 9:1 glide ratio should enter 9. This field may be auto-populated with manufacturer data.

8.2.4 Altitudes

The altitude section sets a default cruise and maximum altitude for the aircraft. The Maximum Ceiling field sets the upper cut-off for the Altitude Advisor. Not entering a value for Maximum Ceiling will result in the Altitude Advisor returning results up to FL570.

The default cruise altitude is used when planning with ForeFlight Mobile and ForeFlight Web. When planning with ForeFlight Dispatch, an optimal altitude for the route is determined, and the default cruise altitude is ignored.

8.2.5 Weights

The weights section specifies the various aircraft weight limits.

- **Weight Units** allow an aircraft to use pounds or kilograms for flight planning.
- **Basic Empty Weight** *should* be edited to reflect the actual basic empty weight of the aircraft.
- **Max Zero Fuel Weight** is an auto-populated value and should be verified. The maximum weight the aircraft can weigh with zero fuel onboard is the maximum zero fuel weight limit.
- **Max Ramp Weight** is an auto-populated value and should be verified.
- **Max Takeoff Weight** is an auto-populated value and should be verified.
- **Max Landing Weight** is an auto-populated value and should be verified.

8.2.6 Weight and Balance

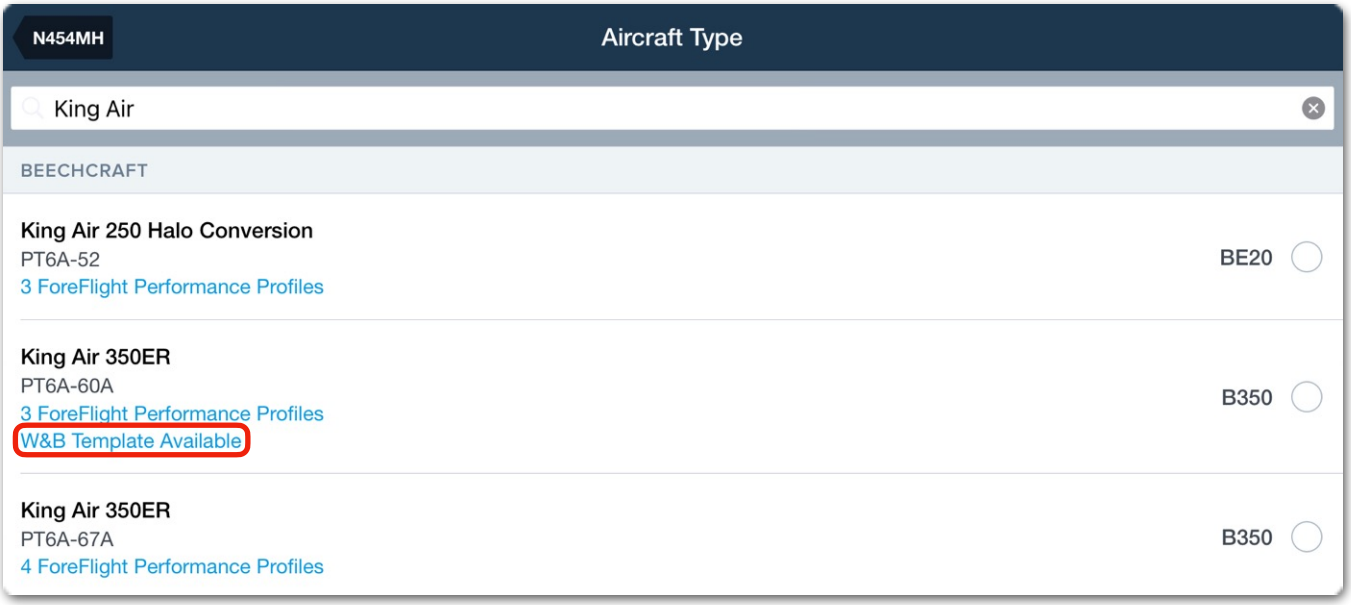
The Weight and Balance (W&B) section is used to create W&B profiles. W&B profiles are configured by defining the following variables for the aircraft:

- W&B Profile Name
- Aircraft Basic Empty Weight (BEW)
- Aircraft Basic Empty CG
- Station Descriptions
- Station Locations (arm)
- Station Weight Limits (if applicable)
- Aircraft Forward and Aft CG Limits
- Gear Retraction Moment Change (if applicable).

W&B Templates

Some aircraft types have prebuilt W&B templates which only require the entry of basic operating weight, CG, and station verification to complete. Aircraft with prebuilt templates have a **W&B Template Available** label when selecting an aircraft type.

If a prebuilt template does not exist for the aircraft, a custom W&B profile can be created using the blank template. For detailed instructions on creating and using ForeFlight Weight & Balance, refer to the Weight & Balance guide available in **Documents** > **ForeFlight**.



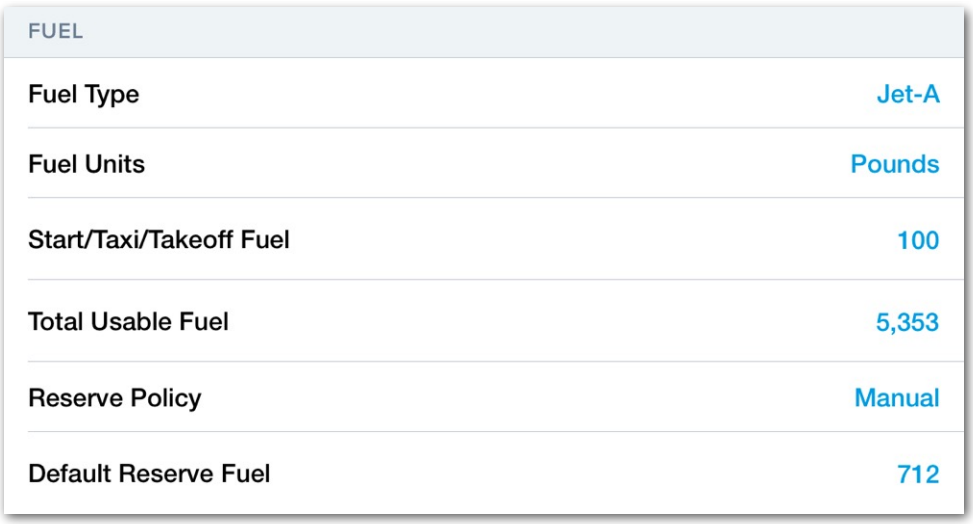
Aircraft with W&B Template Available

NOTE: For detailed instructions on creating and using ForeFlight Weight & Balance, refer to the Weight & Balance Guide available in **Documents** > **ForeFlight**.

8.2.7 Fuel

The fuel section specifies details about the aircraft fuel system. Users can specify the fuel type, fuel units, and start/taxi/takeoff fuel amounts. Users with a Performance-tier account can also specify the total usable fuel, default reserve fuel amount, and default reserve fuel policy. Further descriptions of each field can be found below:

- **Fuel Type** determines fuel weight based on the selected fuel density.
  - **100LL** and **Other**: 6.0 pounds per gallon.
  - **Jet-A** and **Jet-A Prist**: 6.75 pounds per gallon.
- **Fuel Units** specify the fuel consumption format. Choose between **Gallons**, **Liters**, **Pounds**, or **Kilograms**.
- **Start/Taxi/Takeoff Fuel** specifies the amount of fuel consumed during Start, Taxi, and Takeoff.
- **Total Useable Fuel** is an auto-populated value and should be verified. This value should match the value in the AFM.
- For **Reserve Policy** see the **next page**.
- **Default Reserve Fuel** specifies the amount of reserve fuel when the Manual reserve policy is the default.



Premium Fuel Section

Reserve Policy

A reserve policy is a method for calculating reserve fuel based on regulatory requirements. New flights are automatically planned using the default reserve policy specified on the aircraft profile unless edited on a per-flight basis.

Depending on the ForeFlight subscription region, there are up to twelve reserve policies to choose from. The table below describes which policies are available per region.

For an explanation of how reserve fuel amounts are calculated, see **Reserve Fuel** in the Flights chapter.

Reserve Policy	USA	Europe	Canada	Australia
Manual	✓	✓	✓	✓
Manual (Minutes)	✓	✓	✓	✓
FAA Part 91/135	✓			
FAA Part 121	✓			
FAA Part 121 International	✓			
EASA Part NCC		✓		
EASA NCO		✓		
EASA CAT		✓		
ICAO	✓	✓	✓	✓
CASA Part 91				✓
CASA Part 135				✓
CASA Part 121				✓

Reserve Fuel Policies per Subscription Region

NOTE: Reserve Policy availability is based on the subscription's region, not the region of the planned flight. Dispatch customers have access to *all* Reserve Policies.

8.2.8 Filing

The filing section is where aircraft equipment, wake category, and special considerations for filing purposes are specified. For detailed information on choosing the correct codes, reference the ForeFlight Filing Guide available in-app at **Documents** > **ForeFlight** > **ForeFlight Filing Guide** or online at **foreflight.com/filing-guide**.

FAA & ICAO Equipment

Equipment codes specify the *communication* and *navigation* equipment installed on the aircraft. Select the appropriate equipment installed, serviceable, and that the flight crew is qualified to operate. ForeFlight files all flight plans using the ICAO filing form. As a result, it is not necessary to enter FAA Equipment. The option to enter FAA Equipment will be removed from ForeFlight in the future.

ICAO Surveillance Codes

ICAO Surveillance codes specify the transponder and ADS-B equipment types.

ICAO Wake Category

ICAO Wake Category is automatically selected based on manufacturer data and should be verified. The following table should be used to verify the ICAO wake category.

Light	7,000 kg (15,500 lbs.) or less
Medium	7,001 kg up to 135,999 kg (15,501 lbs. to 299,999 lbs.)
Heavy	136,000 kg (300,000 lbs.) or more

Aircraft - ICAO Wake Categories

ICAO Perf-Based Nav (PBN)

ICAO Performance Based Navigation (PBN) codes specify aircraft Area Navigation (RNAV) and Required Navigation Performance (RNP) capabilities. As many as 8 RNAV + RNP options can be selected.

Other Information includes ICAO flight plan *optional* fields. Some entries may be required depending on the information included in the flight plan.

Other Information Definitions	
CODE	Aircraft Mode S hex address (e.g., A519D9)(Recommended).
COM	Communication capabilities not otherwise specified in the ICAO Equipment field.
DAT	Other data applications (See AC 90-117).
DLE	Delay or holding (at a fix). Insert the point(s) where the delay is to occur followed by the length of the delay in hours and minutes (hhmm) (e.g., KZLA0120).
EET	Estimated Elapsed Time within an FIR boundary (e.g., KZNY0124). EET is automatically calculated and entered by ForeFlight.
NAV	Navigation capabilities not otherwise specified in the ICAO Equipment field.
OPR	Operator/Company Name
ORGN	Flight Plan Originator AFTN address or other appropriate contact details (e.g., KHOUARCW)(Not required by FAA).
PER	Performance Category (e.g. A)(Not required by FAA).
RALT	Four letter ICAO identifier for En route Alternates (e.g., EINN CYYR KDTW).
REG	Registration (ex. N123AB, CJABC, DABC). Must be entered to receive CPDLC messages. May be entered if different from aircraft identification entered on flight plan. If a Tail Number is entered in the aircraft profile and a flight is filed with a call sign (optional), the tail number from the aircraft profile is automatically copied to this field.
RIF	Route to revised destination (e.g., DTA HEC KLAX).
RVR	Runway Visual Range Requirement in Metres (EuroControl support).
SEL	SELCAL is a signaling method for HF equipment which alerts aircraft that a ground station wishes to communicate with it. Codes are assigned to aircraft operators and not to individual aircraft.
STAY INFO	Additional information for delays at a waypoint. Utilized in EuroControl airspace.
SUR	Surveillance capability. For example, enter “260B” for 2020 ADS-B compliant 1090Mhz transceivers, “282B” for compliant 978UAT transceivers, or RSP180 for equipment meeting RSP performance standards.
TALT	Take-off Alternates (e.g., KTEB).
TYP	Non-standard aircraft type (e.g., homebuilt). Must provide type information if aircraft type is ZZZZ.

STS Special Handling specifies the default handling status for the aircraft.

Flight Status	Definition
Altitude reservation (ALTRV)	A flight operated in accordance with an altitude reservation.
ATFM exempt (ATFMX)	A flight approved for exemption from ATFM measures by the appropriate ATS authority.
Firefighting (FFR)	Fire-fighting.
Flight check (FLTCK)	Flight check for calibration of navaids.
Hazardous material (HAZMAT)	A flight carrying hazardous material.
Head of States (HEAD)	A flight with Head of State status.
Medical flight (HOSP)	A medical flight declared by medical authorities.
Humanitarian (HUM)	A flight operating on a humanitarian mission.
Military separation (MARSA)	A flight for which a military entity assumes responsibility for separation of military aircraft.
Medical Evacuation (MEDEVAC)	A life-critical medical emergency evacuation.
Non-RVSM in RVSM (NONRVSM)	A non-RVSM capable flight intending to operate in RVSM airspace.
Search and rescue (SAR)	A flight engaged in a search and rescue mission.
Military/police (STATE)	A flight engaged in military, customs or police services.

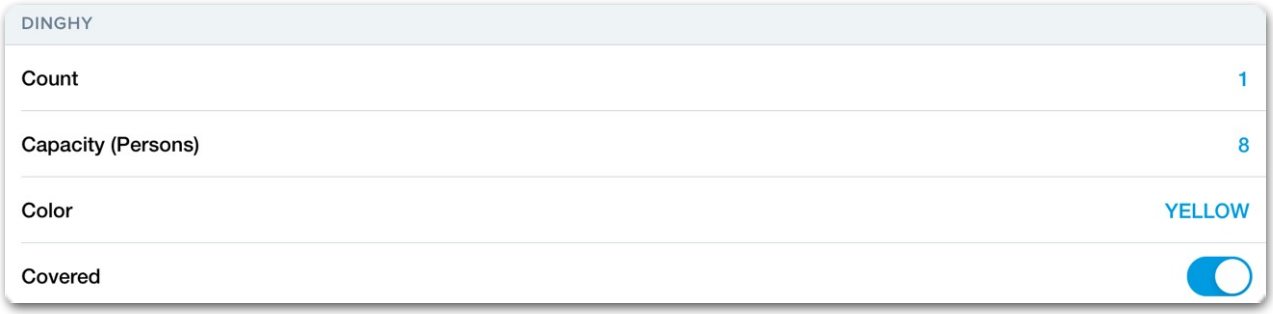
Aircraft Filing Remarks

The aircraft Remarks field is used to enter filing remarks that apply specifically to the aircraft. This field is useful when the same remarks is desired to be included in all or most filed flight plans for the aircraft.

Aircraft Remarks appear on the flight plan form under the Remarks/Other Information section and can be edited on a per-flight basis if needed. When a flight plan is filed, the Aircraft Remarks are copied to the ICAO Flight Plan form under field 18 (Other Information) preceded by RMK/.

8.2.9 Dinghy

The *Dinghy* section specifies the type, capacity, and color of any dinghies carried onboard the aircraft. If more than one dingy is carried, enter the count, total capacity (i.e., 2, 10-person dinghies = 20 Persons), and color.



Aircraft - Dinghy

8.2.10 Emergency

The *Emergency* section specifies the type of emergency equipment on board the aircraft. Choose the appropriate equipment from the drop-down menus if the aircraft carries Life Jackets, Radios, or Survival gear.

Life Jackets

- **Fluorescein -** Powder used to dye water (Sea dye)
- **Light -** Life preserver mounted light
- **UHF -** Ultra-high frequency portable radio
- **VHF -** Very-high frequency portable radio.

Radios

- **ELT -** Emergency Locator Transmitter equipped
- **UHF -** Ultra-high frequency portable radio
- **VHF -** Very-high frequency portable radio.

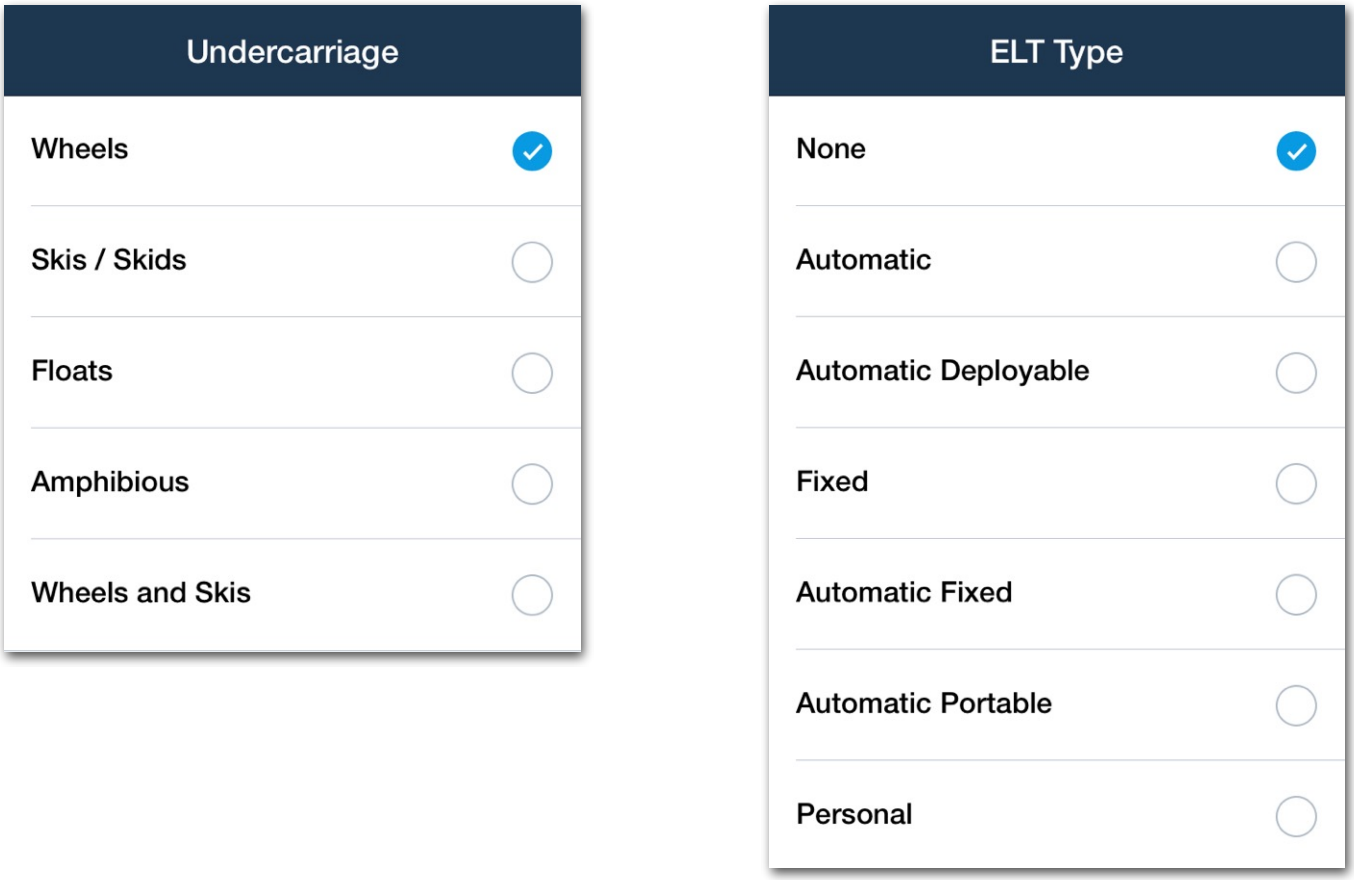
Survival

- **Desert -** Survival kit equipped for desert environments
- **Jungle -** Survival kit equipped for jungle environments
- **Maritime -** Survival kit equipped for maritime environments
- **Polar -** Survival kit equipped for polar environments.

8.2.11 Nav Canada

The Nav Canada section depicts options for specifying Undercarriage and ELT type. This section is only visible to ForeFlight Canada subscribers. Nav Canada information is transmitted to the appropriate FIC when filing *VFR* flight plans in Canada.

ForeFlight subscribers without Canada coverage can specify the information on the filing form when planning VFR flights in Canada. If an ELT is set in the Emergency section, the ELT Type should be specified in the Nav Canada section.



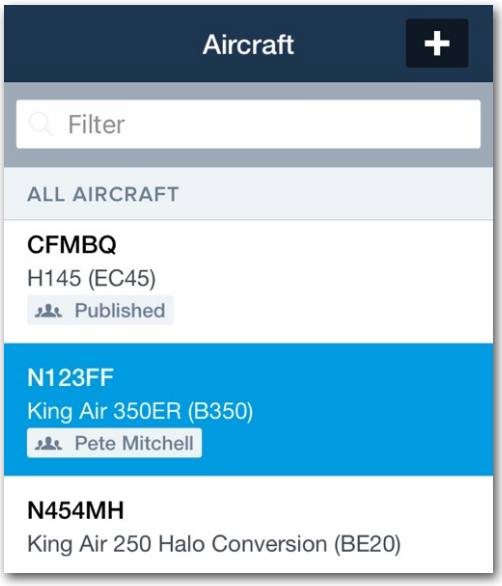
NavCanada Section

8.3 Sharing Aircraft

Aircraft profiles can be shared via AirDrop, message, or email. To share an aircraft, select the aircraft profile and tap the share button in the right corner of the upper toolbar. Choose how to share the profile: AirDrop, Message, or Mail.

If an aircraft is shared via email or message, the recipient must tap the link in the email or message to open ForeFlight Mobile. If shared via AirDrop, ForeFlight Mobile opens automatically. Once ForeFlight has opened on the recipient's device, tap **Accept** to add the shared aircraft.

Shared aircraft appear in the Aircraft list with a gray icon and the name of the pilot who shared the aircraft.



Shared Aircraft Profile

If an aircraft is shared by a Premium account to a Starter or Essential account, the recipient will not have access to ForeFlight Performance profiles or by-altitude profiles. Basic Performance Profiles are accessible by the recipient.

Aircraft are shared as read-only profiles. Shared aircraft are locked and cannot be edited by the recipient. Modifications to a shared aircraft by the profile's owner are reflected on the recipient's device.

To modify a shared aircraft as the recipient, the profile must be copied. Once a shared aircraft is copied, duplicate profiles will exist on the device.

The editable duplicate profile will not have the shared profile icon. Once a shared aircraft profile has been copied, the original locked (read-only) shared profile can be deleted if desired.

8.4 Copying Aircraft

Published, shared, and user-created aircraft profiles can be copied from the Aircraft view. Copying aircraft create editable versions of read-only published or shared aircraft profiles. Copying is also helpful if multiple aircraft of the same type are flown. To copy an aircraft, open the profile and select **Copy Aircraft** from the bottom of the aircraft details view. Copied profiles are exact replicas of the original profile. There are no indications that a profile was copied.

8.5 Deleting Aircraft

To delete an aircraft, swipe from right to left across the entry in the list view and tap **Delete**. Alternatively, open to profile and select **Delete Aircraft** from the bottom of the details view.

Published aircraft can not be deleted using ForeFlight Mobile. Read-only shared aircraft can only be deleted with the swipe/delete technique.

8.6 Published Aircraft

Multi-pilot accounts can publish company aircraft profiles. When an aircraft profile is published, all devices signed in to the account can access the published profiles. Published aircraft profiles can not be edited in ForeFlight Mobile. Only account administrators can manage published aircraft profiles.

To set up company-managed aircraft profiles as the administrator of a multi-pilot account, sign in to **plan.foreflight.com** and select **Aircraft** from the sidebar.

Select an aircraft to publish or create a new profile. Once the aircraft profile is complete, click **Publish** in the lower-right corner of the screen. Published aircraft are available in ForeFlight Mobile once they're published. When an aircraft is published, a *Published* tag appears below the aircraft registration and type in the list view.

Published aircraft can only be edited by account administrators. Published aircraft changes are immediately reflected in ForeFlight Mobile.

Clicking **Unpublish** revokes access to the aircraft for all users other than the administrator. Unpublished aircraft do not appear in ForeFlight Mobile and cannot be selected for flight planning. Published aircraft cannot be deleted. To delete a published aircraft, the aircraft must first be unpublished.

FLIGHT PLANNING

Flight planning with ForeFlight is done with the Maps or Flights view. The views do not sync with one another, however, it is possible to send routes between them.

For most pilots, ForeFlight recommends planning with the Maps view. Start by specifying a departure and destination using the route editor or touch-planning. With departure and destination points specified, use the Route Advisor, Procedure Advisor, and Altitude Advisor to finish planning. As each leg of the route is planned, the **Route Line** is generated dynamically.

Once complete, send the route to Flights to brief and file the flight plan (if applicable). Customers new to ForeFlight are encouraged to watch the **Basics of Flight Plan Filing Webinar**. For additional webinars, visit **foreflight.com/support/webinars**.

9.1 Planning with Search

The Maps and Airports views provide a search bar in the upper toolbar. The search bar can be used to plan a route. Create a route with search by typing identifiers, separated by a space, in the correct order. Tap the route in the search results to add it to the route editor (FPL Editor).

NOTE: Only airports with ICAO, IATA, FAA, or other short-code identifiers can be entered in the search bar as part of a route. Airports without codes must be searched using their full names e.g. “Garbenheimer Weisen”, and these often have more than one word. But the search bar cannot recognize names with spaces as part of the same route element. To plan flights to or from these airports, use the **Touch-Planning** or **Route Rubber-Banding** methods.



Planning with Search

Airways, arrivals, departures, and custom waypoints are supported with search. If the current location can be determined, it can be used as the origin for the route. Enter “D” followed by an identifier to plan directly to a location. ForeFlight replaces the “D” with the current position. For example, entering D KLAX, plans a route from the current location direct to Los Angeles International Airport.

Entire airways can be viewed on the map by searching for the airway identifier. For example, *V16*. Airways can also be used in a route. For example, *NIKOL V244 ILC*. ARINC 424 coordinates (5275N) can also be entered in the Search box or Route Editor.

Terminal procedures, as well as associated transitions, are supported in a route. If the procedure requires a runway, ForeFlight will prompt for one and provide an example. When briefing and flying terminal procedures, it is critical to *always* refer to the published arrival/departure plate as the ForeFlight Maps view is *not able to show heading vectors and all altitude info.*

Basic performance information about the aircraft can also be provided when building a route in the search box. These can be in any order, but must come after the route waypoints.

Example searches:

- **KJFK KSFO** - this is a simple direct route from NY to San Francisco.
- **D KSFO** - this is a direct route from the current position to San Francisco.
- **KJFK FLW 32.3N/99W** - this is a route from NY to the FLW VOR to a lat/lon waypoint.
- **KSFO FLW/320/15** - this is a route from KSFO to a point on the 320 radial 15nm from FLW VOR. If a VOR is not given as the reference waypoint, then the directional information is assumed to indicate a bearing from, not a radial. Enter “M” or “T" after the bearing to position the point on the magnetic or true bearing.
- **KCLT RDU J209 ORF J121 SIE.CAMRN4 KJFK** - this route includes multiple jet airways and an arrival.
- **KUZA KOSH 8000ft** - this is a route from Rock Hill to Oshkosh at an altitude of 8,000’. The selected aircraft performance profile is used because fuel burn and true airspeed cannot be entered in the Search box.
- **KJFK YQM V311 YQX 5050N 5330N 5315N EGLL** - This hypothetical route from JFK to London Heathrow uses ARINC 424 coordinates between Gander and Heathrow.

A route search can also include a tail number of an aircraft setup in the More > Aircraft view. When that aircraft has performance data it will be automatically used. Departure time can also indicated in a route search; ForeFlight will use this time to incorporate the proper winds aloft forecasts into the time and fuel usage calculations. If a time is not provided, ForeFlight Mobile assumes an immediate departure.

The departure time can be included as a specific time or as a time relative to *now*, as a local time or Zulu time.

- **KUZA KOSH 8000 1315Z** - The route details will be calculated for conditions starting at 1315Z. The time can be designated in Zulu time, as in the example, or local time, such as: 13:15, 1:15p, 1:15pm, 1:15a, 1:15am, or 1:15 (with no am/pm given, ForeFlight will assume \ the next upcoming 1:15 was intended).
- **KUZA KOSH 8000 +60** - The route details will be calculated for conditions starting 60 minutes from now. This relative time *must* begin with a + and may be specified in minutes, hours, or a combination; +60 or +60m for minutes, +2h for hours, +2:30 for 2 hours 30 minutes.

A route entered in search will automatically be transferred to the route editor. If a new route is entered in the search box it will replace the route in the route editor. To clear the current route from the search box, tap the “X” in the search bar. To clear the route from the route editor, change to the **Edit** view and tap the **Clear** button, then tap **Clear All**.



Clearing a Route

9.1.1 Scheduled Flight Search

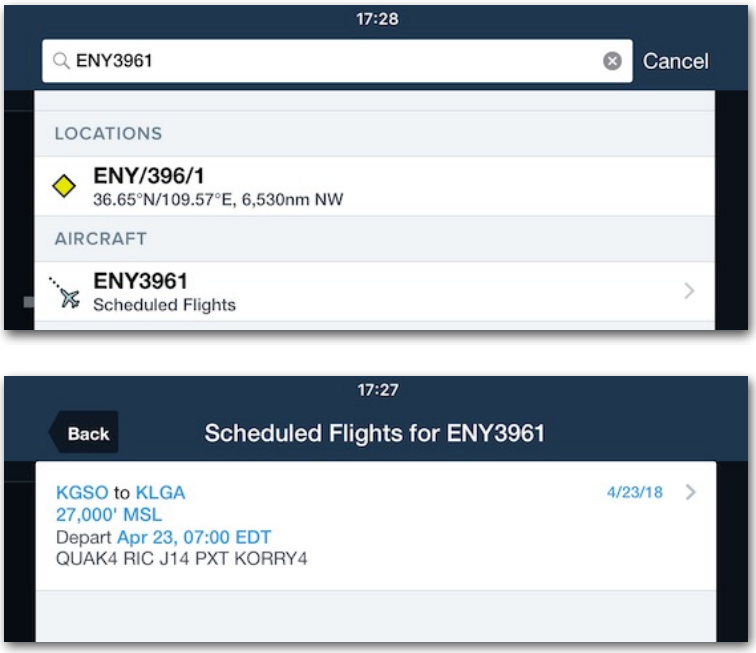
The search bar is used to find **scheduled (upcoming) flights** for an aircraft and load them into the Route Editor. Search by tail number (e.g., N12345), call sign (e.g., NGF345), or commercial flight number (e.g., SWA44).

ForeFlight searches for any flights that are en route or set to depart in the next 24 hours and displays those flights in a list. Each flight listed includes:

- The departure airport
- The destination airport
- The filed altitude
- The departure time
- The filed route.

Tap on a flight to load the route and altitude into ForeFlight's flight plan editor.

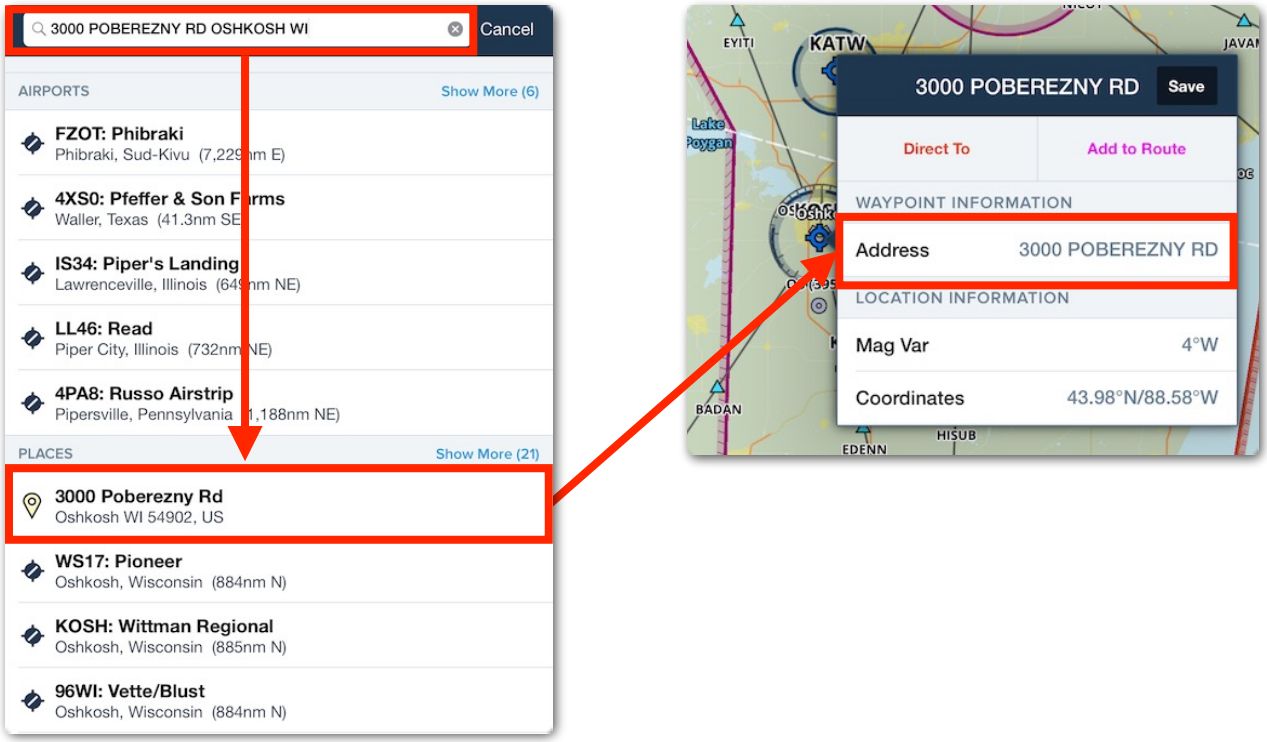
If ForeFlight Mobile is receiving ADS-B data while in-flight, a search can be made for an N-number or callsign (full or partial) to locate that target on the Map.



Scheduled Flight

9.1.2 Street Address Search

Searching for a Street Address can be performed only when connected to the Internet. Tap on an address in the search results to locate it on the map and add it to a route (either “Direct To” or “Add to Route”). A street address can also be saved as a **user waypoint** by tapping **Save**.



Users subscribed to a *Premium* plan with U.S. coverage have access to an offline Street Address database that allows for searching U.S. state and territory street addresses when not connected to the Internet.

To download the offline Street Address databases, tap **More** > **Downloads** > **Data Settings** > and enable **Street Addresses**.

Offline Search supports the standard format for U.S. street addresses:

> Address number, street name, street suffix (including contractions)
>
> town/city name, two-letter state identifier, and zip code.

ForeFlight only requires the first two terms to begin searching and returning matches. Matches closer to current position are prioritized. Finding more distant addresses (i.e., those in other states) requires additional terms like the state and zip code.

9.2 Planning with Maps

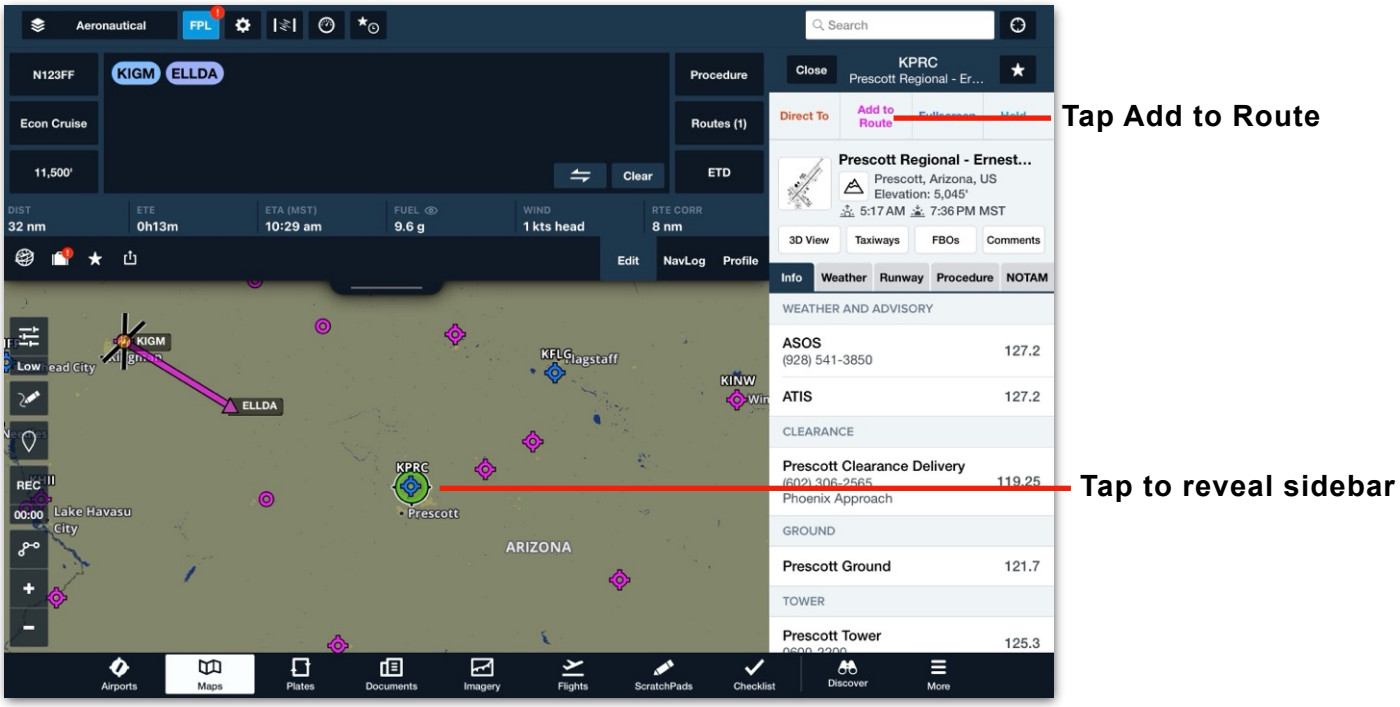
Planning a flight with the Maps view is accomplished using search, the route editor (FPL Edit mode), touch-planning, or a combination of the three. Procedure Advisor, Route Advisor, and Altitude Advisor are used for planning cruise altitudes, routes, and arrival, departure, or approach procedures.

When planning with touch, enabling the **Aeronautical Map** layer is recommended. Aeronautical map elements respond to a single tap reducing the number of taps necessary to plan a flight.

9.2.1 Touch-Planning

To plan a flight with touch-planning, tap an Aeronautical Map element (airport, waypoint, navaid) and use the **Direct To** or **Add to Route** options at the top of the sidebar. Selecting **Add to Route** appends the element to the end of the existing route. Selecting **Direct To** creates a route from the present position direct to the element.

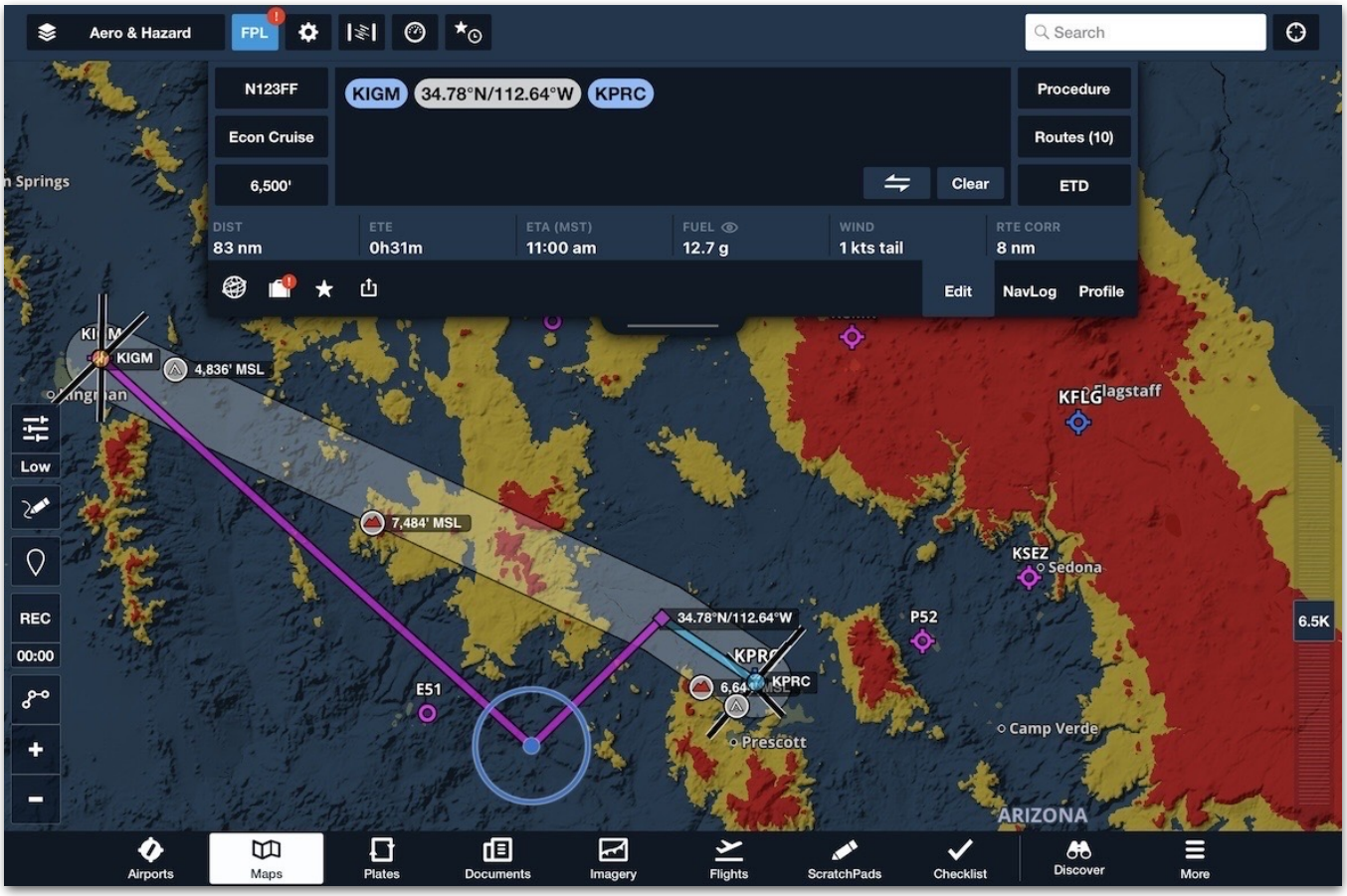
When the Aeronautical map is not enabled, press and hold the map the reveal the **Add to Route** menu. Tap an element in the Nearby list to add it to the route. Tap **More > Details** in the Add to Route menu to reveal the Hold Advisor.



Touch Planning

9.2.2 Route Rubber-Banding

The Maps view supports rubber-banding. Rubber-banding a route is useful for planning around terrain, inclement weather, and airspace. To use route rubber-banding, add two or more points to the route. Tap and hold the route line until a blue circle appears. Without lifting the finger, drag the route line on the map. When the finger is lifted from the screen, the *Insert into Route* menu appears in the sidebar.



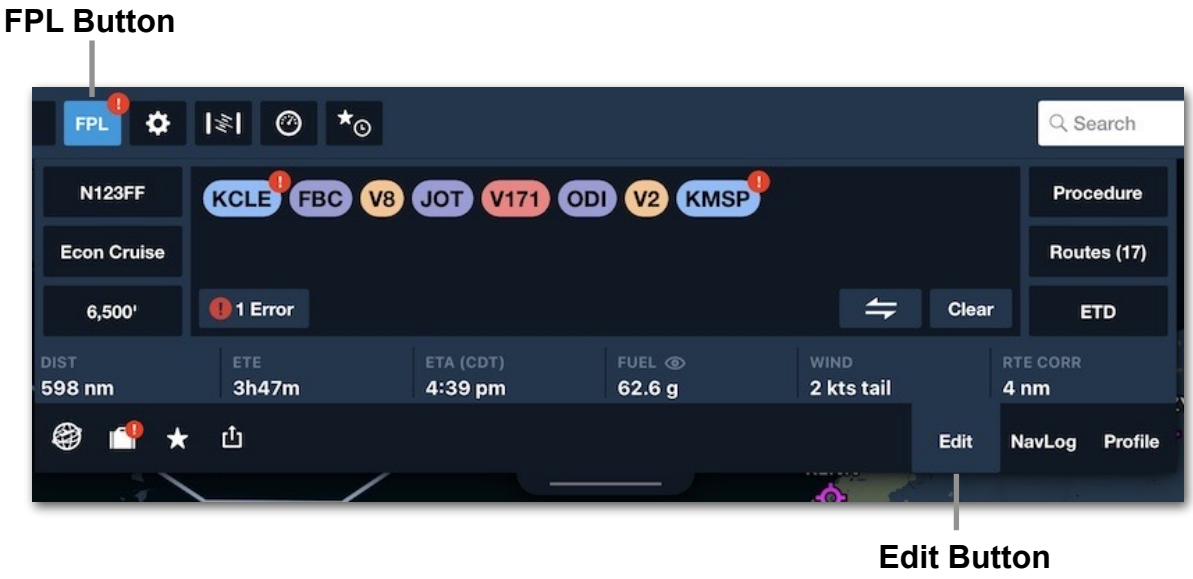
Route Rubber-Banding

The Insert into Route menu list the coordinates where the finger was lifted and nearby airports, navaids, and waypoints. Use the buttons near the bottom of the menu to filter the nearby list. Tap the coordinates or a nearby element to insert it into the route.

9.2.3 Route Editor

Planning with the route editor is accomplished with the keyboard. Tap the **FPL** button and select **Edit** to display the route editor. With the route editor displayed, tap in a dark blue blank space to reveal the keyboard.

Buttons on the left side of the route editor specify the aircraft, performance profile and cruise altitude. The right side buttons open **Route Advisor**, **Procedure Advisor**, and set the Estimated Time of Departure (ETD).



Manually enter airport, waypoint, and navaid identifiers to plan a route. Route elements are color-coded based on type.

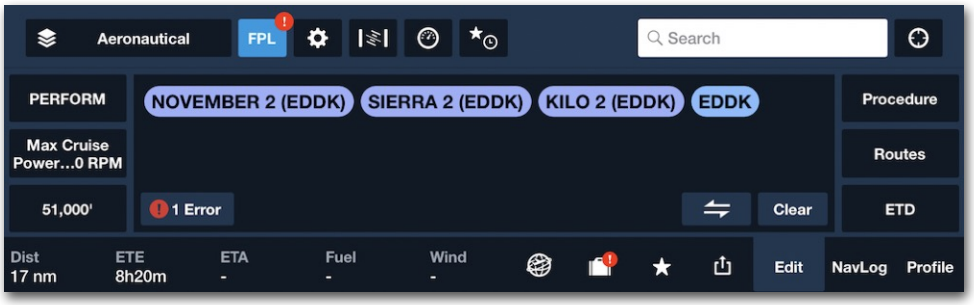


Route Editor - Element Icon Colors

NOTE: Only airports with ICAO, IATA, FAA, or other short-code identifiers can be entered in the Route Editor. Airports without codes are identified in ForeFlight using their full names e.g. “Garbenheimer Weisen”, and these often have more than one word. The Route Editor cannot accept names with spaces as part of the same route element. To plan flights to or from these airports, use the **Touch-Planning** or **Route Rubber-Banding** methods.

Waypoints with Associated Airports

If map elements such as VFR waypoints are associated with a nearby airport, they will appear in the Route Editor with their name, followed by the associated airport code in parentheses e.g. **NOVEMBER 2 (EDDK)** for the “November 2” waypoint associated with the Cologne-Bonn (EDDK) airport in Germany. These elements follow the same labeling convention in the Navlog, Profile View, and 3D View.



Route Element Menus

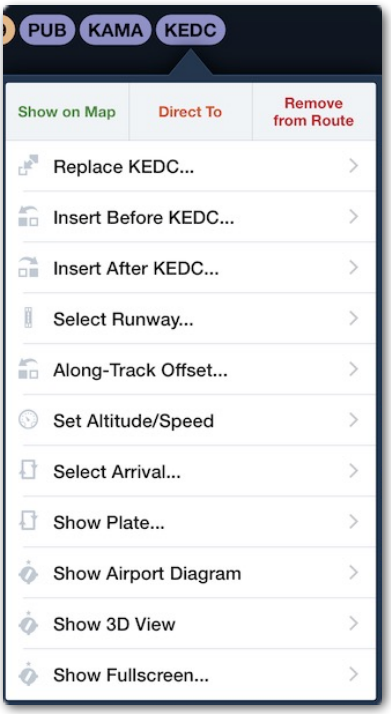
The route element bubbles respond to touch. Tap an element to reveal the menu. To pan the map to a point in the route, tap the entry and select **Show on Map**.

To plan a direct route to an entry, tap the route element and select **Direct To**.

To remove an entry, tap it and select **Remove from Route**. Alternatively, tap and hold a finger on an entry to pick it up and drag it out of the route editor. Release the finger from the screen to delete it.

To move an entry, touch-hold on it to pick it up then move it to the new location and lift the finger to let go.

To add a route item in the middle of the route, tap any existing item to display the action menu for that item. Tap either of the “Insert...” buttons to show the ID entry field. Type in the new entry to add and press Insert or tap the return key on the keyboard.

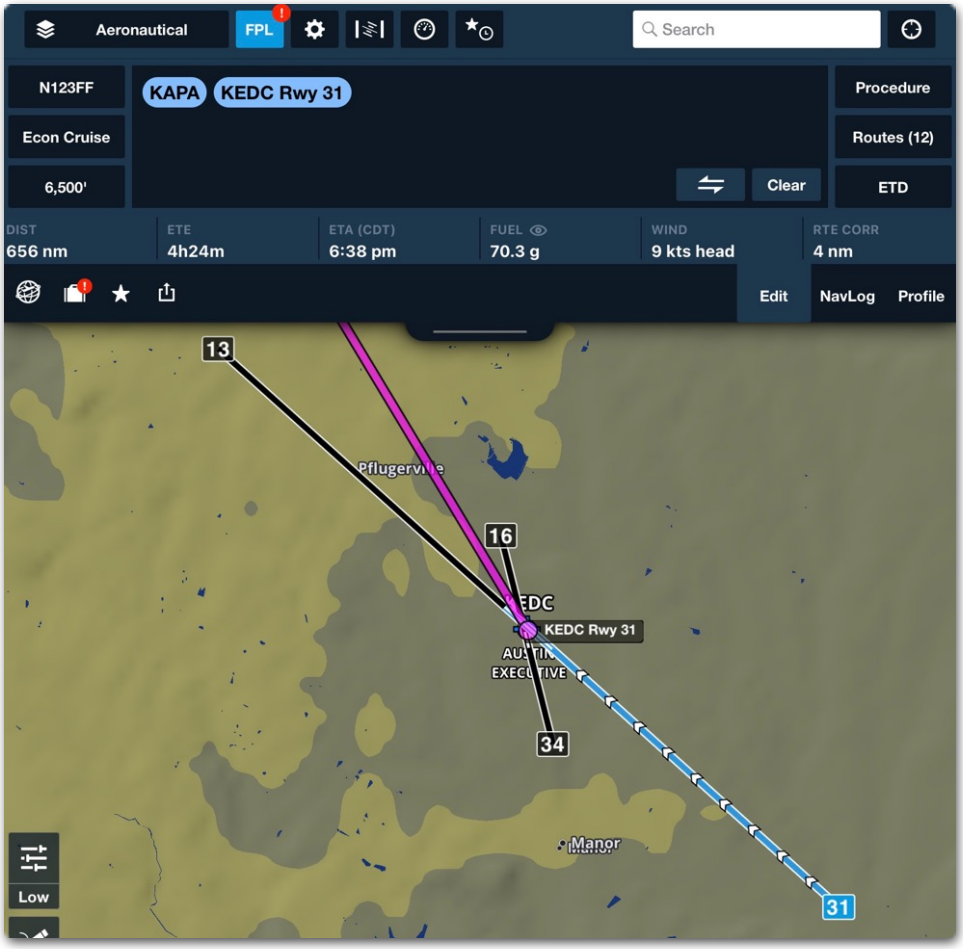


Route Editor

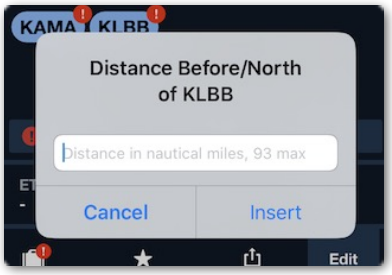
Airport Menu

Tap on the Departure or Destination bubble and choose **Select Runway...** to open the runway selection pop-up. The pop-up shows a list of available runways along with the most recent wind data.

When a runway is chosen, that runway is then highlighted on the Maps page: at the Departure airport with blue chevrons on the runway and white chevrons extending out from the runway centerline, and at the Destination airport with an extended blue line with white chevrons leading to the runway centerline. If a runway and traffic pattern is chosen via the Procedure Advisor, the blue chevrons will reflect that runway choice.



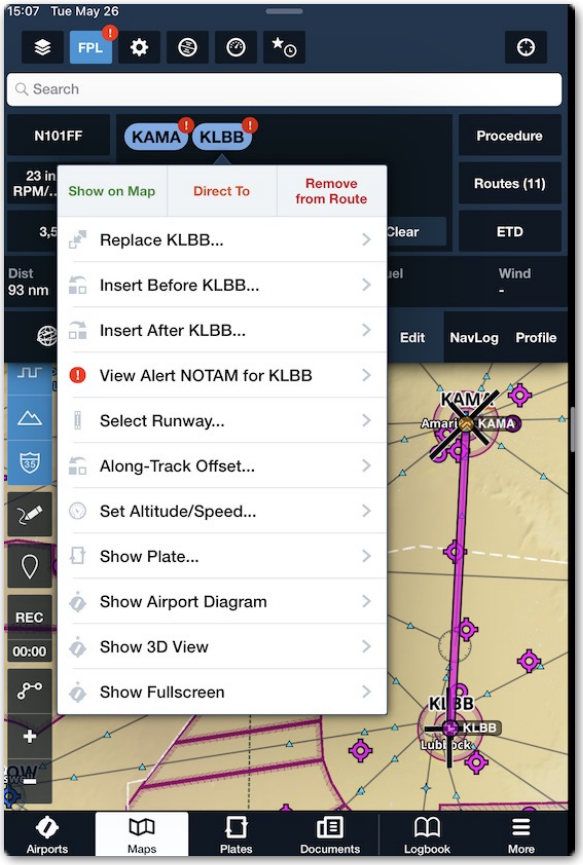
Arrival: blue line and white chevrons leading to runway

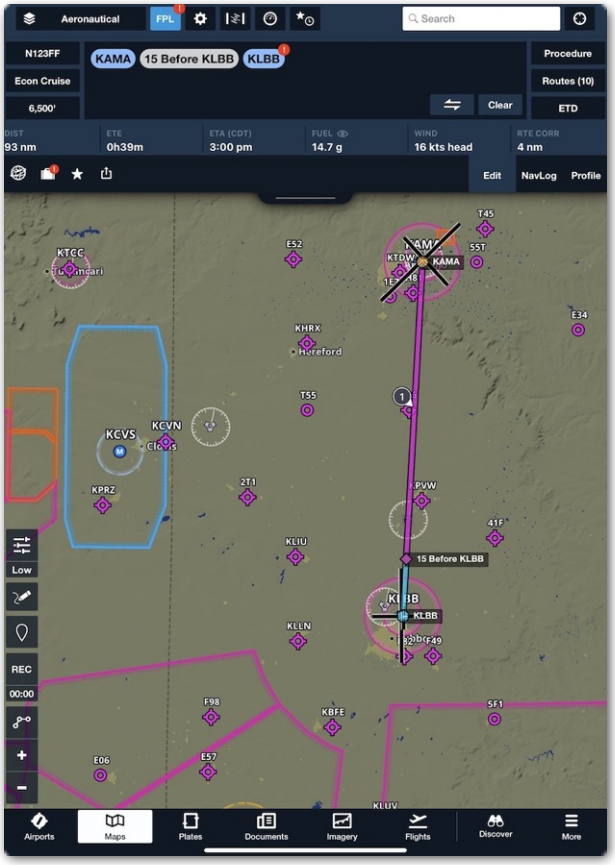


The **Along-Track Offset Before...** option allows the addition of a point at an arbitrary distance before the end of the leg. Multiple Along-Track Offsets can be added to a route, and to an individual leg.

When **Along-Track Offset Before...** Is tapped, the popup shows the total distance of that current leg. Enter the distance in nautical miles before the ending point (eg: a distance less than the total distance) that the point is to be added.

The point is then shown as in the example above “15 Before KLBB”. If the route is sent to Flights, that point is then converted into a latitude/longitude coordinate.





Along Track Offset

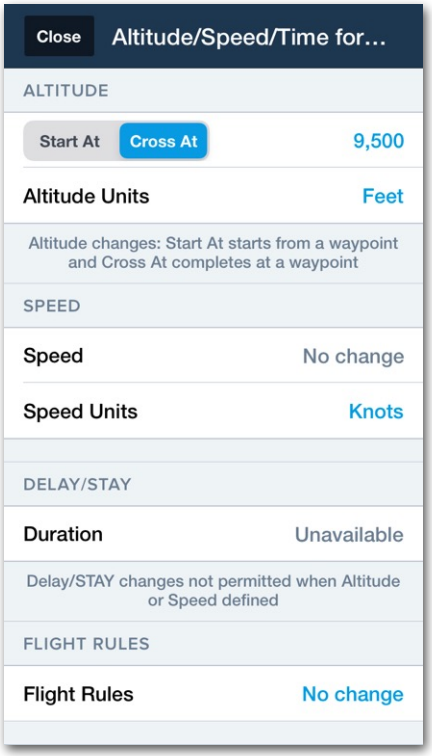
Set Altitude/Speed is available to Starter and Essential subscribers. This feature allows pilots to specify an altitude, speed, or flight rule change at a waypoint.

Set Altitude/Speed/Time adds the ability to include a delay or stay at a waypoint. **Set Altitude/Speed/Time** is only available for Premium and Business Performance subscribers.

When **Set Altitude/Speed/Time** is selected, a waypoint menu appears with options for entering a specific altitude, speed, delay duration, and flight rule change.

The waypoint menu can be accessed in three ways.

- Tap a waypoint in the FPL editor and select **Set Altitude/Speed/Time**.
- Tap a route element on the map and select **More** > **Set Altitude/Speed/Time**.
- Tap a waypoint in the Profile View.

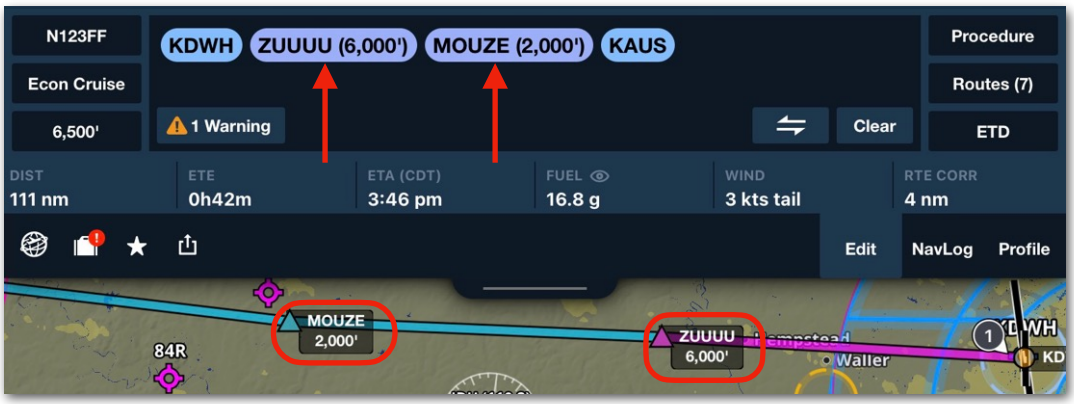


Waypoint Menu

Altitude Changes

The set altitude option allows pilots to plan routes with changing cruise altitudes. This may be useful when planning around airspace or terrain. En route altitude changes are reflected in the following locations:

- FPL editor in parenthesis next to the waypoint they're associated with.
- Maps view next to the waypoint when the Route Labels map setting is enabled.
- Profile View route line.



FPL Editor and Map Altitude Changes

PRE FLIGHT

When determining flight planning results, ForeFlight factors the selected aircraft performance policy, forecast weather, and cruise altitude. Altitude changes are displayed in the Navlog. Altitude changes are also included in the route section of the filing form and are transmitted when filing.

NOTE: Altitude changes are displayed in the Navlog for all waypoints except latitude/longitude waypoints.

To add an altitude change to the route, select a waypoint from the Profile View, Map, or FPL editor. Select **Set Altitude/Speed/Time** (if necessary) and enter the new cruise altitude for the waypoint.

Select **Start At** to begin an altitude change at a waypoint. Select **Cross At i**f a climb or descent is to be started before a waypoint to reach the required altitude at the waypoint. Multiple altitude changes can be added to a route provided:

- The altitude change required does not exceed the selected aircraft performance policy climb or descent parameters.
- The altitude change does not occur during the initial climb or final descent phase of flight. If an altitude change is entered during the climb or descent phase, the altitude change will not be reflected in the Profile View or Navlog.

NOTE: If crossing restrictions are unable to be honored due to limitations in the selected performance policy, the profile view cannot depict a path that meets the restrictions defined for a waypoint.

Using Profile View to add an altitude change is recommended to aid in evaluating airspace and hazards when making changes

Speed Changes

Speed change allows pilots to file flight plans with changes to the planned true airspeed. Speed changes are included in the route section of the filing form and are transmitted when filing. Speed changes are generally not required for flight plans outside of EuroControl airspace.

To add a speed change, select the waypoint where the change is to occur from the Profile View, Map, or FPL editor. Select **Set Altitude/Speed/Time** and enter the new cruise speed.

Speed changes are displayed in the FPL editor next to the waypoint in parentheses and on the map when Route Labels are enabled. ForeFlight does not factor in speed changes when determining flight planning results. Thus the Navlog does not reflect manual changes to speed.

Delays/Stays

ForeFlight Mobile supports delays (FAA/NavCanada) and stays (Eurocontrol) for flight planning and filing purposes. Add a delay to the flight plan with the **Set Altitude/Speed/Time** option (Premium or Business Performance account required).

Starter and Essential customers can manually enter delays and stays using the formatting: *identifier/Dh+mm*. Below is an example of a 15-minute stay at the waypoint VENAR: **VENAR*/D0+15*** using a Premium account.



VENAR 15 Minute Delay

Delays and stays can be added to en route waypoints, latitude-longitude, fix-radial-distance, intersections, and navaids.

A maximum of nine delays/stays are supported per flight. Stays are not supported for flights outside of Eurocontrol airspace. Delays (US) are not supported for international flights. Delays/Stays cannot be added to terminal arrival or departure procedures.

When a route containing a delay/stay is sent to Flights for filing purposes, the delay/stay is included in the flight's route section. When filing a flight plan with a stay, Eurocontrol requires remarks (STAYINFO).

To add a delay or stay using the **Set Altitude/Speed/Time** option:

1. Plan a route using the Maps flight plan editor.
2. Tap the route element where the delay/stay is to take place.
3. Tap **Set Altitude/Speed/Time**.
4. Enter a duration using the time picker.
5. Add remarks (EuroControl required).
6. Tap anywhere outside the pop-up window to save the changes.

Remarks added with the flight plan editor pop-up are copied to field 18 (Other Information/STAYINFO) of the ICAO filing form.

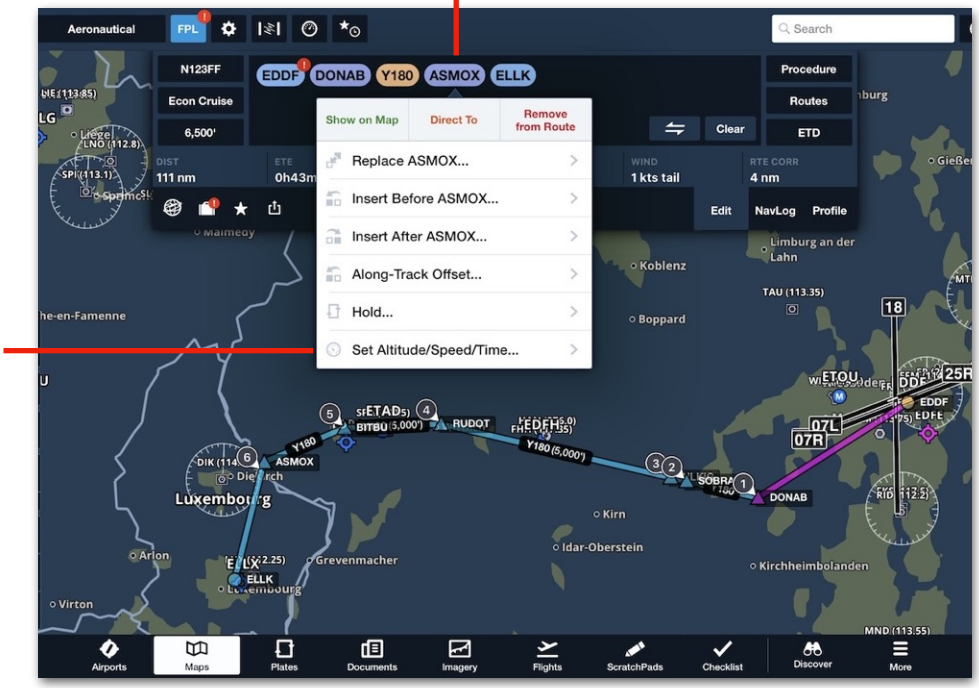
Flight Rule Changes

The Flight Rule change option allows pilots to plan and file composite flight plans. Composite flight plans are generally only filed in Europe. To plan a composite flight:

1. Enter the route in the flight plan editor.
2. Tap the waypoint where the flight rule transition is to occur.
3. In the options menu, tap **Set Altitude/Speed**.
4. Tap **Flight Rules** and select **VFR** or **IFR**.

Tap a Waypoint to

Set Altitude/Speed/ Time and Flight Rule



Manually Changing Flight Rules

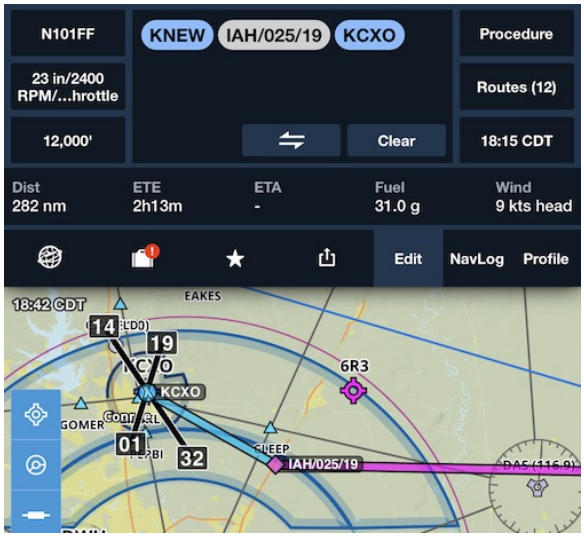
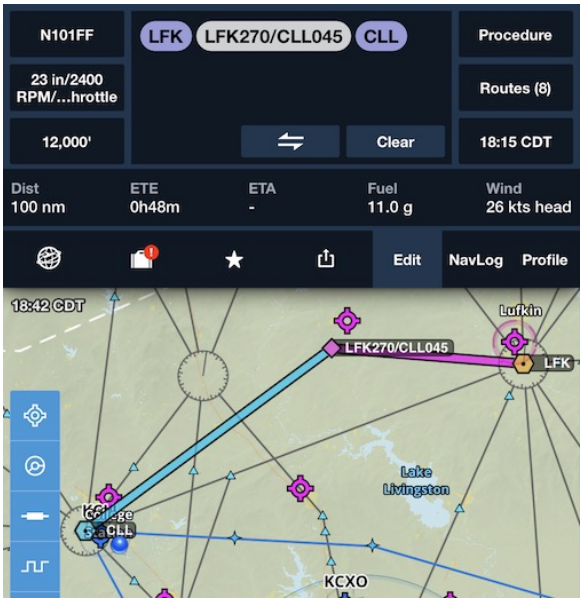
When a flight containing a rule change is sent from Maps to the Flights view, the flight rule change is automatically added to the route. When filing the flight plan, it is necessary to select the appropriate Flight Rule in the Flight Plan Type section.

When filing a composite flight plan for the first time, pilots are encouraged to contact the appropriate agencies to ensure the plan was filed correctly.

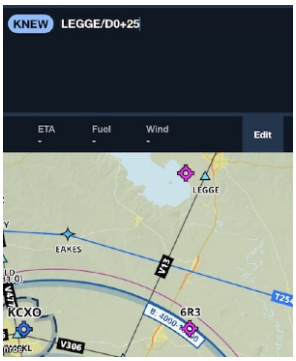
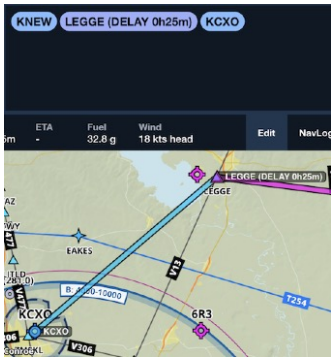
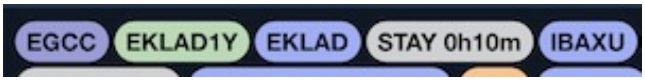
NOTE: Flight Rules do not automatically update on the filing form when planning a composite flight. Flight rules must be *manually* changed on the filing form.

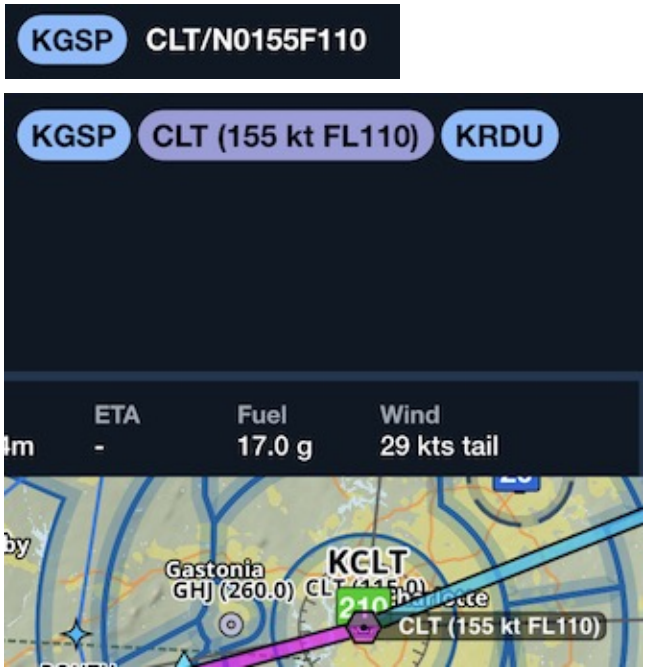
9.2.4 Slash Codes

The Route Editor supports various elements that are defined with a forward slash.

Slash Code	Example	Usage
FIX/RAD/DIST Fix, radial, distance. Ex: IAH/025/19 19nm from IAH on the 025 radial		Worldwide
FIXRADDIST Ex: LFK225030 30nm from LFK on the 225 radial	Alternative not using “slash” to separate elements. RAD & DIST = 3 digits, with leading 0’s if needed	US only
FIXRAD/FIXRAD Plots a point at the intersection of one fix and radial with the other fix & radial. Ex: LFK270/CLL030		Worldwide

PRE FLIGHT

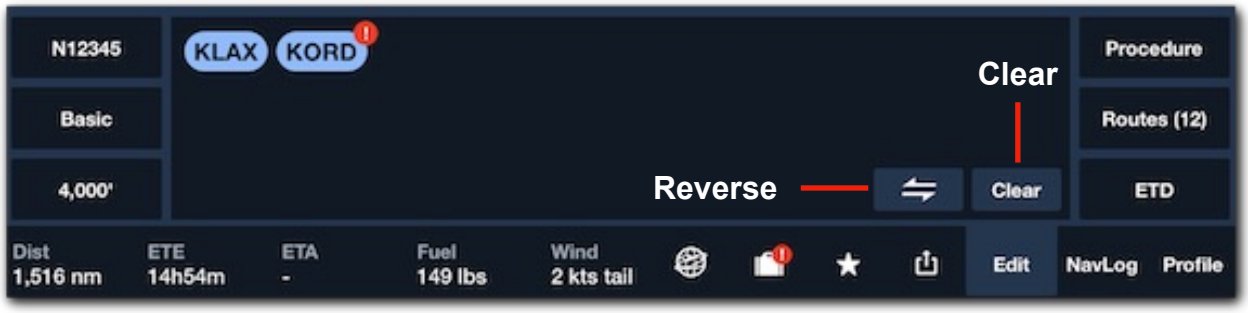
FIX/Dh+mm Delay h hours, mm minutes, at the fix, which can be a VOR, Waypoint, Airport identifier, or FIXRADDIST. Ex: LEGGE/D0+25 Delay 25 minutes at LEGGE Ex: CTF090010/D1+05 Delay 1h 5min at a point 10 east of CTF VOR	 	US only
STAY/hhmm Stay (delay) at the preceding waypoint for hh hours and mm minutes. Ex: EKLAD/STAY0010 Delay 10 minutes at EKLAD	 See **How do I file a STAY at a waypoint within my flight plan in Europe** for more details. **NOTE:** STAY requires a waypoint after the “STAY”. If adding a STAY at the final waypoint in the route before the airport it **must** be entered directly in the Flights: Route box. In the Flights: Route box enter the waypoint, then the STAY, then DCT the same waypoint. eg: for a route ending ...SHA EINN where STAY/0030 at SHA is desired, enter it in the Flights: Route box as: ...SHA STAY/0030 DCT SHA	Europe only

FIX/N0000F000 **FIX/F000** **FIX/N0000** Change Speed (N0000 in knots) or Altitude (F000 in flight level) at that fix. Ex: CLT/N0155/F110 Change to 155 kts and 11000’ at CLT	 **NOTE:** Can also be selected by tapping the route “bubble” and choosing “Set Altitude/ Speed”.	Worldwide

9.2.5 Reversing/Clearing the Route

Once route elements have been entered in the FPL Editor, the Reverse and Clear buttons are displayed.

- Tapping the Reverse button ⇋ reverses the order of the route elements. However, this action also removes any **procedures** such as SIDs, STARs, or approaches that were added to the original route.
- Tapping the **Clear** button removes all elements at once from the FPL Editor.



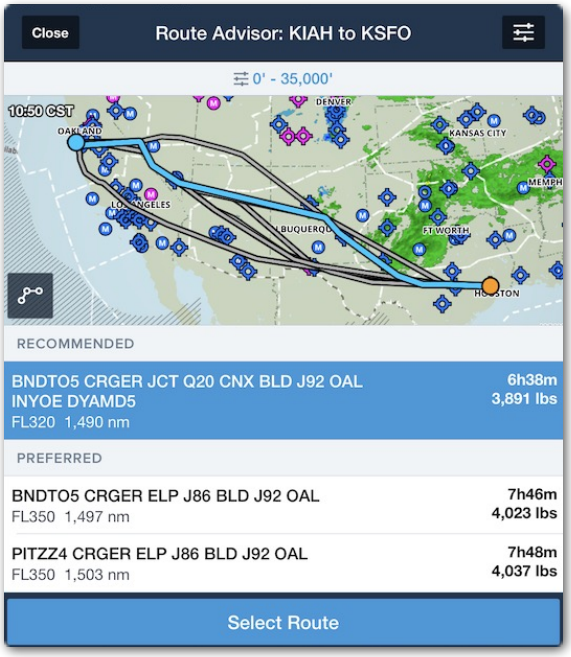
9.3 Route Advisor

The Routes button opens Route Advisor, which displays a list of potential routes that can be selected for a pair of departure and destination airports. To the right of the list is a Route Preview, showing the path of every route on an interactive map. Tap on a route in the list to highlight it on the map. The Route Preview map can be panned and zoomed. Tap the Zoom to Route button in the bottom left to return to a view of the full route. Tap Select Route after tapping on a route in the list to add the route in the Route Editor. This will replace any route that is already there.

When a Performance Profile has been selected, the estimated time en route and fuel burn based on that profile are shown for each route on the right, along with the route's total distance.

Route Advisor requires an internet connection to load new routes for an airport pair, but once those routes are loaded they can be viewed offline as long as the same departure and destination airports are entered in the Route Editor.

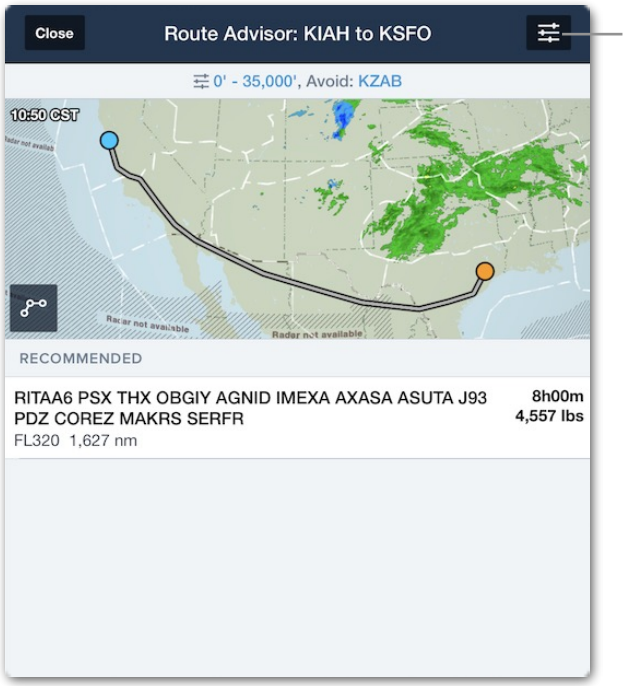
Types of routes shown include:

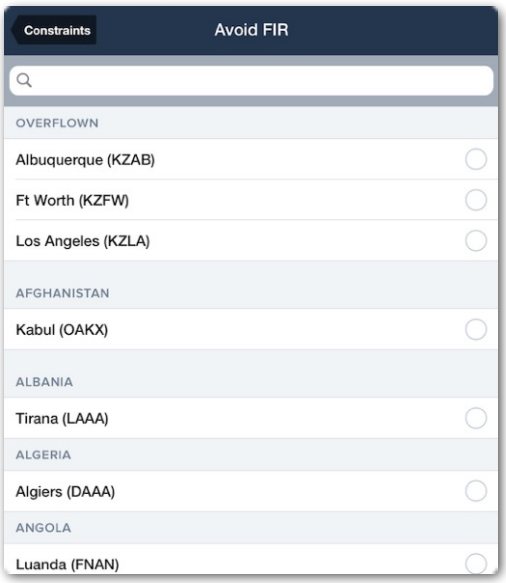


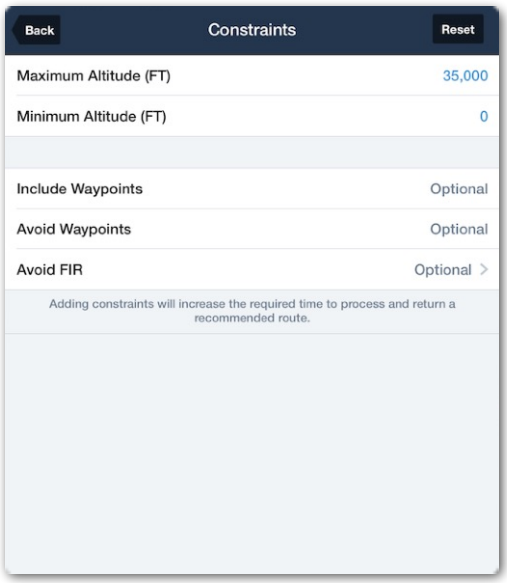
- **Recommended** (Performance-tier only) - provide the best route based on the winds, aircraft, time/fuel savings, and chance of being cleared as filed. Recommended routes do not explicitly analyze terrain.
- **TEC/Preferred** - these routes are commonly used and may include an altitude or range of altitudes that are typically given with the route.
- **ATC Cleared** - these are routes that ATC has cleared in the recent past. These show the departure time of the most recently cleared flight, the number of times a route has been cleared in the past year, and the type of aircraft and clearance altitude for which the route was given.
- **Airway** - these are victor-airway based routes.

9.3.1 Route Constraints

Any waypoint can be be included or excluded and FIRs avoided by specifying constraints from a route. Tap **Constraints** in the upper-right to specify the waypoints to include or avoid, or the FIR(s) to avoid.





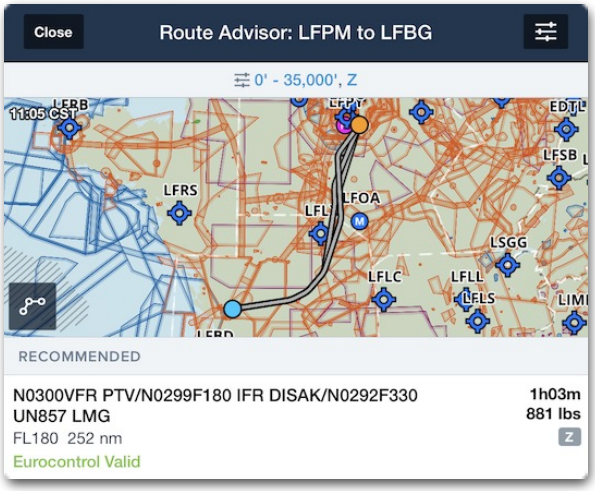


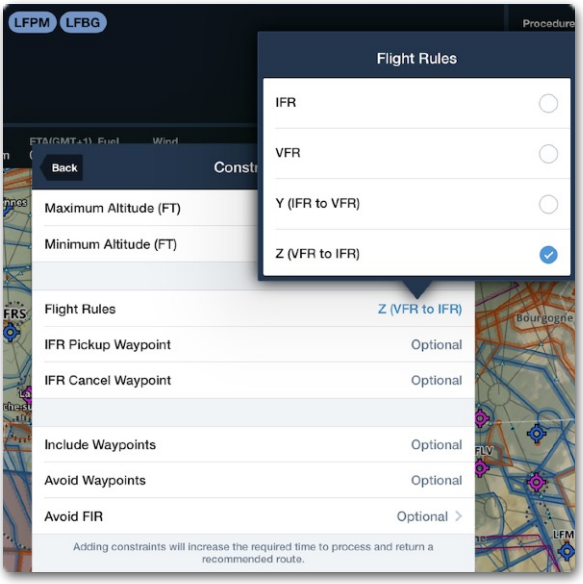
NOTE: Route Constraints are available only to Performance-tier or MFB One subscription holders.

9.3.2 Eurocontrol Valid and Invalid Routes

For any route that passes through Eurocontrol airspace, Route Advisor will evaluate the route against Eurocontrol's complex system of route constraints and display a "**Eurocontrol Valid**" or "**Eurocontrol Invalid**" label beneath the route. For European routes the Route Advisor will also show if a route is Y or Z.

If needed to find a "**Eurocontrol Valid**" route through complicated European airspace, tap the "Constraints" button in the upper-right corner of the Route Advisor window to choose maximum and minimum altitudes, as well as flight rules (VFR, IFR, Y, Z).





IMPORTANT: Eurocontrol validation may fail if the aircraft ICAO configuration is incomplete or incorrect. Before planning a flight, make sure to correctly set up the aircraft ICAO configuration in **More > Aircraft**.

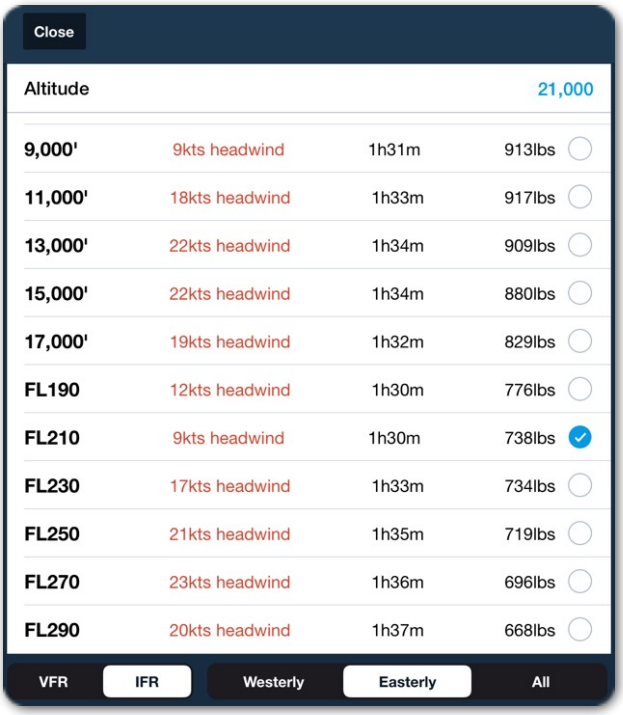
9.4 Altitude Advisor

When a new flight created, the altitude is automatically set to the aircraft default cruise altitude. Open Altitude Advisor to review other altitudes. The highest altitude shown is based on the value for the maximum ceiling altitude.

All altitude options are evaluated by ForeFlight's planning engine and performance results are shown next to each one, including the average head/tailwind component over the entire route.

If performance results are not shown for a given altitude (eg: "-----") it means that the aircraft cannot achieve the desired cruise speed quickly at that altitude, due to warmer than standard temperatures, payload/fuel weight, a cruise speed that is faster than can be achieved at that altitude, or a route too short to achieve that altitude.

The buttons along the bottom of Altitude Advisor allow filtering of the altitudes shown. The VFR/IFR buttons on the left filter the altitudes to those permissible for the selected flight rules. The Westerly/Easterly/All buttons on the right filter altitudes to those that are fileable based on the flight direction. ForeFlight will automatically filter this list to only show relevant altitudes as changes are made to a flight.



Altitude Advisor

If the climb performance on the **More** > **Aircraft** page is entered, the Altitude Advisor will automatically calculate whether it is possible to reach the listed altitude based on the rate of climb and the distance of the route.

When connected to a Sentry or other ADS-B or SiriusXM receiver, Altitude Advisor™ will only display wind effects if recent winds aloft data for the entire route has been received.

9.5 Procedure Advisor

The Procedure Advisor can be used to add **departures** (SIDs), **arrivals** (STARs), **IFR approaches**, **VFR approaches**, **VFR traffic patterns**, **holding patterns**, and **search & rescue (SAR) patterns** to a route.

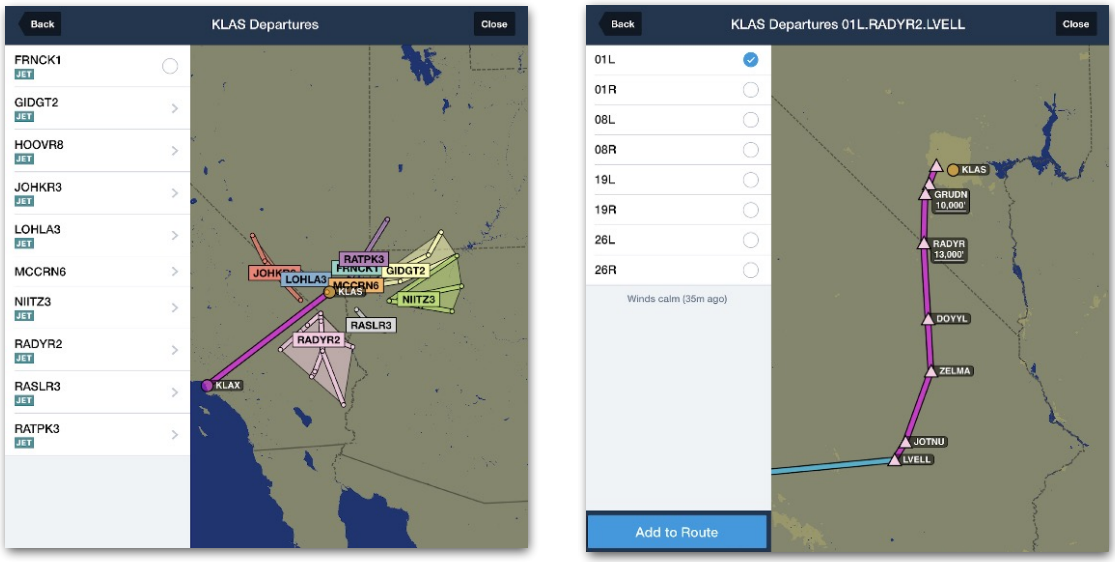
To open the Procedure Advisor, enter a route in the FPL Editor and tap **Procedure** in the upper right corner. Departures, arrivals, approaches, and traffic patterns require that at least one airport be entered in the FPL Editor. SAR patterns can be entered without an airport in the FPL Editor.

9.5.1 Departures and Arrivals

Tap **Departure** or **Arrival** to see a list of STARs and SIDs for the airport. If the departure or arrival has an aircraft type restriction, it is indicated by a colored label, e.g., **Piston**, **Turboprop**, or **Jet**.

Selecting Departure or Arrival

Tap a SID or STAR to see a list of transition options for that procedure and to show the procedure on the map. For users with Essential or Premium subscriptions as well as Jeppesen coverage (purchased directly through ForeFlight or via a linked Jeppesen account), tapping a SID or STAR also displays its georeferenced plate on the map. Select a transition (and runway if required), and then tap **Add to Route** to load the procedure to the route in the FPL Editor.

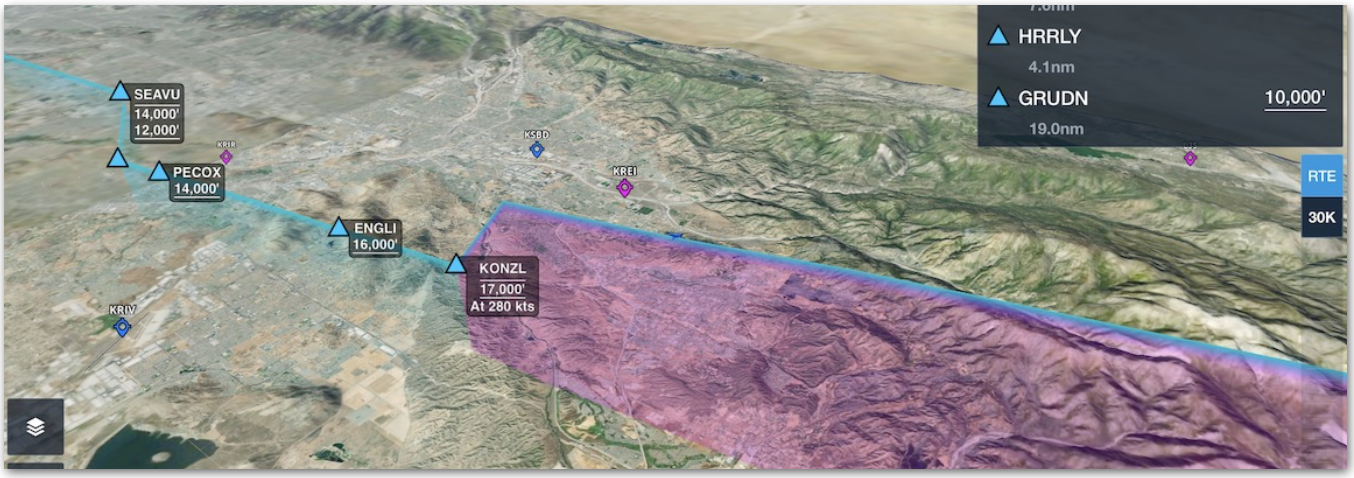


Selecting a Departure

Displaying SID and STAR Altitude and Airspeed Restrictions

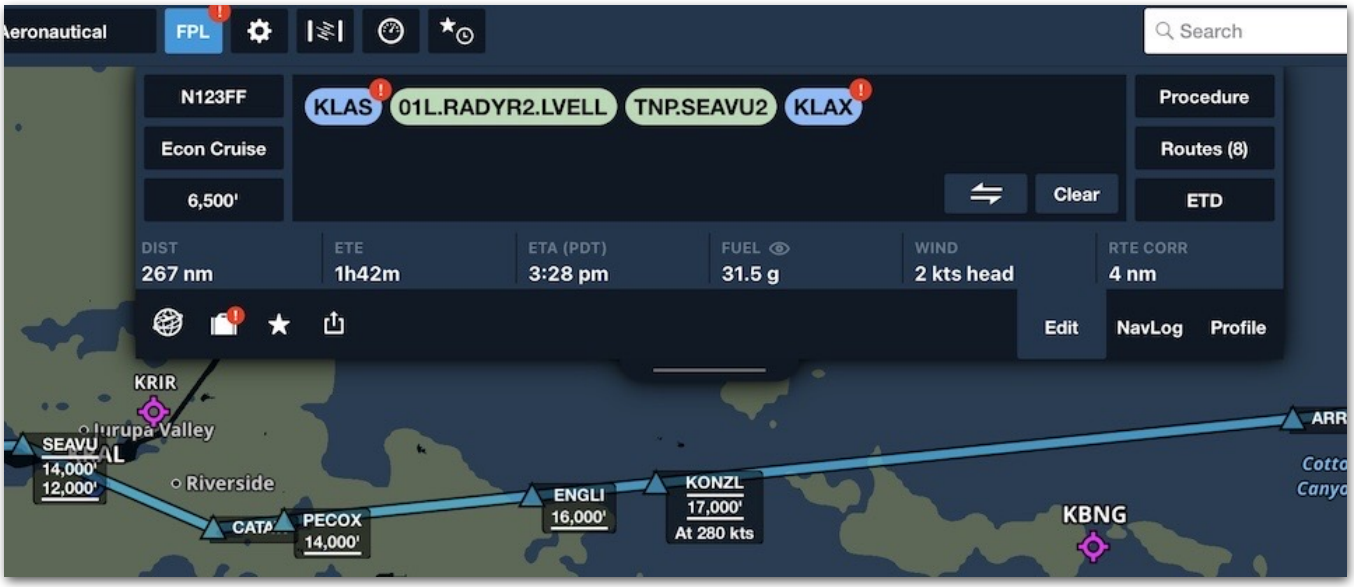
With a Premium or Business Performance plan, the waypoint labels displayed for each SID or STAR include any crossing speed and altitude restrictions for each point.

SID and STAR speed and altitude restrictions are automatically visible when using the Procedure Advisor to select a SID or STAR and when viewing the **3D Preview** of the route.



SEAVU2 Waypoint Crossing Restrictions in Route 3D Preview

When the **Route Labels** Map setting is turned on, SID and STAR speed and altitude restrictions are also visible on the Map with their associated route waypoints.

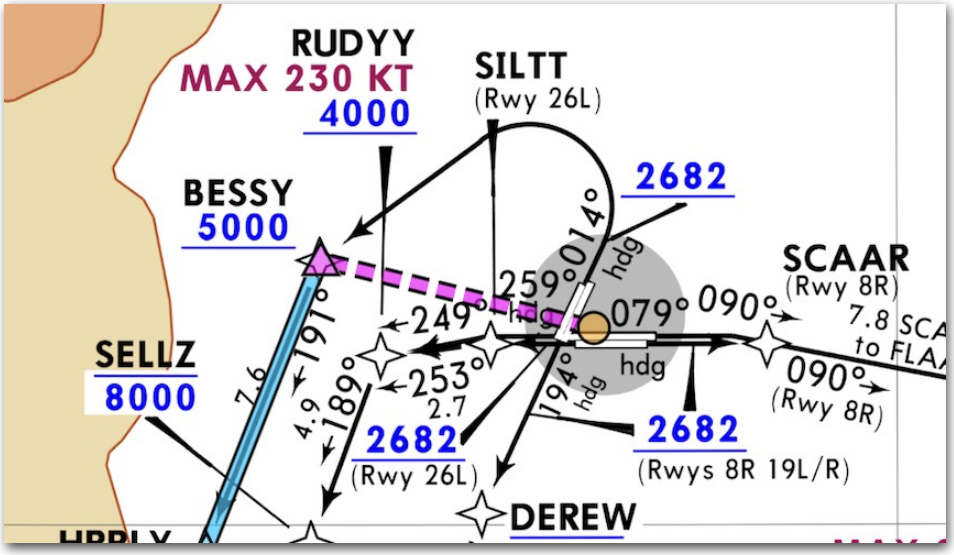


SEAVU2 Waypoint Crossing Restrictions on the Map

SID and STAR speed and altitude restriction labels will not be shown when a route between waypoints does not define a specific route segment. These can be depicted as **dashed lines** on the route.

For example, many SIDs start with a heading to fly followed by a turn upon reaching an altitude. Since this segment type will vary based on aircraft performance, a specific route line and where altitudes will be reached cannot be shown.

In the image below, the RADYR 2 RNAV Departure from Harry Reid International (KLAS) requires an initial climb on heading 014º to 2,692 ft, followed by a left turn direct to to BESSY. A dashed line is shown for this route segment due to the variability of the actual path that will be flown. The route will have no initial altitude label.



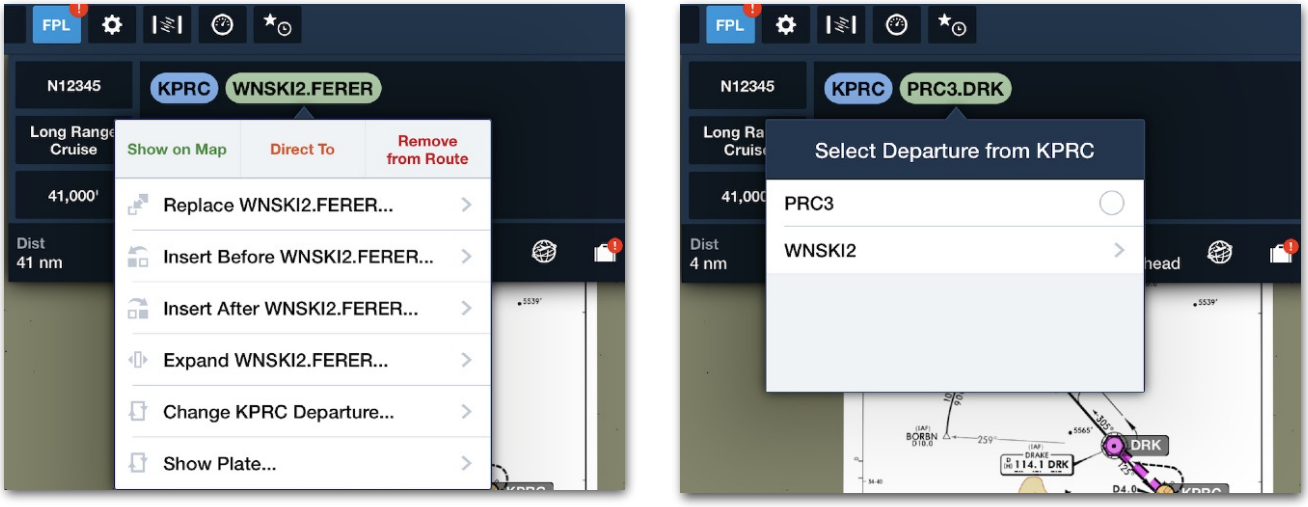
RADYR2 SID showing a departure heading with a turn upon reaching an altitude.

Closing Procedure Advisor

To close the Procedure Advisor window and return to the Maps view without selecting a Departure or arrival, tap **Close** or tap outside the Procedure Preview window.

Changing Departure or Arrival

A departure, arrival, or selected runway can be changed after loading it into the route. To do so, open the FPL Editor, tap the **green route element** representing the procedure, and select **Change Departure...**, **Change Arrival...**, or **Change Runway...** as applicable.



Changing the Selected Departure

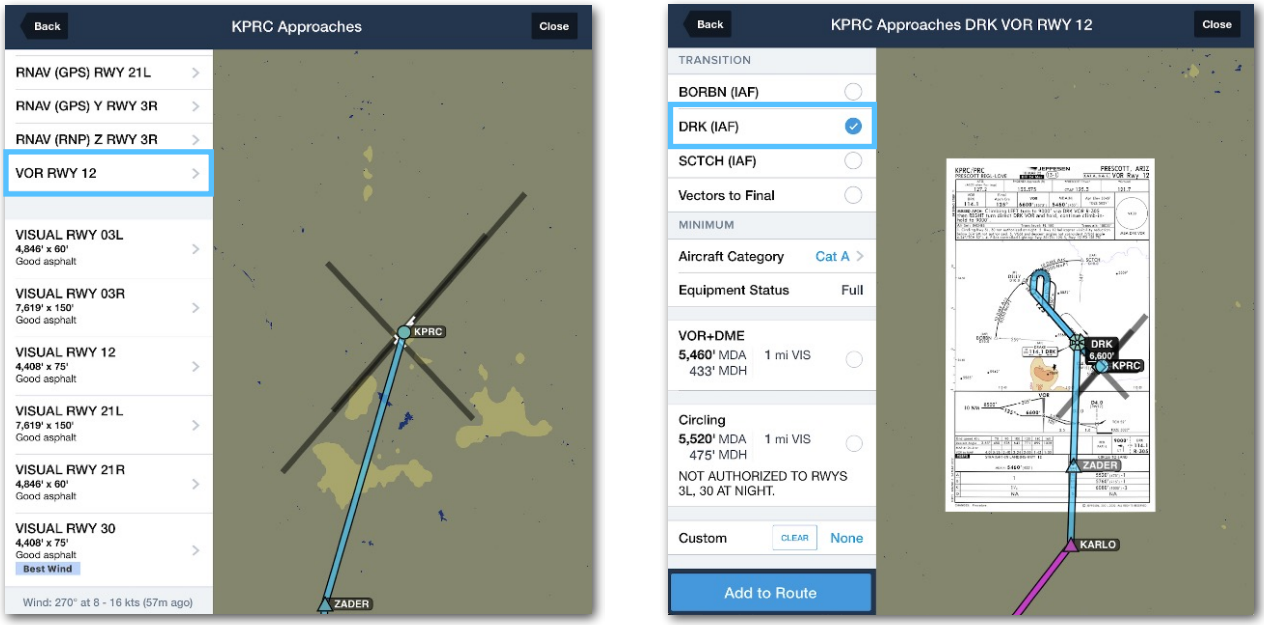
9.5.2 IFR Approaches

Tap **Approach** to see the available IFR approaches (e.g., VOR, ILS, RNAV) for that airport. If any approach has additional information on **favorable winds or NOTAMs**, this will be displayed in the list.

Selecting an IFR Approach

Tap an approach to see a list of its available IAFs, and to show the approach on the map. For users with Essential or Premium subscriptions as well as Jeppesen coverage (purchased directly through ForeFlight or via a linked Jeppesen account), tapping an approach also displays its georeferenced plate on the map.

Select an IAF and, if applicable, add **custom approach minimums**. Then tap **Add to Route** to load the procedure to the route in the FPL Editor.



Selecting the VOR RWY 12 Approach and its IAF

Displaying IFR Approach Minimums

With a Premium or Business Performance plan, the **Enhanced Approach Procedure Markers** will show the IAF and FAF with unique icons, and the waypoint labels include any crossing speed and altitude restrictions for each point. If an approach crosses the same point at different altitudes or speeds, **each restriction is shown**.

The approach **Minimum Altitude** can be specified, which appears as a magenta marker for easy reference during the approach.

NOTE: The **Route Labels** setting must be on (in **Maps Settings**) for Approach Minimums to be displayed.

Multiple Crossings with Airspeed/Altitude Restrictions

If an approach involves crossing a fix more than once at a different airspeed or altitude, a black label is displayed next to the fix showing each of these restrictions. This label displays all applicable altitude restrictions, airspeed restrictions, or both if they exist.

Inside the label, the first (or current) crossing is identified with bold font and a magenta arrow. In flight, once the fix has been crossed, the magenta arrow and highlighted font are applied to the next restriction.

After the fix has been crossed for the final time, the magenta arrow disappears from the label.



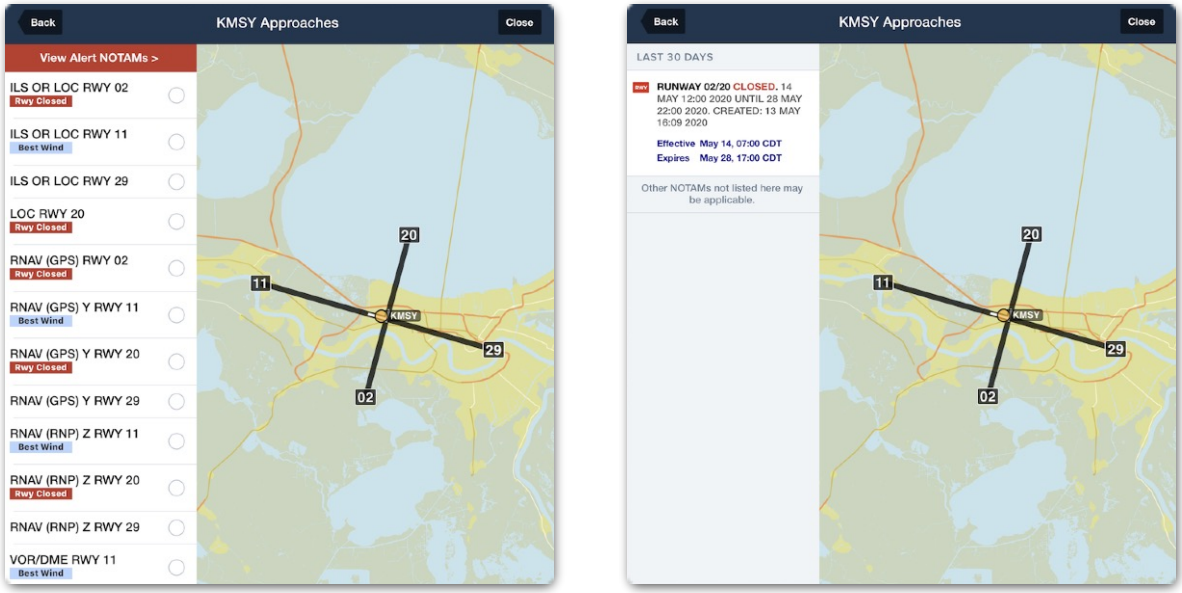
Altitude Restriction Prior to 1st and 2nd Crossing of DRK

NOTE: The **Route Labels** setting must be on (in **Maps Settings**) for altitude and airspeed restrictions at a fix to be displayed.

Best Winds and Alert NOTAMs

If current METAR data is available for the airport, the runways with the most favorable winds are given a blue tag that says “Best Wind.”

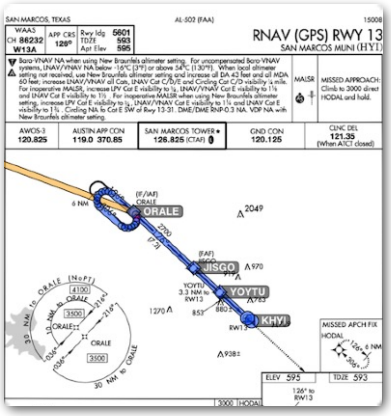
If a NOTAM affects any available runways, the runways are given a red tag summarizing the issue. Tap the **View Alert NOTAM** banner at the top of the runway list to view the relevant NOTAM or NOTAMs.



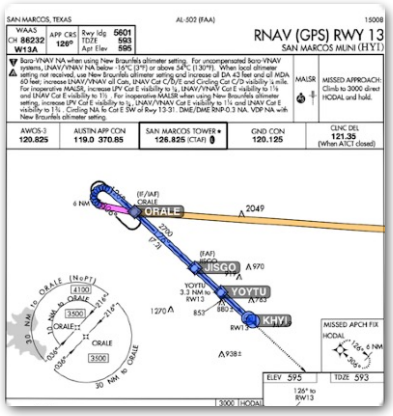
Alert NOTAMs

IFR Approach Holds

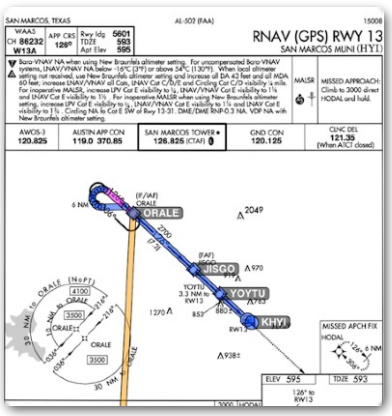
If an approach entry includes a hold, ForeFlight Mobile will automatically insert the correct direct, parallel, or teardrop entry based on the direction of flight.



Direct Entry



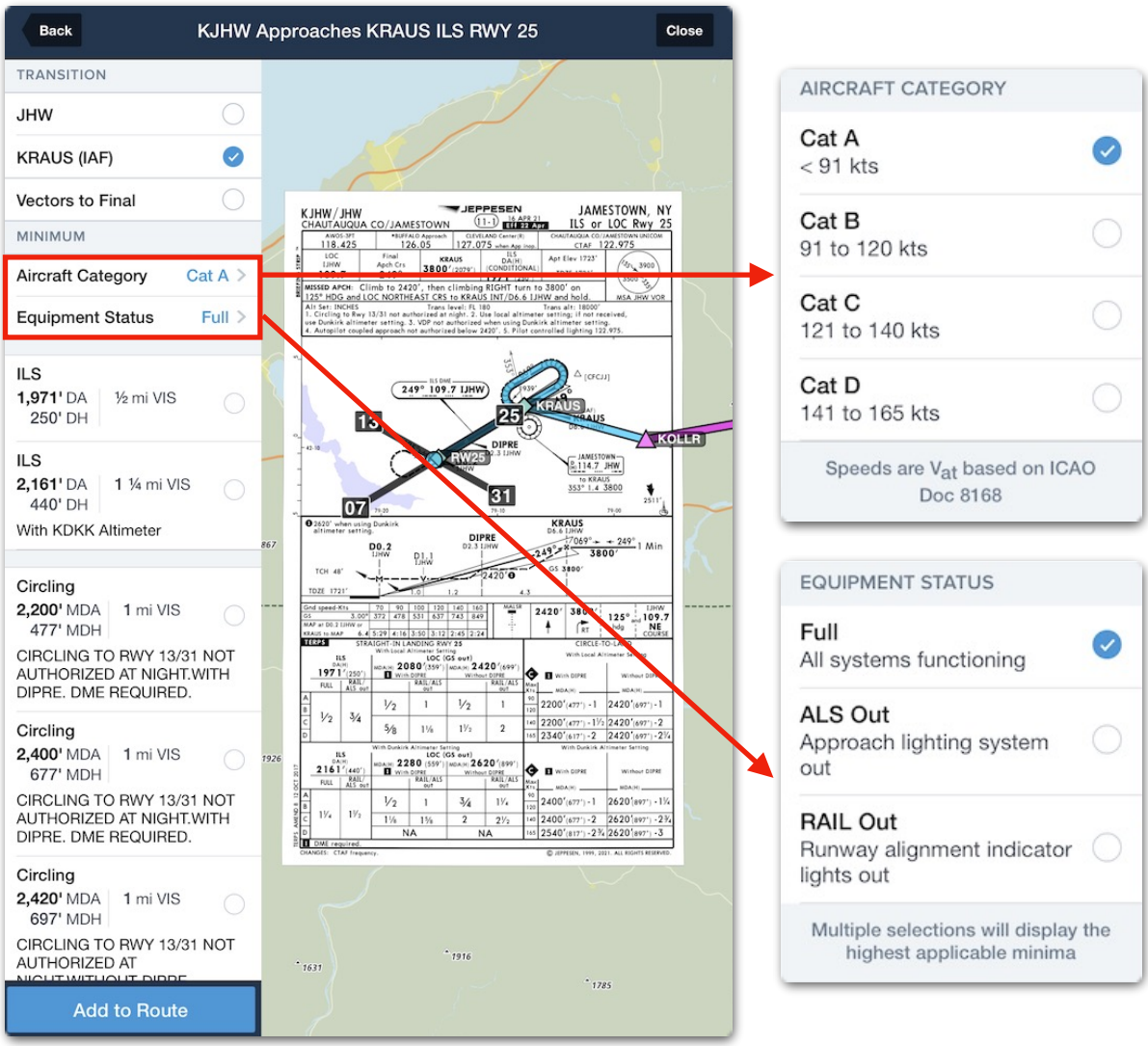
Teardrop Entry



Parallel Entry

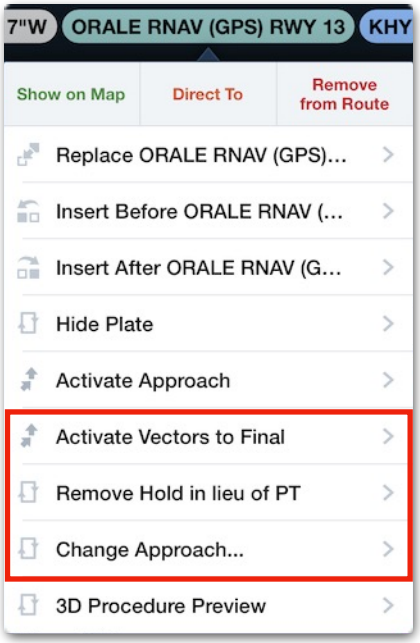
Adding Custom IFR Approach Minimums

Augmented Procedures expand on the Custom Approach Minimum field by pairing Jeppesen data with pilot-entered inoperative airport equipment to show the relevant minimums, supplementing the information on the approach plate and helping to reduce the chance of errors.



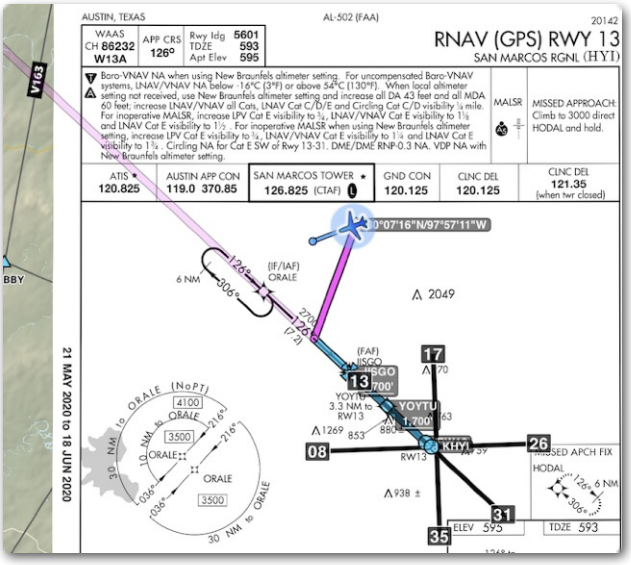
Modifying the IFR Approach

Once an approach has been added to the route, it can be modified in several ways.



To do so, tap on the green route element representing that approach in the FPL Editor and choose one of the following options:

- **Activate Vectors to Final:** Tap to plot a direct-to route from the current position to a point 3 NM outside the FAF. Activating Vectors to Final erases any existing IAF and draws a light magenta 30 NM extension from the FAF. Vectors to Final can also be activated via the Procedure Advisor button by re-selecting the approach and tapping **Activate Vectors to Final**.



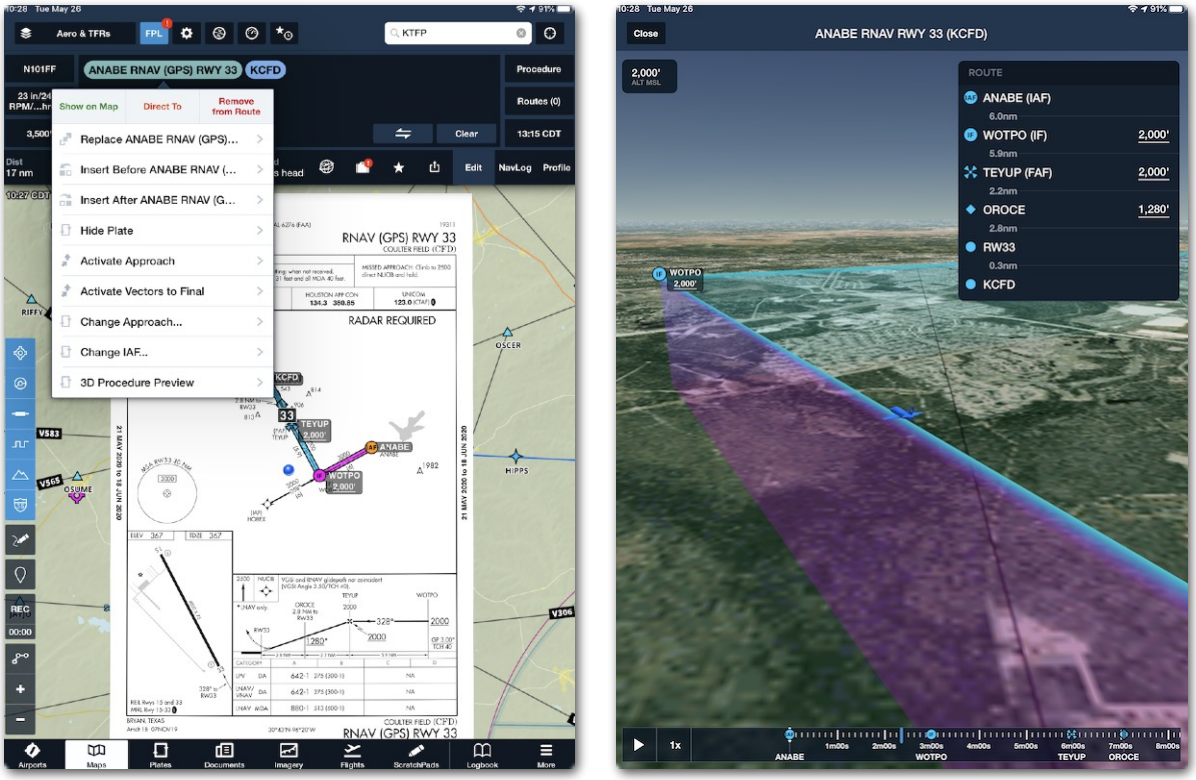
Vectors to Final Routing

- **Remove Hold in lieu of PT:** Tap to remove any hold that was automatically added as part of the approach. If there is a need to re-add the hold to the approach, tap **Add Hold in lieu of PT**.

- **Change Approach...** or **Change IAF...:** Tap to switch to a different approach procedure or to modify the IAF of the current approach.

Viewing 3D Procedure Preview

Tap **3D Procedure Preview** to see a 3D preview of the approach, including the IAF, IF, and FAF. The navlog in the 3D Procedure Preview includes any altitude and speed restrictions in the approach. If an approach has already been added to the route, it will also be included when doing a 3D Preview of the entire route.

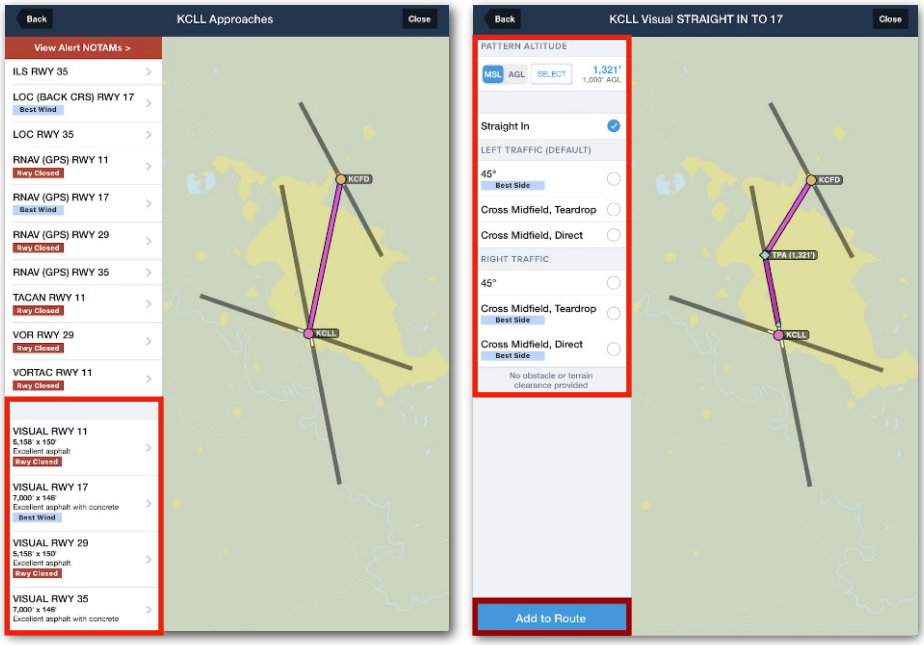


3D Procedure Preview

9.5.3 Visual Approaches

Visual approaches can be added to a route from the Approach or Traffic Pattern menu. To do so, follow these steps:

1. Tap the **Procedure** button in the FPL Editor.
2. Select one of the available VFR approaches for the desired runway.
3. Specify the pattern altitude in MSL or AGL (by tapping **SELECT** and choosing one of the options or tapping the current altitude and entering a manual value).
4. Select a traffic pattern entry, if applicable.
5. Tap **Add to Route** to load the visual approach to the route in the FPL Editor.



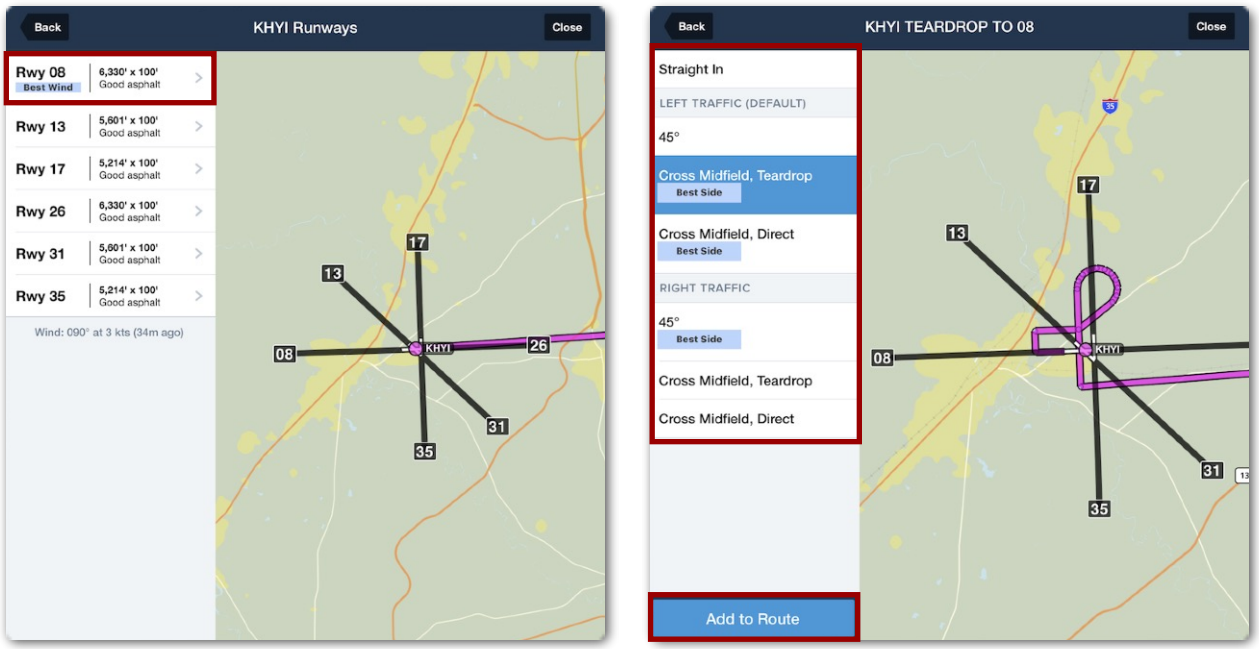
Adding Visual Route

After adding the visual approach, a TPA (in MSL) pattern entry waypoint marker is added to the route.



9.5.4 Traffic Patterns

Tap the **Procedure** button, then tap **Traffic Pattern** to display VFR traffic patterns for the airport at the end of the current route. If current winds are available, the runway selections with the best winds are highlighted in the list. Wind direction, speed, and age of observation are also shown at the bottom of the list (scroll down if necessary to see the winds). If a NOTAM affects an available runway, a red tag is displayed. Tap the **View Alert NOTAM** banner at the top of the runway list to view the relevant NOTAM or NOTAMs.



Selecting a VFR Traffic Pattern

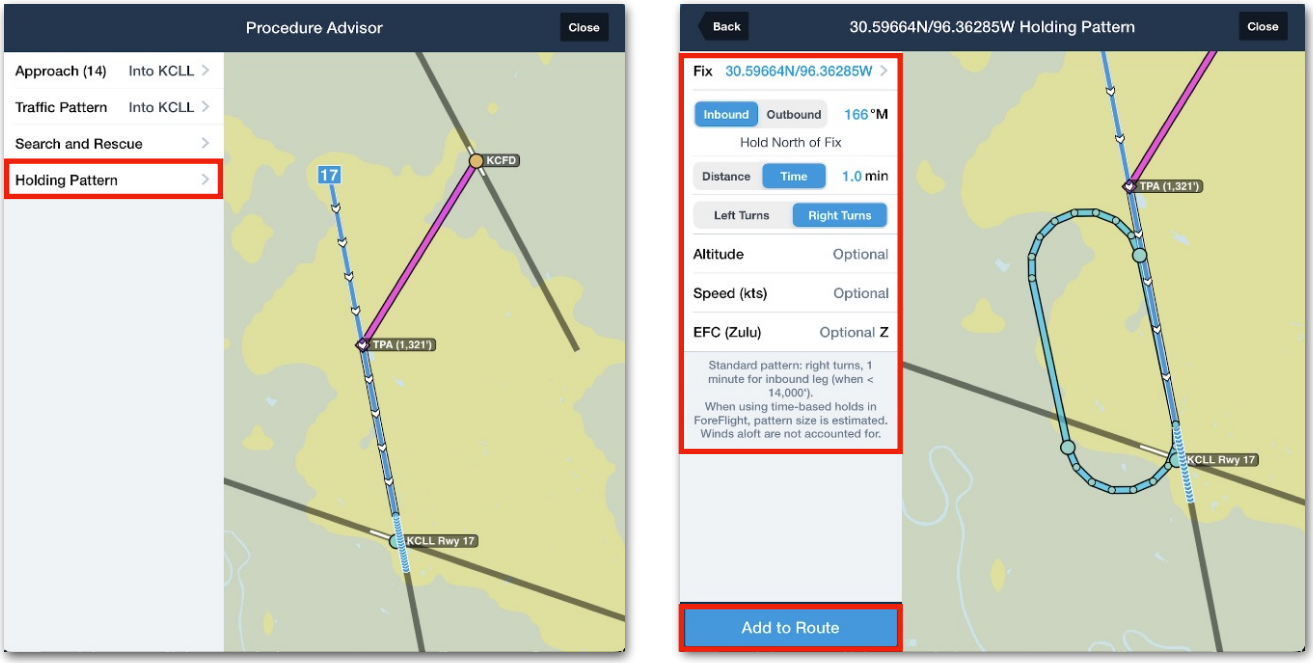
After selecting a runway, the available pattern entry options, such as Cross Midfield or Straight In, are displayed. Selecting **Straight In** adds a 4 NM final to the route.

For non-towered airports, the entries are sorted based on each runway's pattern side (right or left).

Additionally, entries are highlighted that make the most sense for the direction of flight. Tap an entry to add it to the end of the current route or to replace one already in the route. Traffic patterns are automatically removed from a route when certain route edits are made, such as reversing the route.

9.5.5 Holding Patterns

To insert a holding pattern, tap the **Procedure** button, then tap **Holding Pattern** to insert a hold at the point directly preceding the destination, or if the route is direct to the airport, immediately before the destination airport.



Inserting a Hold

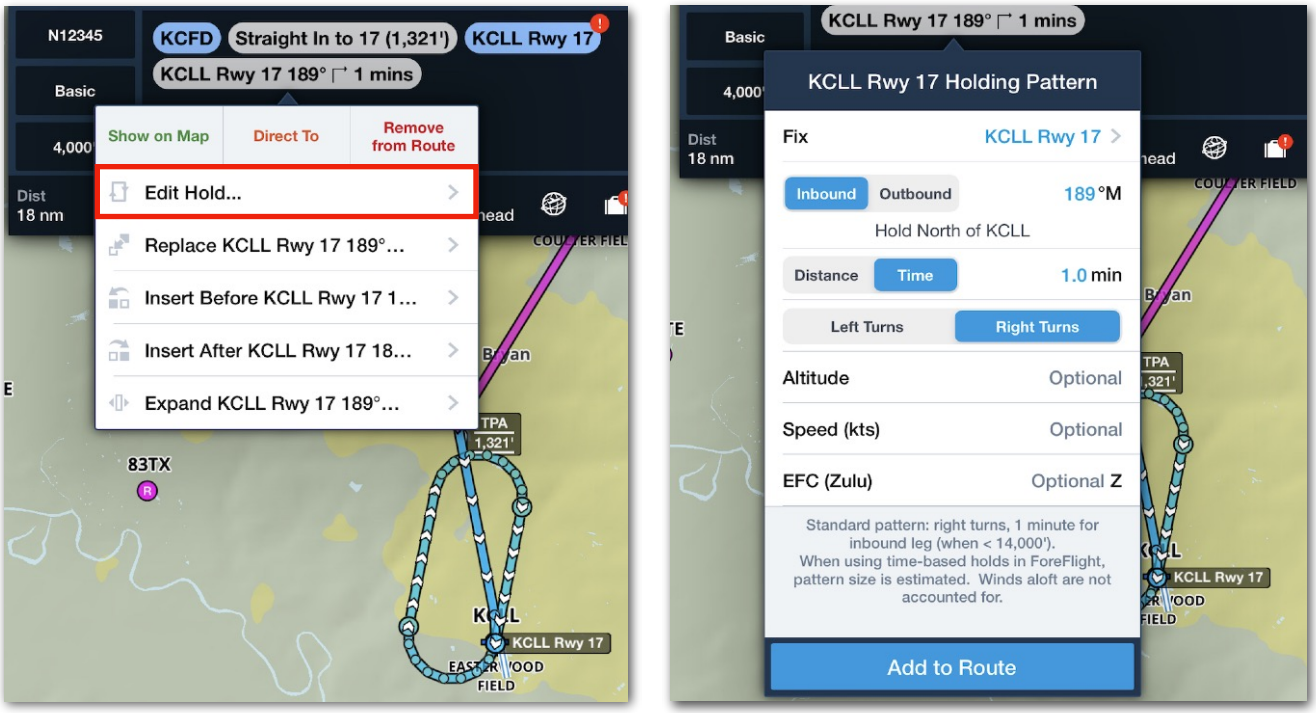
Tap any waypoint in the route or tap a navigation point elsewhere on the map to add a hold at that location, or tap a route element in the FPL Editor and select **Hold...** to insert a hold at that point.

Regardless of which method is used to insert a hold, the Hold Advisor includes an option to select the fix and to customize parameters for inbound or outbound legs, the pattern's length (defined by either time or distance), left or right turns, and optional altitude, speed, and EFC (Expect Further Clearance) settings.

After adjusting settings, tap **Add to Route** to add the hold to the route. The Hold Advisor automatically inserts the correct direct, parallel, or teardrop entry based on the direction of the hold and the direction of flight.

Editing Holds

After adding the holding pattern to the route, additional changes can be made by tapping the gray route element representing the hold in the FPL Editor and selecting **Edit Hold**, or by tapping the point on the map where the hold was inserted and selecting **More** > **Edit Hold** from the sidebar.



Editing a Hold

Expanding Holds into Individual Points

Tap the route element representing the hold and select the **Expand...** option to change the hold into individual points.

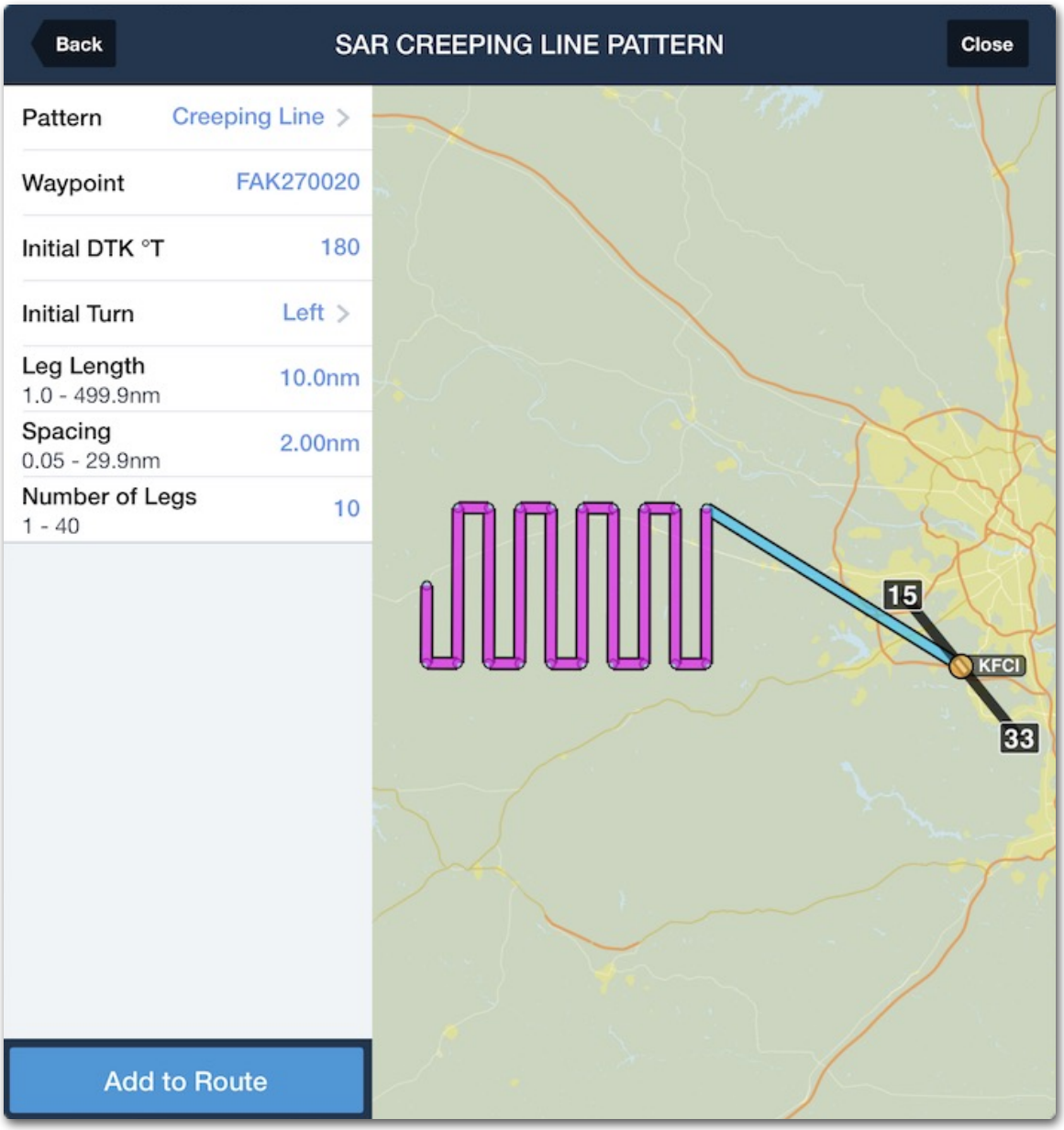
Sending Holds

ForeFlight Mobile supports sending holding patterns added using Hold Advisor to some connected avionics via Flight Plan Transfer. Holds that are part of an approach can be sent to connected avionics.

If a route is built that includes a hold, then sent to another pilot via email, the hold is automatically expanded in the route in the "FPL" file attached to the email.

9.5.6 SAR Patterns

On the iPad, **Search and Rescue** (SAR) patterns can also be inserted using the **Procedure** button when the **Enable Search and Rescue** setting is on. For more details about SAR features, see the Search and Rescue Supplement in **Documents** > **ForeFlight**.



SAR Patten Setup View

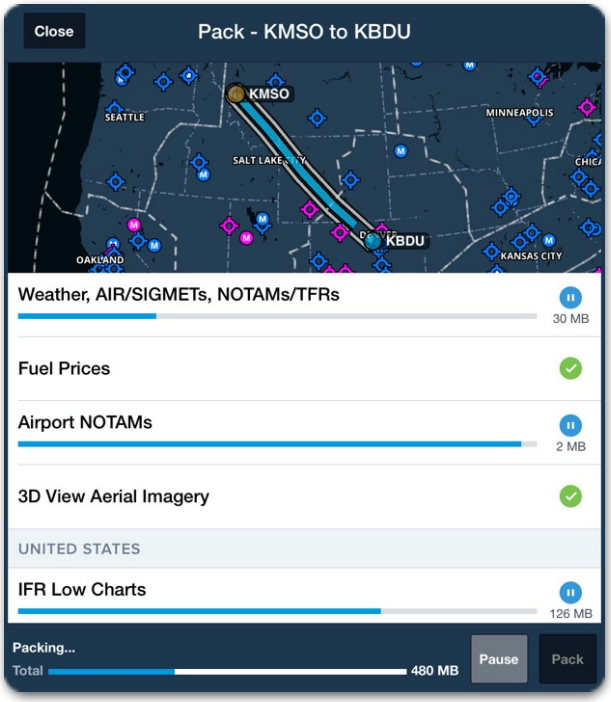
9.6 Pack

Pack is an optional preflight planning tool that downloads charts, plates, weather, NOTAMs, fuel price data, and more to the device for offline use. Pack is included with all subscriptions and can be accessed from the Maps or Flights views.

The data included in a Pack download varies based on the download selections, planned route, and ForeFlight subscription. Weather, NOTAM, cameras, and fuel data downloaded via Pack are temporarily stored on the device and automatically deleted once they become obsolete or more current data becomes available (via the internet, ADS-B, or SiriusXM).

Information downloaded with Pack is accessed using the same techniques as when the device is connected to the internet. For example, to access packed weather, select one of the map weather layers (e.g., Flight Category) using the layer selector.

Pack should be relied on as a secondary tool for flight planning. It is better to configure **download selections** to include plates and charts that are used on a regular basis and use Pack to gather additional data specific to each flight. This ensures the necessary data is available in the event Pack is forgotten and cuts down on the time it takes to Pack additional data for each flight.



Packing Data for Offline Use

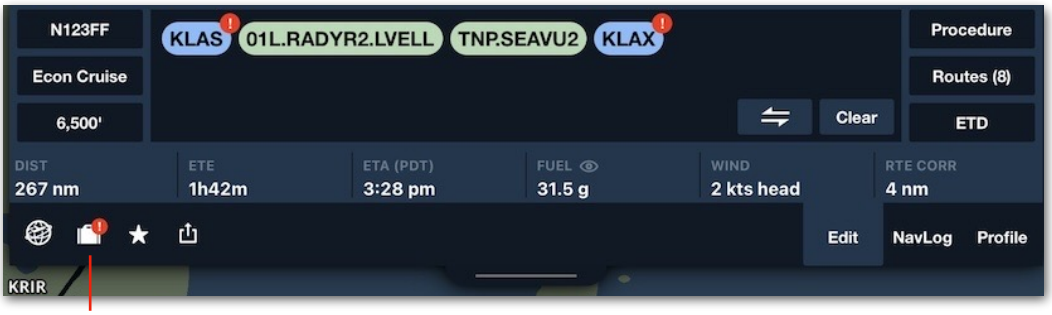
9.6.1 How to Pack

Packing is available for a flight with Maps or Flights. When planning with Maps and the **Enable Auto-Check** setting is on, a red exclamation point (**!**) is displayed on both the Pack (suitcase) and FPL buttons when data is available to download.

Packing with the Maps view

To Pack with the Maps view:

1. Plan a route in the Maps view.
2. Tap the **Pack** (suitcase) button to open the Pack menu.

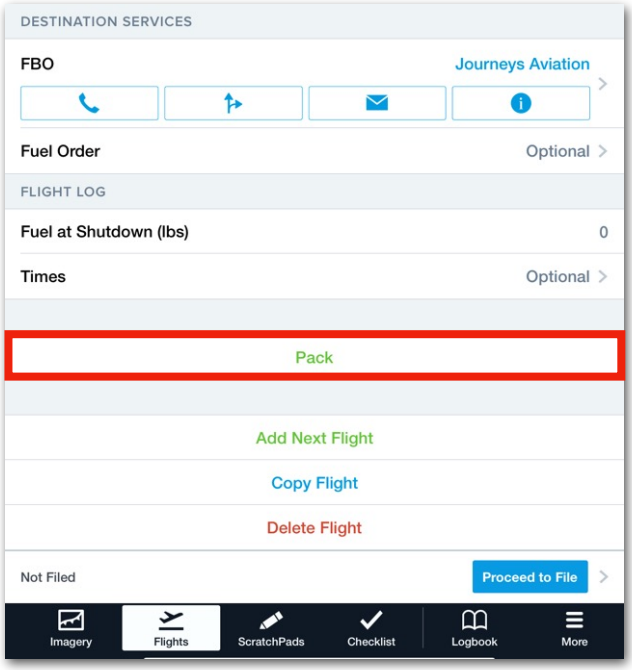


Pack Button

Packing with the Flights view

To Pack with the Flights view:

1. Enter a route in the Flights view.
2. Scroll to the bottom.
3. Tap **Pack** to open the Pack menu.



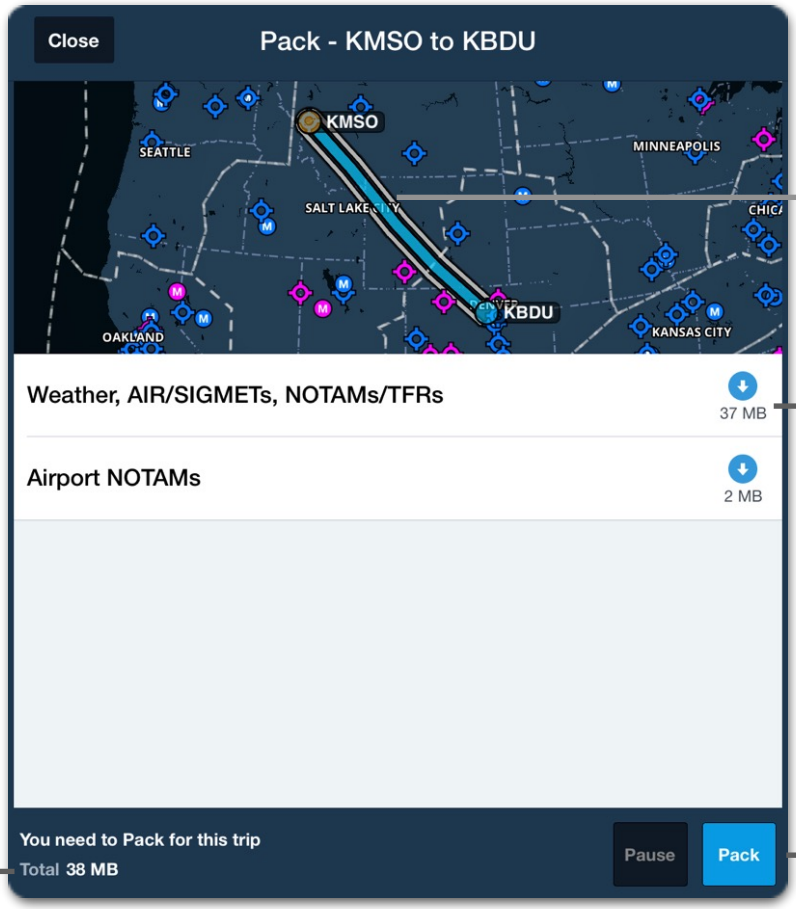
Packing with Flights

Pack Menu

The Pack pop-up menu is displayed whenever the Pack button is tapped. Hide the menu by tapping **Close** or somewhere on the screen outside the menu. The Pack menu includes an interactive map. The map displays the planned route in blue and an approximate Pack coverage corridor in gray. The map Pack coverage corridor encompasses 25 NM of airspace on either side of the route. However, the data that gets packed can exceed the depicted corridor. See the following sections for additional information.

Pack can only download data for one flight at a time. If packing a new flight is attempted while Pack is actively downloading data, a pop-up will appear with an option to pause the current Pack download.

The Pack menu lists downloads as individual items. The estimated file size and an option to download are displayed on the right side of the menu. To download an individual item, tap the single **download** button (blue circle with down arrow). To download all Pack items, tap **Pack** at the bottom of the menu.



Pack Menu

9.6.2 Packed Weather and NOTAM Data Overview

Pack downloads METARs, TAFs, MOS forecasts, and (textual) Airport NOTAMs for the airports within 25 NM of the planned route and 50 NM of the departure and destination airports. Pack only downloads Daily Weather forecasts for the airports that are included in the planned route.

Pack downloads the following map layers on a *global* scale:

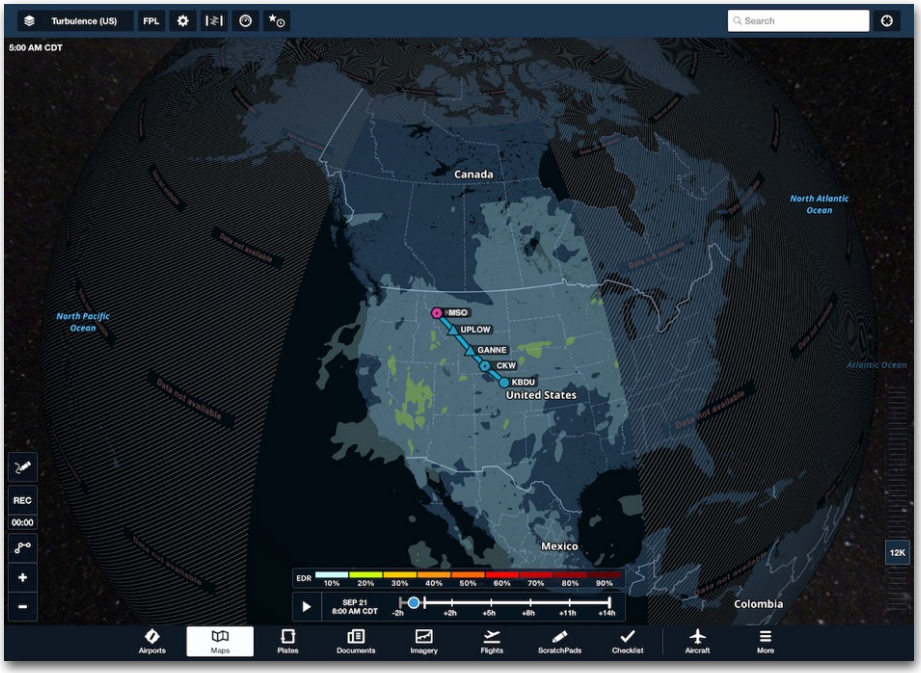
- AIR/SIGMET/CWAs
- NOTAMs (graphically depicted NOTAMs)
- Fuel: 100LL and Jet A.

Packing with a Pro-Tier subscription

With a Pro-tier subscription or higher, Pack downloads the data discussed above in addition to the following map layers:

- Clouds
- Surface Analysis
- Icing (US) and Icing (Global)
- Turbulence (US) and Turbulence (Global).

Pack does not download *global* data for the above map layers. These map layers are broken into large rectangular sections that are hundreds of miles across. Pack only downloads the sections that the planned route intersects.



Packed Turbulence (US) Data

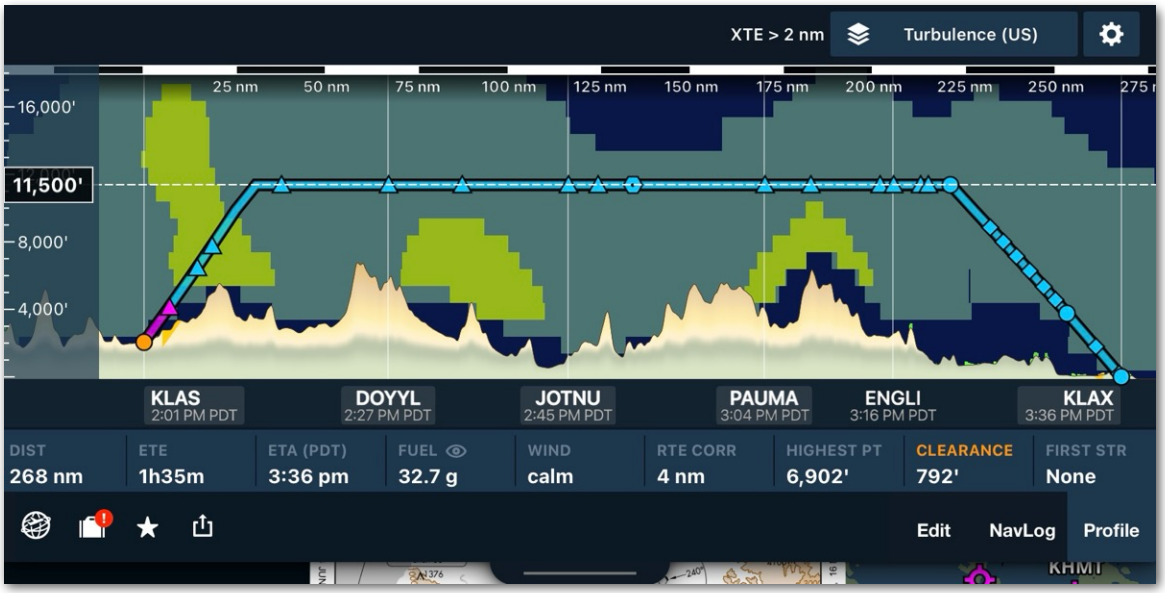
Packing with a Performance-Tier subscription

With a Performance-tier subscription, Pack downloads all data in addition to:

- **Digital ATIS (D-ATIS)** for the airports within 25 NM of the route and 50 NM of departure and destination airports.
- **Dynamic Winds** for the area around the route. Dynamic Wind data is broken into rectangular sections that are hundreds of miles across. Pack downloads the Winds (Temps) and Winds (Speeds) map layers for the sections the route intersects.
- **3D Imagery** for the areas approximately 25 NM from the airports that are in the planned route. Packed 3D Imagery can be viewed using the 3D Route Preview feature or by tapping the **3D View** button from the route's airport view. When Packing 3D Imagery, only the satellite imagery that is overlayed on the downloaded high-resolution terrain data is Packed to the device.

Packed Data - Profile View

Packed Icing, Turbulence, and Cloud data can be viewed in the Profile view with a Performance-tier plan. Profile View displays the appropriate forecast data for the flight's estimated time en route.



Packed Turbulence Data in Profile View

9.6.3 Packed Charts and Terminal Information

Using Pack to download charts is not recommended as it increases the amount of time required to Pack. Pilots should configure their download selections for the regions they normally operate in. See **Downloads** for additional information.

Pack evaluates the planned route for the missing downloads to include:

- VFR and IFR en route charts.
- Terminal Procedures (Airport Diagrams, and Departure, Arrival, and Approach Procedures).
- Airport Information / Flight Supplements (A/FD, AIP, and CFS).

If a route is missing downloads, Pack downloads the data according to the logic below.

Terminal Procedures and Airport Information

When planning in the United States, Canada, or Australia, Pack downloads Terminal Procedures and Airport Information for the entire state, province, or region if it is within 25 NM of the route or 50 NM of the destination or departure airport.

When planning in Europe, Pack only downloads Terminal Procedures and Airport Information if the route intersects the country.

Charts

Pack downloads all *selected* chart types if the route intersects the chart and it is not already downloaded. Charts and plates downloaded using Pack are only valid for the current data cycle and will not automatically update.

Charts are only downloaded with Pack if the chart type is selected. For example, if a route intersects California, Pack will only download the U.S. IFR (High) P-1 chart for California if **IFR High Charts** is enabled in **More** > **Downloads** > **Data Settings**. If a chart type is not selected in Data Settings, Pack will not download it.

Airport Comments

Pack downloads all customer **comments** associated with airports and FBOs along the route. This includes published comments from other users, and all relevant comments in the My Comments list.

9.6.4 Accessing Packed Data

Packed data is not accessed from a different location than internet, ADS-B, or SiriusXM data. For example, to access charts that are downloaded with Pack, select a VFR or IFR chart from the Maps layer drop-down menu. If the chart was downloaded with Pack, it will appear the same as if it were downloaded as part of the download selections.

To access packed weather and NOTAM data, select the appropriate map layer (e.g., Flight Category) or Airport weather view (while offline).

NOTE: Verify that data will be available offline by packing for a flight, disconnecting from the internet, ADS-B, and SiriusXM, and then viewing weather, NOTAMs, plates, and charts.

9.6.5 Deleting Packed Data

Weather, NOTAM, and fuel data downloaded with Pack is automatically removed when the information becomes obsolete or new information becomes available via the internet, ADS-B, or SiriusXM. In other words, once the device connects to the internet after a flight, the packed data is automatically deleted.

If the device does not connect to the internet, ADS-B, or SiriusXM for an extended period of time, refer to the table below to determine when data becomes obsolete and thus removed from the device.

Deleting Packed Charts and Plates

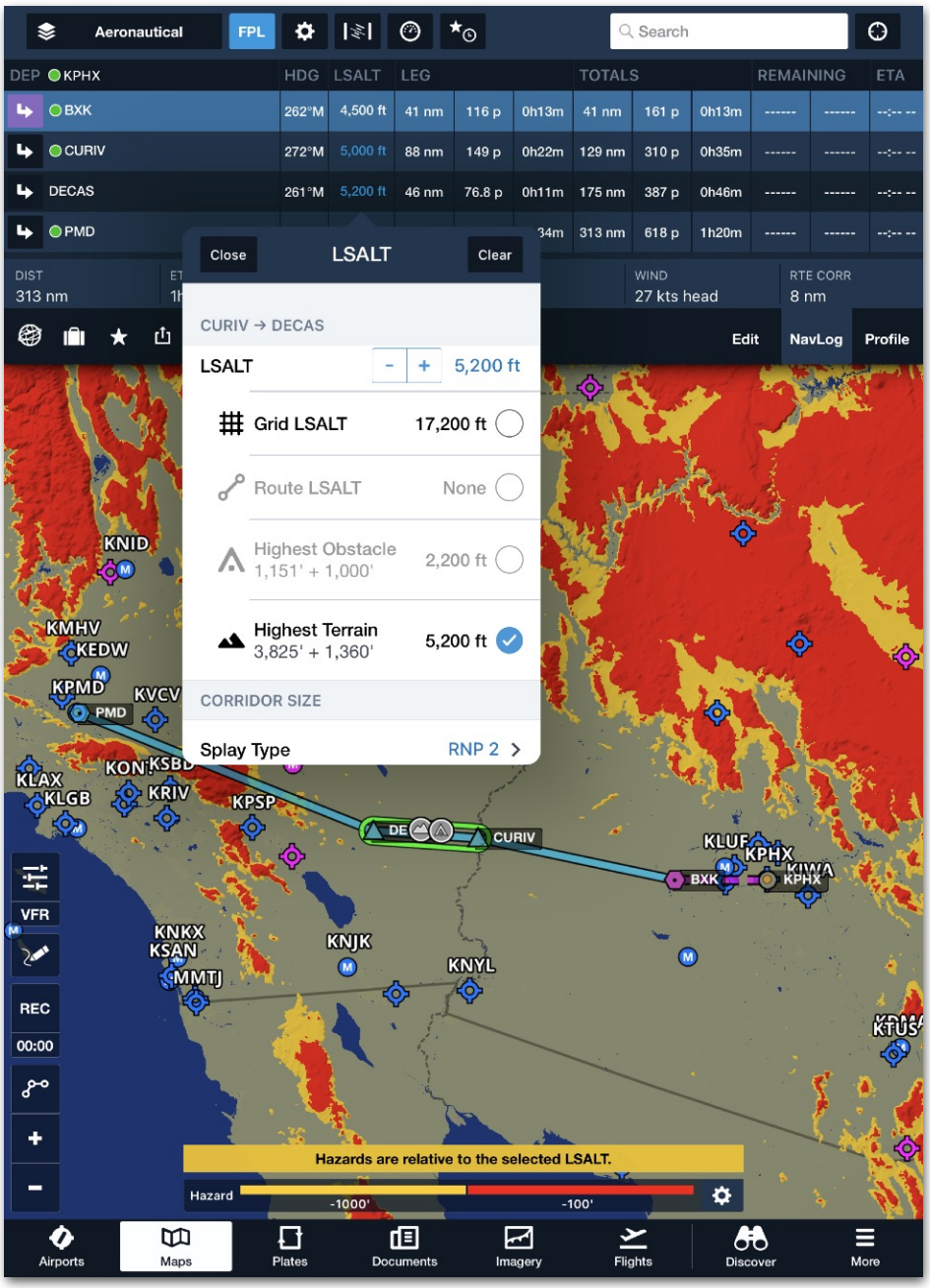
Packed charts appear in the Downloads view under the Packed and Unselected Regions. Manually delete these charts at anytime by swiping from right to left on the download. To delete packed charts and plates after they expire, tap **More** > **Downloads** > **Delete** > **Delete Expired**.

Packed Data Type	Time to Obsolete
METAR	3 Hours
Winds Aloft	12 Hours
Dynamic Winds	Up to 28 Hours
TFR	14 Days
Fuel Price	1 Month
Airport NOTAMs	4 Days

9.7 LSALT Calculator

The LSALT Calculator is available with an Essential or higher Australian subscription and can be displayed in the **FPL NavLog** and **Route Details**. This calculator automatically determines the lowest safe altitude for route segments using customizable corridors or published data.

See **Map Settings** to enable the LSALT Calculator.



LSALT Calculator

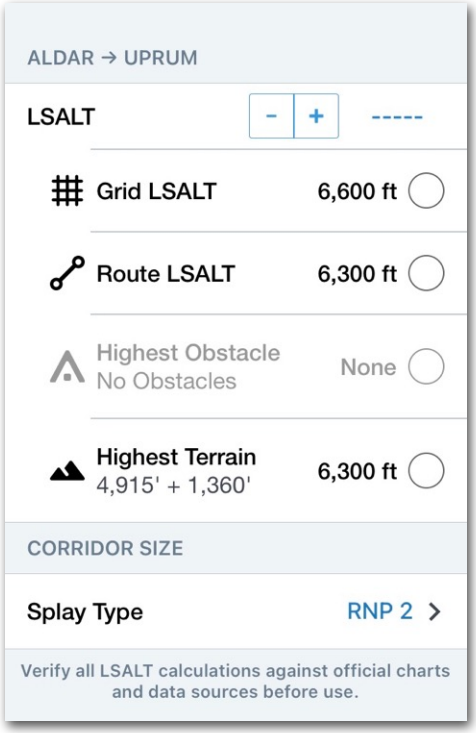
9.7.1 LSALT Selection

LSALT may be based on published data:

- Grid LSALT
- Route LSALT (applicable for RNP2 equipped aircraft).

If no published data exists, LSALT must be calculated and based on:

- Highest terrain
  - Terrain databases are used to find the highest point within the corridor and adds 1,360 ft, rounded up to the nearest 100 ft.
  - If the highest terrain is not above 500 ft, the LSALT must not be less than 1,500 ft.
- Highest obstacle
  - If the highest obstacle is more than 360 ft above terrain height, LSALT must be 1,000 ft above the obstacle
  - If the highest obstacle is less than 500 ft, LSALT must not be less than 1,500 ft.

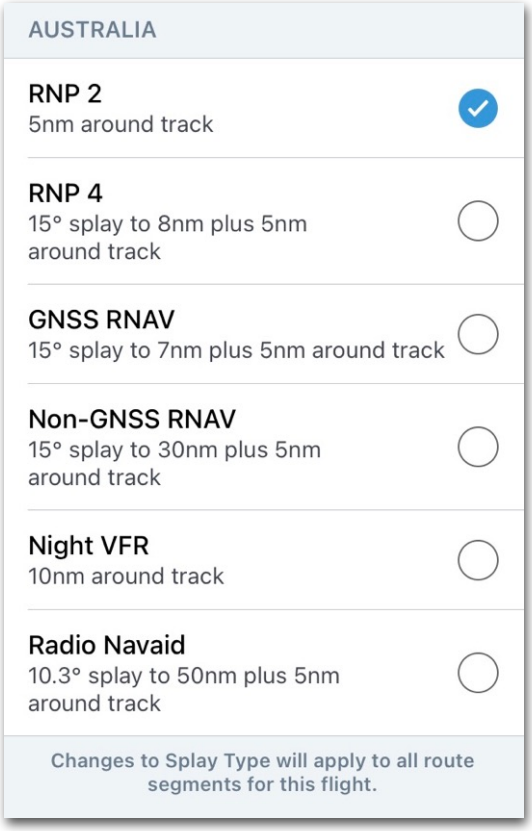


LSALT Selection

9.7.2 Splay Type

The LSALT corridor size, called Splay Type, is based on navigation equipment. Corridor size determines the boundaries that the highest terrain and obstacle are selected from. Splay type selections are:

- RNP2 - 5 NM on each side of track
- RNP4 - 15° splay to 8 NM with 5 NM on each side of track
- RNAV GNSS - 15° splay to 7 NM with 5 NM on each side of track
- Non GNSS RNAV - 15° splay to 30 NM with 5 NM on each side of track
- Night VFR - 10 NM on each side of track
- Radio Navaid - 10.3° splay to 50 NM with 5 NM on each side of track.



Splay Type

To select a Splay type:

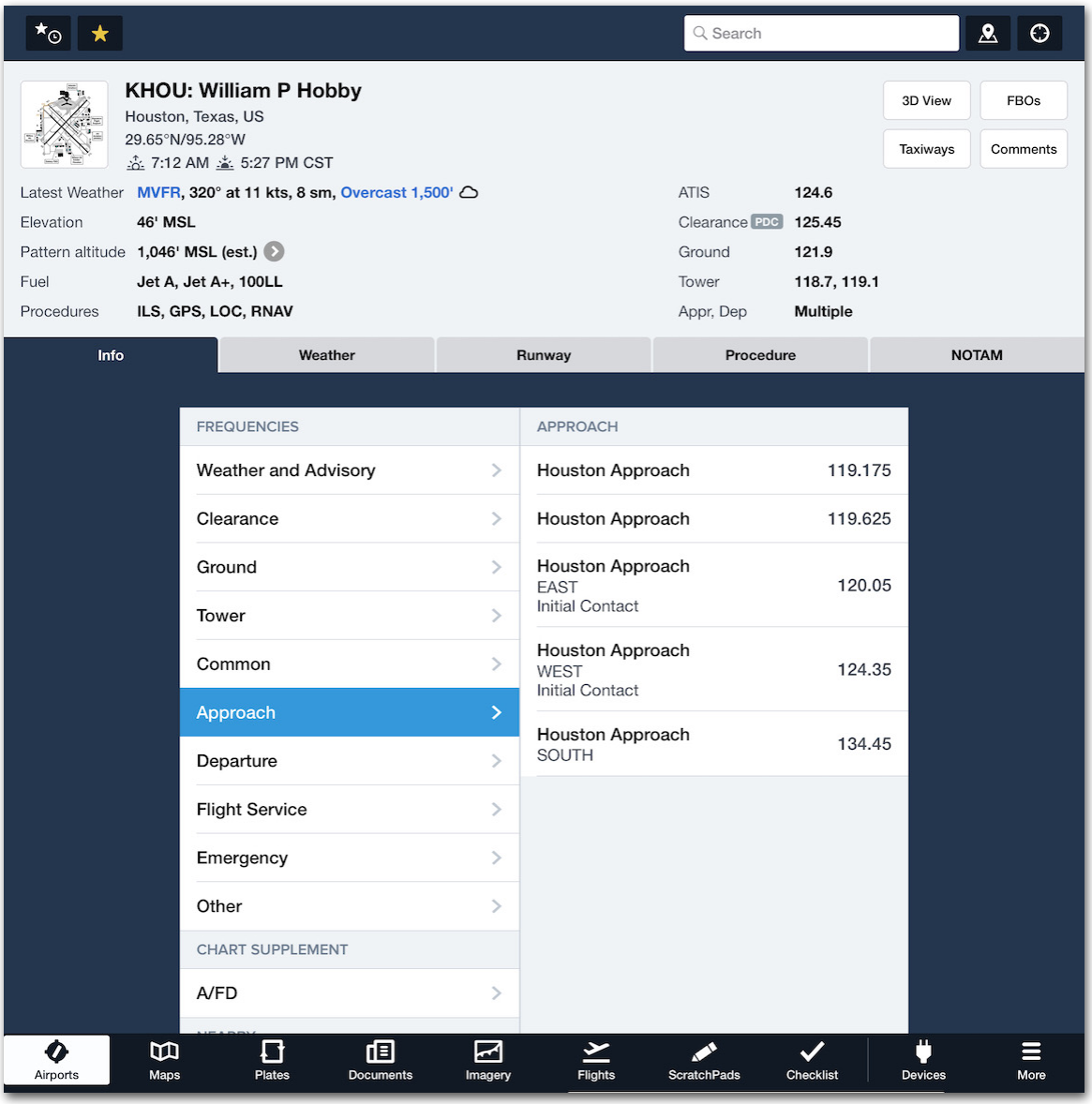
1. Tap an **FPL NavLog** data window

   OR

   Tap a route leg segment to open the **Route Details** sidebar, then tap **LSALT**.
2. Tap the **Splay Type** line.
3. Tap the desired Splay Type radio button.

AIRPORTS

The Airports view contains information about more than 20,000 airports worldwide. It provides airport information comparable to official print publications, including geographical location, airport diagrams, procedures, frequencies, and available services. It also provides dynamic features such as the latest weather, NOTAMs, active runways, traffic patterns, and user-entered comments.

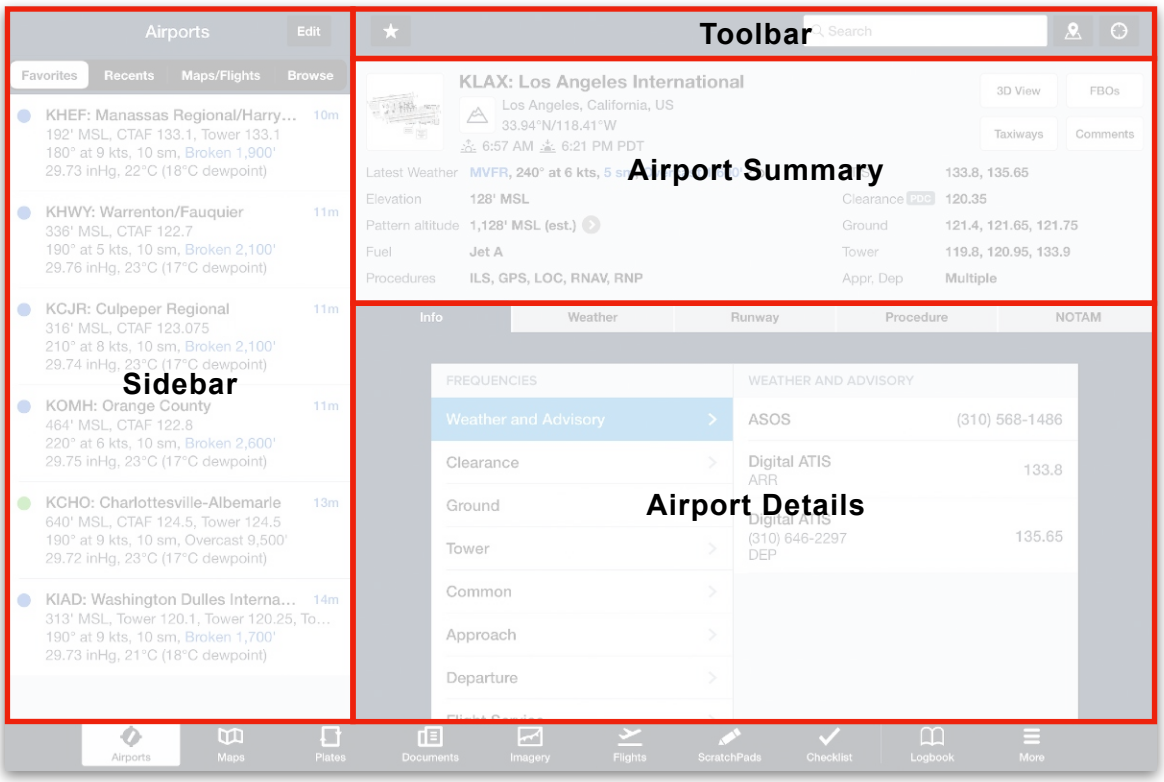


Airports View

10.1 Design

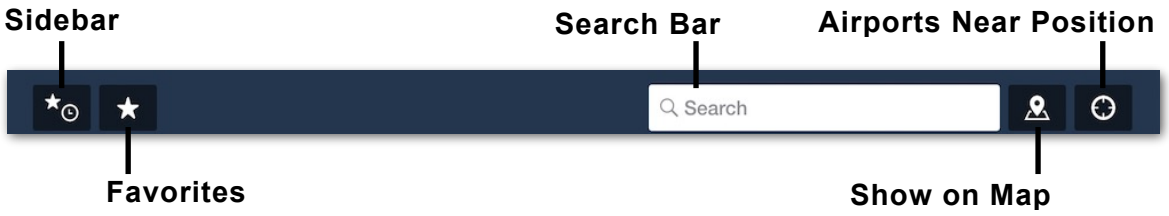
The Airports view is separated into four components. Each of these is summarized below, and its detailed functionality is described later in this chapter:

- The **Toolbar** provides the ability to search for airports and related data based on keywords or proximity to the device, assign airports as favorites, display an airport on the Maps view, and toggle the Sidebar.
- The **Sidebar** lists the user's favorite airports, recently displayed airports, airports from recently created flights, and airports from the active route on the Maps view, as well as an alphabetized airport directory.
- The **Airport Summary** section provides a condensed overview of information about the selected airport.
- The **Airport Details** section provides detailed information about the selected airport divided into five tabs.



10.2 Toolbar

The Toolbar at the top of the Airports view provides the ability to toggle the Sidebar, assign airports as favorites, perform a keyword search for airports and related data, display an airport on the Maps view, and generate a list of airports near the device. Each feature is described below.



10.2.1 Sidebar Toggle Button

When the Airports view is displayed in landscape orientation, the **Sidebar** is always visible on the left side of the device screen. In portrait orientation, the Sidebar is hidden to save space. To display it, tap the button in the upper left corner of the screen (shaped like a star and clock).

Once opened in portrait orientation, the Sidebar can be hidden by tapping the **Close** button in its upper left corner.



Sidebar Toggle Button

10.2.2 Favorites Button

When an airport is displayed in the Airports view, tapping the star-shaped button in the upper left corner adds the airport to the bottom of the Favorites list (which can be viewed in the Sidebar). When an airport is selected that is already in the Favorites list, the button is yellow.



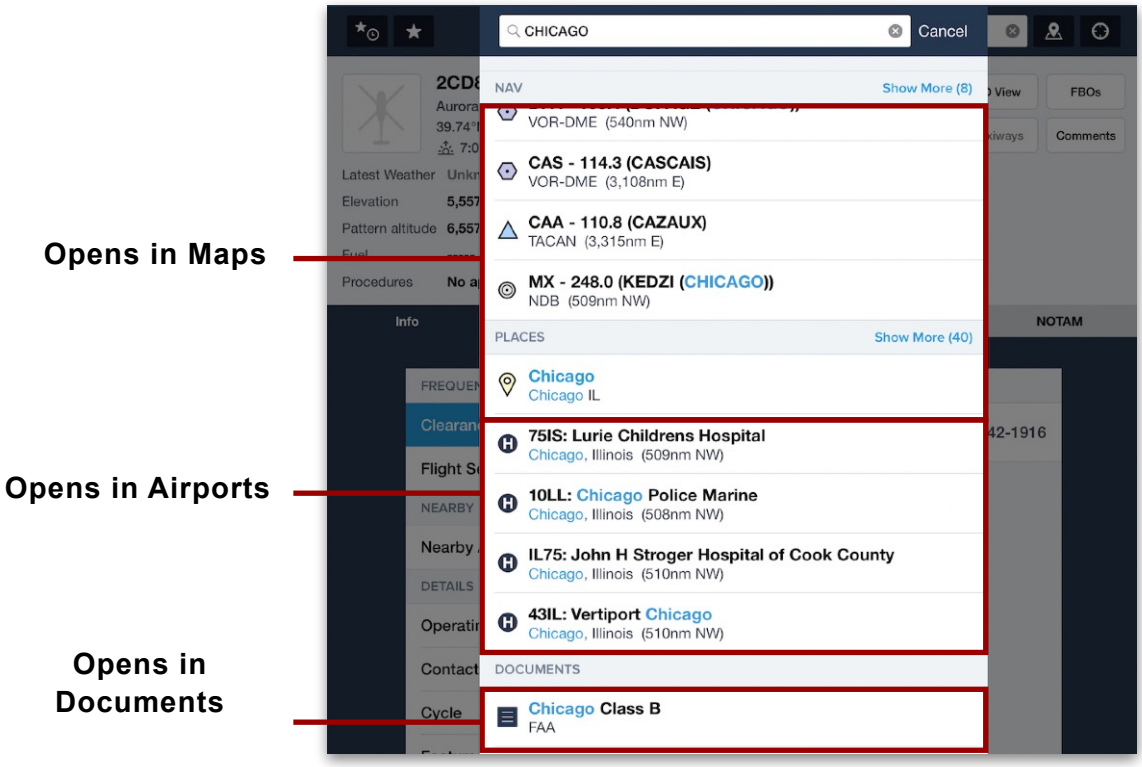
Favorite Airport Button

10.2.3 Search Bar

While the Search bar is designed to search for airports, it can produce various results based on the user's entry including but not limited to airports, aircraft registration (FAA registration only), cities, navaids, documents, waypoints, and addresses. Each search result is depicted with an icon to convey its category (such as airport, document, or navaid).

To use the Search bar:

1. Tap the Search bar to open a list of recent search results divided by category.
2. Enter text in the Search bar to dynamically generate results divided into categories (such as Airports and Heliports, Procedures, Places, Documents, and Recent Searches).
3. Tap **Show More** to expand the list of search results within one category.
4. Tap one of the search results to open the Maps, Airports, or Documents view. Each item has a different effect depending on the category of data.



Airport View Search Results

10.2.4 Show on Map Button

The Show on Map button (marker icon) in the upper right corner opens the Maps view, with the airport selected and its details displayed in the Maps sidebar.

NOTE: The Show on Map button displays the airport displayed onscreen, not the text entered in the Search bar.

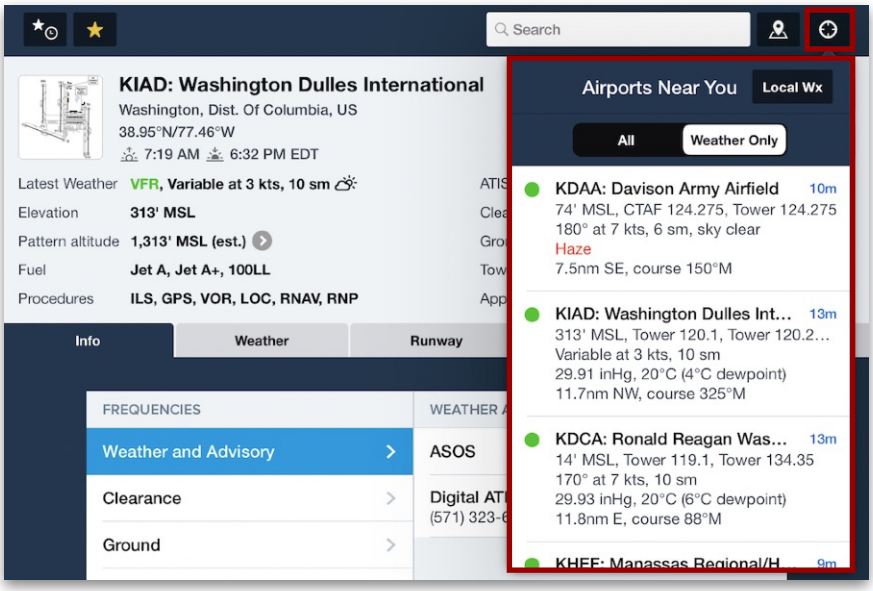


Show on Map Button

10.2.5 Airports Near You Button

Tapping the Airports Near You button (shaped like a bullseye) on the top right corner opens a menu with information pertaining to the current location. The menu includes a button to retrieve weather information for the current location and a list of nearby airports which can be filtered to show all airports or only those with weather data.

NOTE: The Airports Near You menu can also be opened directly from the device home screen by long-tapping the ForeFlight Mobile app icon and selecting **Nearest**.



Airports Near You

Filtering Airports Near You Results

The Airports Near You search results can be filtered by airports with weather reports.

- Tap **All** to display nearby airports regardless of whether or not they have weather data. All results include the airport elevation in MSL, applicable communications frequencies, and both the distance and magnetic course to the airport from the device's location.
- Tap **Weather Only** to show only airports that are actively providing METAR data to ForeFlight. In addition to the standard data, “Weather Only” results display wind speed and direction, visibility, ceiling, obscuration hazards (if applicable), and the time since the weather was last updated. Ceiling and visibility are color-coded according to their severity. The results also display an icon color-coded according to flight category.



Airports Near You Result with Weather

Displaying Daily/Hourly Forecast

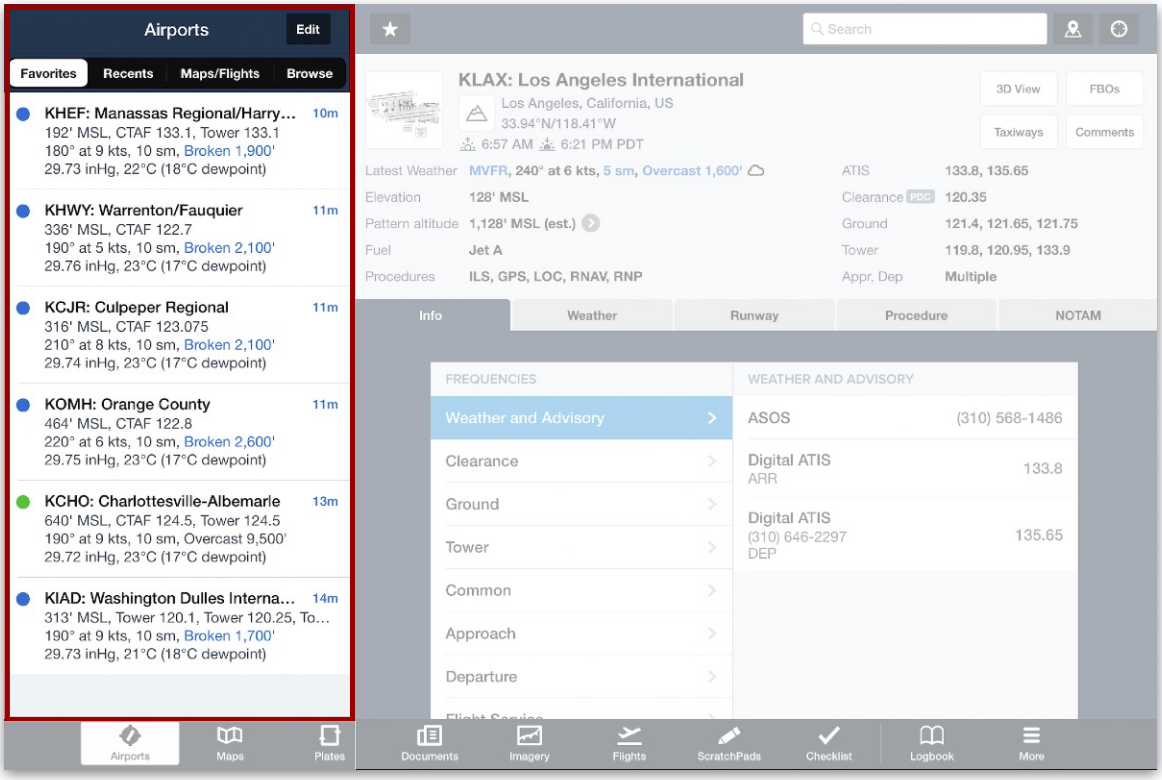
In the Airports Near You menu, tapping **Local Wx** opens the **Daily/Hourly Forecast**.

10.3 Sidebar

The Sidebar on the left side of the Airports view provides five ways for users to find airports most relevant to them:

- **Favorites**: a list of user-defined favorites.
- **Recents**: a list of recently displayed airports.
- **Maps/Flights**: a list of airports from the active route in the Maps view and from recent flights in the Flights view.
- **Browse**: an alphabetized directory of all airports in ForeFlight's database.

Each of these lists can be opened using a category button at the top of the Sidebar. Their functionalities are described in the sections below.



Airports View Sidebar

10.3.1 Sidebar Toggle Button

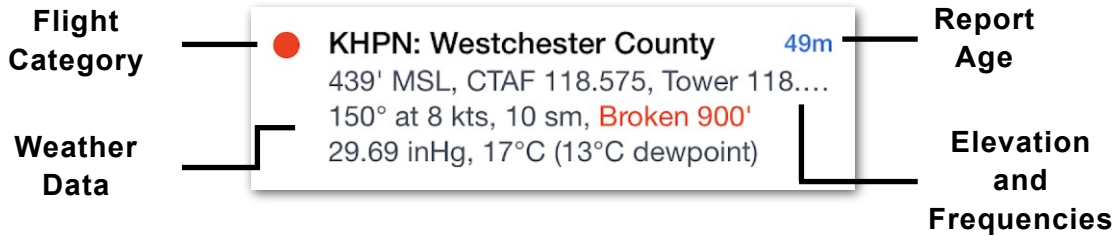
The Sidebar is automatically visible when the Airports view is displayed in landscape orientation. In portrait orientation, the Sidebar is hidden by default and can be displayed by tapping a button (shaped like a star and clock) in the upper left corner of the **Toolbar**.



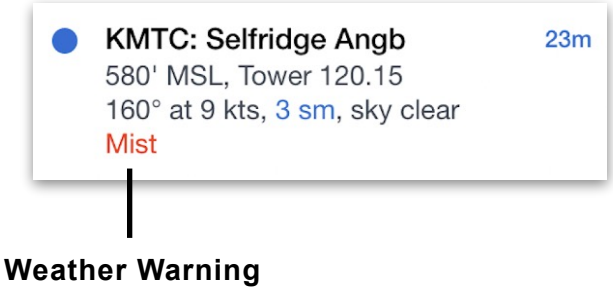
10.3.2 Airport Listings

With the exception of the **Browse** menu, all airport listings in the Sidebar look similar. Each listing includes the airport elevation in MSL and any applicable communications frequencies.

Weather data is also displayed if available. This may include wind speed and direction, visibility, ceiling, obscuration hazards (if applicable), density altitude, temperature, dewpoint, the time since the airport's METAR was last updated, red-highlighted weather warnings, and an icon colored according to flight category.



Weather warnings (e.g., fog, thunderstorms, cumulonimbus clouds, lightning, mist) are always displayed in red at the bottom of the airport listing. ForeFlight Mobile checks for updated weather observations every minute. If a more current observation is available, it is downloaded immediately and the display is updated.



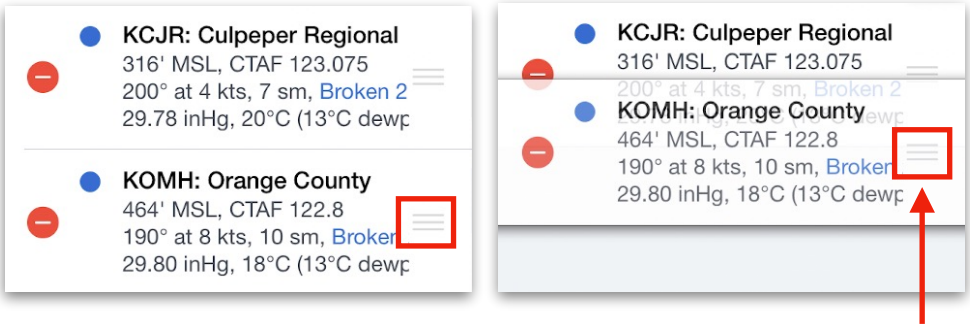
10.3.3 Favorites

Open the Sidebar and tap **Favorites** to display a list of airports that have been **marked as favorites**. Tap any airport in the list to bring up the airport in the Airports view. The order of the Favorites list can be changed and airports can be removed from the list.

Reordering Favorites List

Airports are listed in the order in which they were added as favorites. To change the order of the Favorites list, follow these steps:

1. In the Favorites list, tap **Edit**.
2. Tap and hold the three horizontal lines to the right of an airport listing.
3. Drag the listing up or down to change its position in the list.
4. When reordering is complete, tap **Done**.



Removing Favorites

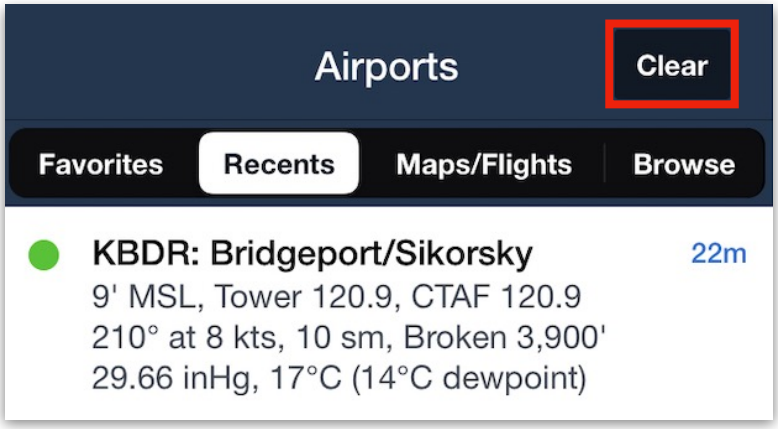
There are three different methods for removing airports from the Favorites list:

- When actively viewing a favorite airport, tap the star-shaped button in the toolbar.
- While displaying the Favorites menu, swipe left on an airport and tap **Delete**.
- Tap **Edit** at the top of the Favorites menu, tap the red circle to the left of the airport to be deleted, tap **Delete** to the right of the airport to confirm, and then tap **Done**.



10.3.4 Recents

Open the Sidebar and tap **Recents** to display a list of airports that were recently displayed in the Airports view. Airports are listed in the order in which they were last viewed, starting with the most recently viewed airport on top. The list cannot be reordered, but individual airports can be removed from the list by swiping left and tapping **Delete**, and all airports can be removed simultaneously by tapping the **Clear** button in the top right corner.



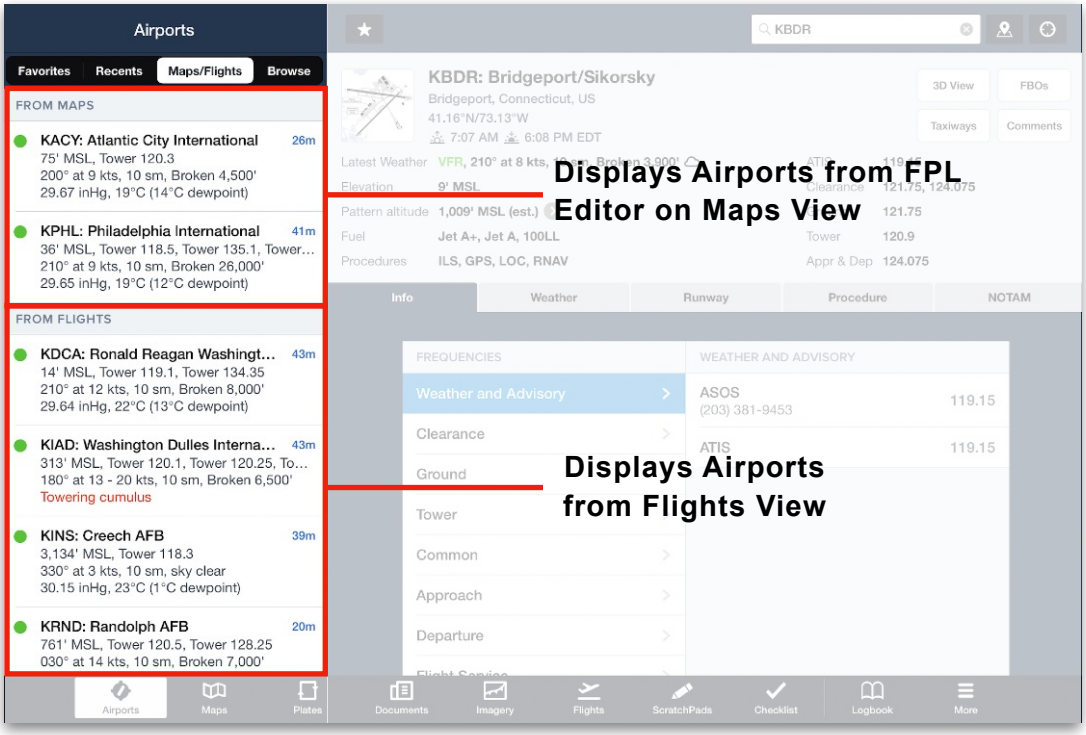
Recent Airports Clear Button

NOTE: The Recents menu is synced. Tapping Clear on one device will also clear the list of recent airports from all devices signed into the account.

10.3.5 Maps/Flights

The Maps/Flights button (or category) displays a list of airports based on the flights planned on the **Maps** and **Flights** views. The list is divided in two sections:

- **From Maps** displays airports from the active route in the Maps FPL Editor if one exists, in top-down order starting with the departure airport on the route and ending with the destination airport in the route. The From Maps list only displays a given airport once, even if it is entered more than once in the route. En-route airports are also included.
- **From Flights** displays airports from recent flights in the Flights view. Airports from the most-recent flight are grouped first (according to departure, destination, and alternate), followed by the next most-recent flight, and so on. The From Flights list only displays a given airport once, even if it is used more than once on the same flight or on other flights in the list.



Maps/Flights List on the Sidebar

NOTE: Reordering or removing airports from the Maps/Flights list cannot be done directly from within the Airports sidebar.

10.3.6 Browse

Open the Sidebar and tap **Browse** to display an alphabetized directory of airports in ForeFlight's database. There are two databases to choose from.

Toggling Between USA and World Directories

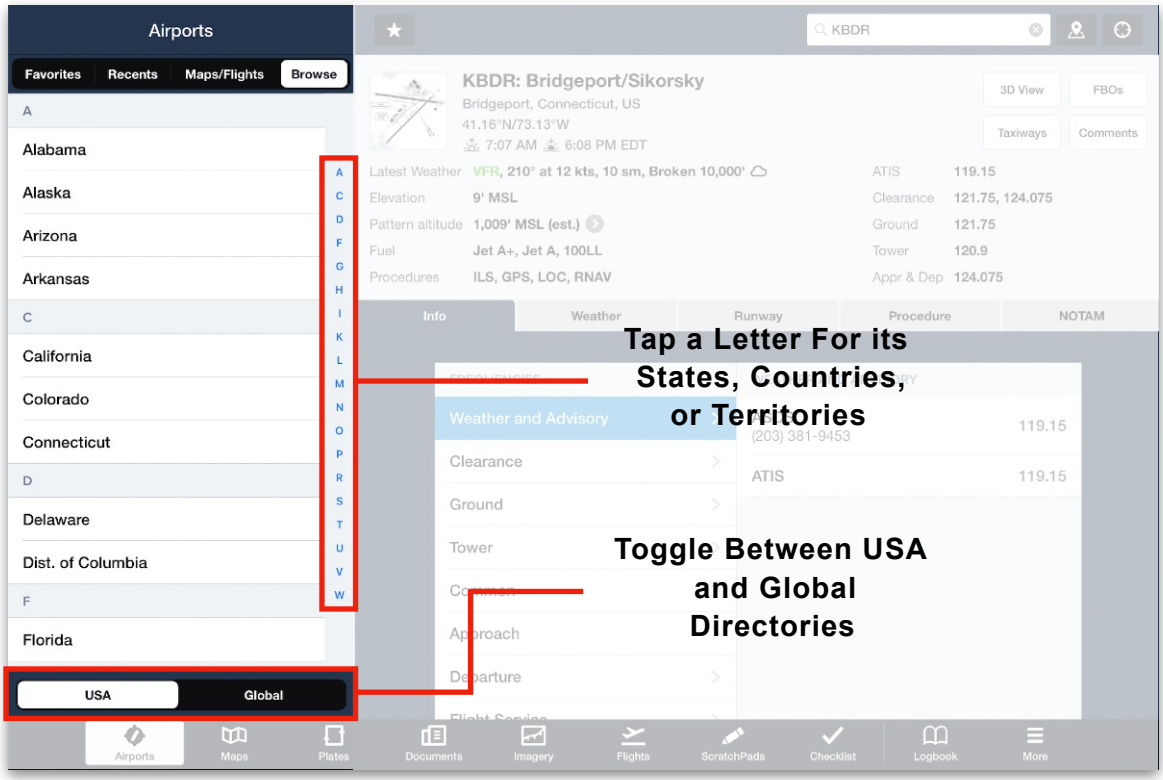
To toggle between a **Global** list alphabetized by country/territory and a smaller **USA** list alphabetized by state, tap the buttons at the bottom of the sidebar.

Browsing the Directory

With the USA or Global directory displaying, scroll up and down to navigate the directory in alphabetical order, or tap a letter on the right to jump to its section of the directory.

Displaying an Airport

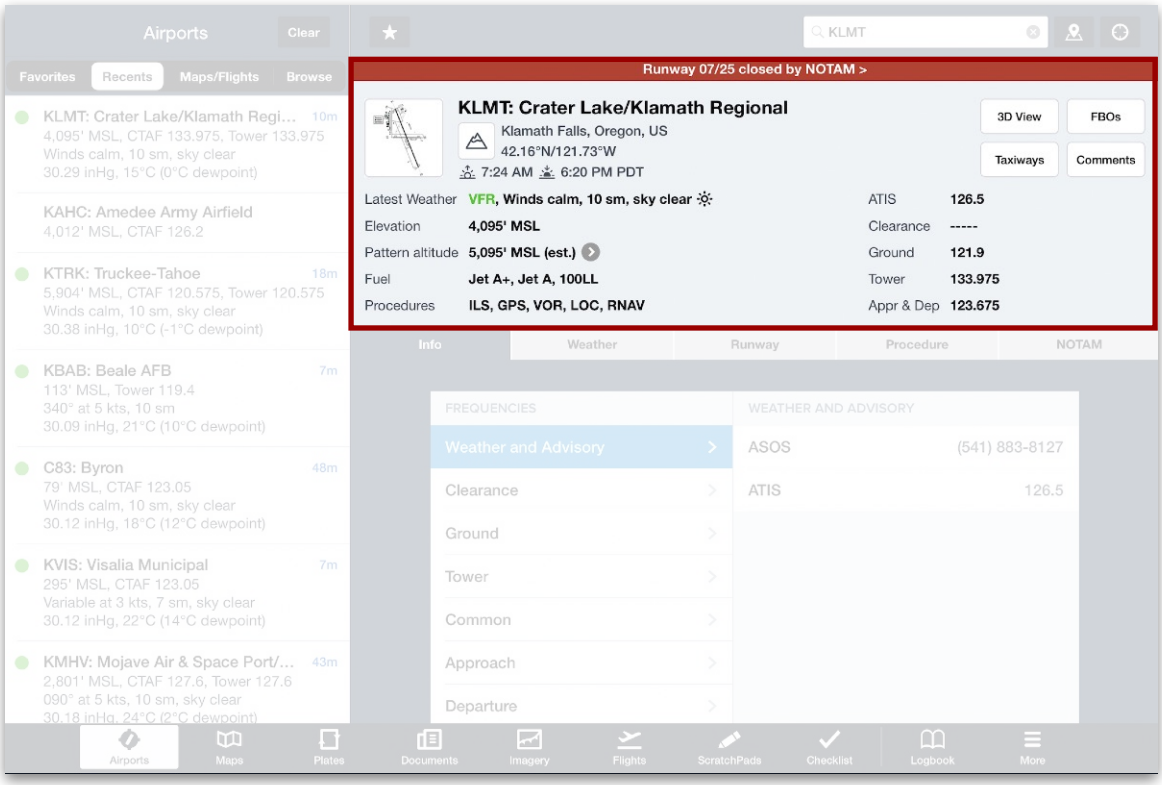
Tap a country, territory, or U.S. state to open its list of airports. Tap an airport to display it in the Airports view.



Browsing the Airports Directory

10.4 Airport Summary

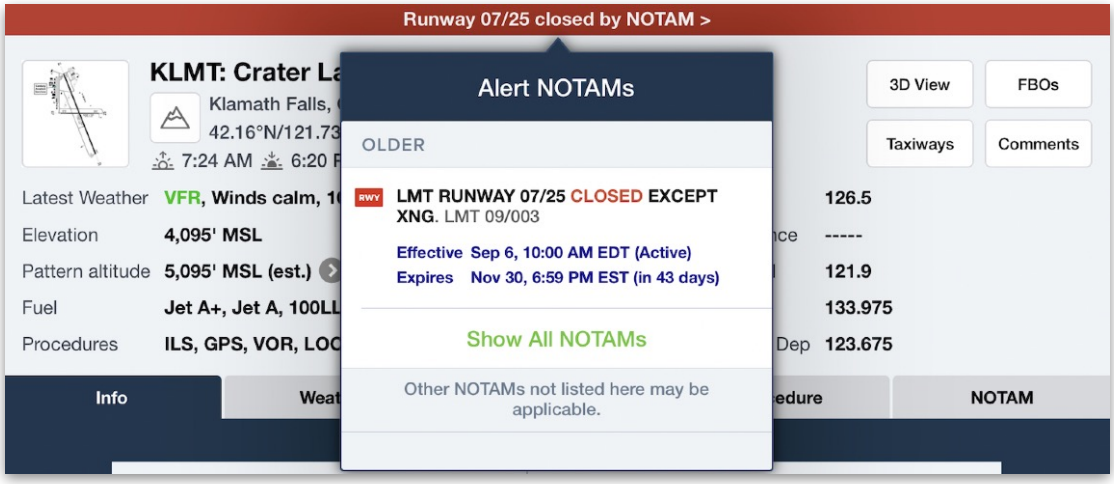
The Airport Summary section on the upper-right side of the Airports view provides a condensed overview of the currently displayed airport, including location, local time, weather, elevation, terrain hazards, traffic patterns, fuel availability, procedures, frequencies, and important airport or runway closure NOTAMs. The four buttons in the upper right corner of the view open a dynamic 3D view of the airport, an FBO view, airport and taxiway diagrams, user-entered comments, and remarks from the controlling agency.



Airports Summary

10.4.1 Alert NOTAMs

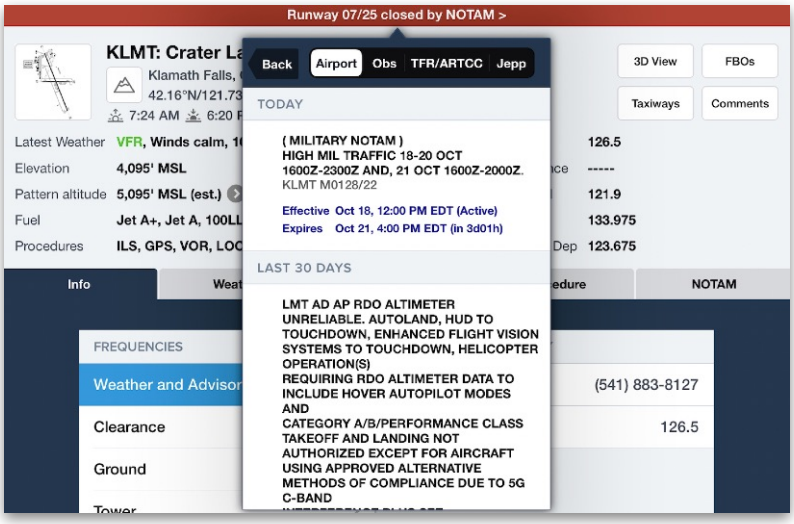
If any runway or airport closure NOTAMs are in effect for an airport, a prominent banner across the top of the Airports view is displayed. Tap the NOTAM banner to display the applicable Alert NOTAMs.



Alert NOTAMs

WARNING: Alert NOTAMs do not represent the full list of NOTAMs pertinent to the airport. Do not use the Alert NOTAMs banner as a replacement for reviewing all NOTAMs prior to a flight.

Tapping **Show All NOTAMs** opens a menu with that airport's full list of effective airport, obstruction, TFR/ARTCC, and Jeppesen NOTAMs.



Show All NOTAMs

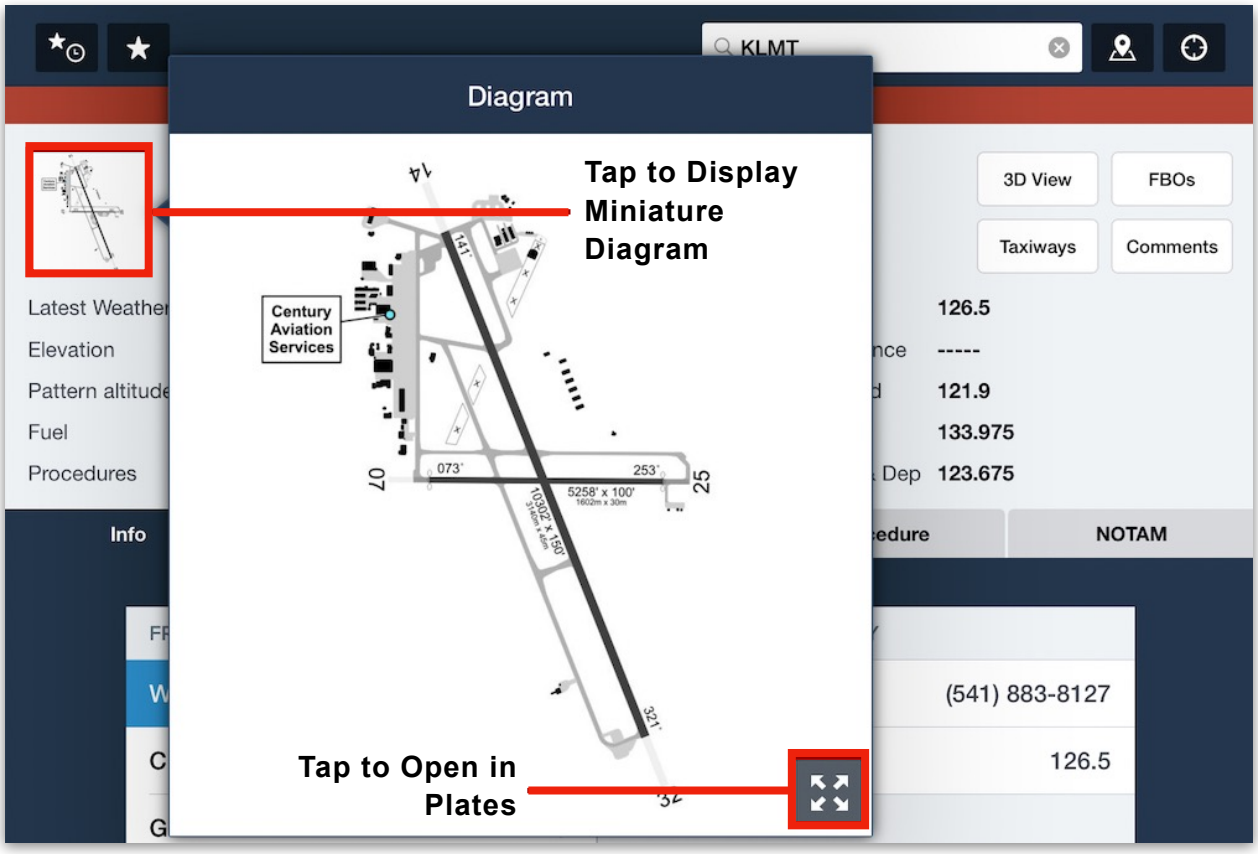
10.4.2 ForeFlight Airport Diagram

The Airport Summary section displays a thumbnail image of an airport diagram in its upper-left corner.

Tap this thumbnail to open a popover window displaying a miniature airport diagram generated by ForeFlight using satellite imagery. This miniature diagram does not show NOTAM alerts, nor are its FBO labels interactive.

Tap the expand icon in the bottom right corner to open a standard-sized, interactive ForeFlight diagram in the **Plates** view.

NOTE: The ForeFlight diagram is not an official publication by the FAA, NavCanada, EUROCONTROL, or Jeppesen. It is meant as a visual reference only and should not be used in place of official plates.



Airport Diagram Preview

10.4.3 Basic Information

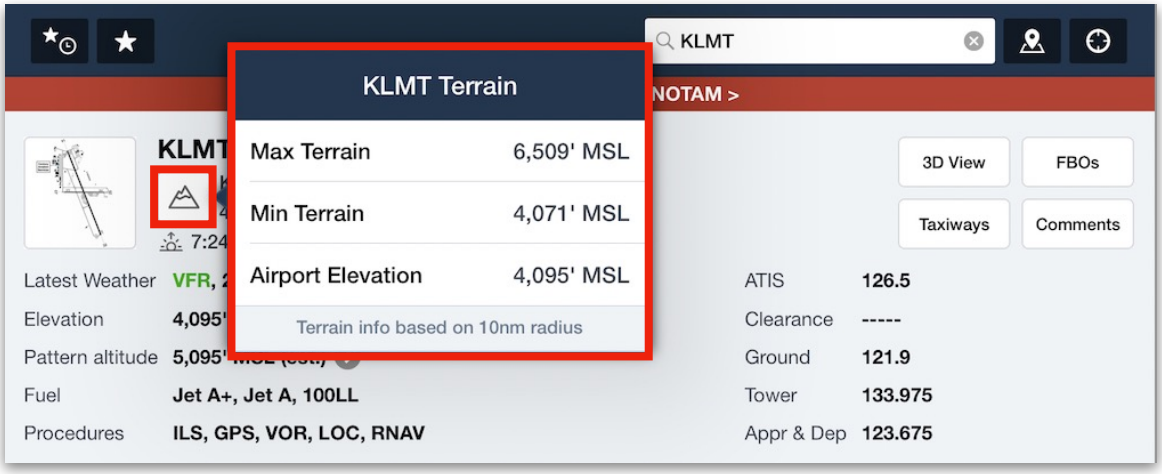
To the right of the ForeFlight airport diagram, the Airport Summary section displays basic information about each airport. This includes location, latitude and longitude coordinates, sunrise and sunset times, and timezone. For airports in Europe, the Transition altitude (from QNH to QNE) is shown next to the lat/long coordinates.



Basic Airport Info

10.4.4 Terrain Icon

The Airport Summary section displays the terrain icon (shaped like a small mountain) whenever the terrain elevation changes by more than +/- 1,500 ft within 10 NM of the airport. Tapping the icon opens a window listing the airport elevation, maximum terrain elevation, and minimum terrain elevation. All values are in MSL.



Max/Min Elevation Changes Within 10 NM

10.4.5 Latest Weather

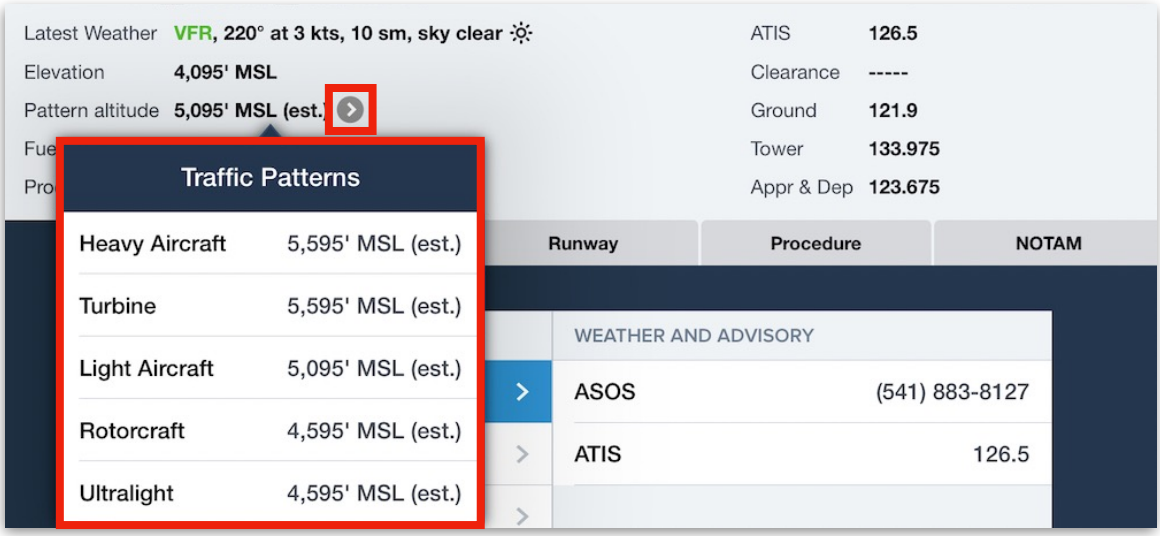
If weather data exist for the currently selected airport, the Latest Weather field displays a textual and visual summary. This includes from left to right: color-coded flight category, wind speed and direction, visibility, color-coded ceiling, and icon depicting prevailing weather such as rain, gusting winds, or low ceilings. If weather data is not available, the Latest Weather field displays the text “Unknown”.



Latest Weather

10.4.6 Pattern Altitudes

The Airport Summary section by default displays the traffic pattern altitude in MSL for light aircraft. To see a comprehensive list of pattern altitudes including for heavy aircraft, turbine aircraft, light aircraft, rotorcraft, and ultralight aircraft, tap the button next to the displayed pattern altitude. ForeFlight sources traffic pattern altitude (TPA) data from the FAA's eNASR database for U.S. airports and the Jeppesen database for international airports. If specific data is not available, ForeFlight uses standard rules from publications such as the FAA AIM 4-3-3 and Transport Canada AIM RAC 4.5.2. Whenever standard rules are applied, the TPA includes the notation **(est.)**



Pattern Altitudes

10.4.7 3D View

The **3D View** button on the right side of the Airport Summary section opens a dynamic 3D representation of the airport environment. This functionality, available to Performance-tier subscribers, is described in **Airport 3D View**.

10.4.8 FBOs

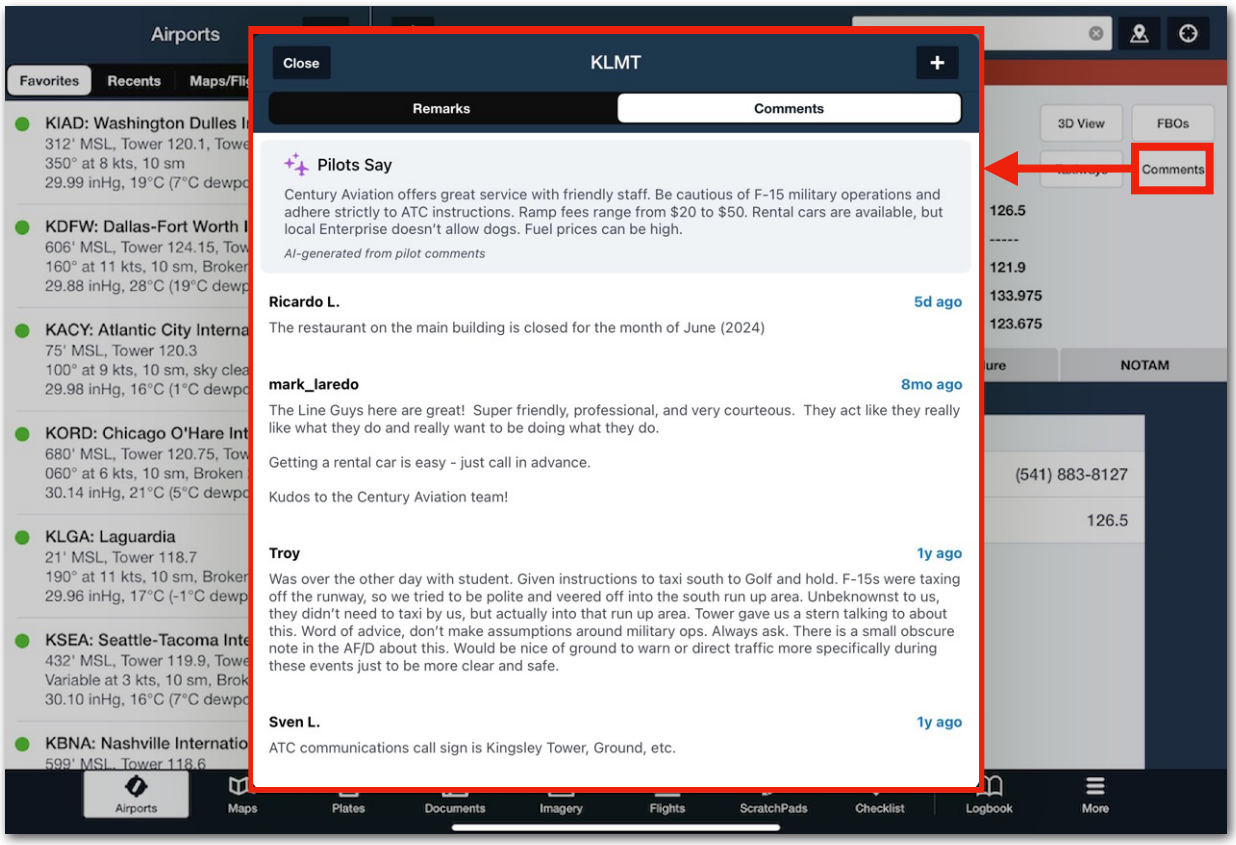
The **FBOs** button on the right side of the Airport Summary section opens the FBO List view, which displays a list of pilot services located at that airport. This functionality is described in **Airport FBOs**.

10.4.9 Taxiways

The **Taxiways** button on the right side of the Airport Summary section opens the government e.g., FAA airport diagram (or Jeppesen diagram for subscribers) in the **Plates** view.

10.4.10 Comments

Tap the **Comments** button on the right side of the Airport Summary section to open a popover window displaying remarks from official sources and user-entered comments.



Airport Comments

Remarks

Tap the **Remarks** button to display a list of official remarks about the airport from the controlling agency e.g. FAA.

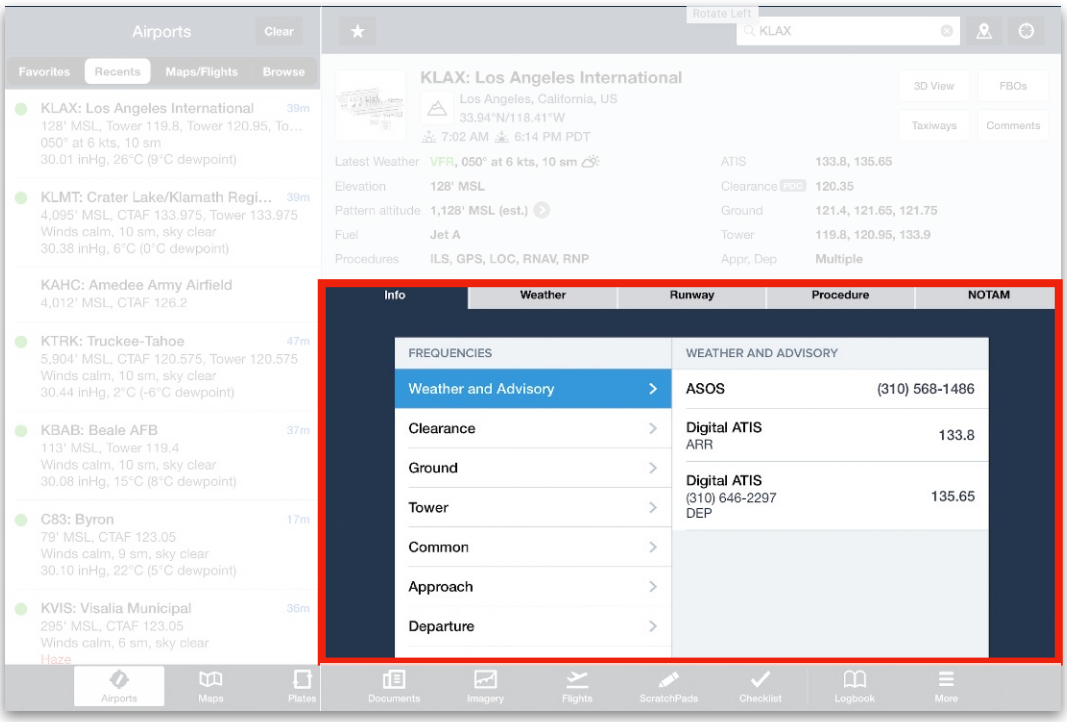
Comments

Tap the **Comments** button to display an AI summary of comments and a list of comments about the airport entered by ForeFlight users. This functionality is described **later in this chapter**.

10.5 Airport Details

The lower-right side of the Airports view provides details about the currently displayed airport separated into the following five categories:

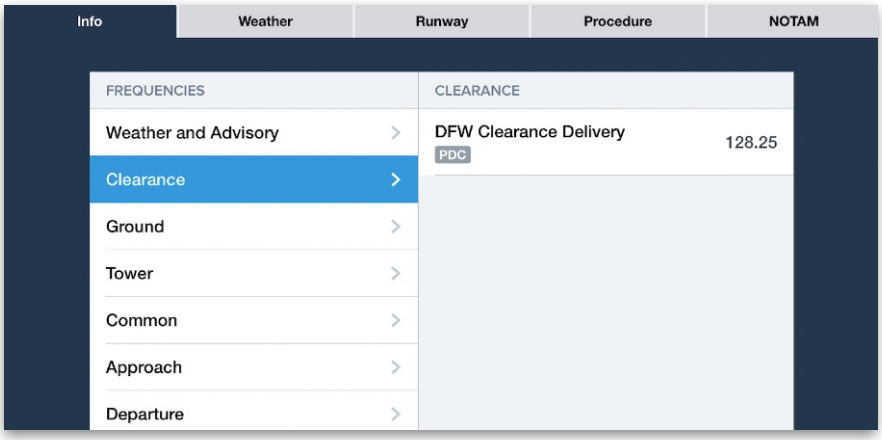
- The **Info** tab displays airport frequencies, chart supplements, nearby airports, operating hours, points of contact, AIRAC cycle data, flight tracking widgets, airport features, and onsite services.
- The **Weather** tab displays data from METARs, D-ATIS broadcasts (for Performance-tier subscribers only), TAFs, Forecast Discussion, MOSs, 10-day daily/hourly forecasts, and Winds Aloft forecasts.
- The **Runway** tab shows information including runway wind components, runway ends with best wind, runway dimensions and type, traffic patterns, glideslope, runway slope, lighting, elevation, and runway-specific procedures.
- The **Procedure** tab lists all available airport, departure, arrival, and approach procedures (sourced from ForeFlight, controlling agency, and Jeppesen if subscribed), and serves as a shortcut to open these in the Plates view.
- The **NOTAM** tab lists applicable airport, obstacle, TFR/ARTCC, and Jeppesen (if installed) NOTAMs, and provides a search bar to filter the list.



Airports Details

10.5.1 Info tab

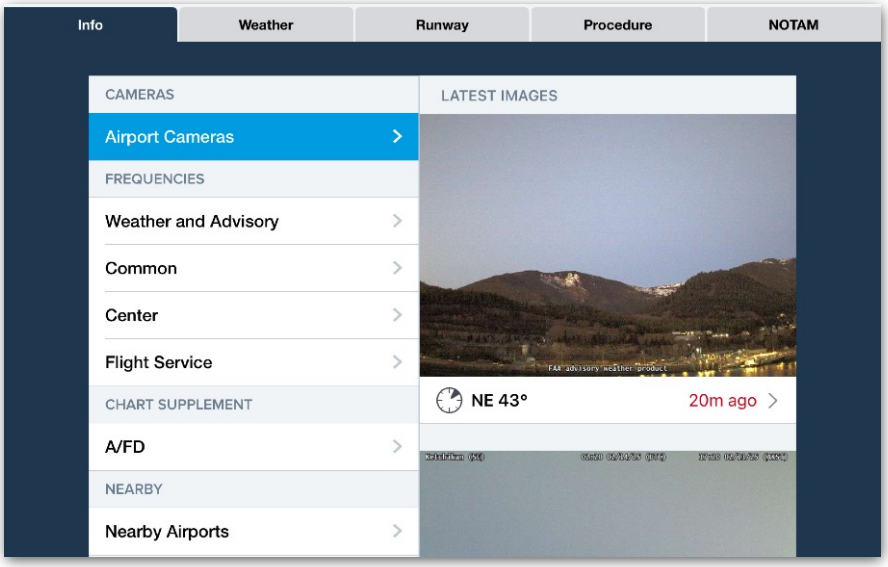
The **Info** tab at the top of the Airport Details section displays a list of general airport information subcategories on the left. Tap a specific item to reveal its details. Some details display to the right of the list, while others open in a new window or view. Each is described below.



Airports View Info Tab

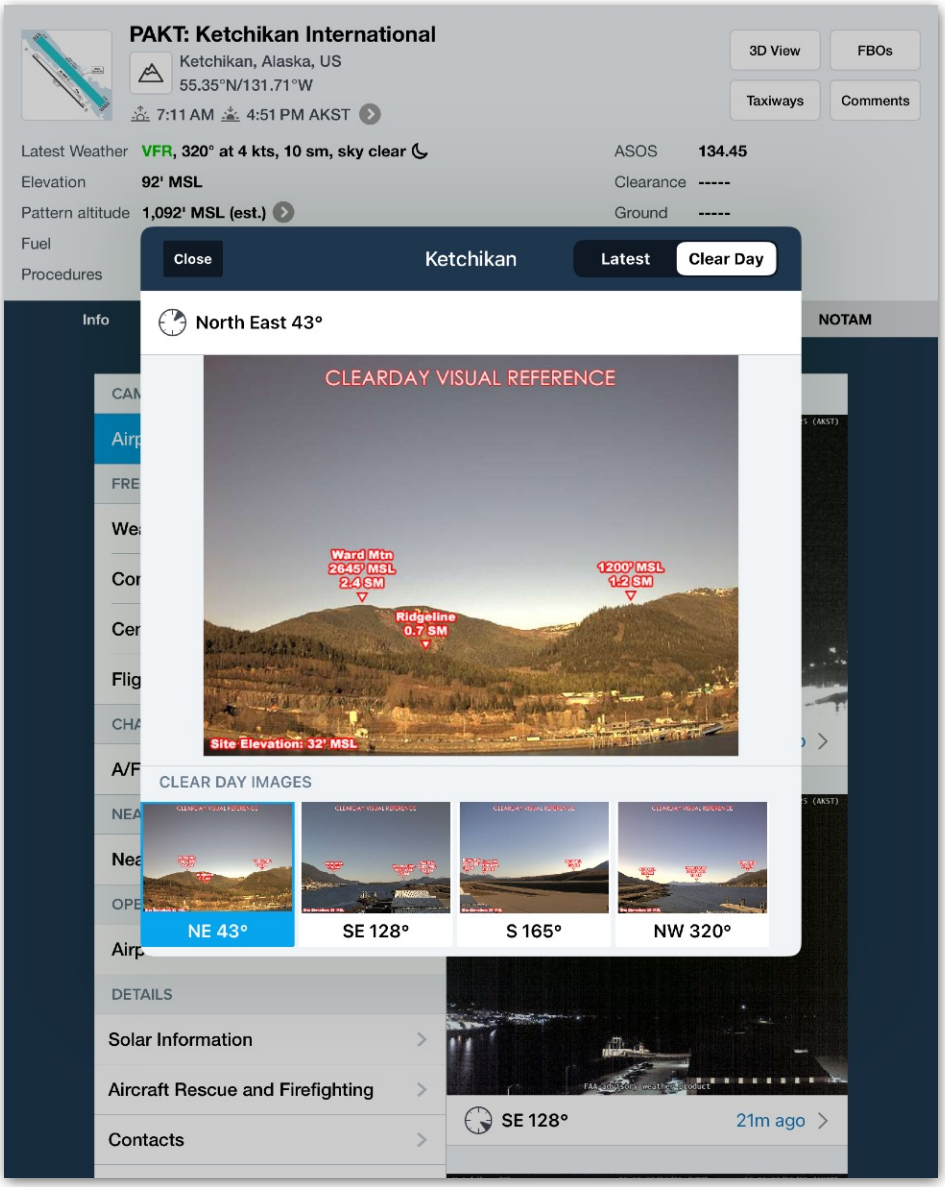
10.5.1.1 Airport Cameras

The Airport Cameras subcategory displays connected camera images, time since the image was captured, and the facing direction of the camera. Tap an image to display the camera pop-over.



Cameras

The camera pop-over displays a larger image of the selected camera. Tap **Latest** to show the most recent images. Tap **Clear Day** to display clear day images with labeled landmarks and elevations, if available.



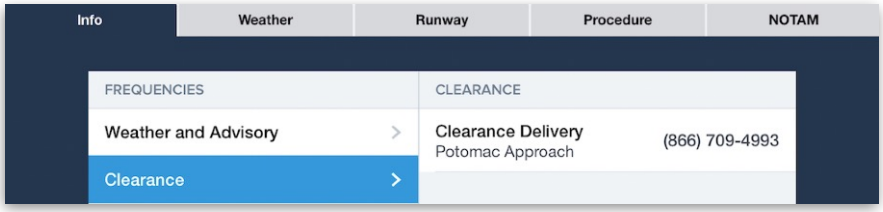
Camera Pop-Over Clear Day

10.5.1.2 Frequencies

The Frequencies subcategory lists airport frequencies according to their type (such as Clearance, Ground, or Tower). Tap one of these rows to display specific frequencies and other pertinent information on the right.

NOTE: For Premium and Business Performance customers, larger U.S. airports where electronic Pre-Departure Clearances (PDC) are available for IFR flights are noted with the “PDC” badge next to the Clearance frequency.

ForeFlight displays the phone number and facility name for a pilot to call to obtain an IFR clearance directly from the appropriate overlying Air Route Traffic Control Center (ARTCC) or approach control facility. When using ForeFlight Mobile on an iPhone, tap on the number to initiate a phone call to that facility.



Tap Phone # for Clearance Delivery

10.5.1.3 Chart Supplement

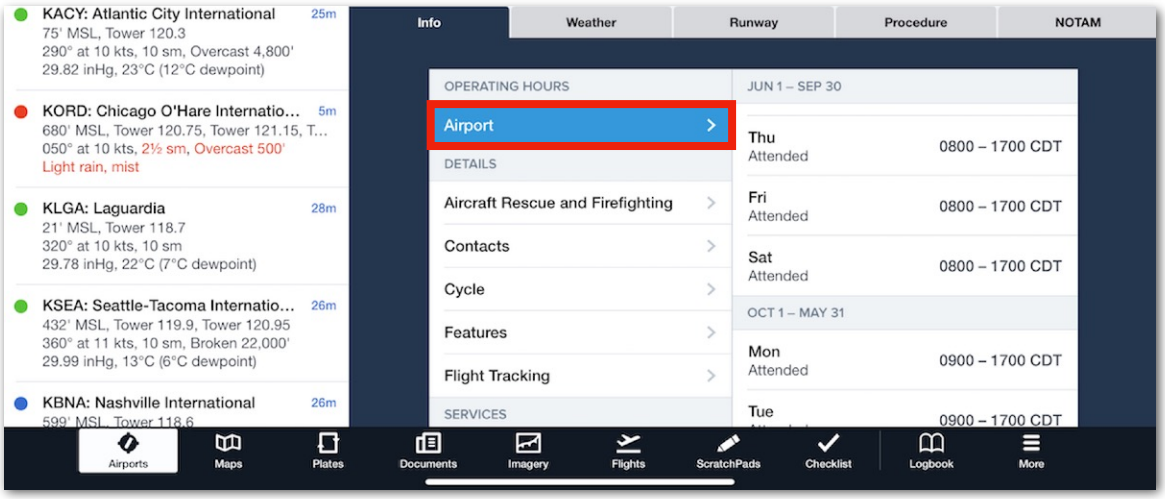
The Chart Supplement subcategory lists official publications about the currently selected airport. Depending on the controlling agency, these will be from the FAA's Airport/Facility Directory (A/FD), Canada Flight Supplement (CFS), or Europe’s Airport Information Publication (AIP). Tap one of these rows to open its details in the **Plates** view.

10.5.1.4 Nearby

The Nearby subcategory lists other airports, heliports, and facilities near the currently selected airport. Tap a row to display a new list of facilities on the right. This list shares functionality similar to the **Airports Near You** menu, but relies on the airport’s location rather than the device’s.

10.5.1.5 Operating Hours

The Operating Hours subcategory shows the daily operating hours reported for that airport. Depending on the data available, this may take the form of one year-round schedule for the airport, several different schedules for different times of the week or year, or even the operating hours of flying clubs located at the airport. Hours may be reported in local time or UTC. If no data is available, “Operating Hours Unknown” will be displayed.



Airport Operating Hours

10.5.1.6 Details

The Details subcategory lists various logistical details about the currently selected airport. Tap a row to display a new list on the right. Each row and its functionality is described below:

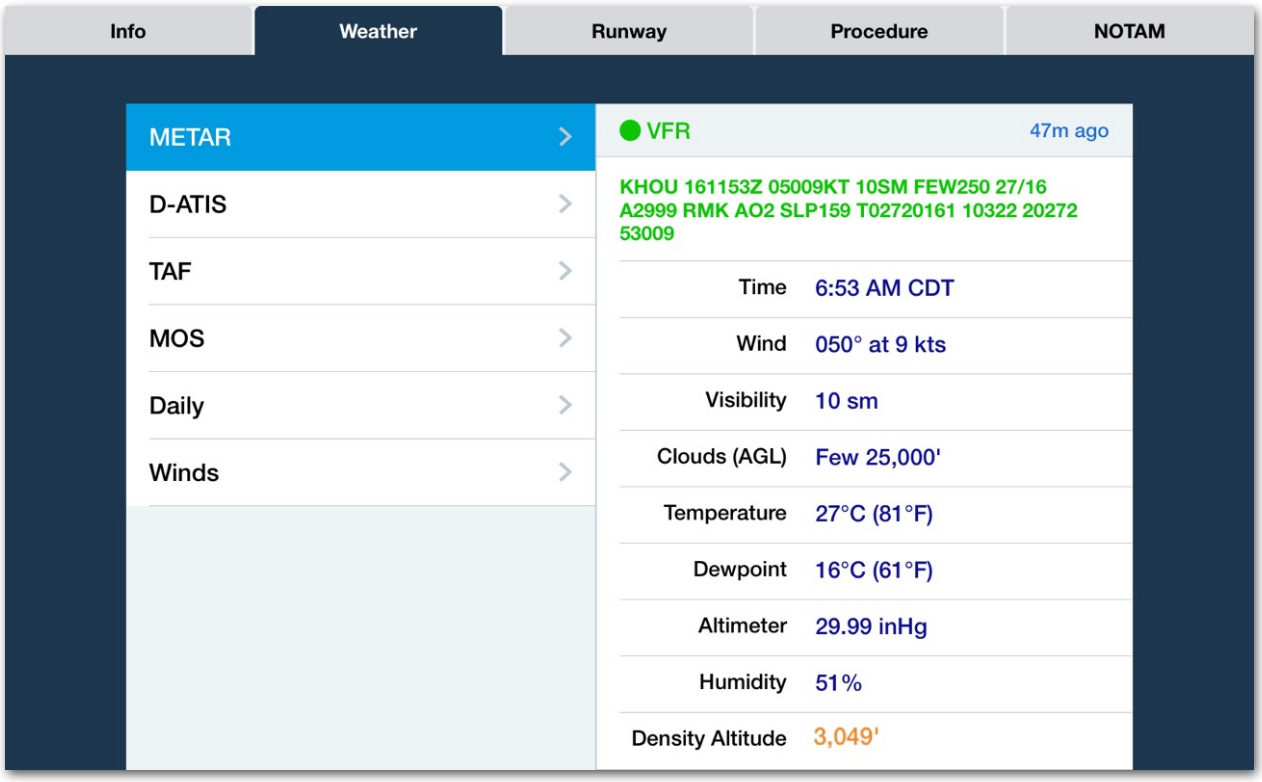
- Tap **Solar Information** to see the **Morning Civil Twilight**, **Sunrise, Sunset**, and **Evening Civil Twilight** times for today and the next three days.
- Tap **Aircraft Rescue and Firefighting** to see the maximum size of aircraft that can be supported by the airport's fire suppression and emergency response personnel. Each entry includes **Category**, **Max. Aircraft Length**, and, if applicable, **Max Fuselage Width** fields defined by the controlling agency (FAA or ICAO). An entry may say "Unknown" if the airport's capabilities are unknown, or "Not Available" if it lacks any capabilities.
- Tap **Contacts** to display the names, mailing addresses, and phone numbers of the airport owner and manager. Then tap an address to open its location in iOS Maps, or tap a phone number to place a call (using iPhones only).
- Tap **Cycle** to see the current AIRAC cycle version and dates of the airport data in ForeFlight.
- Tap **Features** to see various geographical and logistical information about the airport such as its elevation, controlling facilities, location, magnetic variation, and timezone. With a working internet connection, tap **Show in Maps** to display the airport in iOS Maps, or tap **Wikipedia** to open the airport's wiki page. The location coordinates can be copied from this window by tapping the **COPY** button next to the coordinates. See **Copying Coordinates** for more details.
- Tap **Flight Tracking** to display options to query **flightaware.com** about the airport's scheduled arrivals, scheduled departures, and en-route traffic. This feature requires a working internet connection and a FlightAware account.

10.5.1.7 Services

The Services subcategory lists various visitor services available at or near the airport such as car rentals, lodgings, and restaurants. Tap a row to display each service of that type on the right, as well as its phone number and distance from the airport if applicable.

10.5.2 Weather Tab

The **Weather** tab displays a list of the selected airport's weather reports and forecasts. Tap a row in the list to display its details on the right. Each row and its functionality are described below.



Airport View Weather Tab

10.5.2.1 METAR

Tap **METAR** to display the airport's current meteorological report. The METAR view displays the color-coded flight category, the age of the weather data, and both the coded and decoded METAR.

The density altitude is reported at the bottom of the listed METAR data and the text is usually **blue**. However, if the density altitude surpasses the field elevation by 2,500 feet or more, the value changes color to **orange**. This color shift serves as a visual signal for pilots to indicate the presence of a high density altitude that demands careful aircraft performance assessment.

Beneath the decoded METAR is a Nearby Weather section listing nearby airports. Tapping one of these airports switches to it in the Airports view and displays its METAR.

10.5.2.2 D-ATIS

Tap **D-ATIS** to display the current digital ATIS message, including the information letter and the time since the message was last updated. This row requires an active internet connection, is only available to Performance-tier subscribers.

NOTE: Digital ATIS is only available from large airports in the United States, Australia, and Norway.

10.5.2.3 TAF

Tap **TAF** to display the TAF for the currently selected airport (or the nearest airport with a TAF), including the time since the forecast was last updated. Swipe the TAF details down to see, in order: the name, direction, and distance of the originating airport, the coded TAF format with color-coded sections, a button to display the Forecast Discussion, and a decoded breakdown of conditions including a color-coded flight category icon.

If the TAF includes more than one forecast during its 24-hour period, each one is decoded and listed in chronological order.

10.5.2.4 MOS

Tap **MOS** to display the MOS forecast, including the time since the forecast was last updated. Swipe the MOS details down to see a breakdown of conditions during each forecast period.

10.5.2.5 Daily

Tap **Daily** to display a summary of the Daily/Hourly Forecast. Scroll down to see a row for each day in the forecast. Tap any day to open the Local Forecast window showing the full Daily/Hourly Forecast.

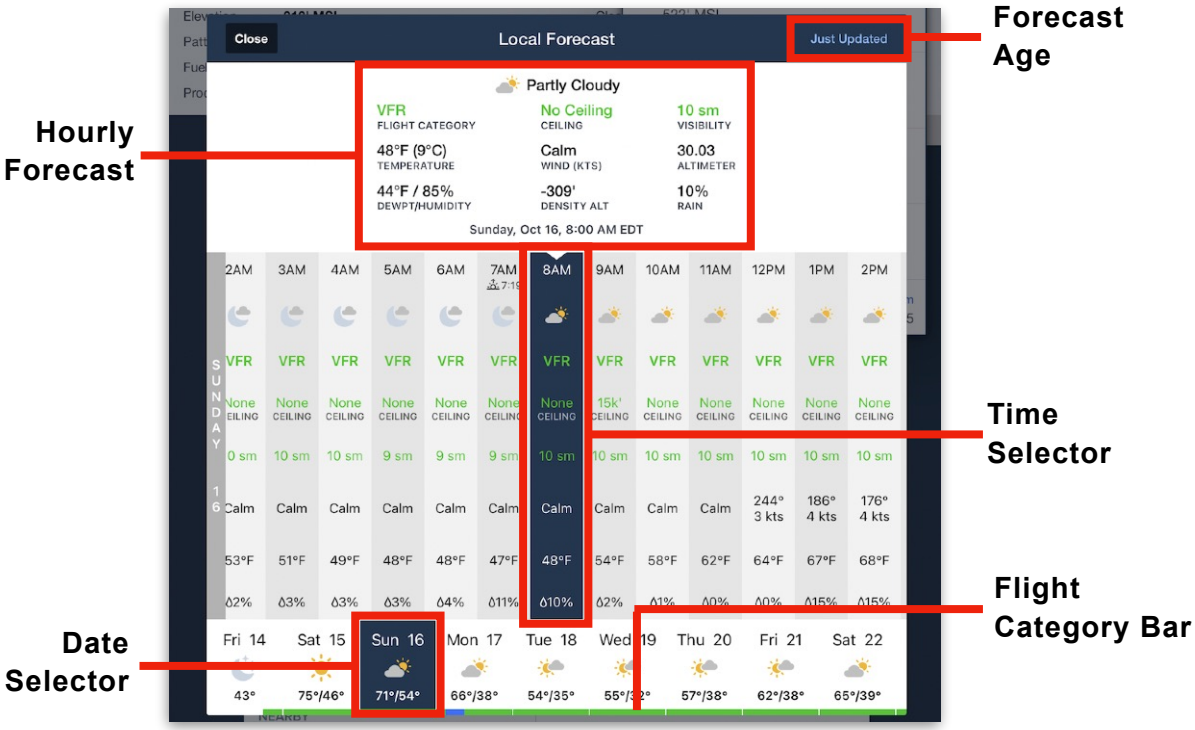
The upper right corner of the Local Forecast window displays the age of the forecast. When the device is connected to the Internet, forecast data is automatically refreshed after 1 hour.

The bottom portion of the window shows an hourly breakdown that can be swiped left or right to see the entire 10-day forecast. The bottom edge, along with text throughout the window, is color-coded according to flight category.

10. AIRPORTS

The Local Forecast window can be interacted with using a bottom-up approach:

1. Along the bottom edge, read the color-coded bar to see how the flight category fluctuates across the entire 10-day forecast.
2. Above the bar, swipe left and right to find and tap the desired date.
3. Above the date selector, swipe left and right to find/tap the desired time.
4. At the top, read the weather forecast for the selected date/time.
5. Note that any weather information responsible for the flight category is displayed in the appropriate color.



Daily/Hourly Forecast

NOTE: ForeFlight also provides Daily/Hourly Forecasts for non-airport locations:

- To see a forecast at the current location, long-tap the ForeFlight Mobile app icon on the device home screen and select **Local Forecast**.
- To see a forecast at a specific location on the Maps view, tap and hold the location on the Maps view and select **Wx Forecast**.

For more information, see ForeFlight's **Daily/Hourly Forecast**.

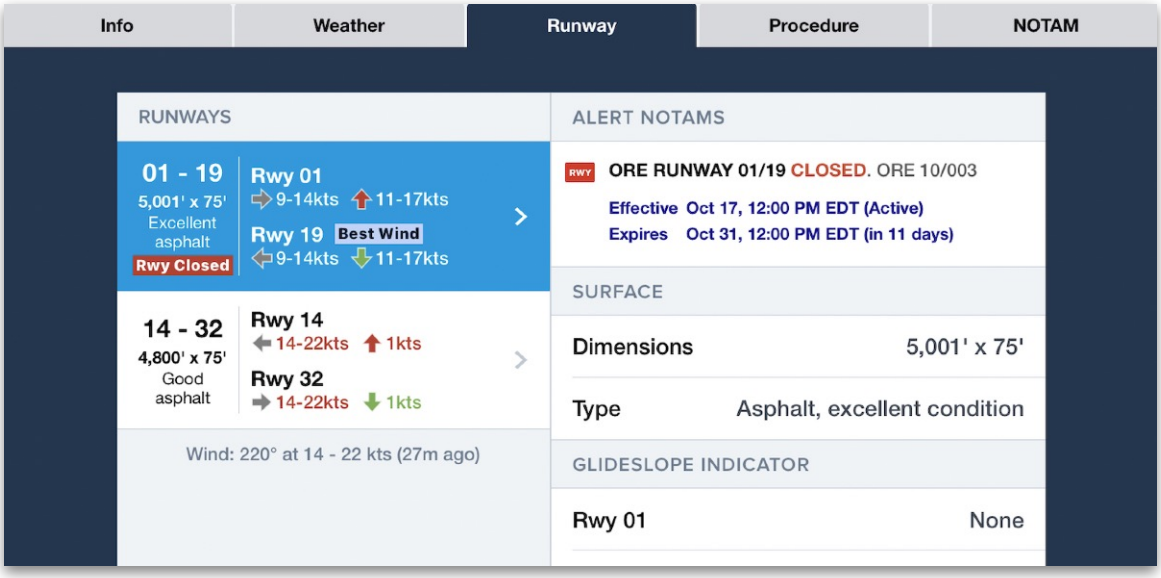
10.5.2.6 Winds

Tap **Winds** to display the airport Temperatures and Winds Aloft forecast in 3,000-foot increments. The time since the forecast was last updated is provided in the upper right corner. Swipe the Winds details down to see wind and temperature data at each 3,000-ft MSL increment and for each forecast period. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C
- **Tan** below -26° C.

10.5.3 Runway Tab

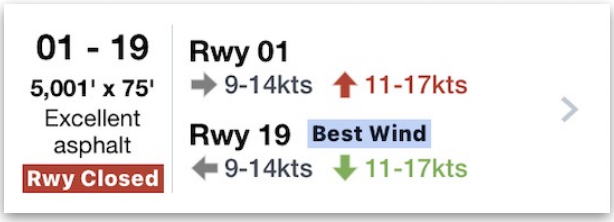
The **Runway** tab at the top of the Airport Details section displays information about the runways at the selected airport. The left side displays a list of runways and a summary of their characteristics. Each runway in the list can be tapped to display additional information. Below the last item in the list, the wind direction and speed at the airport are provided along with the elapsed time since the wind data was reported. Each section of the Runways view is described in detail below.



Airports View Runway Tab

10.5.3.1 Runway Summary

The left side of the Runway view lists each runway at the airport. Each list item is a summary of runway characteristics, including length, width, surface condition, and surface material. If applicable, runway-related NOTAM alerts, color-coded wind speeds and directions (in degrees True North), a Right Traffic label, and runways with the best wind for takeoffs and landings may also be provided.

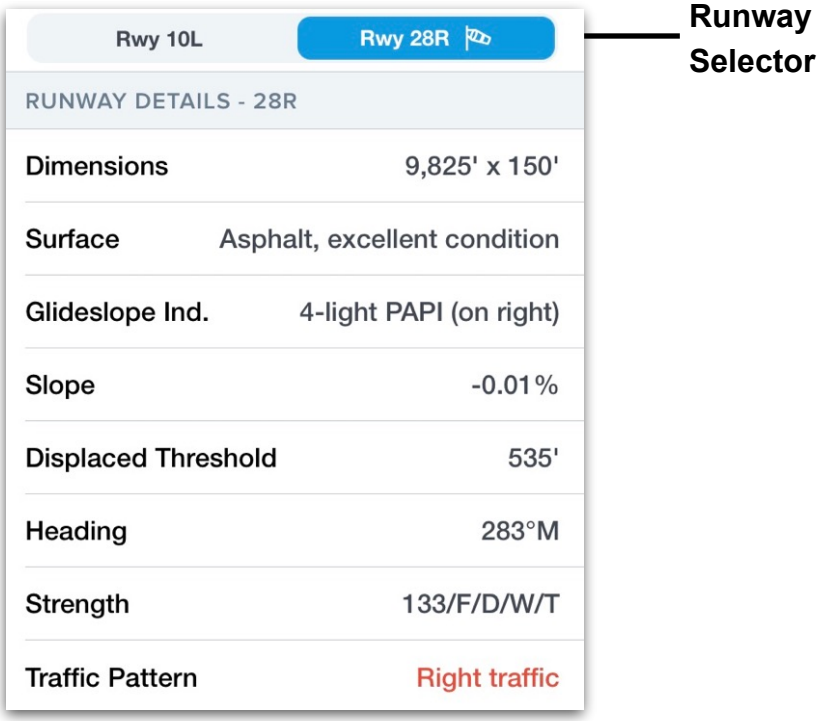


Runway Summary

Tap an item in the Runway List to display its details on the right. These details and their functionality are described below.

10.5.3.2 Runway Details

The Runway Details section provides general information about the selected runway. Tap the desired runway with the runway selection buttons.



Runway Details

Dimensions - Runway length and width.

Surface - Runway surface material and condition.

Glideslope Ind. - Lists VASI, PAPI, or other visual descent guidance systems, along with position relative to the runway. In the absence of a VGSI, the entry is **None**.

Slope - Lists the gradient or slope the runway end communicated as a positive or negative percentage. For example: the gradient is -0.24%, the runway height decreases by 2.4 feet for every 1000 feet of runway length.

IMPORTANT: The Slope section refers to terrain gradients and should not be confused with the Glideslope information above it.

Displaced Threshold - If the runway has a displaced threshold, a Displaced Threshold section is displayed and provides the position of the threshold beyond the start of the runway end.

Heading - Displays the magnetic heading of the runway.

Strength - Displays the ICAO pavement classification number and pavement classification ratings if available.

Traffic Pattern - Displays Right traffic if the runway is subject to a right traffic pattern.

10.5.3.3 Declared Distances

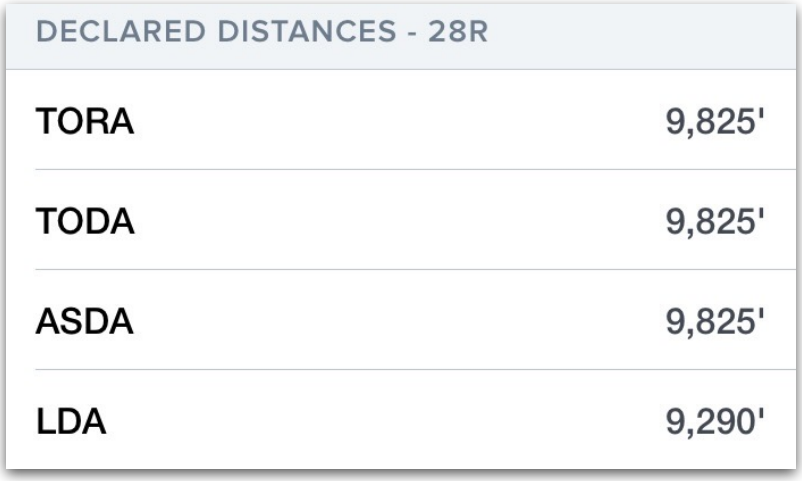
Declared runway distances - The maximum lengths of runway that are available for aircraft operations.

Takeoff Run Available (TORA) - The length of runway available for an aircraft to accelerate from brake release to liftoff.

Takeoff Distance Available (TODA) - The TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.

Accelerate Stop Distance Available (ASDA) - The length of runway available for an aircraft to accelerate to rotation speed and stop.

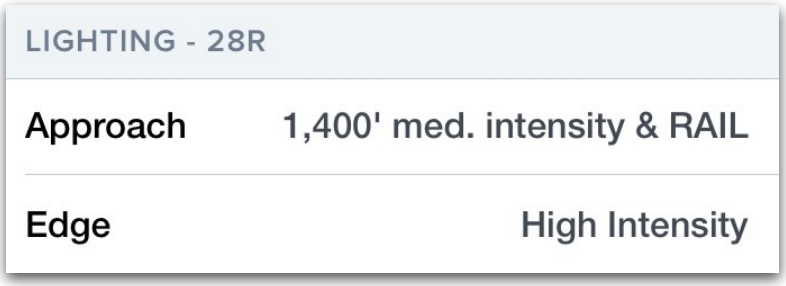
Landing Distance Available (LDA) - The distance available for landing.



Runway Declared Distances

10.5.3.4 Lighting

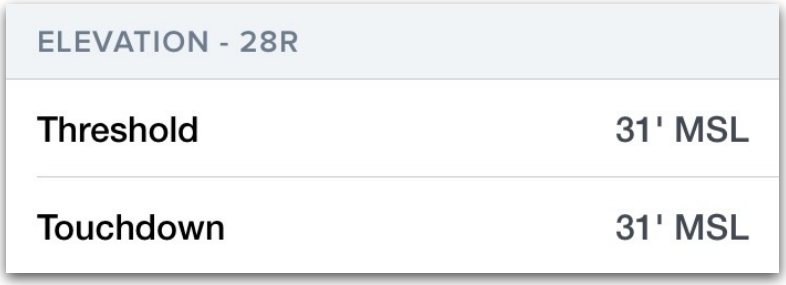
The Lighting section lists the type and intensity of the approach lighting system installed at the runway, as well as the edge lighting. If no system is installed, the entry is labeled with **None**.



Runway Lighting

10.5.3.5 Elevation

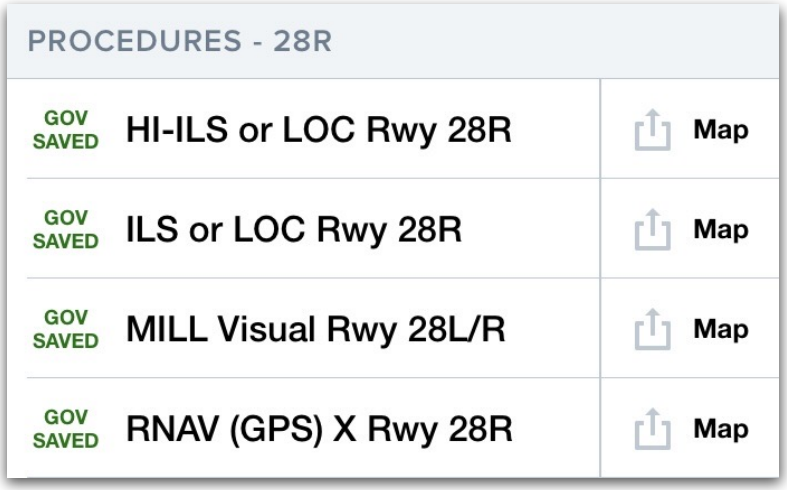
The Elevation section shows touchdown zone elevation in MSL for the threshold and touchdown zone of the runway.



Runway Elevation

Procedures

The Procedures section lists any FAA, NavCanada, Eurocontrol, or Jeppesen approach procedures available for the runway, along with any **custom procedures** added by the user. Tapping a procedure name opens it in the Plates view. Tapping the Send To Map icon to the right of a procedure name opens it on the Maps view (only available to ForeFlight Essential, Premium, Business Pro, or Business Performance subscribers).

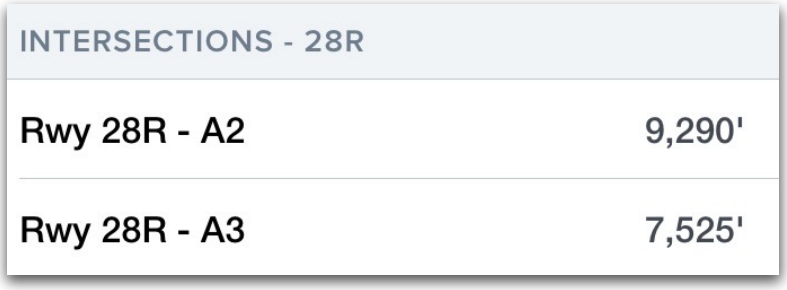


Procedures

Intersections

The Intersections section includes a list of runway intersections and the remaining usable takeoff distance from that intersection. Performance-tier subscribers with **Runway Analysis** licenses can use these intersections as part of their takeoff analysis.

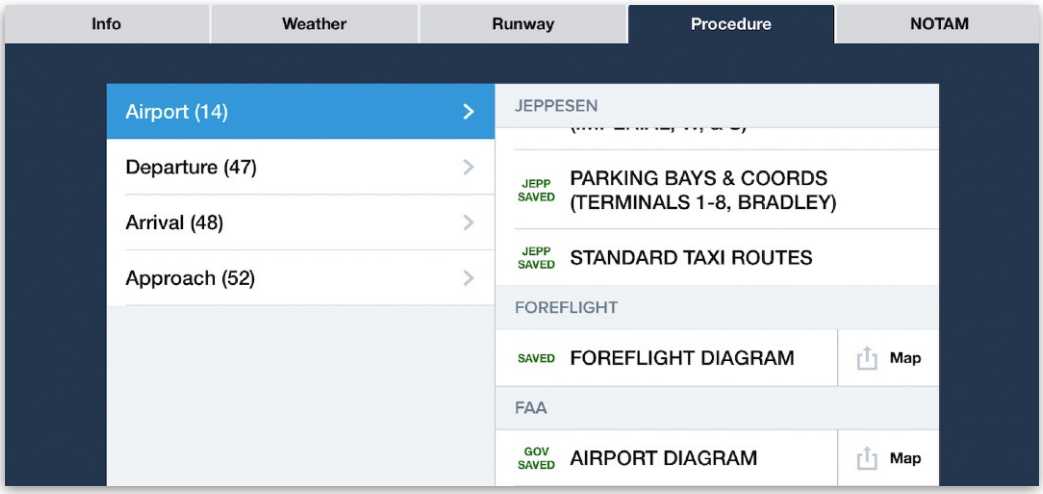
NOTE: The Intersections list may not include usable takeoff distance from all possible runway intersections.



Runway Intersections

10.5.4 Procedure Tab

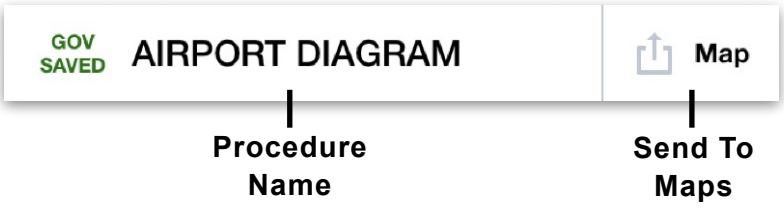
The **Procedure** tab displays terminal procedures for the selected airport. The left side shows four procedure categories: Airport, Departure, Arrival, and Approach. Tapping one of these categories displays its list of individual procedures on the right, subdivided by source: Jeppesen (if installed), ForeFlight, FAA, Nav Canada, and EUROCONTROL. The order of sources cannot be changed.



Airports View Procedure Tab

Procedures are marked as ***Saved*** or ***Not Saved***. Procedures marked *Saved (in green)* are downloaded locally on the device and are available when offline. By viewing a plate, it is downloaded to the device. Plates can be **downloaded** as part of an entire region's download.

Tapping a procedure's name opens it in the **Plates** view. Tapping the Send To Map icon to the right of the procedure's name opens it on the Maps view (only available to ForeFlight Essential, Premium, Business Pro, or Business Performance subscribers). The contents of each procedure category are described on the next page.



Airport

The Airport category includes publications about the airport environment such as airport diagrams, airspace diagrams, construction diagrams, taxi route diagrams, chart supplements excerpts, and notes on hot spots, takeoff minimums, and parking bays.

Departure

The Departure category includes the departure procedures and their related notes. When a departure procedure is restricted to aircraft with a particular propulsion type such as jet or piston, it is labeled with the aircraft propulsion system(s) to which applies.

Arrival

The Arrival category includes the arrival procedures and their related notes. When an arrival procedure is restricted to aircraft with a particular propulsion type such as jet or piston, it is labeled with the aircraft propulsion system(s) to which applies.

Approach

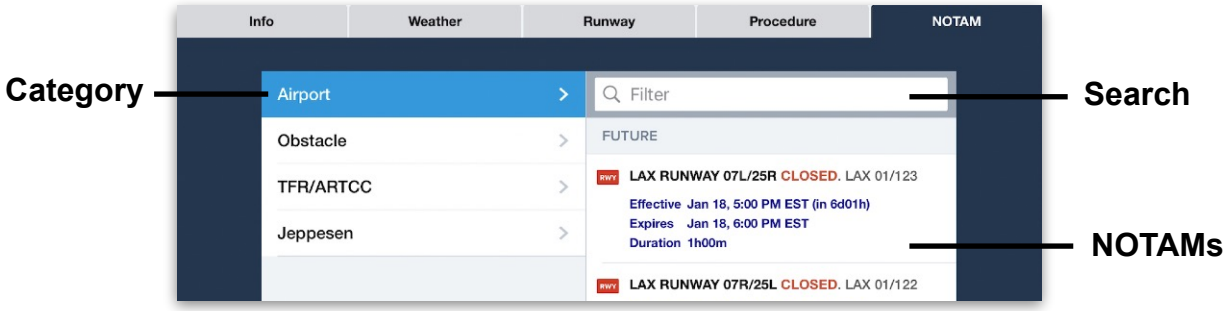
The Approach category includes the instrument approach procedures and their related notes.

Other

The other category includes special procedures, hot spots and other charts that do not fit into the prior categories.

10.5.5 NOTAM Tab

The **NOTAM** tab displays NOTAMs for the selected airport. The left side shows four NOTAM categories: Airport, Obstacle, TFR/ARTCC, and Jeppesen (if installed). Each category displays its list of individual NOTAMs on the right and a search bar that can be used to filter NOTAMs within that category.



Airports View NOTAM Tab

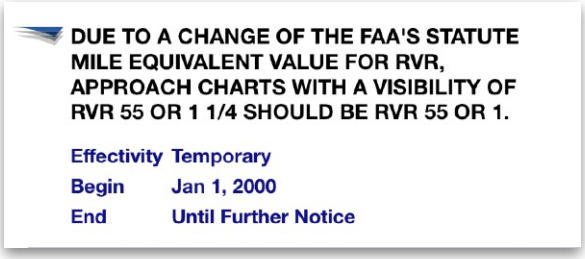
NOTAMs

NOTAMs are listed in order of recency: Future, Today, Last 7 Days, Last 30 Days, Older. Each individual NOTAM row displays the NOTAM's number, text, effective date, expiration date, and duration if applicable, as well as an icon conveying the NOTAM type (such as runway, taxiway, obstacle, airspace, or navigation). If a NOTAM communicates a closure or out-of-service message, certain keywords will be in red text.



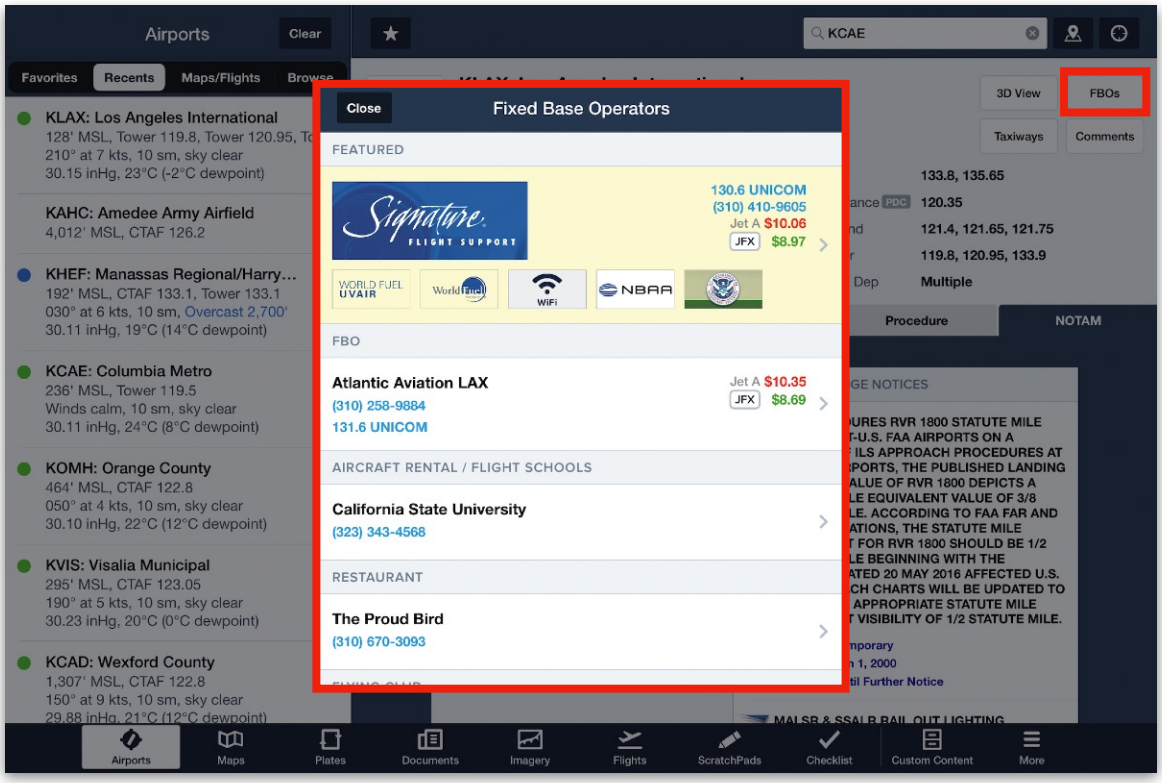
Jeppesen NOTAMs

Jeppesen NOTAM rows display the NOTAM's effectivity, beginning and ending dates, and text. All Jeppesen NOTAMs display the Jeppesen icon regardless of their subject.



10.6 FBO List

The **FBOs** button on the right side of the **Airport Summary** section opens the FBO List view, which displays a list of pilot services available at that airport. Tapping any service listed in the window displays additional information about it in the **FBO Details** view. The window is divided into several sections depending on the types of pilot services available. These sections are described below.



FBO List View

10.6.1 Featured

FBOs, contract fuel vendors, and other pilot services located at the airport can display their services prominently in a yellow Featured section at the top of the FBO List view. The exact layout of each row in the Featured section depends on the type of service using the space and may include one or more corporate logos but otherwise tends to mirror the layouts described below.

10.6.2 FBO

The FBOs section lists any fixed base operators located at the airport. FBO listings tend to display the FBO name, phone number, and UNICOM frequency on the left, along with fuel prices on the right. Fuel prices in the FBO List view are **color-coded** in the same way as on the Maps view. If the user's account is set up with JetFuelX and the FBO hosts contract fuel vendors, a white JFX label is displayed next to the lowest available contract fuel price.

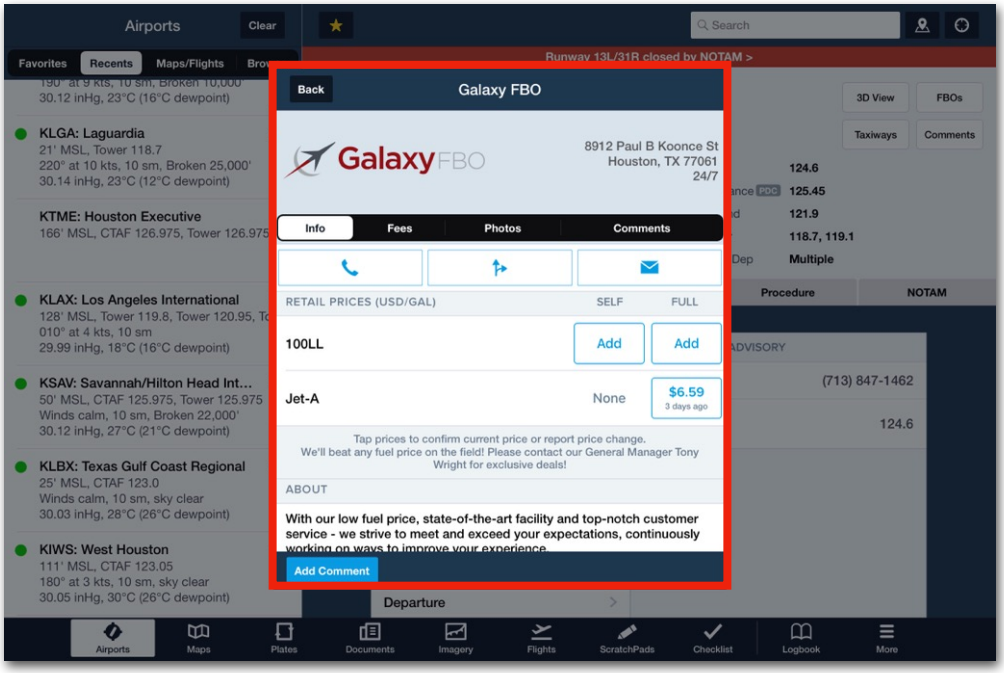
10.6.3 Other Services

Various other pilot services may have their own sections in the FBO List view. Possible section headers include but are not limited to the following: Aircraft Rental / Flight Schools, Restaurants, Flying Club, and Other.

10.7 FBO Details

Tapping the name of a pilot service listing in the FBO List opens the FBO Details view, which provides additional details and functionality related to the service.

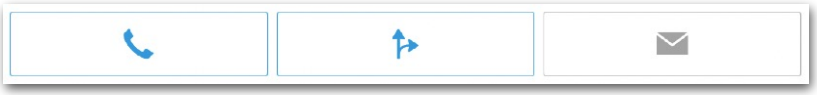
The top of the FBO Details view displays the service's name, corporate logo (if applicable), mailing address, and hours of operation. Below that, it displays up to four tabs with additional details: Info, Fees, Photos, and Comments. At the bottom, it displays an Add Comment button. These features are described below.



FBO Details View

10.7.1 Info

When the FBO Details view is opened, the Info tab is selected by default. The top row displays three blue buttons for users to call the service (using an iPhone), find directions to the service (using iOS Maps), or email the service. If the service provider has not listed a phone number, mailing address, or email address, the appropriate button will be disabled.



Additional details in the Info tab may include the following:

- **Contract (Jet-A)**, and **Retail Prices**: These sections display available retail and contract **fuel prices**, and provide additional functionality described in **JetFuelX**.
- **About**: This section includes information provided by the pilot service.
- **Contacts**: This section lists various ways to contact the pilot service, such as UNICOM frequencies, phone and fax numbers, email addresses, and website URLs.
- **Amenities**: This section lists the onsite amenities, such as ATMs, restrooms, and Wifi.
- **Services**: This section lists the pilot services available, such as aircraft charters, aircraft hangars, aircraft maintenance, pilot supplies, catering, and rental cars.
- **Fuel Types**: This section lists the types of aircraft fuel offered by the pilot service.
- **Fuel Brands**: This section lists the brands of fuel available.
- **Credit Cards**: This section lists the credit card types accepted by the pilot service.

10.7.2 Fees

The Fees tab displays a list of ground power unit (GPU), handling, landing, overnight, and other fees charged by the FBO.

10.7.3 Photos

The Photos tab displays thumbnail images provided by the FBO or pilot service.

10.7.4 Comments

The Comments tab displays user-entered **comments** about the FBO or pilot service. When comments are accessed, they are saved to the device so they are able to be viewed again later - even when offline.

10.7.5 Submitting Fuel Prices

The Info tab displays fuel price data for each FBO as reported by pilots. If a fuel type or service is unavailable, “None” is displayed in place of a fuel price. These prices generally do not reflect fuel fees, taxes, or discounts.

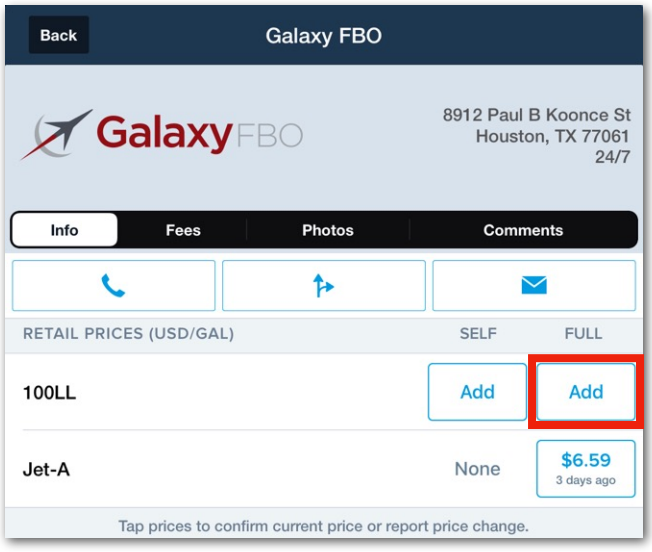
Fuel price data changes frequently and may not reflect the current price offered at an FBO. A timestamp is displayed below the fuel price to aid pilots in determining how reliable the data is. Pilots can update the existing fuel price or submit new data as described below.

NOTE: Discounted contract fuel pricing shown in the **JetFuelX** feature cannot be updated in this way.

Adding a Fuel Price

If a fuel type and service is available but a price has not yet been submitted, an **Add** button is displayed. To enter a fuel price, tap the **Add** button, type in the price, tap the **Close** button, and tap **Submit** to submit for approval. A message banner indicates that the price has been submitted and will be updated once it has been approved.

NOTE: Price updates made while offline will be submitted once internet is available. The “Submitted” fuel price message banner will not appear until it is sent. New price submissions and updates are reviewed and not visible immediately.



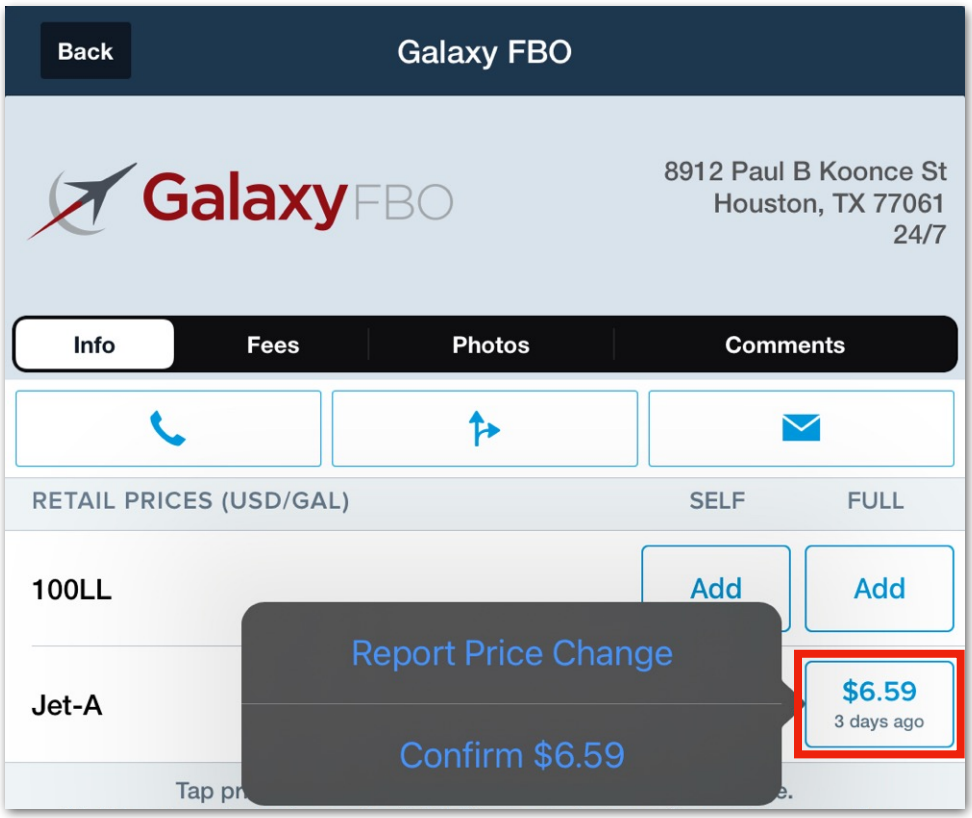
Add Fuel Price Button

Updating Fuel Prices

To update or confirm a fuel price, tap the **Price** button for the fuel type being updated. A pop-up appears with options for reporting a price change or confirming the current price.

To report a fuel price change, tap **Report Price Change**, type in the new price, tap **Close**, then tap the **Submit** button. A banner acknowledges the price has been submitted for approval.

To confirm the listed price, tap the **Confirm** button. A banner acknowledges the price confirmation was received.

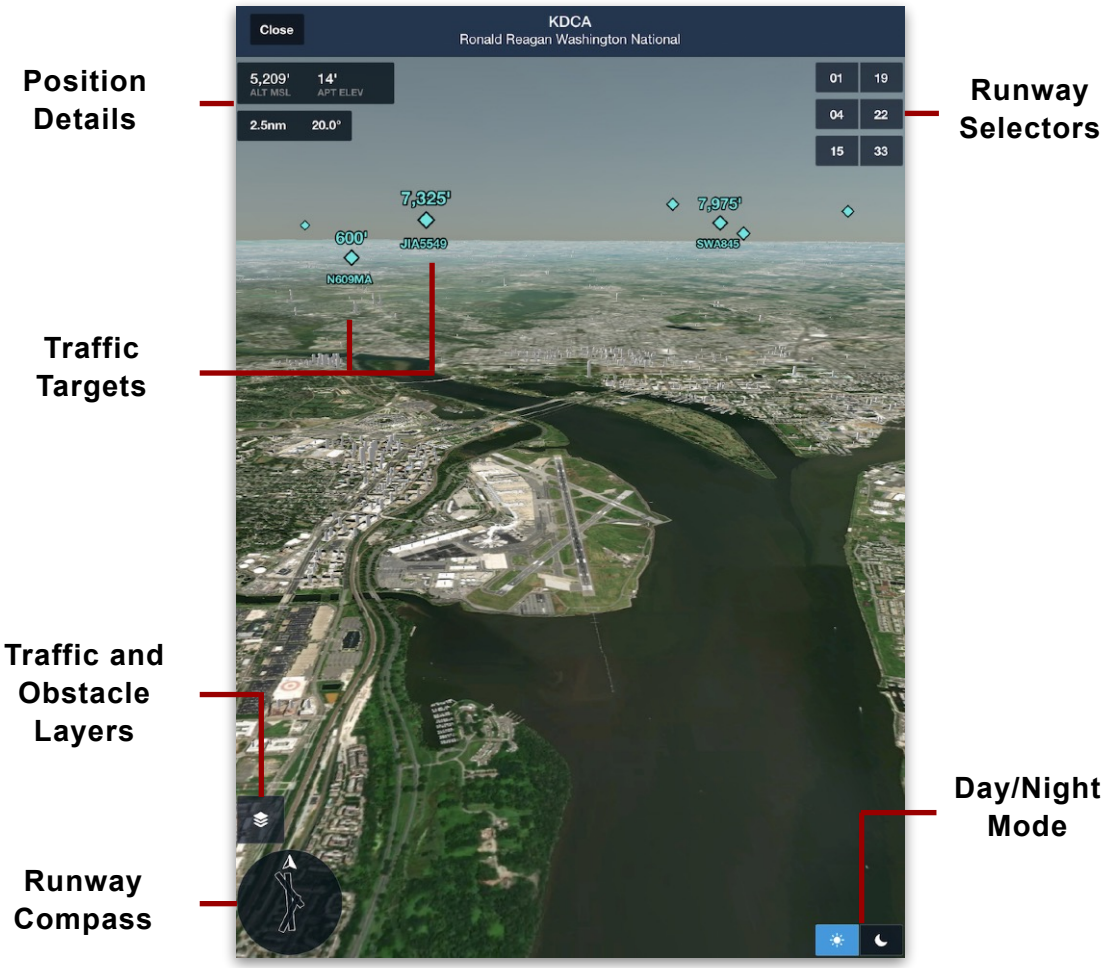


Updating Full Service Jet-A Fuel Price

10.8 Airport 3D View

On the **Airport Summary** section, tap the **3D View** button to open a dynamic 3D preview of the currently selected airport.

Airport 3D View combines high-resolution terrain data and aerial imagery to help pilots familiarize themselves with the airport environment before arrival. Airport 3D View is included in Premium, Business Performance, and MFB Performance subscription plans.

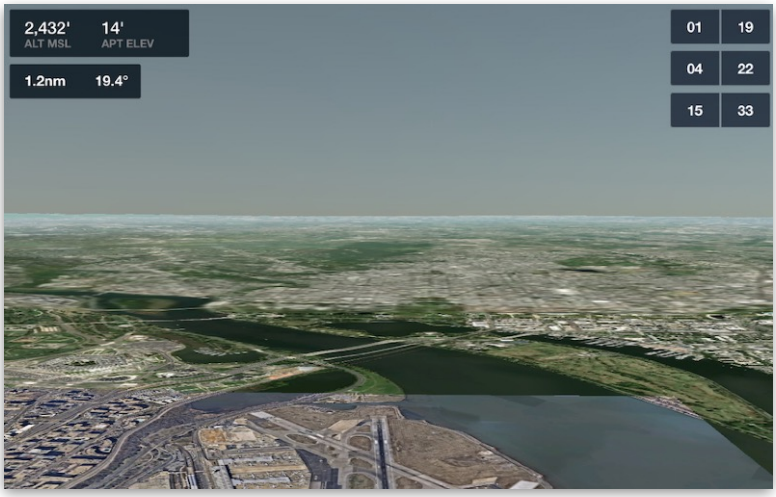


10.8.1 Changing Orientation

Use a single finger to pan the view around and the 2-finger “pinch to zoom” to zoom the view out up to 15 NM from the airport.

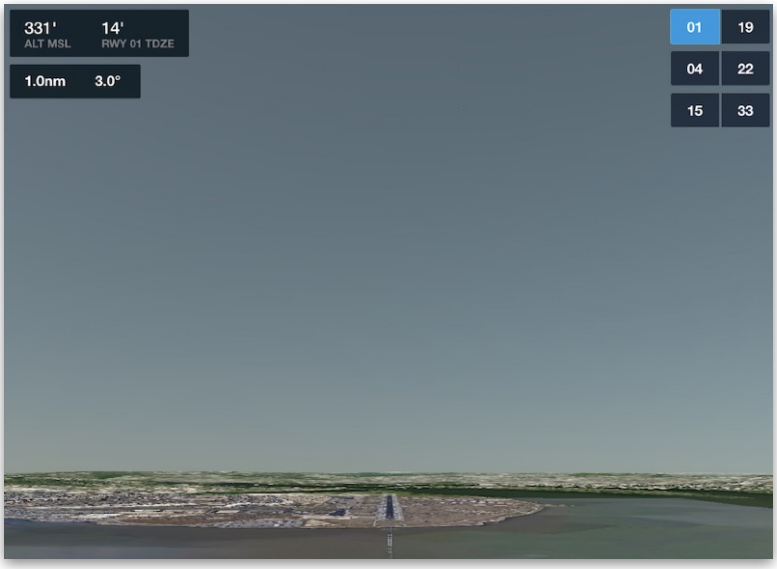
10.8.2 Position Details

The top left corner of the Airport 3D View displays position details from the current camera perspective. By default, these describe the altitude in MSL, airport elevation in MSL, distance from the airport center point in NM, and camera angle.



Position Details

If a **runway is selected**, the position details instead describe the camera altitude in MSL, runway touchdown zone elevation in MSL, distance from the runway end in NM, and camera angle from the runway.



Position Details with Runway Selected

10.8.3 Airport Compass

The airport compass at the bottom left corner of the Airport 3D View includes an arrow pointing toward true north and a diagram showing the current relative alignment of the airport runways. Any currently selected runway is highlighted in blue.

If a runway is selected and airport METAR data is available, the compass will display a windsock icon over the runway. The wider red end of the windsock faces the direction of the wind. In the example below, runway 22 is selected and its windsock displays a headwind with a left crosswind.



Airport Compass and Windsock

10.8.4 Traffic/Obstacles Layers

The Airport 3D View can display real-time traffic and obstacles. To display these layers, tap the layer icon and toggle the Traffic or Obstacle layer.



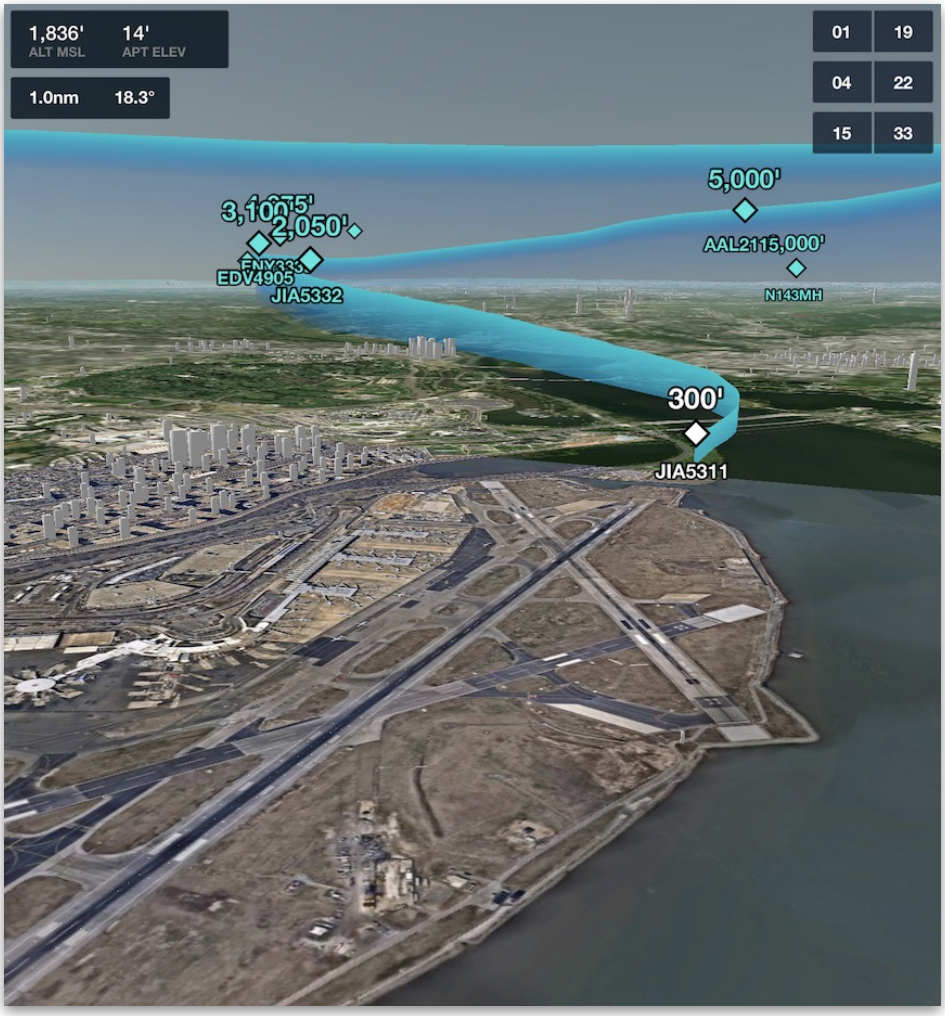
Displaying 3D View Layers

Traffic Layer

To display traffic on the Airport 3D view, tap the layer icon and select **Traffic**. Air traffic is displayed as turquoise diamonds moving in real time around the airport environment. Nearby air traffic is also displayed with tail numbers or callsigns, along with their altitude in MSL.

Aircraft Flight Tracks

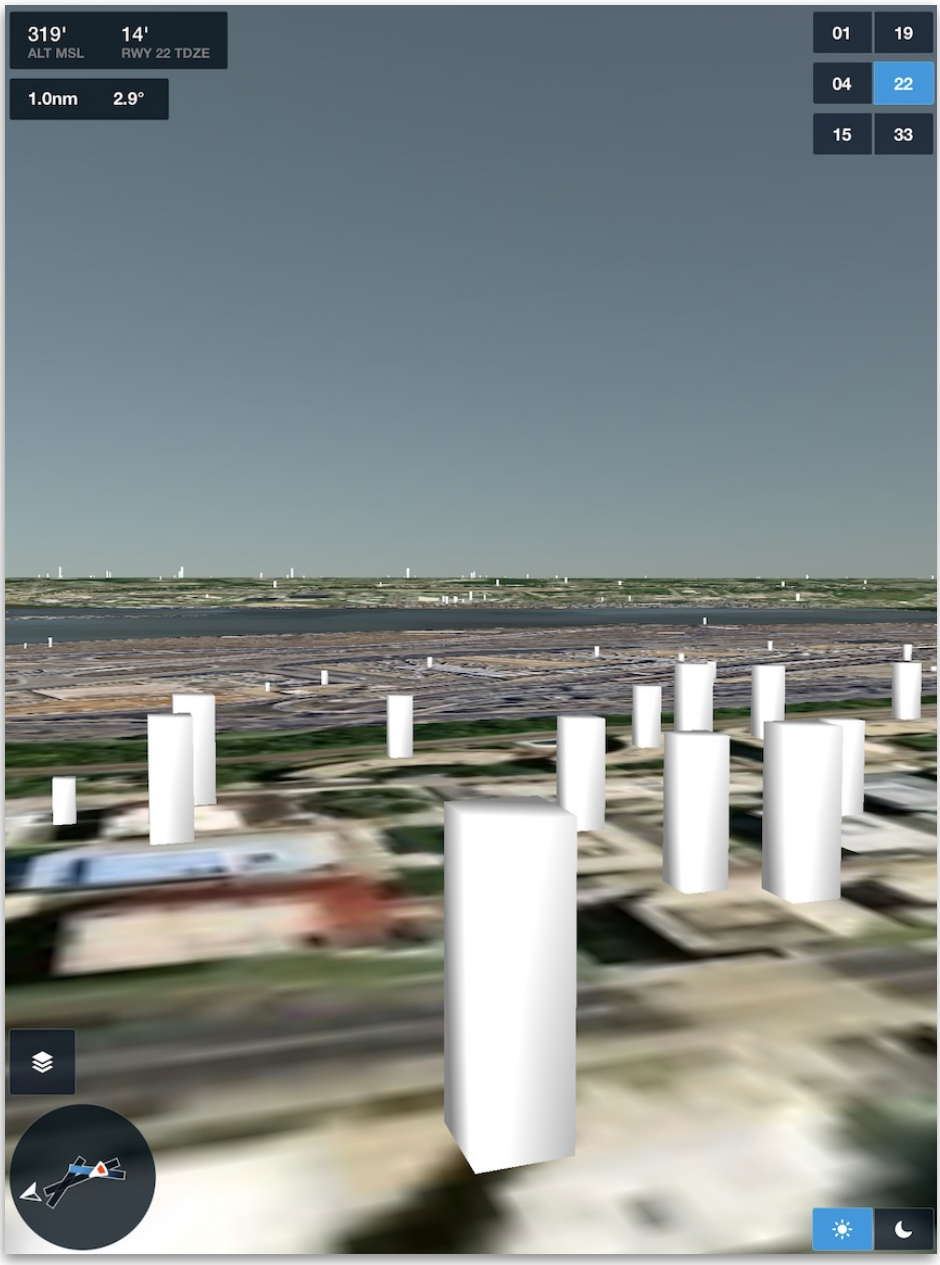
Airport 3D View can display air traffic flight paths. Tapping a traffic target causes it to turn white and begin trailing a blue ribbon representing the flight track and altitude. The ribbon extends straight up from the ground toward the aircraft and grows more opaque near its present altitude.



Displaying Air Traffic Flight Track

Obstacles Layer

To display or hide obstacles in the airport environment, tap the layer icon and select **Obstacles**. White obstacle graphics convey the obstacle's height and position, but not its real-world shape or appearance.



Obstacles in the Airport 3D View

10.8.5 Runway Selection

Tapping a runway button in the upper-right corner reorients the Airport 3D View to visualize a straight-in approach by automatically positioning the camera 1 NM from the runway threshold along the published glideslope (or at an inclination of 6° if no glideslope information is available).

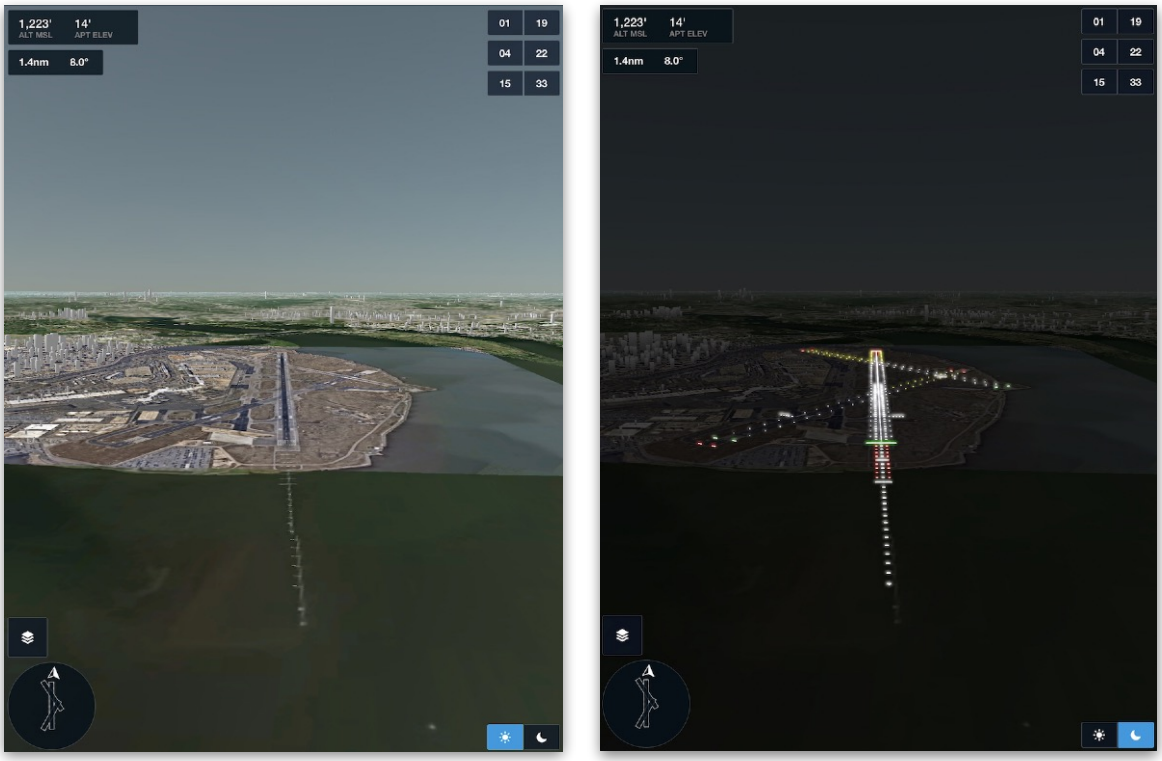


3D View of 1 NM Approach to Runway 08R

10.8.6 Day/Night Mode

Tap the Day/Night buttons in the lower-right to switch between Day and Night view. The Night view dims the surrounding terrain and displays realistic runway lights.

Runway edge lighting is supported for most paved airports around the world, while larger airports may also display touchdown zone lights, PAPI lights, displaced threshold lights with approach light system if available, centerline lights, end light flashers, and more.



Airport 3D View Day/Night Mode

10.9 Comments

Comments contain information from ForeFlight users about an airport or FBO that is generally not provided by the controlling agency or other official sources. Examples include anecdotes from visiting pilots, directions from the airport terminal to a particular business, tips for landing on a particular runway or taking aerial photos from within the pattern, and more. An Artificial Intelligence (AI)-generated summary of pilot comments will display as the first comment.

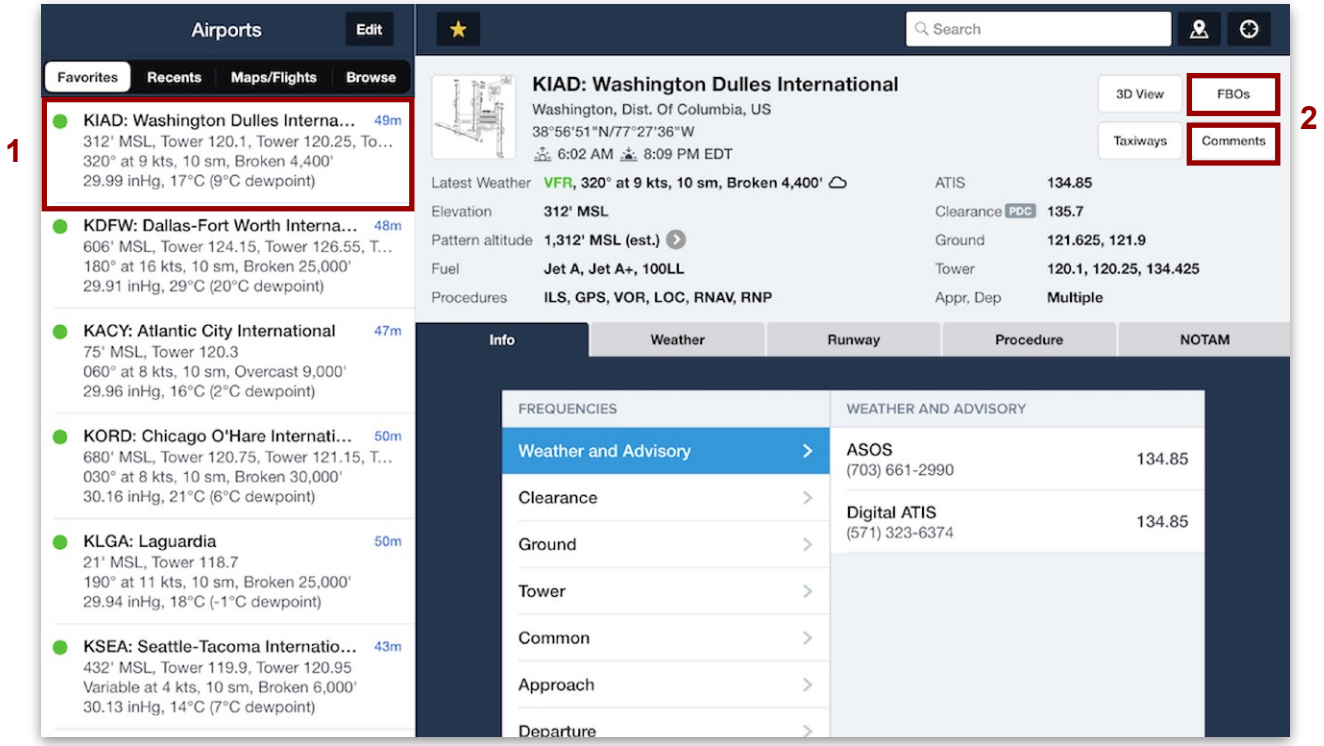
All ForeFlight users can submit comments for publication and **pack** relevant comments for a flight.

10.9.1 Viewing Comments

There are several ways to access comments in ForeFlight Mobile.

Airports View

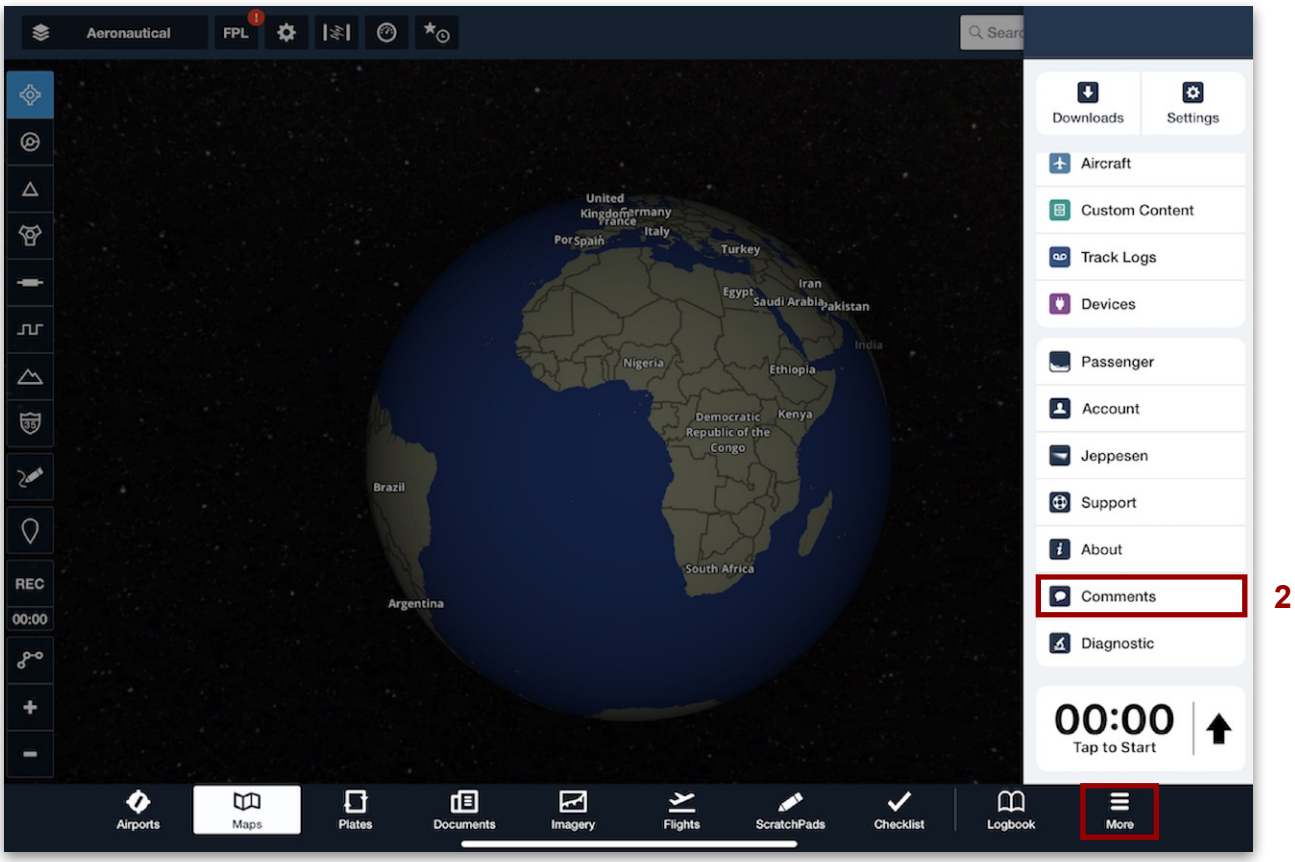
On the Airports view, search for and display an airport. To see all comments for that airport, tap the **Comments** button. To see comments for an FBO located at that airport, tap **FBOs**, select an FBO, and tap **Comments**.



Displaying Comments on Airports View

My Comments

To view all of the comments in one place, tap **More** > **Comments**. This opens a My Comments window showing each of the comments along with their publication status (Draft, In Review, Published, or Rejected).



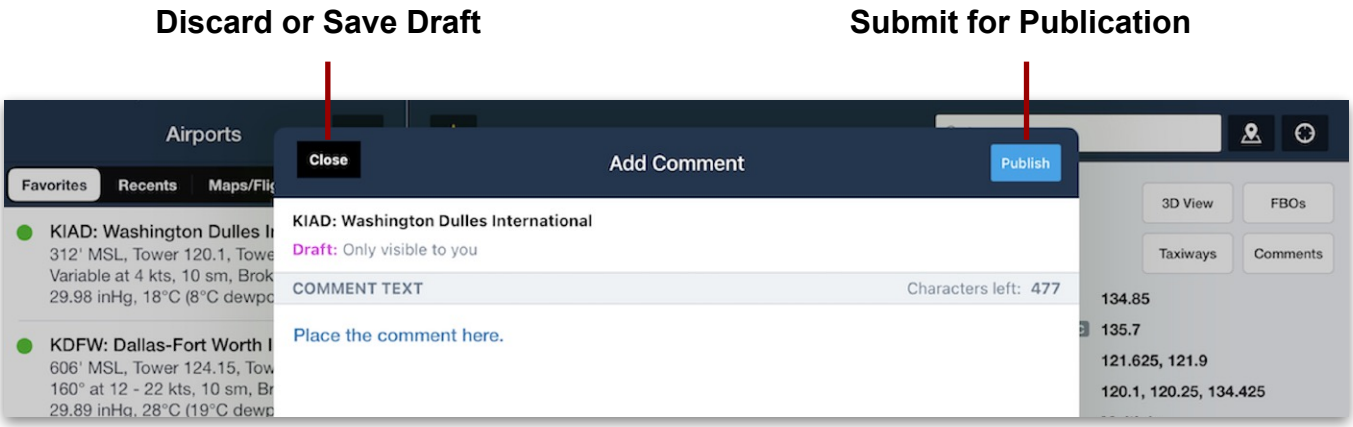
Displaying My Comments

10.9.2 Adding Comments

To add a comment, follow these steps:

1. Display an airport using the Airports view or the **Airport Details sidebar** via the Maps or Flights views.
2. Open the Add Comment window:
   - To add an airport comment, tap the **Comments** button, then tap the Plus (**+**) button at the top of the list.
   - To add an FBO comment, tap **FBOs**, select a business, and tap **Add Comment** at the bottom of the pop-up.

3. Enter up to 500 characters in the COMMENT TEXT pane.
4. When finished drafting, take one of the following actions:
   - To submit the comment for review and publication, tap **Publish**. Comments can be submitted offline and will be sent to ForeFlight when a connection is re-established.
   - To save a draft to finish later, tap **Close > Save Draft**.
   - To discard the comment, tap **Close > Discard**.



Adding a Comment

10.9.3 Comment Submission Guidelines

Once a comment is submitted, ForeFlight will review it for compliance. If the comment meets standards, it will be published and visible to all users. If not, the comment will be rejected and only visible from within the **My Comments** window. Rejected comments can be edited and resubmitted. The following types of information will cause a comment submission to be rejected:

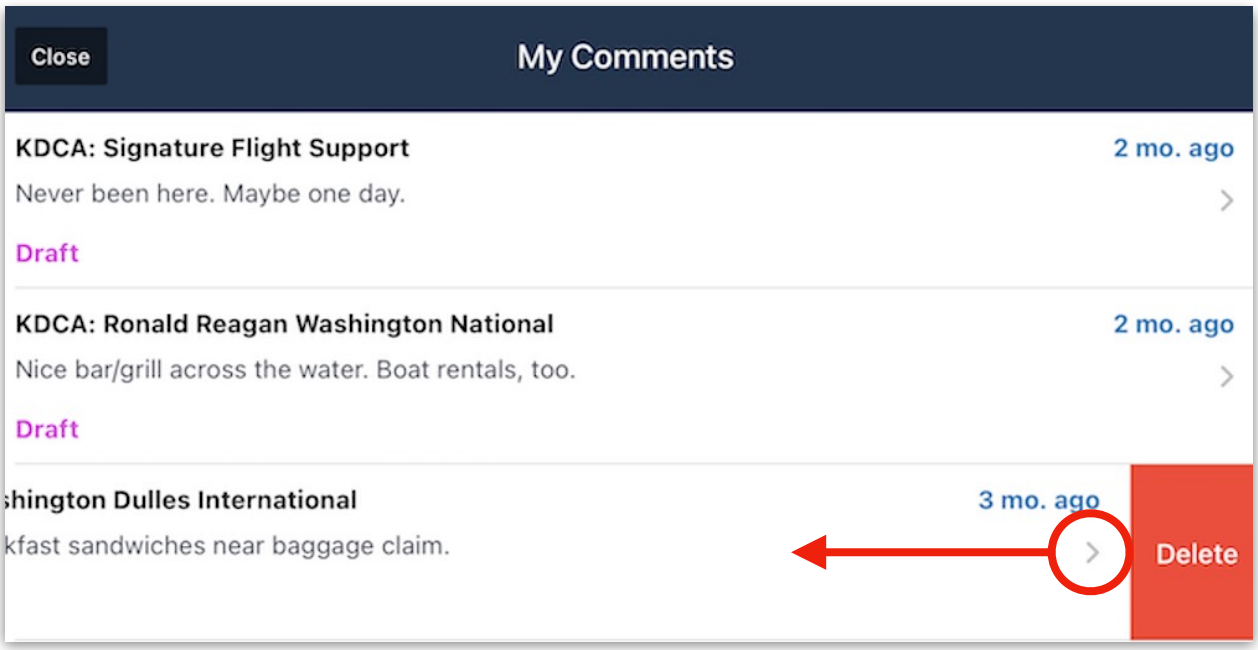
- Gate codes
- Fuel prices
- Landing fees (without date and aircraft type)
- Promotional comments
- Personal attacks
- Vulgarity
- Libelous remarks
- Certain other airport data.

10.9.4 Editing Comments

To continue working on a draft comment or a comment submission that was rejected by ForeFlight, tap **More** > **Comments**, and then tap the comment to open it in editing mode. Follow the same process used to add a new comment.

10.9.5 Deleting Comments

To delete a comment (draft, published, or rejected), tap **More** > **Comments**, and then swipe the comment left and tap **Delete**. Published comments that are deleted are removed from the ForeFlight database and are not visible to other ForeFlight customers.



Swipe left to delete a comment.

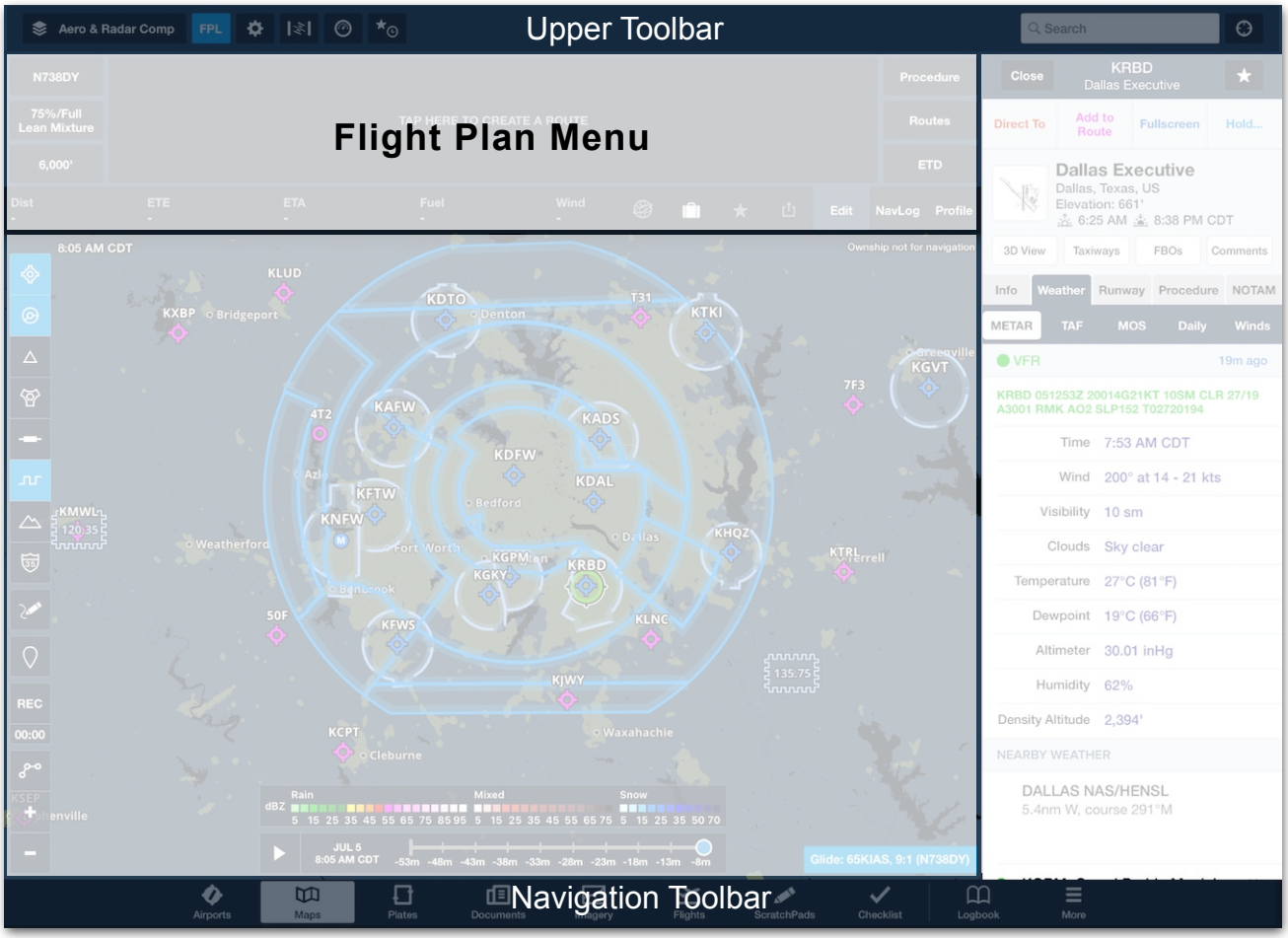
MAPS

The Maps view is primarily used for planning flights and is an aid to situational awareness while in flight. The Maps view can display airspace, weather, terrain, traffic, aeronautical information, aeronautical charts, terminal procedures, planned routes, custom content, and more.

11.1 Design

Access the Maps view by tapping **Maps** in the navigation toolbar at the bottom of the screen. Buttons in the upper toolbar control what's displayed on the map.

Aeronautical information is displayed in a collapsable sidebar on the right side of the screen. Filters on the left side of the screen allow map features to be toggled on and off.

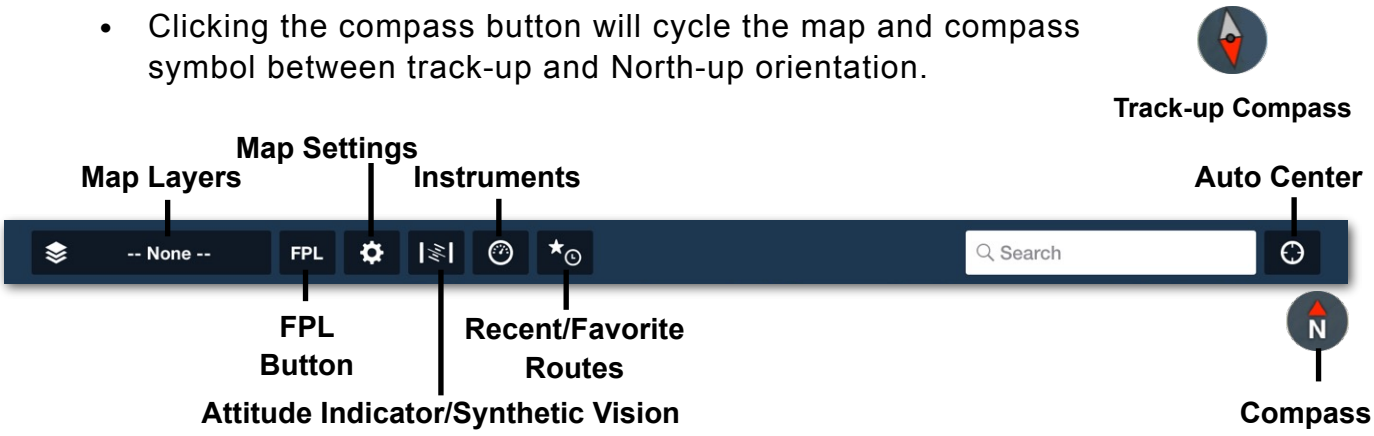


Maps View Design

11.1.1 Upper Toolbar

The upper toolbar contains a drop-down layer selector and buttons for toggling different features. From left to right, the upper toolbar consists of:

- **Map Layer Menu** - Displays a drop-down map layer selector. The items selected in the drop-down menu are displayed on the main map view. The map layer menu contains charts, maps, weather layers, aeronautical information, and custom content. When map layers are enabled, the names of the selected layers are displayed in the map layer menu button.
- **FPL Button** - Toggles the Flight Plan (FPL) menu. The FPL menu is used to plan routes, display the Navlog, and display Profile View.
- **Map Settings** - Toggles the Map Settings menu. Maps settings are used to customize the look of the map.
- **Attitude Information/Synthetic Vision** - Toggles the Attitude Indicator. The attitude indicator displays GPS track, altitude, ground speed, climb or descent rate, and pitch and bank if connected to an external device with an attitude (AHRS) sensor.
- **Instrument Panel** - Toggles the Instrument Panel on and off. The instrument panel is located at the bottom of the Maps view. The instrument panel displays user-selected flight details.
- **Favorite and Recent Routes** - Toggles the recent and favorite routes menu.
- **Search Bar** - Search bar for searching points of interest, aeronautical data, routes, and more.
- **Auto-Center Button** - The auto-center (crosshair) button centers the map on the current location. See **Auto Center** for more information. When auto-center is activated:
  - The button is highlighted and a compass symbol will appear below the auto-center button on the map.
  - Clicking the compass button will cycle the map and compass symbol between track-up and North-up orientation.



11.1.1.1 GNSS Availability Indication

The GNSS icon, displayed in the top right corner of the map, plates view, and active navlog, provides an indication of GNSS signal integrity. A color-coded status symbol is displayed at all times above the GNSS icon.

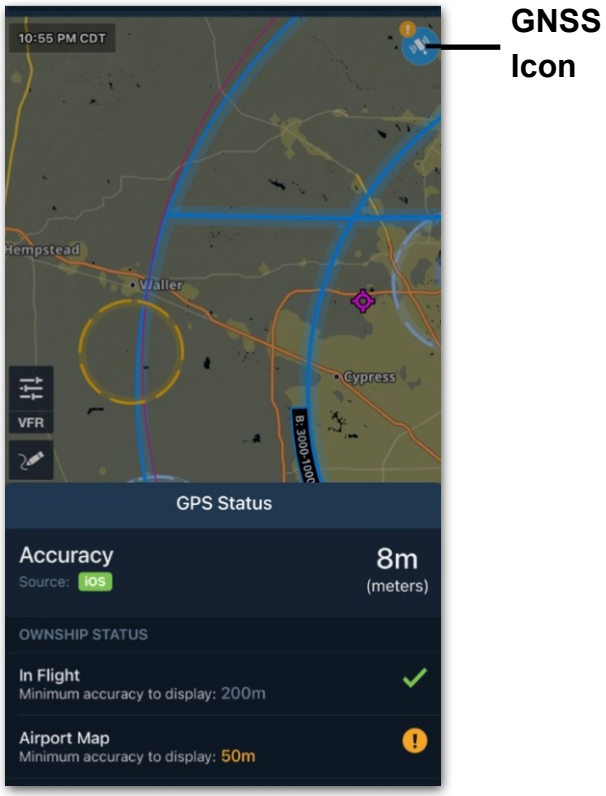
Orange - GNSS accuracy exceeds 5 meters on the ground, 20 meters in flight.

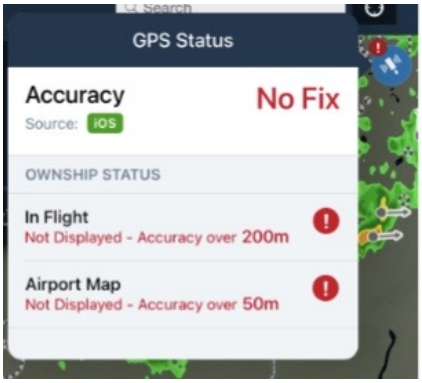
Red - data missing or a degraded signal.

Tap the icon to reveal additional GNSS Status details. When **Limited** has been selected in Settings (**More** > **Settings** > **Preferences** > **Enable Ownship**), enabled mode (**In Flight** or **Airport Map**) details are displayed. The connected GPS source is displayed.

Accuracy will read **No Fix** if GNSS data has not been received for 5 seconds or the accuracy exceeds the limits for the phase of flight. When this occurs, the ownship marker is hidden and the auto-center button is disabled.

NOTE: Requires Business Pro, Business Performance, or EASA Compliance license.





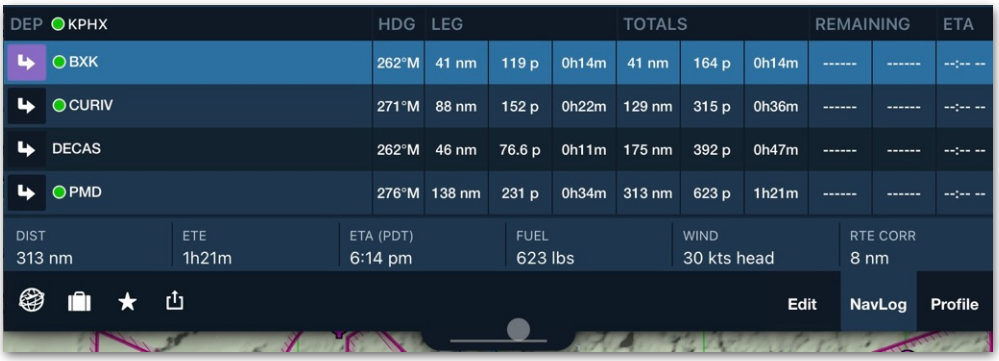
11.1.2 Flight Plan Drawer

The Flight Plan Drawer contains three views. The views are accessed with buttons located near the bottom right corner of the FPL drawer. To access the views, tap the **FPL** button in the upper toolbar to display the menu. See the **Flight Plan Drawer** section for additional information.

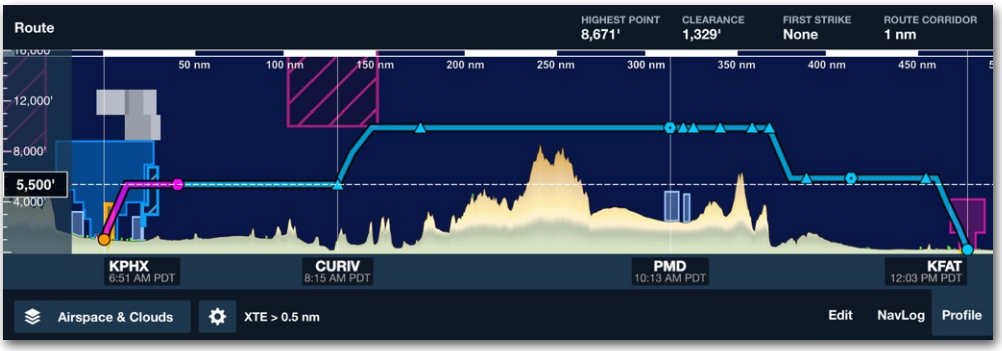
- **Edit** - Displays the Flight Plan Editor.
- **NavLog** - Displays the navlog for the planned route.
- **Profile** - Displays the Profile View (Essential subscription or higher required).



Flight Plan Editor



NavLog View

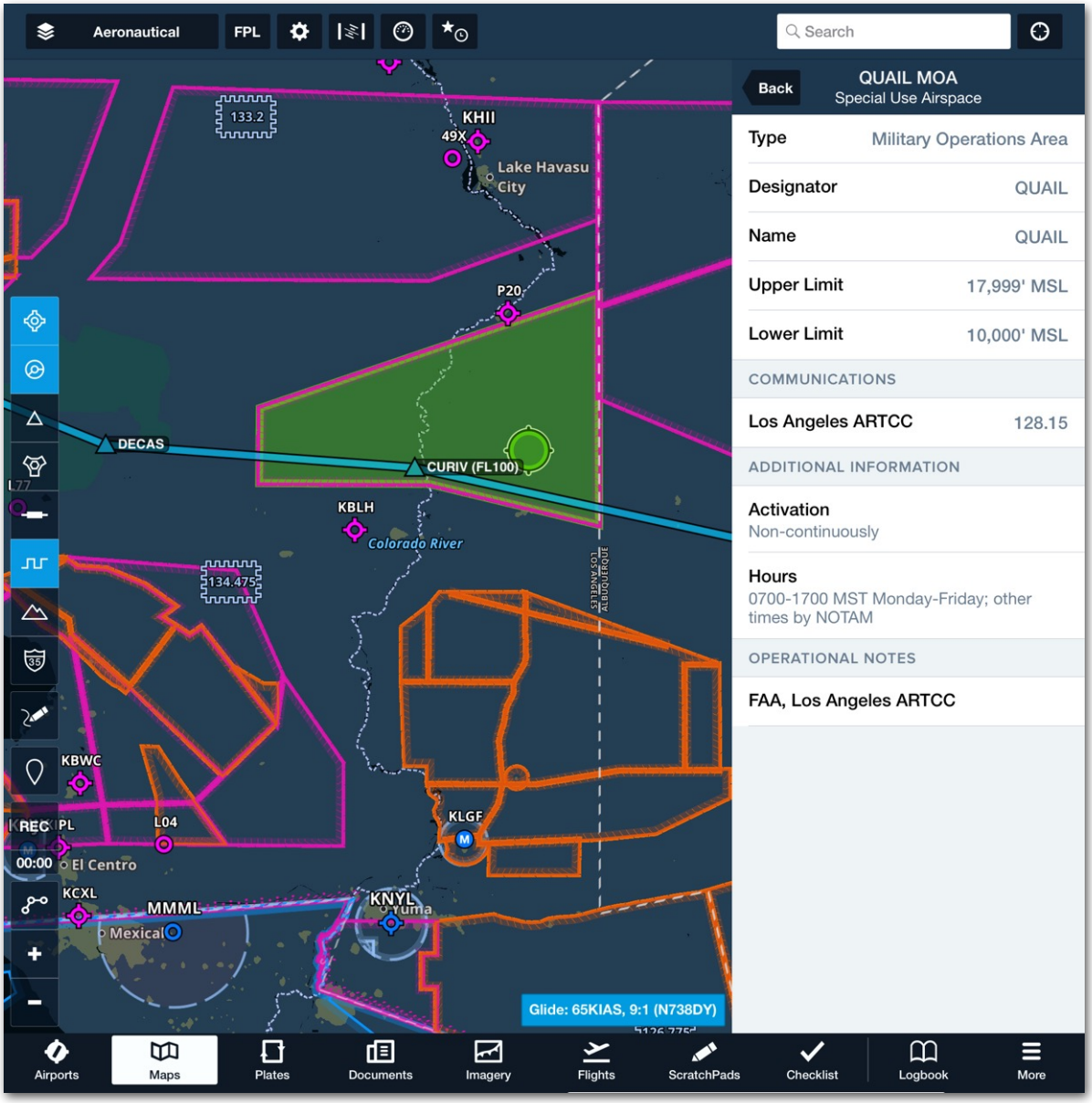


Profile View

11.1.3 Maps Sidebar

The sidebar appears with a single map element tap or when the map is tapped and held. The sidebar remains open until a blank area of the map or the **Close** button is tapped.

When a map element is tapped (airport, waypoint, navaid) a green marker highlights the selected element. When a geographic element such as airspace is tapped and held, the airspace is highlighted in green. See the **Sidebar** section for more information.



Maps Sidebar (Special Use Airspace)

11.1.4 Main Map View

The main map view displays the layers selected in the map layer drop-down menu. When no map layers are selected, the base map is displayed. Base map appearance can be adjusted by tapping the map setting (gear button) and changing the options in the ForeFlight Map section.

The map view does not resize as the FPL menu, sidebar, instrument panel, or layer selector menus are toggled. The map automatically resizes when the attitude indicator is toggled on and off.

Pinch, Zoom, and Pan

The map supports the standard iPad gestures for zooming and panning. Drag a finger on the map to slide it to a new region. Use two fingers in a pinch or expand motion to change the zoom scale of the map. Double-tap the map to zoom in one level or tap once with two fingers simultaneously to zoom out one level. Anytime a new route on the map is displayed, the zoom level and region shown will auto-adjust to bring the route into view. Tap the Zoom to Route button in the lower left of the Maps screen to automatically zoom the map in or out to show the entire Route.



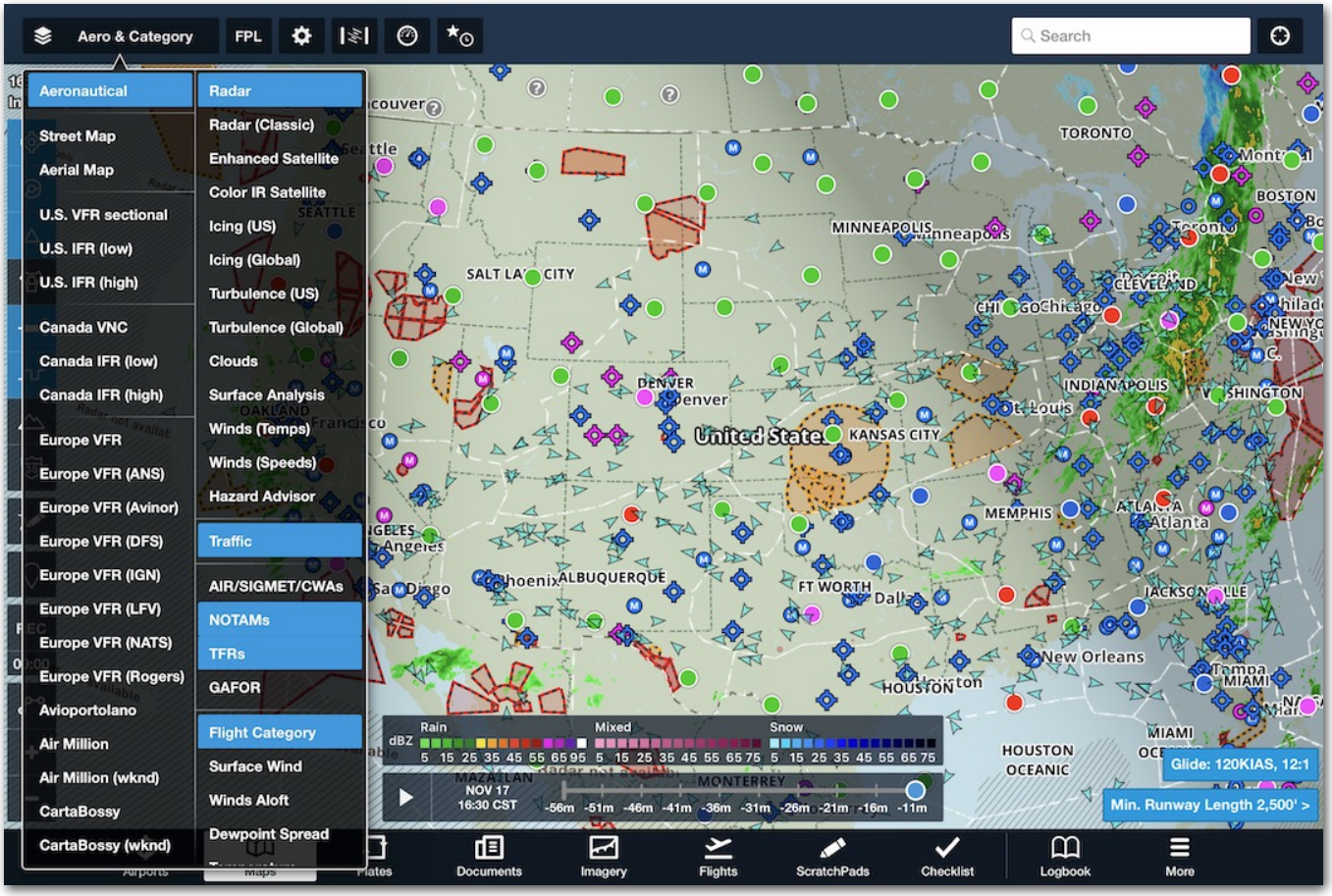
ForeFlight Base Map

Map Layer Menu

Various map layers are selectable from the map layer menu. Available layers are determined by subscription, region, and download selections. If a feature is not included in the subscription plan or if it is not selected for download, it is hidden in the drop-down menu.

Map layers are grouped with thin horizontal lines. Charts and weather layers can only display one active layer at a time. Selecting a map layer in a group with an already active layer may result in automatically deselecting the active layer. For example, selecting the satellite layer automatically deselects radar if the radar layer is enabled.

The map layer menu is dismissed each time a map layer is selected. To make multiple selections without dismissing the map layer menu, enable **Multiple Selections** in the **Map Settings** menu.



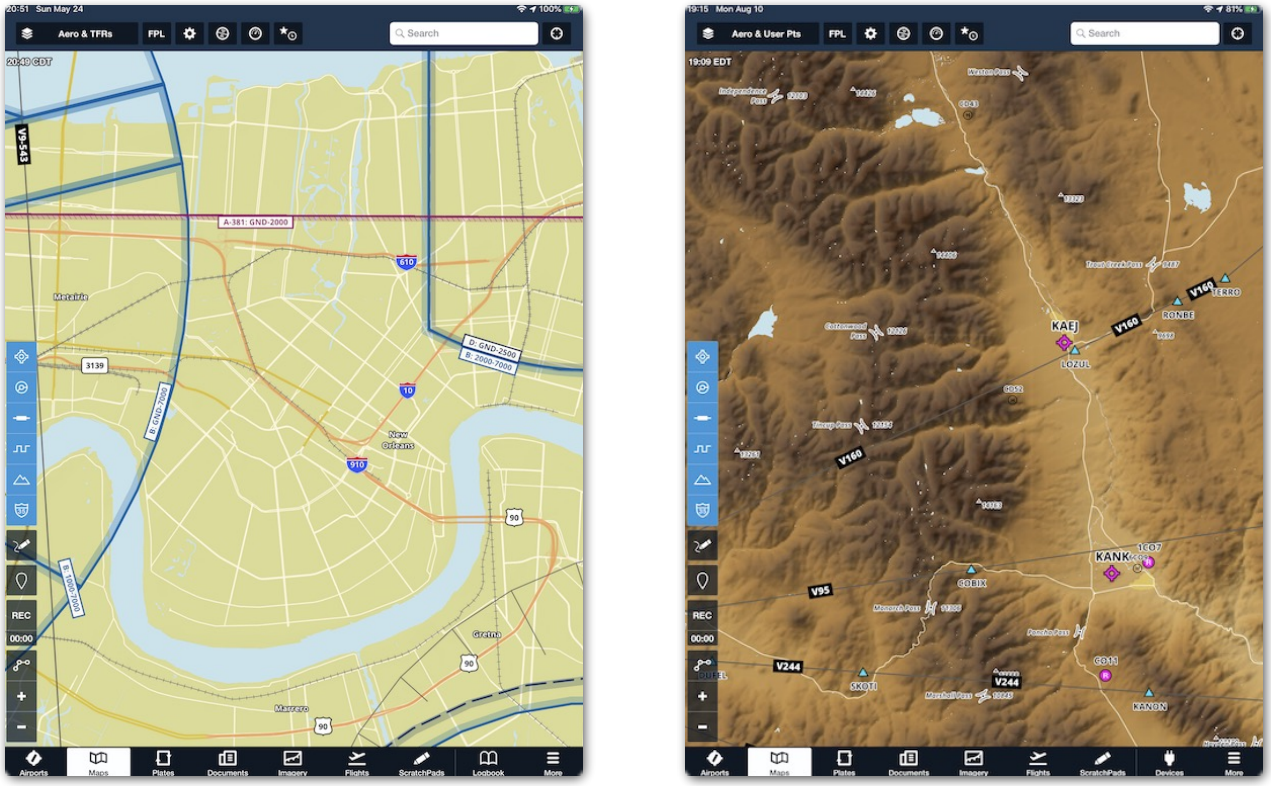
Premium Map Layer Menu

When downloading ForeFlight Mobile for the first time, a low-resolution base map is automatically downloaded and available offline. The base map includes basic geographic features and is displayed when no other layers are selected. All charts and map layers are overlaid on the base map.

11.2 High-Resolution Base Map

The high-resolution base map depicts ground features and cultural elements in much greater detail than the default base map. The high-resolution base map includes higher-resolution roads and railroads, detailed coastlines, terrain peak markers with associated altitudes, mountain peaks, mountain passes, and highway labels. Individual base map elements can be toggled on and off in **Map Settings** > **Cultural Elements**.

The high-resolution base map is not automatically displayed. Select and download the high-resolution base map by selecting **More** > **Downloads** > **Data Settings** and selecting the data for the desired regions. When high-resolution data is downloaded, it is automatically displayed when no other charts are chosen.



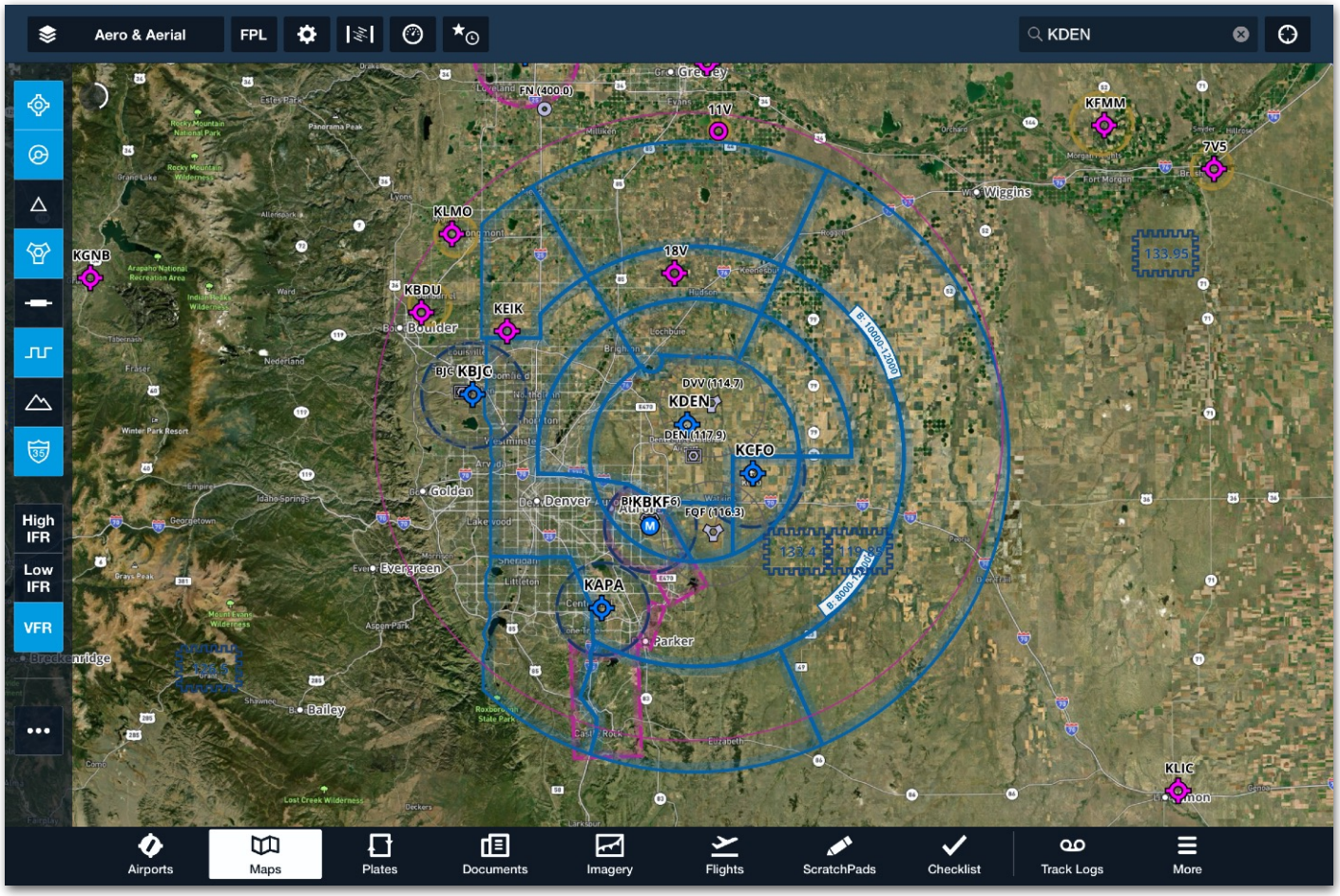
High-Resolution Base Map and Terrain

11.3 Aeronautical Map

ForeFlight's Aeronautical Map displays (Jeppesen-sourced) digital aeronautical data. The Aeronautical Map dynamically updates to display the most relevant information as it is panned and zoomed. Enable the **Aeronautical** map with the layer selector menu in the upper left corner of the Maps page.

Individual aeronautical elements (e.g., navaids, airports, and airspace) can be displayed or hidden. See **Aeronautical Settings** for additional information. The Aeronautical map must be enabled to adjust its settings.

Updates to the Aeronautical Map are made available every 28 days (or sooner) as part of the Airport and Nav Database. The Aeronautical map is automatically overlaid on all other maps and charts.



Aeronautical Map on top of Aerial Map

11.3.1 Aeronautical Map Features

The Aeronautical Map includes the following features.

- **Continuous Zoom** - Icons, shapes, and text labels smoothly fade in and out as the zoom level changes, in contrast to traditional (raster) charts which have to re-render at certain zoom levels to maintain their clarity.
- **Decluttering** - The information shown on the map changes along with the zoom level, with large-scale features like ARTCC boundaries and major airports appearing when zoomed out and small-scale features like waypoints, VORs, and smaller airports appearing when zoomed in. This prevents the map from cluttering and ensures that the most relevant information at any zoom level is shown.
- **Automatic Airspace Highlighting** - Automatically highlights airspace within an altitude of +/- 1,000’ and a 1-nautical mile corridor of the planned route, and dims all other airspaces to reduce clutter. When determining which airspace to highlight, climb, cruise, and descent trajectory are considered. In-flight, airspace ahead of the current track is highlighted. Automatic airspace highlight settings are available in **Airspace Settings** > **Airspace**.
- **Always-Up Labels** - Labels for airports, waypoints, and other map features always appear in the proper orientation, even when the rest of the map is upside down, as when flying south in Track Up mode.
- **Customizable Data** - The data shown on the map can be customized to the type of planning or flying conducted. Airspaces can be turned on or off, airways can be set to high or low IFR, and ARTCC borders, heliports, and private airports can be toggled on or off. See **Aeronautical Settings** for more information.
- **Adjustable Text Size** - The text size of labels for every map element can be adjusted using a slider. See **Text Size Adjustment** for more information.
- **Single Tap** - When the Aeronautical layer is enabled, single tap a map element to open the sidebar and display information about the element.
- **Embedded Airport Diagrams** - ForeFlight airport diagrams are directly integrated with the Aeronautical Map. Airport diagrams automatically fade in and out with zoom. Embedded airport diagrams include runways, taxiways, hold pads, FBO labels, towers, windsocks, and parking areas.

11.3.2 Aeronautical Map Quick Filters

A column of toggle buttons enables and disables Aeronautical Map features. The buttons display when the button is tapped, see **Aeronautical Settings**. Tap a quick filter button to show/hide the feature.

Aeronautical quick filters:



Airports

Airspace

Waypoints

Navaids

Airways (Low or High, as selected in Maps Settings)

ATC Boundaries

Terrain (Colored or Shaded, as selected in Maps Settings)

Roads/Railroads

11.3.3 Aeronautical Map Symbols

The following symbols are shown on the Aeronautical Map layer.

NOTE: For VFR flight-specific elements on the Aeronautical Map Layer, see **VFR Aeronautical Map Symbols**.

Symbol	Meaning	Symbol	Meaning
	Civil Airports **with** Services (with and without tower)		Civil Airports **without** Services (with and without tower)
	Military Airports (with and without tower)		Private Airports (with and without tower)
	Seaplane Bases **with** Services (w/ and w/o tower)		Seaplane Bases **without** Services (w/ and w/o tower)
	Glider Airfield		Hang Glider Airfield
	Balloon Airfield		Ultralight Airfield
	Heliports (light map color scheme)		Heliports (dark map color scheme)
	Standard fix		RNAV fix
	Standard fix (Compulsory)		RNAV Fix (Compulsory)
	VOR Navaid		DME Navaid
	VOR/DME Navaid		VORTAC Navaid
	NDB Navaid		NDB/DME Navaid
	FBO Location (on ForeFlight airport diagram)		ARTCC Boundary
	ADIZ		

	Class B/TMA/CTA Airspace	110 SFC	Class B Altitude (U.S.A)
	Class C Airspace	45 SFC	Class C Altitude (U.S.A)
	Class D Airspace	45	Class D Altitude (U.S.A)
	Class E to Surface (U.S.A)		Mode C (U.S.A)
	TRSA (U.S.A)		SATR Area (U.S.A)
	CTR		MOA/Alert/Training Airspace
	RMZ/TMZ		ATZ/TIZ/TIA
	MATZ		TSA/TRA
	Caution/Warning/Danger Airspace		Prohibited/Restricted Airspace
	Other Airspace		Parachute Areas
V553	VOR Airways/Jetways	T344	RNAV Routes
	Model Flights		ARTCC Sector Stamps
B: 2000-7000	Global Airspace Altitude Labels	H	Helipad
V163 (3,500')		Airway ID (MEA)	
V163 (3,500'/ 94°M)		Airway ID (MEA / Heading based on route)	

11.3.4 VFR Aeronautical Map Symbols

The following VFR elements are found in the U.S., Canada, Europe, Australia, and South Africa. See **Aeronautical Settings** for details.

Symbol	Meaning	Symbol	Meaning
	- VFR Waypoint - Tracking Point		VFR Waypoint/Checkpoint
	VFR Checkpoint		- VFR Waypoint (Compulsory) - En route Reporting Point
	VFR Helicopter Waypoint		VFR Helicopter Waypoint (Compulsory)
	- Landmarks - Windsocks		HIRTA (High Intensity Radio Transmission Area)
	Low Point		Bird Refuge
	FIS Boundary		VFR Arrival
	VFR Departure		VFR Arrival & Departure
	VFR Flight Corridors		IFR Flight Corridors
	Helicopter Procedure		VFR Transit Route
	Traffic Circuit (Non-standard aircraft)		Traffic Circuit
	Directional Traffic Circuit (Non-standard aircraft)		Directional Traffic Circuit
	Nature Area		No Overfly Area
	Fuel		Parking
	Tower		Cashier
	Beacon		Tower (Lit)

11.3.5 Airspace Alerts

Airspace Alerts are an optional feature that provide app-wide audible and visual alerts for approaching, entering, and exiting airspace. When an approaching airspace alert is issued, the corresponding airspace on the Aeronautical Map is also highlighted green. Airspace Alerts are enabled by default. For more information, see the **Alerts** chapter.

11.3.6 ATC Boundaries

The Aeronautical Map includes global (high and low) ARTCC and FIR boundaries. To display these boundaries, enable the **Show Boundaries** setting using the **ATC Boundary Settings** menu or toggle the Air Traffic Control (ATC) **quick filter** on.

ATC Sectors

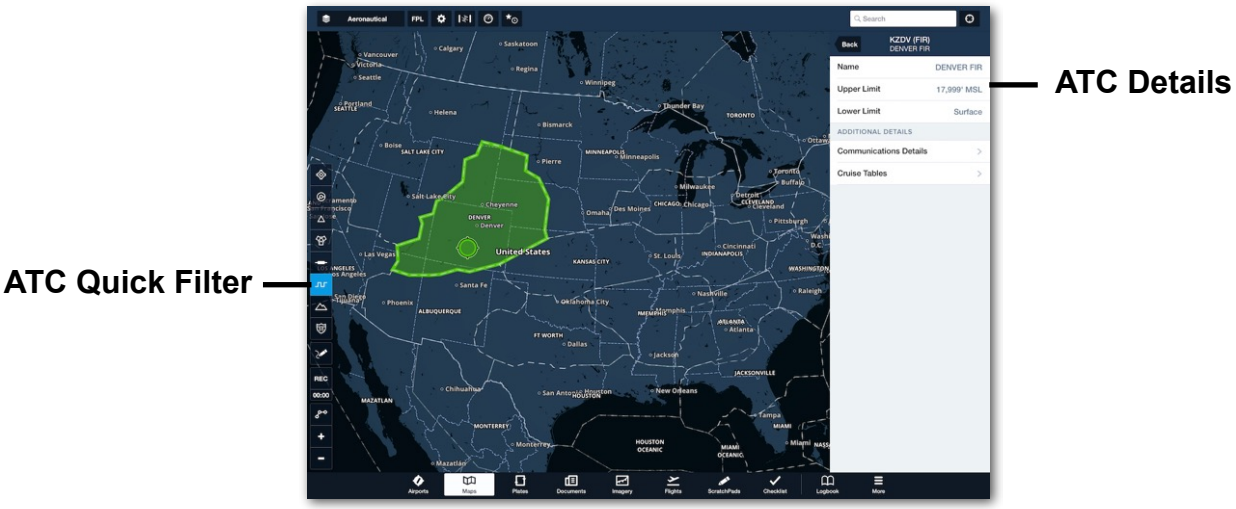
The Aeronautical Map also includes EUROCONTROL Area Control Center (ACC) and Upper Area Control Center (UAC) ATC sector boundaries. To display these boundaries, open the **ATC Boundary Settings** menu, tap **ATC Boundaries,** and toggle the **ATC Sectors** setting on.

NOTE: ATC Sectors are only available for EUROCONTROL airspace.

ATC Details

ATC details, such as upper and lower altitude limits, operational notes, RVSM, and communication details can be accessed in the sidebar. To reveal airspace details:

1. Tap and hold map.
2. Locate the airspace of interest in the Airspace section.
3. Tap **Details**.



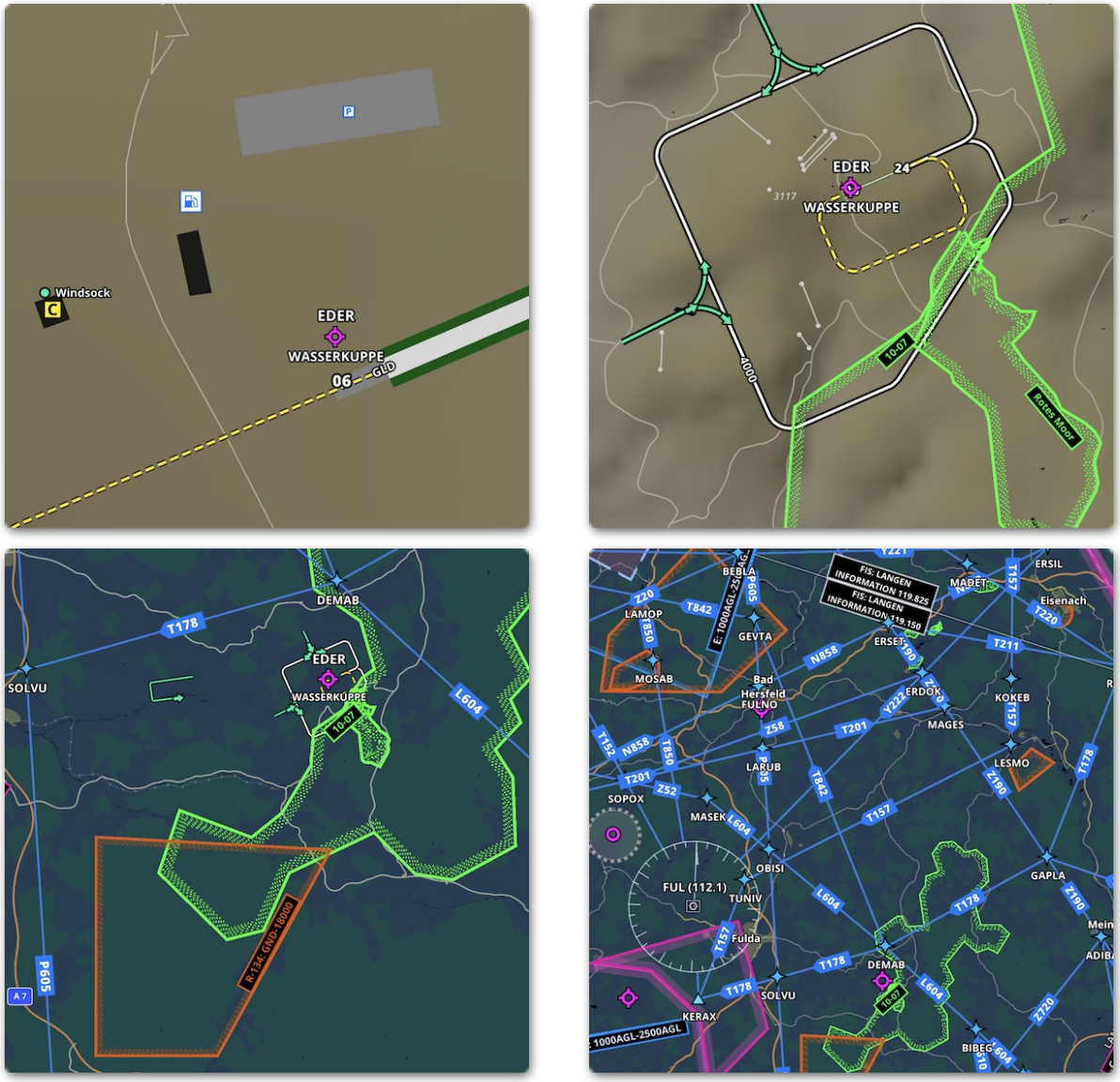
ATC Boundaries

11.3.7 European Airspace

With a Europe subscription, the Aeronautical Map includes Jeppesen's European VFR navigation and airport data in addition to IFR data, supporting both VFR and IFR flying in Europe.

Data includes VFR Waypoints (Standard and Helicopter), VFR Procedures including Entries & Exits, Traffic Circuits, Holds, No Overfly Areas, Nature Areas, Bird Sanctuaries, and Model Flight Areas.

These examples show how the airspace is depicted at various levels of zoom, all the way from the Airport level showing the location of Parking, Fuel, and the Cashier, up to large areas of airspace, including FIR boundaries.



European Airspace

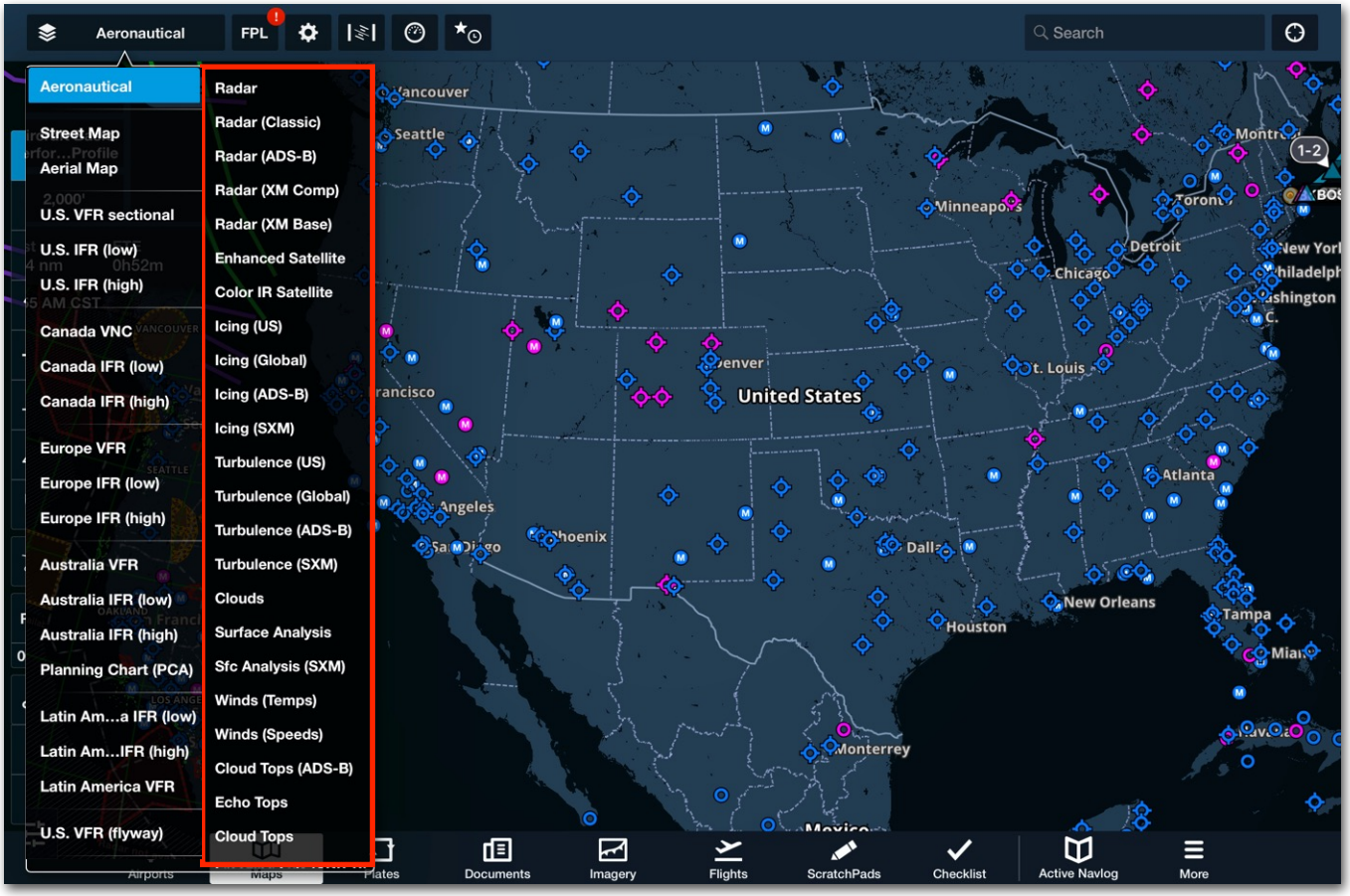
11.4 Charts

Charts are selected from the left column of the map layer drop-down menu. The charts column includes the **Aeronautical Map**, **Street Map**, **Aerial Map**, and all downloaded published charts based on the subscribed regions, and custom charts. This section describes the expected types of charts:

- **Aeronautical Map -** ForeFlight's Aeronautical Map displays (Jeppesen-sourced) digital aeronautical data. The Aeronautical Map dynamically updates to display the most relevant information as it is panned and zoomed.
- **Street Map** - The global street map is made available over the internet from a third-party provider (OpenStreetMaps). The street map is dynamic and will show more detail as the map is zoomed in. The street map can not be downloaded and is only available when connected to the Internet.
- **Aerial Map** - The global aerial map is satellite-based imagery with street data. The aerial map is provided by a third-party agency and can only be used when connected to the Internet. Due to the infrequency of satellite imaging, some imagery may be outdated.
- **VFR Charts** - Charts of various scales from 1:1,000,000 to 1:250,000 specifically designed for VFR flight are listed, depending on availability for each region. While many charts are included, some VFR charts require additional fees due to licensing.
- **IFR** - Low or High IFR en route charts.
- **Helicopter Charts** - Charts specific to helicopter operations that provide more detail for low-level flying. These charts will not be visible in the layer selector without enabling them via **More > Downloads > Data Settings**.
- **Specialty Charts** - Additional charts such as IFR Planning and Oceanic charts. These charts will not be visible in the layer selector without enabling them via **More > Downloads > Data Settings**.
- **Custom Charts** - A list of charts that have been added via Custom Content show below other charts. See the **Custom Content** chapter for details about creating and importing files.

11.5 Map Layers

Map layers are selected from the right column of the layer menu. The available layers are dependent upon ForeFlight subscription, region, and external device connection. If a subscription, region, or connected external device does not include a product, it is hidden from the layer menu. For example, if not connected to an external device that provides SiriusXM data, the SiriusXM weather layers are hidden.



Map Layers

11.5.1 Map Layer Sections

The Map Layer menu is divided into multiple sections. Sections are defined by thin horizontal lines. Most sections only allow one map layer to be selected at a time.

Map layers can be selected at any time. However, they will only display updated information if the corresponding internet, ADS-B, or SiriusXM connection is available.

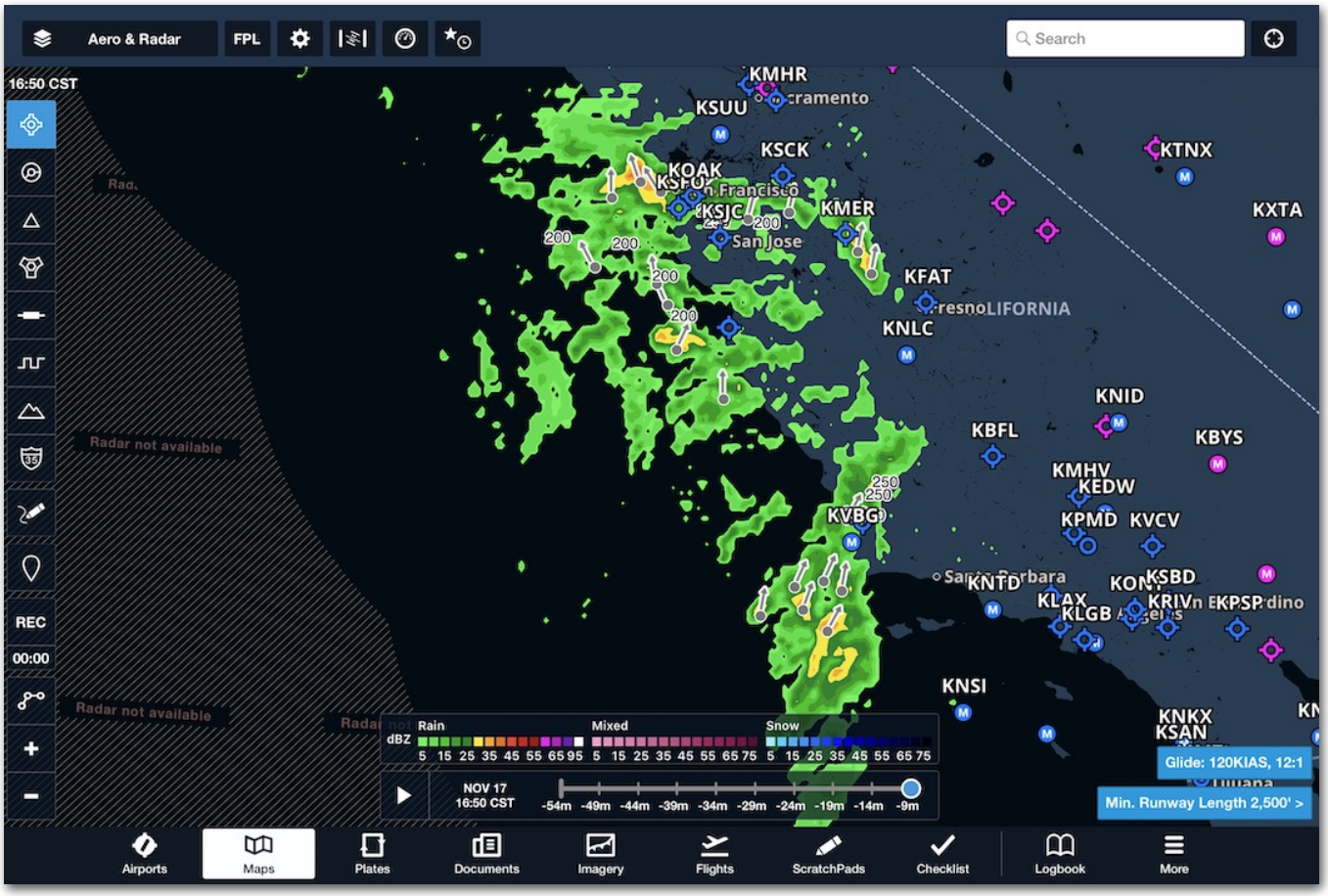
For example, when connected to a Sentry, the ADS-B layers can be selected, however, they will not display data until the device is receiving ADS-B data from a ground-based tower.

The remainder of this section describes each map layer available in ForeFlight Mobile.

11.5.2 Radar Layers

Radar imagery is generated from ground-based stations. Composite or lowest tilt angles returns are shown depending on the layer selected. The maximum echo reflectivity from all radar tilt angles is compiled to generate a composite image. Reflectivity, measured in decibels, corresponds to the intensity of precipitation. The radar image is displayed on the map when the following map layers are selected:

- **Radar** is an internet-based composite radar layer that offers timely updates, smooth graphics, and a representation of the extent of coverage.
- **Radar (Classic)** is an internet-based composite radar layer that can be used as an alternative to the newer radar layer.
- **Radar (Lowest Tilt)** is an internet-based radar layer that displays .5º tilt angle returns.
- **Radar (ADS-B)** is a composite radar layer for in-flight radar.
- **Radar (XM Comp)** is a composite radar layer for in-flight radar.
- **Radar (XM Base)** is a source of in-flight radar that displays returns from the lowest tilt angle.



Radar (Internet)

11.5.2.1 Types of Radar

ForeFlight offers a choice of five types of radar. Each radar type displays the intensity, location, movement, and type of precipitation (with varying resolutions).

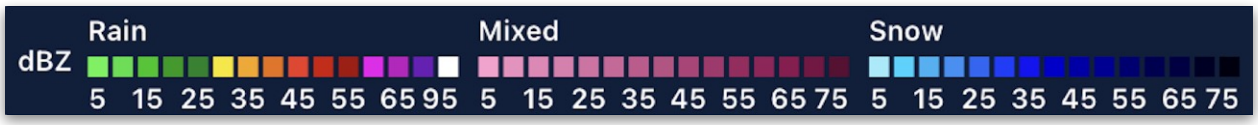
ADS-B and SiriusXM Radar require a **supported external device**.

	Radar and Radar (Classic)	Radar (ADS-B)	Radar (XM Comp)	Radar (XM Base)
Source	Internet	ADS-B	SiriusXM	SiriusXM
Resolution	High	Low	Medium	Medium
Type	Composite	Composite	Composite	Lowest Tilt

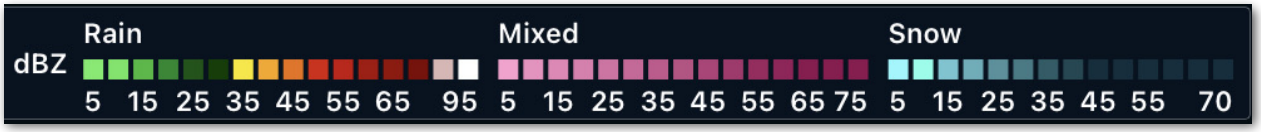
Radar Map Layer Types

11.5.2.2 Radar Color Scale

ForeFlight displays precipitation type and intensity using a graduated color scale. Display the color scale on the map by enabling the **Map Legend** setting and selecting a Radar map layer. Note that the Radar (Classic) layer uses a separate color scale for its weather imagery.



Graduated Color Scale of Radar Layer



Graduated Color Scale of Radar (Classic) Layer

11.5.2.3 Storm Cell Attributes

The internet-sourced Radar and Radar (Classic) layers includes storm cell attributes and echo tops (in hundreds of feet). The table below illustrates the storm cell attribute icons used in internet-based radar within ForeFlight.

Icon	Meaning
	Storm direction indicator. Represents storm direction, not speed. All storm direction indictors are the same length.
	Large column of rotating air (mesocyclone)
	Hail
	Tornado

Strom Cell Attribute Definitions

11.5.2.4 Radar Timestamp

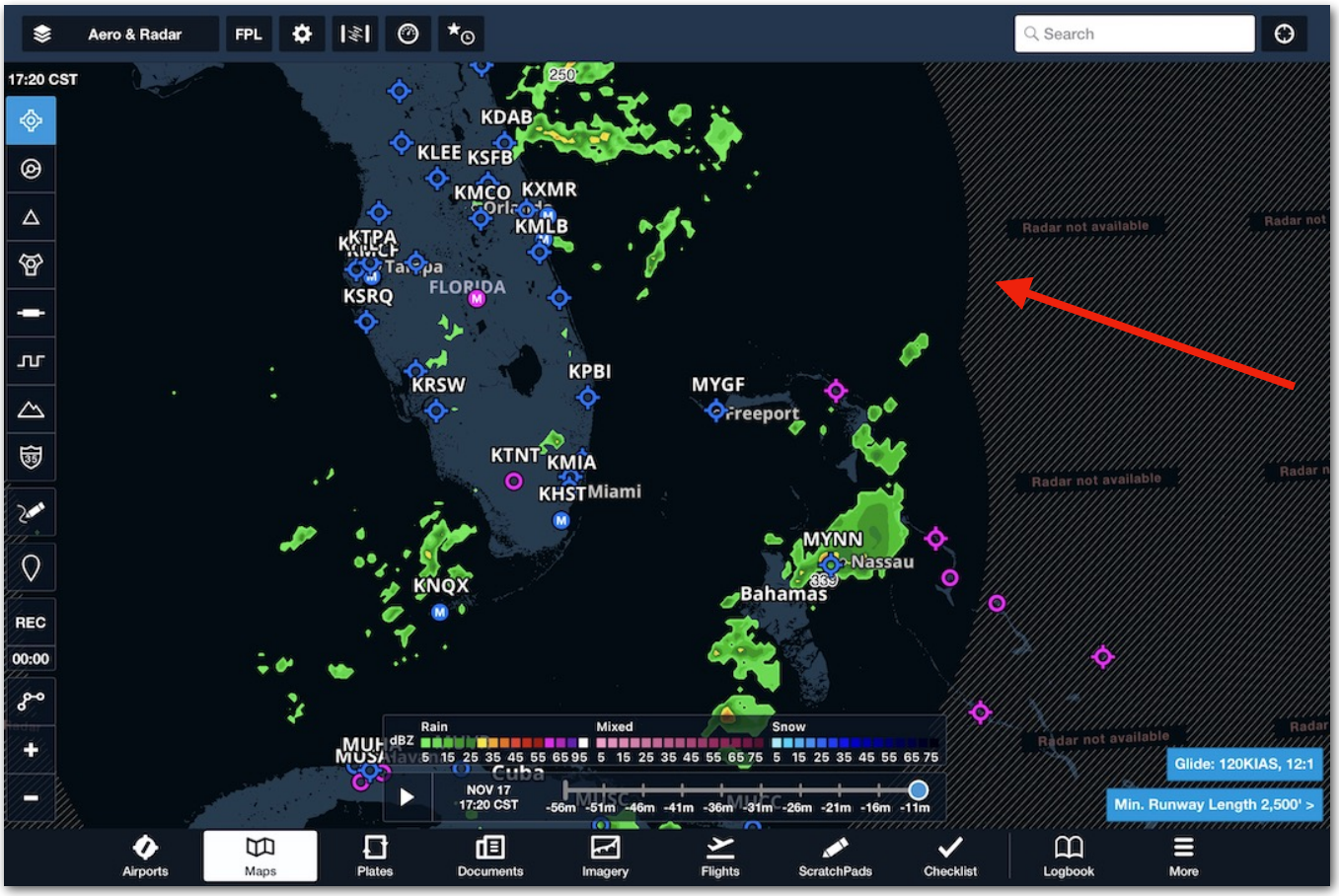
A radar timestamp, showing the time radar data was last updated, is displayed in the upper-left corner of the map. The time label changes from white to yellow when the data is 15 minutes old and to red when it's 20 or more minutes old.



Radar Timestamp

11.5.2.5 Radar Coverage

Areas of the map out of radar range are shown with a hashed overlay and the message “Radar not available”.



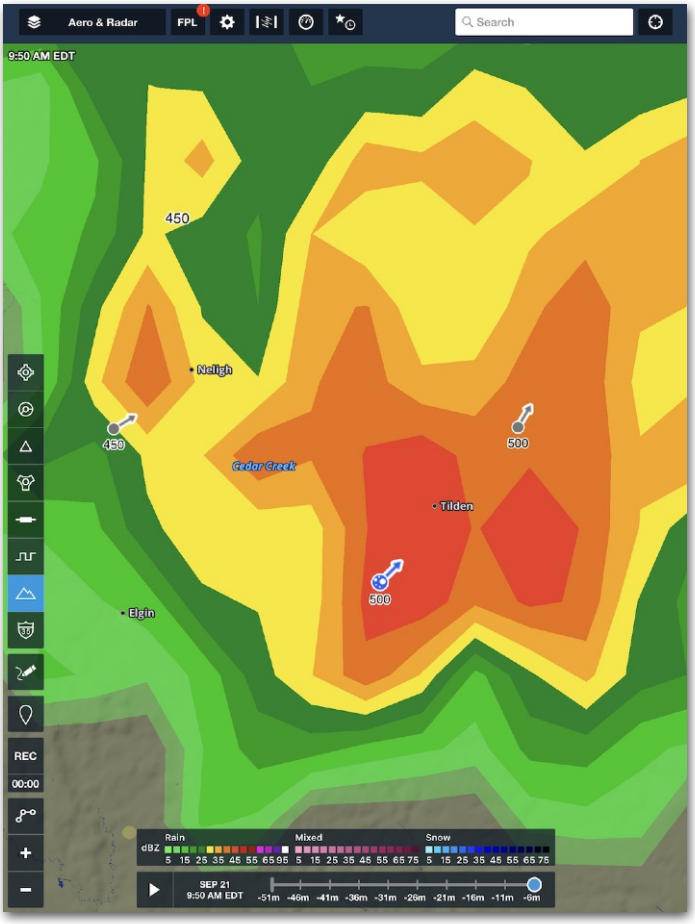
Radar Layer Coverage Boundary

11.5.2.6 Radar

The Radar layer utilizes internet data and advanced computing techniques to quickly update and load imagery. The Radar layer uses vector graphics to generate pixel-free images with smooth contouring at close magnification.

The Radar map layer can be selected anytime but only displays updated radar imagery with an active (Wi-Fi or cellular) internet connection.

Radar is updated every five minutes, with approximately 55 minutes of radar data available to animate.



Radar Layer

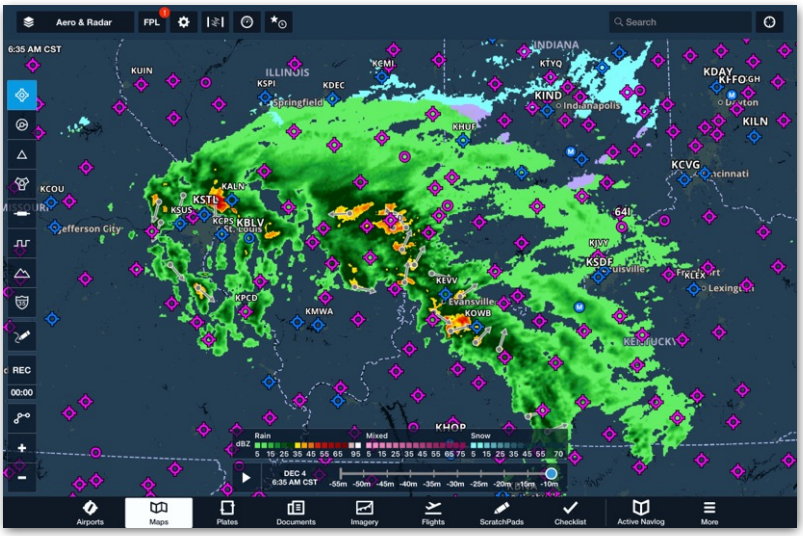
NOTE: The **Radar Color Scale** of the Radar layer is slightly different from the one on the standard internet Radar (Classic) layer.

11.5.2.7 Radar (Classic)

The Radar (Classic) map layer remains in the application as an alternative to the Radar layer. The layer displays high-resolution composite internet radar data for much of the United States, southern Canada, northern Mexico, Australia, and Europe.

The layer can be selected anytime but will only display updated radar imagery with an active (Wi-Fi or cellular) internet connection.

Radar (Classic) is updated every five minutes, with approximately 55 minutes of radar data available to animate.



Classic Radar

11.5.2.8 Radar (Lowest Tilt)

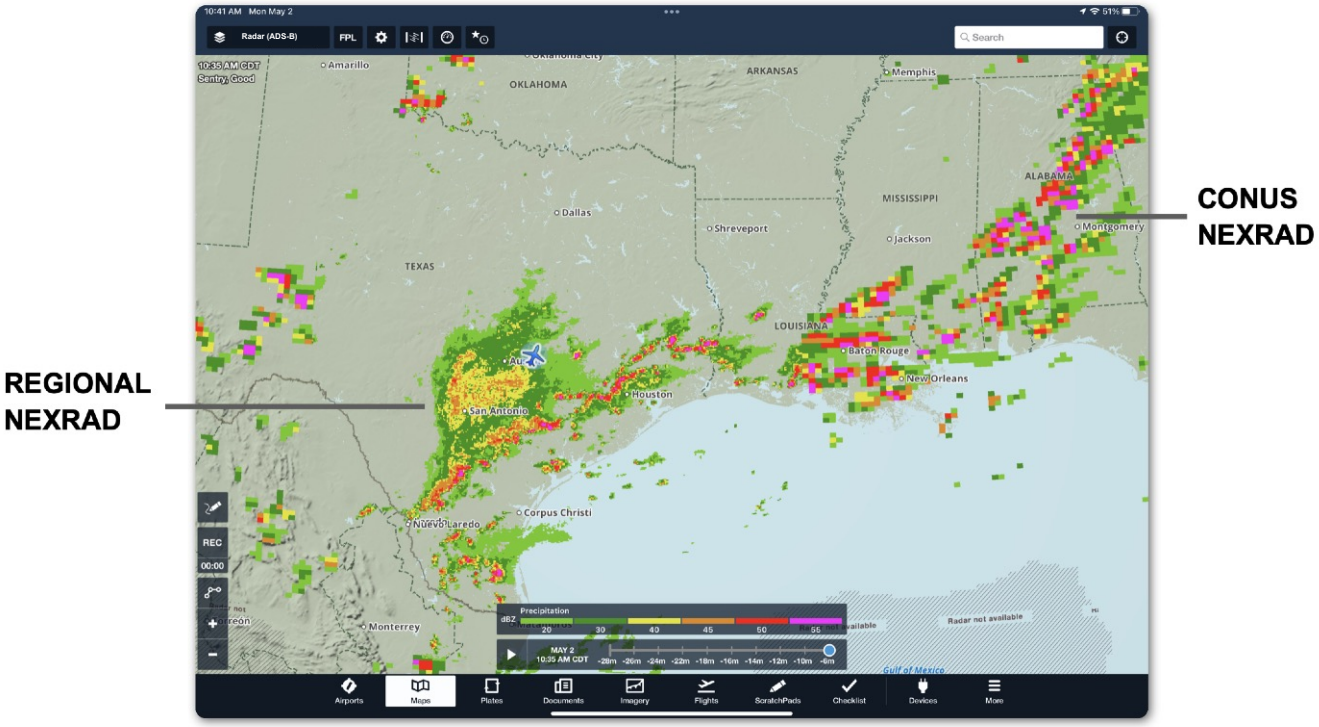
The Radar (Lowest Tilt) layer is similar to the Radar layer but only shows returns from a .5º tilt angle. The Radar (Lowest Tilt) layer uses vector graphics to generate pixel-free images with smooth contouring at close magnification.

The layer can be selected anytime but only displays updated radar imagery with an active (Wi-Fi or cellular) internet connection. The layer will not show storm top or tracking data.

The layer is updated every five minutes, with approximately 55 minutes of radar data.

11.5.2.9 Radar (ADS-B)

The Radar (ADS-B) map layer can be selected when connected to an external ADS-B device. ADS-B radar data is generally only available while airborne near the United States. See **Radar ADS-B** for additional information.

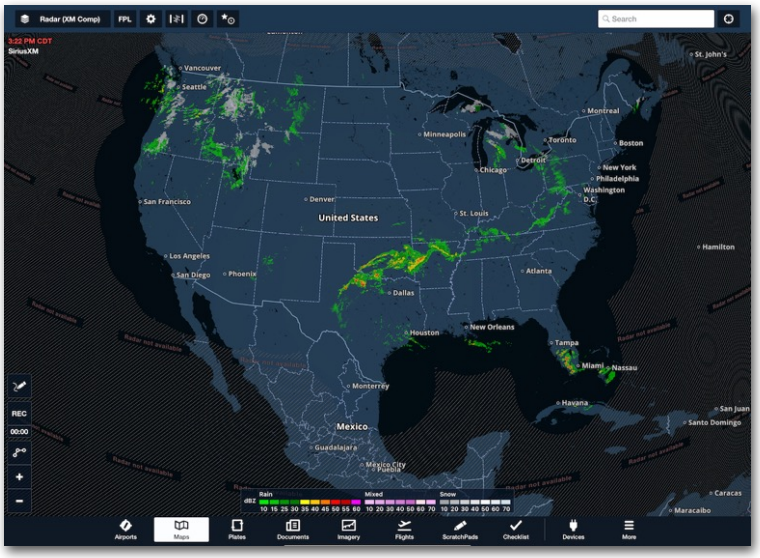


ADS-B Radar (Composite)

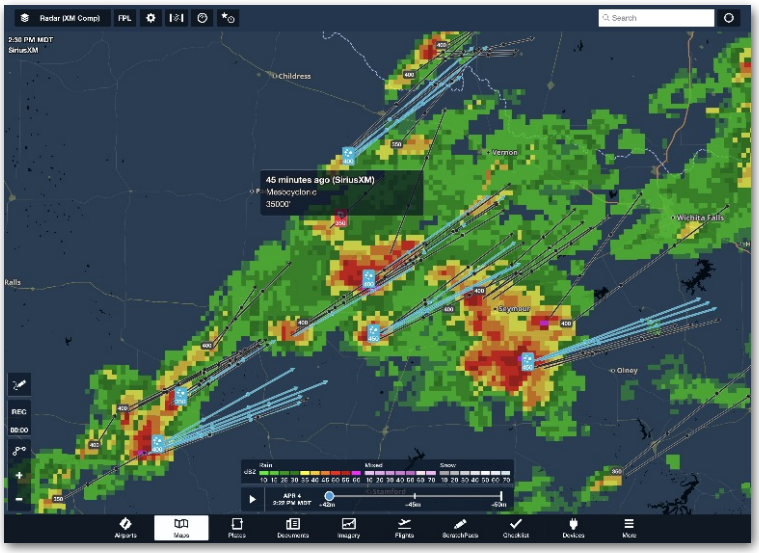
11.5.2.10 SiriusXM Radar

The Radar (XM Comp) and Radar (XM Base) map layers are available for the United States, southern Canada, and northern Mexico when connected to a supported SiriusXM receiver.

SiriusXM composite and base radar provide a higher resolution radar picture than ADS-B, but lower resolution than internet radar. SiriusXM composite and base radar include storm track, hail, echo top, and mesocyclonic indicators. See **SiriusXM Radar** for additional information.



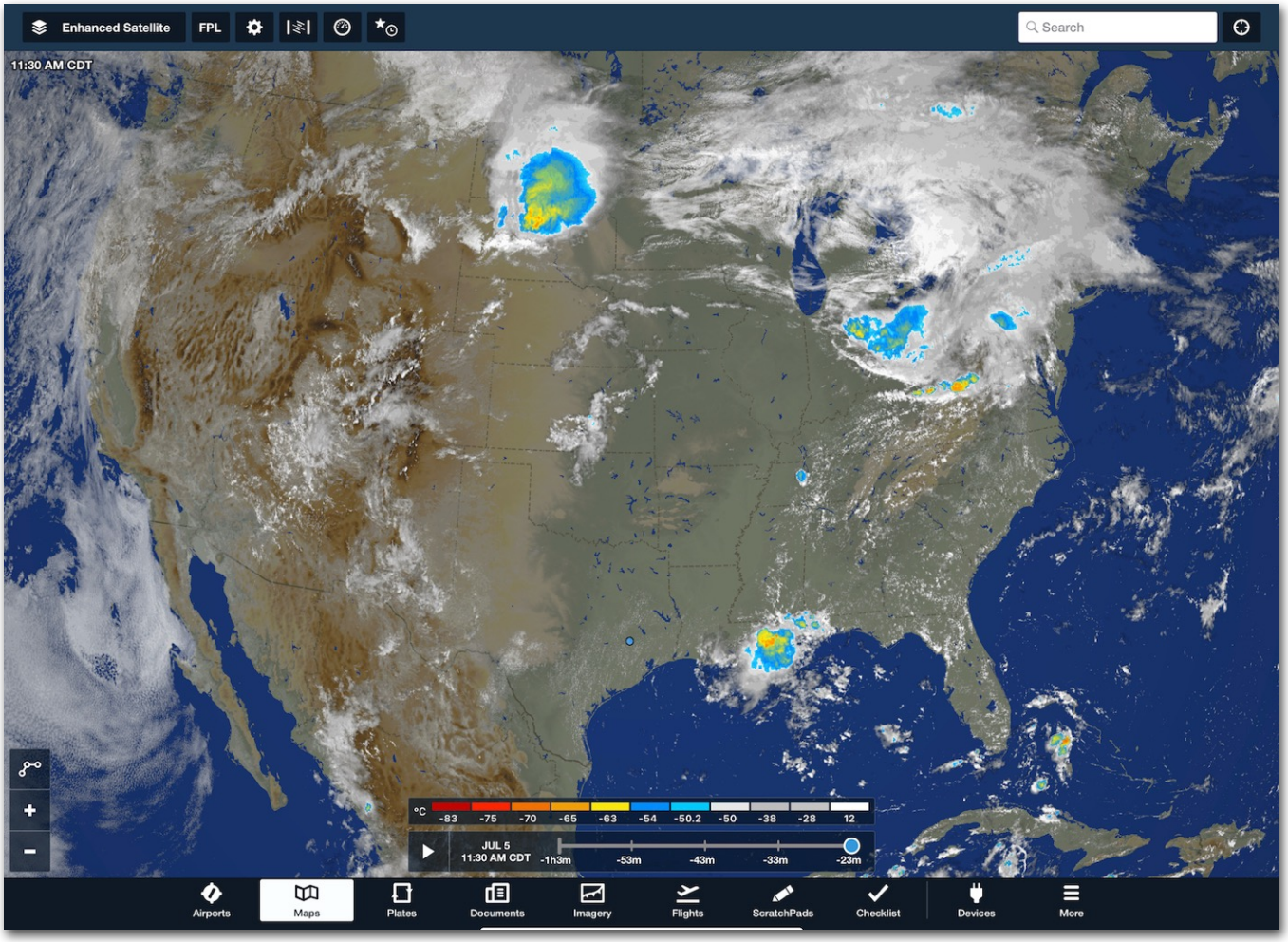
Radar (XM Comp) Coverage Area



Radar (XM Comp) Storm Cell Indicators

11.5.3 Enhanced Satellite Layer

Enhanced Satellite is a grayscale satellite image derived from visible or infrared data, depending on the time of day. It includes color infrared highlights that emphasize high-altitude cloud tops.



Enhanced Satellite

11.5.3.1 Enhanced Satellite Legend

Enhanced Satellite colors represent temperature, allowing estimation of relative cloud top height, similar to how elevation is shown using color on a hypsometric (color-shaded) topographic map. The Enhanced Satellite legend is enabled with **Map Settings** > **Map Legend**.

Color	Temperature ºC	Relative Cloud Top Height
	-83	**Higher**
	-75	
	-70	
	-65	
	-63	
	-54	
	-50.2	
	-50	
	-38	
	-28	
	+12	**Lower**

Enhanced satellite color definitions

11.5.4 Color IR Satellite Layer

Color IR Satellite displays infrared satellite imagery colorized to indicate cloud top temperatures. Ground temperatures are masked to highlight only areas with cloud coverage. The color-temperature scale matches that used in Infrared Satellite imagery.

Satellite layers can be animated using the time slider. ForeFlight checks for updates every three minutes, although new images are typically transmitted every 30 minutes.

11.5.4.1 Color IR Satellite Legend

Color IR Satellite colors represent temperature, allowing estimation of relative cloud top height, similar to how elevation is shown using color on a hypsometric (color-shaded) topographic map. The Color IR Satellite legend is enabled with **Map Settings** > **Map Legend**.

Color	Temperature ºC	Relative Cloud Top Height
	-72	**Higher**
	-68	
	-64	
	-60	
	-56	
	-52	
	-48	
	-44	
	-40	
	-36	
	-32	
	-28	
	-24	
	-20	
	-16	
	-12	
	-8	
	-4	
	0	
	4	
	8	
	12	
	16	
	20	
	24	
	28	
	32	
Transparent	47	**Lower**

Color IR satellite definitions

11.5.5 Icing (US) Layer

Icing (US) (Essential or higher subscription) is an internet-sourced forecast based on the Forecast Icing Product (FIP). It displays icing severity levels; light, moderate, and heavy.

The forecast runs every six hours, updating four times daily, and extends 18 hours into the future. Coverage includes the continental United States, northern Mexico, and southern Canada, generally between 16N and 59N latitude.

An altitude slider on the right side of the screen allows users to view icing severity at different levels. When in flight, tapping the **Auto** button at the top of the slider sets the selected altitude to the aircraft's GPS altitude.

The Icing (US) legend is enabled with **Map Settings** > **Map Legend**.

11.5.6 Icing (Global) Layer

Icing (Global) (Essential or higher subscription) is an internet-sourced forecast based on the Global Forecast System (GFS) model. It displays icing severity levels; light, moderate, and heavy.

The forecast runs four times per day (every six hours) and extends 24 hours into the future. When in flight, tapping the **Auto** button at the top of the altitude slider sets the selected altitude to the aircraft's GPS altitude.

The Icing (Global) legend is enabled with **Map Settings** > **Map Legend**.

11.5.7 Icing (XM) Layer

Icing (XM) (requires GDL 51 or GDL 52) displays icing severity (light, moderate, heavy) along with supercooled large droplet (SLD) threat.

Coverage includes the continental U.S., northern Mexico, and southern Canada, generally between 16N and 59N latitude. In flight, tapping the **Auto** button at the top of the altitude slider sets the selected altitude to the aircraft's GPS altitude.

The Icing (XM) legend is enabled with **Map Settings** > **Map Legend**.

11.5.8 Icing (ADS-B) Layer

Icing (ADS-B) (requires ADS-B receiver) is a graphical forecast provided by the National Weather Service (NWS).

The forecast includes icing severity and the presence of supercooled large droplets (SLD) at intervals of 2,000 ft up to 24,000 ft MSL. Coverage is limited to the continental United States. No forecast data is available for Alaska, Hawaii, Guam, or Puerto Rico.

The model runs hourly with updates transmitted every 15 minutes. A look-ahead range of 150 to 250 nautical miles is provided. When in flight, the **Auto** button sets the selected altitude to the aircraft's GPS altitude.

The Icing (ADS-B) legend is enabled with **Map Settings** > **Map Legend**.

11.5.9 Turbulence (US) Layer

Turbulence (US) (Essential or higher subscription) displays Eddy Dissipation Rate (EDR) forecasts, which estimate turbulence severity based on aircraft weight.

This layer covers the continental United States, northern Mexico, and southern Canada. Forecast data is available from the surface up to FL450 in 1,000 ft increments.

The forecast is updated hourly and extends 18 hours into the future. An altitude slider on the right side of the screen allows users to view turbulence intensity at different flight levels. When in flight, tapping the **Auto** button at the top of the slider automatically sets the selected altitude to the aircraft's GPS altitude.

The Turbulence (US) legend is enabled with **Map Settings** > **Map Legend**.

11.5.10 Turbulence (Global) Layer

Turbulence (Global) (Essential or higher subscription) displays EDR forecasts, which represent turbulence severity based on aircraft weight.

Global turbulence data is available from FL120 to FL450 in 3,000 ft increments. The forecast is generated four times per day (every six hours) and extends 18 hours into the future.

An altitude slider on the right side of the screen allows users to view turbulence intensity at specific altitudes. When in flight, tapping the **Auto** button at the top of the slider sets the selected altitude to the aircraft's GPS altitude.

The Turbulence (Global) legend is enabled with **Map Settings** > **Map Legend**.

11.5.11 Turbulence (XM) Layer

The Turbulence (XM) layer displays turbulence intensity forecasts based on a medium aircraft weight category. This layer requires a GDL 51 or GDL 52 SiriusXM receiver.

Coverage includes the continental United States, along with northern Mexico and southern Canada.

An altitude slider on the right side of the screen allows users to view turbulence intensity at different flight levels. When in flight, tapping the **Auto** button at the top of the slider automatically sets the selected altitude to the aircraft's GPS altitude.

The Turbulence (XM) legend is enabled with **Map Settings** > **Map Legend**.

11.5.12 Turbulence (ADS-B) Layer

The Turbulence (ADS-B) layer is an NWS forecast map that displays Eddy Dissipation Rate (EDR) values based on a medium aircraft weight category. This layer requires a compatible ADS-B receiver.

It provides a look-ahead range of approximately 150 to 250 nautical miles. An altitude slider on the right side of the screen allows users to view turbulence intensity at different flight levels. When in flight, tapping the **Auto** button at the top of the slider automatically sets the selected altitude to the aircraft's GPS altitude.

The Turbulence (ADS-B) legend is enabled with **Map Settings** > **Map Legend**.



Turbulence (ADS-B)

11.5.13 Reported Turbulence Layer

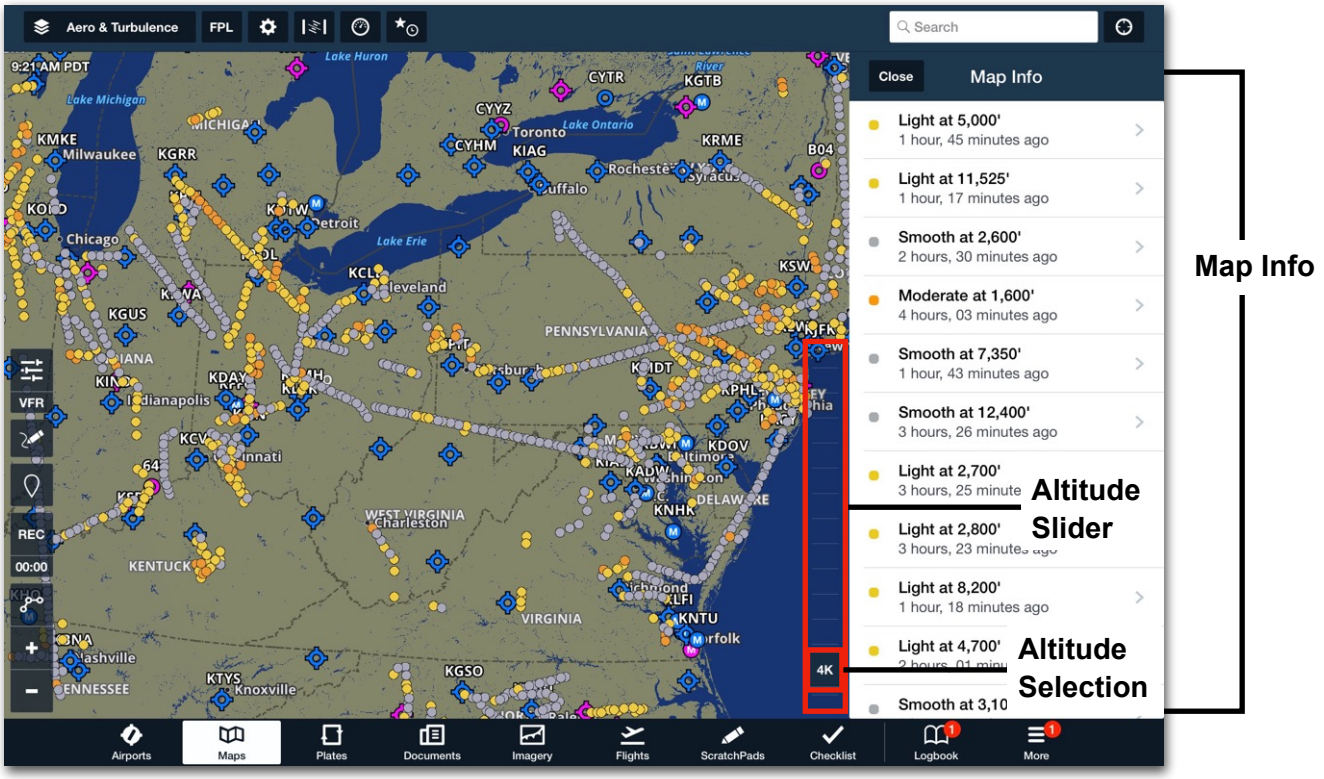
Displays a Sentry-sourced layer that displays turbulence data collected from connected Sentry and Sentry Plus devices. The reported turbulence severity is indicated by color-coded circles, with data captured in 2 minute increments along the flight path.

Turbulence reports are viewed in altitude blocks. Altitude is selected by tapping the altitude slider above or below the selected altitude to move in one-block increments, or by pressing the selected altitude and sliding to the desired altitude block. Altitude blocks are 3,000 foot increments below FL140 and 5,000 foot blocks above FL140.

Individual turbulence report details are viewed by tapping the desired circle on the map. The Map Info window will appear populated by a list of nearby turbulence reports. Tapping a report opens a Turbulence Information field that contains altitude, aircraft type, wake category, and airspeed of the reporting device.

	Smooth
	Intermittent Light
	Light
	Light to Moderate
	Moderate
	Severe
	Extreme

NOTE: Access to Reported Turbulence may necessitate additional prerequisites beyond standard package offerings. See the **ForeFlight Website** for additional information on options to access Reported Turbulence.

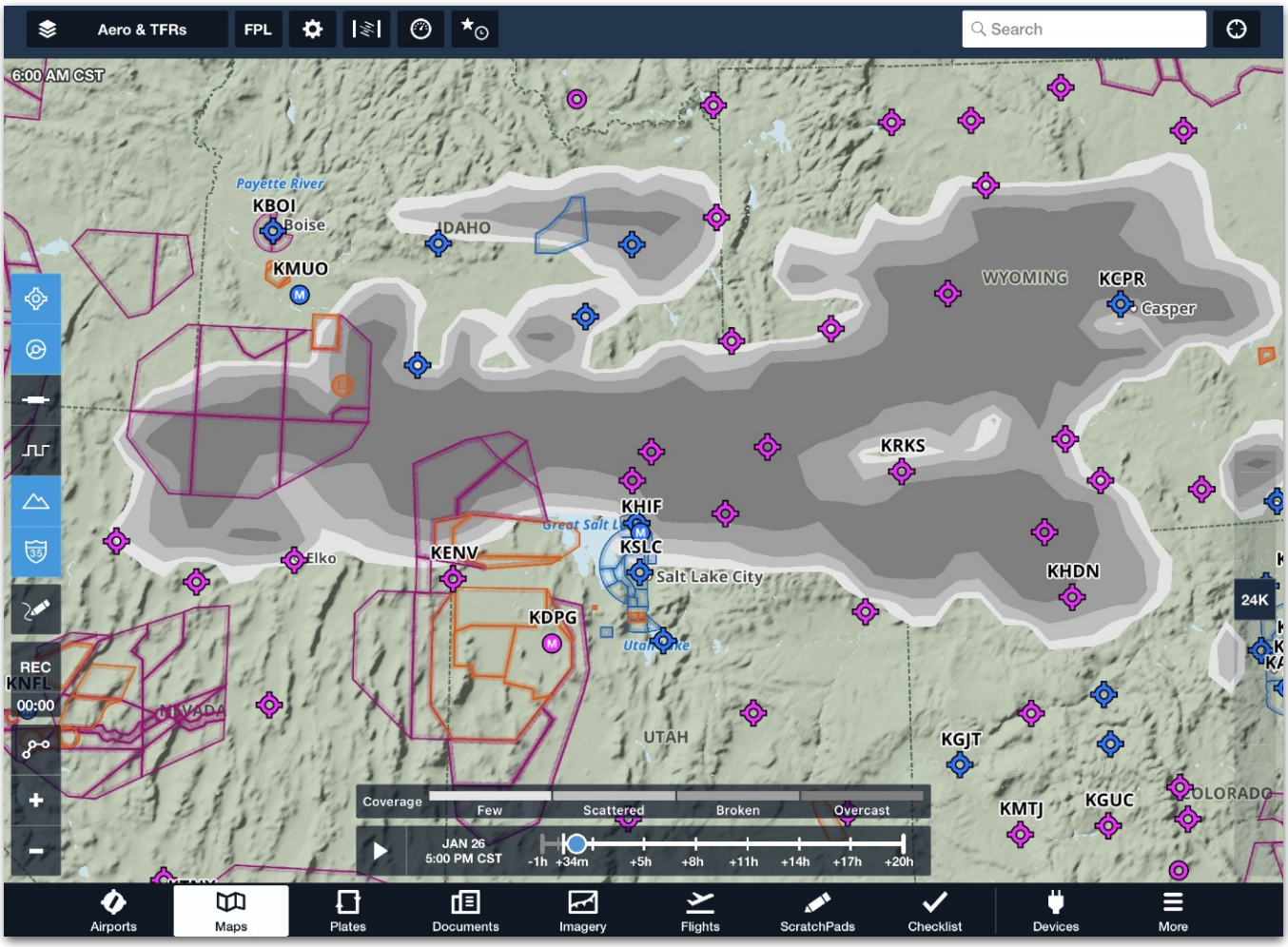


Reported Turbulence

11.5.14 Clouds Layer

Displays a global view of forecast cloud coverage at a selectable altitude (using the altitude slider on the right) and time (using the time slider at the bottom). The forecast is based on the GFS Cloud Coverage product and depicts the forecast percentages of cloud cover using different shades of gray. This forecast is run hourly and is extended 18 hours into the future. The forecast data is included in Pack for offline use during the valid forecast period. The Clouds map layer is included in Essential, Premium, and Business Performance plans.

The Clouds legend is enabled with **Map Settings** > **Map Legend**.



Cloud Coverage Forecast on Maps view

11.5.15 Surface Analysis Layer

Surface Analysis provides global isobar and pressure system data, with enhanced detail for North America. This layer is available with an Essential, Premium, or Business Performance subscription.

Use the time slider to view different forecast frames over time.

11.5.15.1 Surface Analysis Legend

Surface Analysis elements are displayed using standard meteorological symbols. The following symbols appear when viewing Surface Analysis via Internet or SiriusXM:

Symbol	Feature
	Isobars
	Pressure Labels
	High Pressure Centers
	Low Pressure Centers
	Cold Front
	Warm Front
	Occluded Front
	Stationary Front
	Trough

Surface Analysis icon definitions

11.5.16 Sfc Analysis (XM) Layer

Sfc Analysis (XM) displays isobars, pressure systems, and related weather features. This layer requires a GDL 51 or GDL 52 SiriusXM receiver.

Coverage includes most of North and Central America, excluding northern Canada and Alaska, and extends west to Hawaii.

Additional symbols appear only when viewing Surface Analysis via SiriusXM:

Symbol	Feature
	Squall Line (XM only)
	Dry Line (XM only)

SiriusXM only Surface Analysis icon definitions

11.5.17 Winds (Temps) Layer

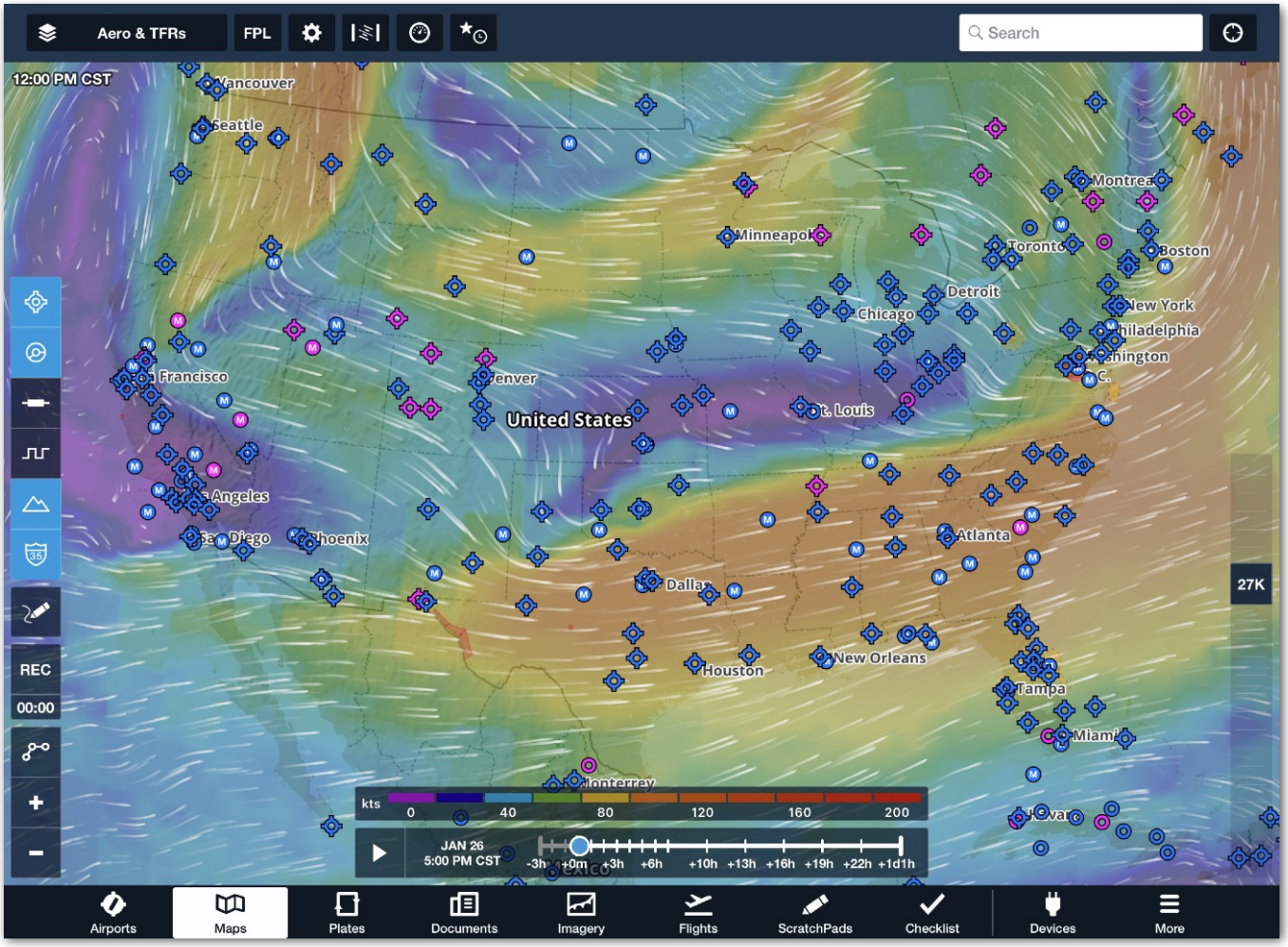
Winds (Temps) displays forecast global temperatures in °C up to 24 hours in the future, as colors at a selectable altitude with wind direction and speed represented by smoothly-flowing particle animations. The layer features a dynamic legend at the bottom of the Maps page, showing the color range corresponding to the temperatures. The layer is included when packing for a flight. Included in Premium and Business Performance.

The Winds (Temps) legend is enabled with **Map Settings** > **Map Legend**.

11.5.18 Winds (Speeds) Layer

Winds (Speeds) displays forecast global wind speeds in knots up to 24 hours in the future, as colors at a selectable altitude with wind direction and speed represented by smoothly-flowing particle animations. The layer features a dynamic legend at the bottom of the Maps page, showing the color range corresponding to the wind speed. The layer is included when packing for a flight. Included in Premium and Business Performance plans.

The Winds (Speed) legend is enabled with **Map Settings** > **Map Legend**.



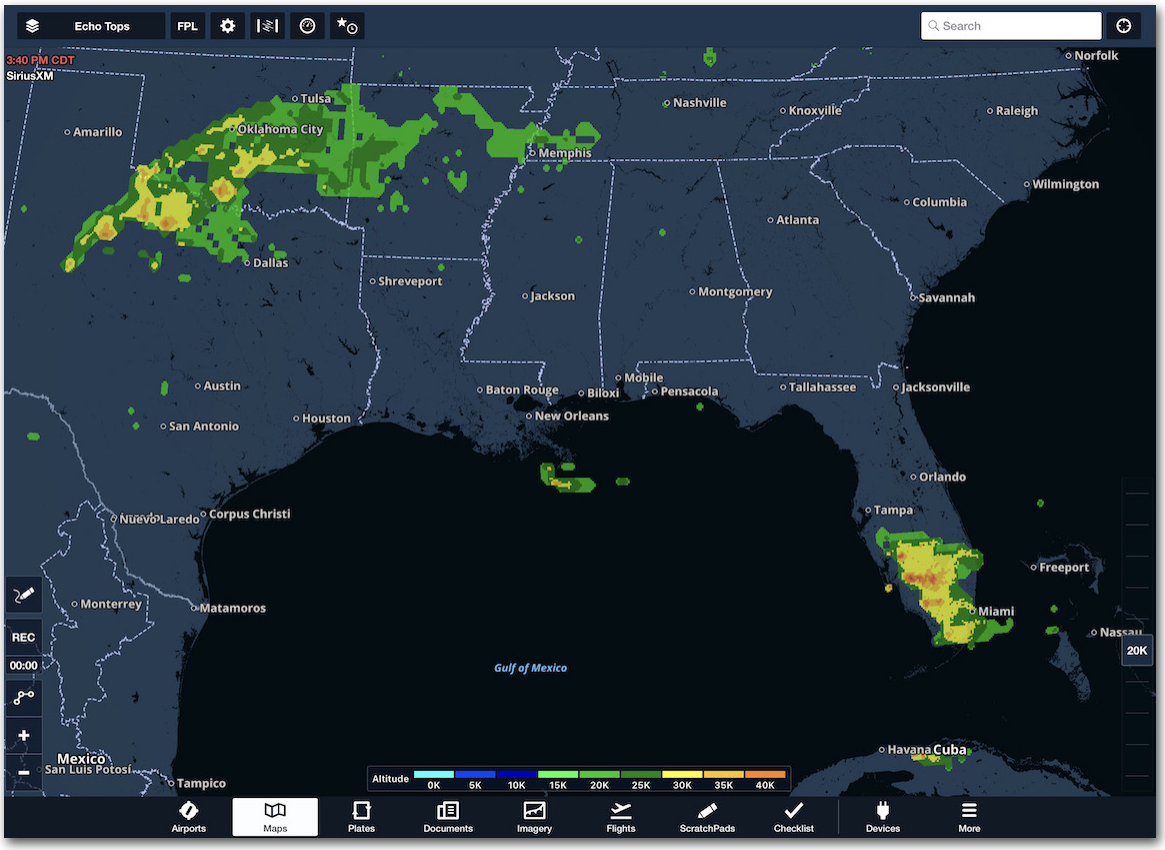
Winds displayed on Maps view

11.5.19 Echo Tops (XM) Layer

Echo Tops require a SiriusXM compatible receiver (GDL 51/52). The echo top map layer displays the height where ground-based radar detects reflectivities above 18 dBZ.

Use the altitude slider on the right to filter out echo tops at lower altitudes. Covers CONUS plus northern Mexico and southern Canada. 5000’ increments from 0’ to FL450.

The Echo Tops (XM) legend is enabled with **Map Settings** > **Map Legend**.



Echo Tops (XM)

11.5.20 Cloud Tops Layer (XM) Layer

Cloud Tops (XM) (requires GDL 51/52) displays cloud top height derived from satellite temperature sensors. Covers the continental United States plus northern Mexico and southern Canada. Displays cloud tops in 5000’ increments from 0’ to FL400. An altitude slider on the right side of the screen filters cloud tops at lower altitudes. When in flight, the **Auto** button at the top of the slider sets the selected altitude to the GPS altitude.

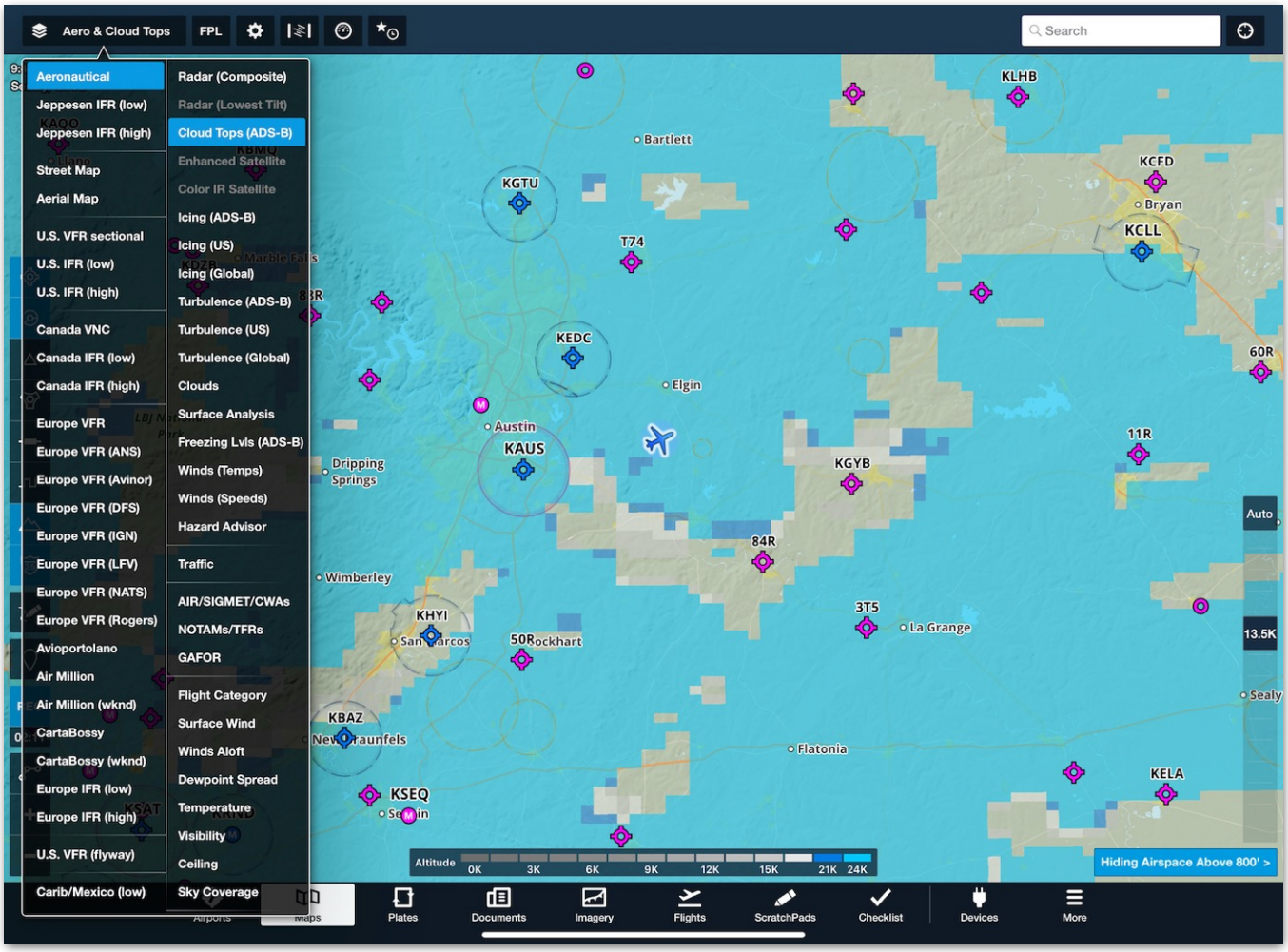
The Cloud Tops (XM) legend is enabled with **Map Settings** > **Map Legend**.

11.5.21 Cloud Tops (ADS-B) Layer

Cloud Tops (ADS-B) (requires ADS-B receiver) is a National Weather Service (NWS) forecast map layer. Using the High-Resolution Rapid Refresh (HRRR) model, cloud tops are derived from satellite temperature sensors. An altitude slider on the right side of the screen filters cloud tops at lower altitudes. When in flight, the **Auto** button at the top of the slider sets the selected altitude to the GPS altitude.

Cloud Tops are only available for the continental United States. Cloud tops are unavailable for Alaska, Hawaii, Guam, or Puerto Rico. The Cloud Top forecast is generated by NWS every hour and transmitted over ADS-B every 15 minutes.

The Cloud Tops (ADS-B) legend is enabled with **Map Settings** > **Map Legend**.

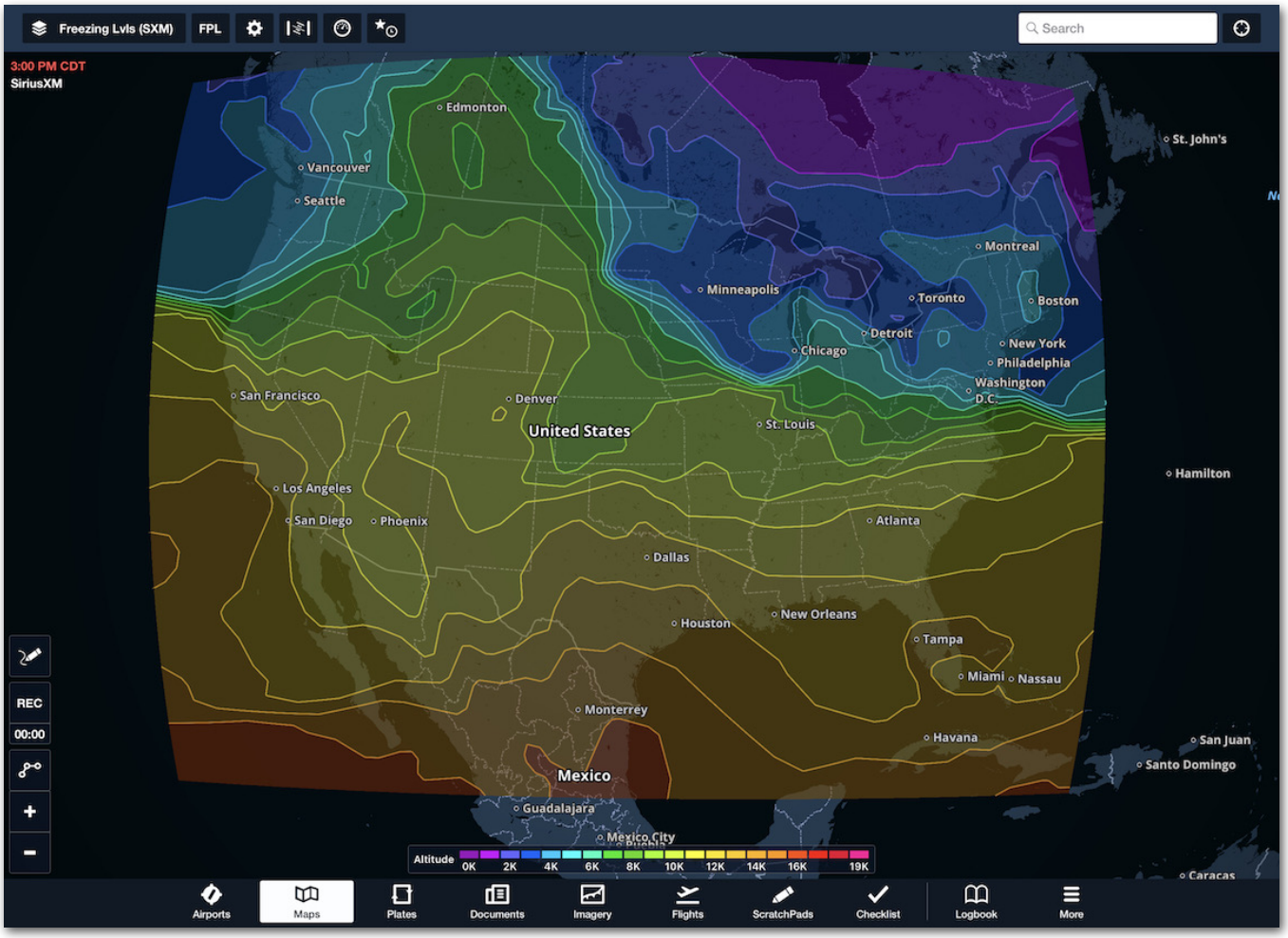


Cloud Tops (ADS-B)

11.5.22 Freezing Levels Layer

Freezing Levels (requires GDL 51/52) displays freezing level boundaries in 1,000-foot intervals using a colored overlay. It covers the Continental United States plus northern Mexico and southern Canada.

The Freezing Level legend is enabled with **Map Settings** > **Map Legend**.



Freezing Levels (SiriusXM)

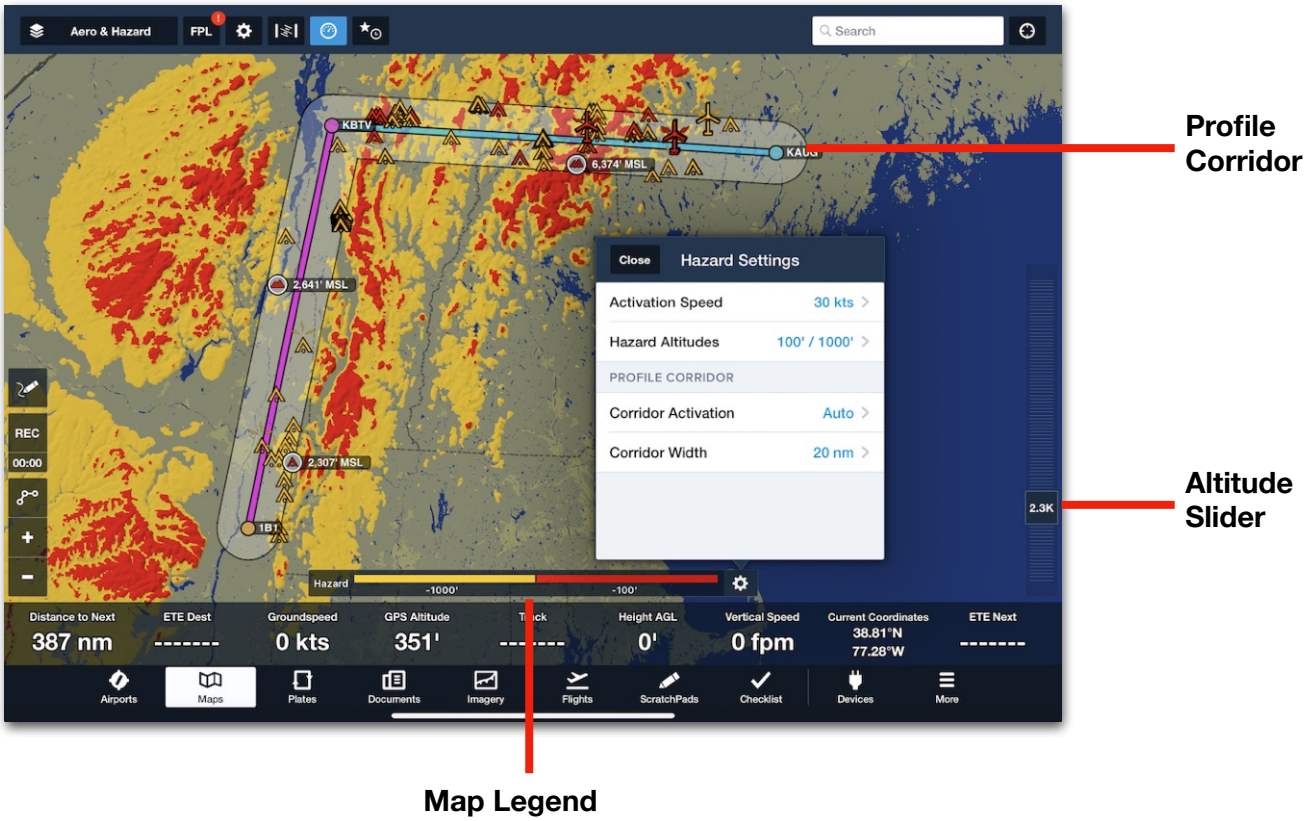
11.5.23 Hazard Advisor Layer

Hazard Advisor is a map overlay that highlights terrain as it relates to the aircraft or a user-specified altitude. The purpose of Hazard Advisor is to identify potential hazards at different altitudes. Hazard Advisor will automatically use **the current altitude** when the user-set groundspeed is exceeded. This feature requires an Essential subscription or higher.

11.5.23.1 Map Elements

When the Hazard Advisor map layer is selected, it displays map coloration showing hazardous terrain at the current altitude and a slider on the right that can be used to analyze hazards at different altitudes. Hazard Advisor can also display a **Map Legend** showing hazard colors and **settings**, as well as a **Profile Corridor** showing obstacles along the route.

The Hazard Advisor legend is enabled with **Map Settings** > **Map Legend**.



NOTE: Hazard Advisor only displays obstacles while airborne or when on the ground and the Profile Corridor is enabled.

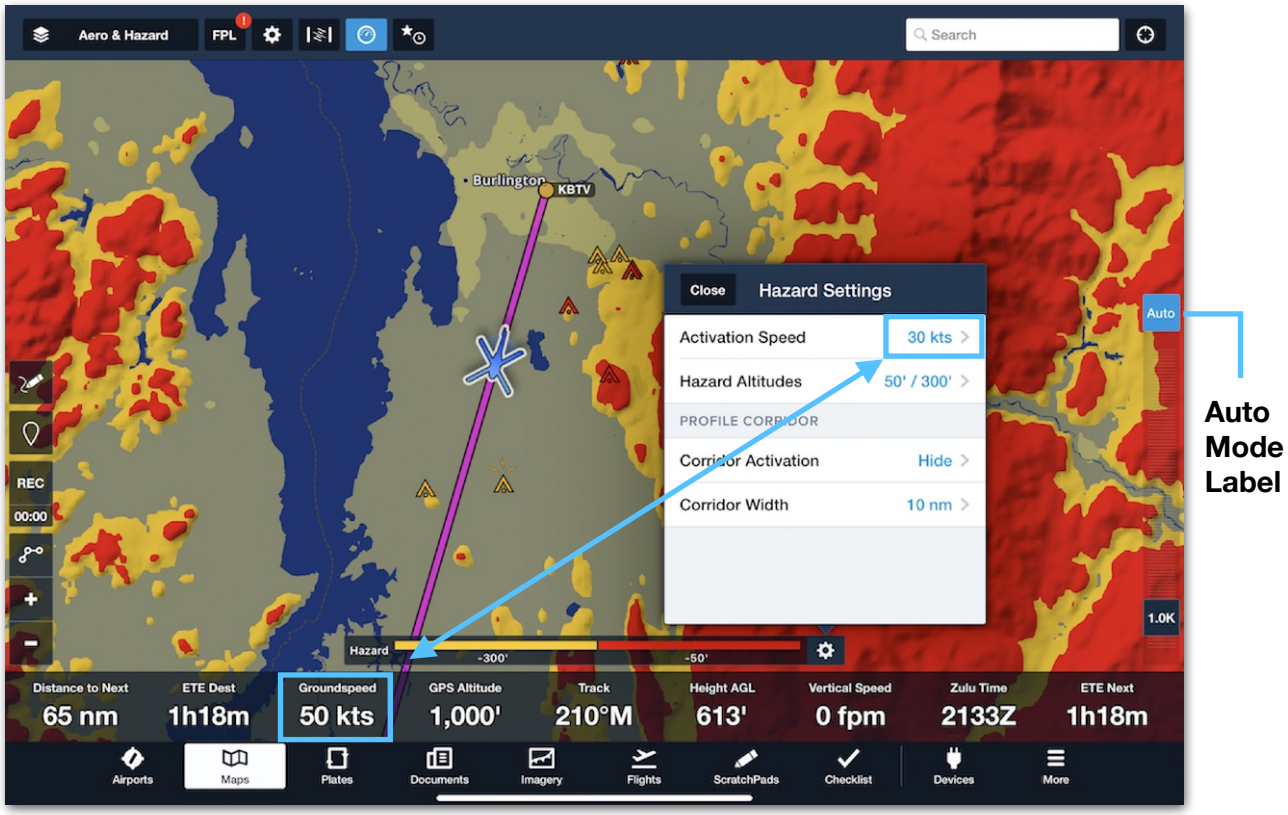
11.5.23.2 Hazard Advisor Settings

The following options in the **Hazard Settings** menu control the Hazard Advisor:

- **Activation Speed** specifies a minimum groundspeed above which Hazard Advisor enters Active Mode. Active mode should reflect the minimum groundspeed required for flight. Once Active Mode begins, hazardous obstacles appear on the map even if the **Profile Corridor** is inactive and the Hazard Altitude Slider is set to Auto.
- **Hazard Altitudes** specifies the maximum altitude clearance required to color nearby obstacle and terrain hazards. There are four settings with different vertical clearances. The colors described in the Hazard Advisor **Map Legend** reflects this setting.
- **Corridor Activation** controls when the **Profile Corridor** displays along the route: Show (always), Hide (never), or Automatic (whenever the Profile View or Hazard View are displayed). When active, the Profile Corridor displays hazards along the route even if Hazard Advisor is not in Active Mode.
- **Corridor Width** determines the total width of the Profile Corridor around the route centerline. For example, a 20 NM Corridor Width shows hazards 10 NM on either side of the route centerline.

11.5.23.3 Active Mode

When Hazard Advisor is enabled and ForeFlight detects a groundspeed greater than the selected Activation Speed (ranging from 0 to 140 knots), Hazard Advisor enters Active Mode. This is indicated by a blue **Auto** label above the slider. When Auto Mode begins, the altitude slider switches from MSL to GPS altitude and automatically adjusts to the current device GPS altitude, and the map displays nearby hazards (including obstacles). Any changes made to the altitude slider once this mode is active are reset to the GPS altitude after six seconds as indicated by a radial timer.



Auto Mode starts when Groundspeed exceeds Activation Speed.

11.5.24 Traffic Layer

The Traffic map layer is shown when connected to a compatible ADS-B receiver or while on the ground and connected to the Internet via Wi-Fi or Cellular Data. The global traffic stream is only available when on the ground and connected to the Internet.

11.5.24.1 Traffic (Internet)

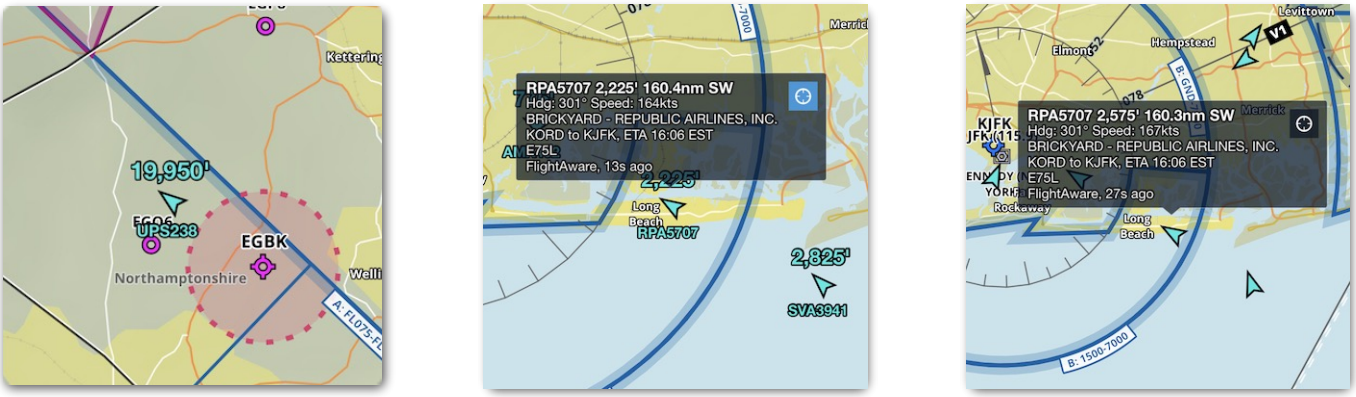
When on the ground and connected to the Internet via Wi-Fi or cellular data, live global traffic that includes the decoded callsign, departure, destination, and ETA can be streamed.

Internet Traffic is disabled automatically after takeoff unless connected to the internet via Wi-Fi or hotspot. It is impossible to display Internet Traffic while connected to an ADS-B receiver.

WARNING: Internet Traffic should not be used as a primary means of traffic information in flight due to the potential for latency.

The tail number and altitude are hidden when zoomed out. Tap on a target for additional information, including when the last position update was received.

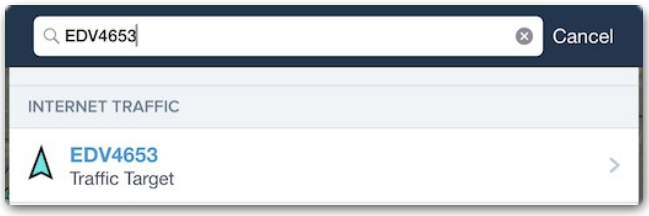
Tap the **auto-center** button in the upper-right of the traffic target pop-up to keep it in view. Tap the **auto-center** button a 2nd time, or tap away from the target to disengage auto-center



Internet Traffic

Internet Traffic Search

To search for a traffic target, tap the search box and enter the registration (eg: N-number) or callsign (e.g., EDV4653 or SWA1257), If the target position is available, the map will automatically center on the traffic target and display additional information.



Traffic Search

11.5.24.3 Traffic (ADS-B)

ADS-B traffic is the primary source of in-flight traffic information. ADS-B traffic requires a supported external receiver. When connected, the Traffic layer is automatically enabled and ForeFlight displays traffic detected by the receiver on the Maps view.

Aircraft need not be ADS-B Out equipped for ForeFlight to receive ADS-B traffic. However, if the aircraft is not ADS-B Out equipped, ForeFlight may show significant relative altitude discrepancies. For additional information, see **ADS-B Traffic**.

11.5.25 Search & Rescue Layers

Map layers which are intended for use in Search & Rescue operations are available when Search and Rescue is enabled in **More** > **Settings**. For more details, see the Search and Rescue Guide in **Documents** > **ForeFlight**.

11.5.26 AIRMETs, SIGMETs, and CWAs Layer

ForeFlight displays AIRMETs, SIGMETs, and Center Weather Advisories (CWAs) issued by the FAA and international agencies.

Each advisory is shown as a color-coded shape on the map. Colors indicate the type of advisory, and CWAs adopt the color of the associated condition (e.g., purple for IFR conditions).

Overlay Color	Meaning
	Freezing level and icing conditions.
	Turbulence and high winds
	IFR conditions
	Mountain obscuration
	Convective outlook
	SIGMETs of all types

AIRMET, SIGMET, CWA coloration

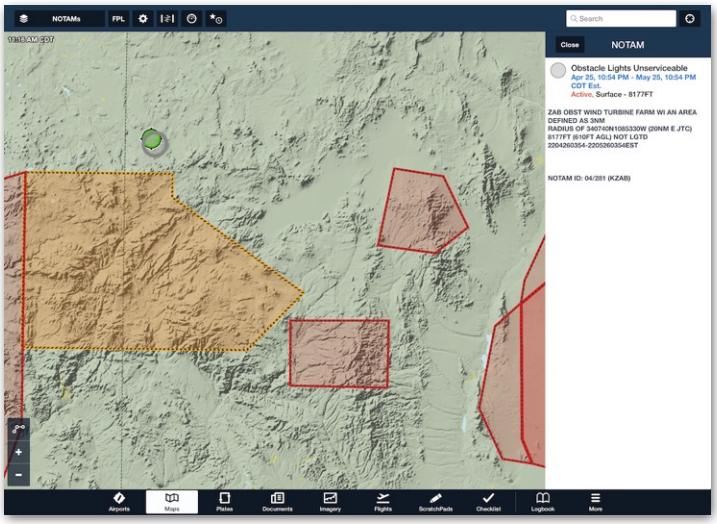
When this layer is active, five toggle buttons at the bottom of the screen allow selective filtering of advisory types.

Tap any advisory shape to open a sidebar listing all overlapping advisories at that location. Select an individual advisory to view its full details and a highlighted lateral boundary, outlined in thick orange, which is useful when multiple advisories overlap.

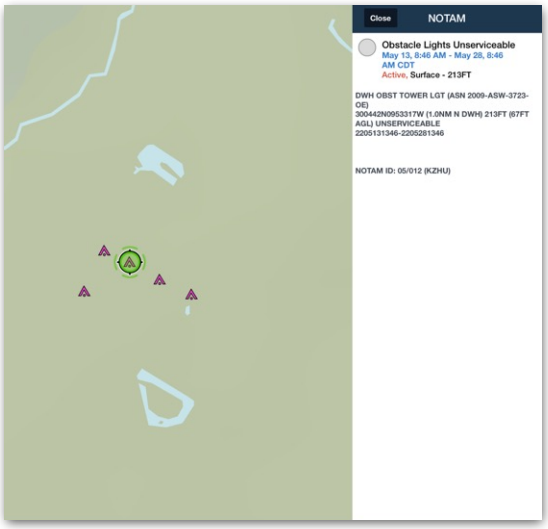
11.5.27 NOTAMs Layer

Global graphical NOTAMs, including geographic and obstacle NOTAMs, can be displayed on the map. NOTAMs are displayed on the map two hours prior to becoming active and are *not* affected by the Hide Airspace setting.

Red and yellow NOTAMs will appear before gray NOTAMs. Zoom in on the map to display gray and obstacle NOTAMs. Tap a NOTAM to reveal NOTAM details in the sidebar. Graphical NOTAMs can be displayed in flight if the Pack feature is used. Graphical NOTAMs are not provided with ADS-B.



Graphical NOTAMs

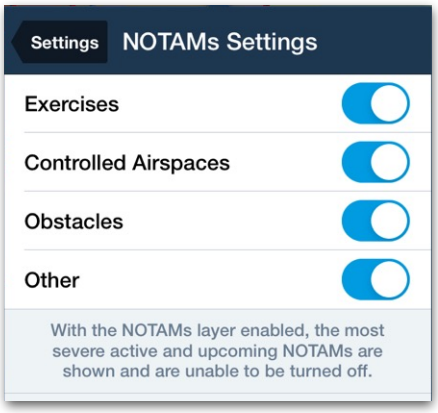


Obstacle NOTAMs

11.5.27.1 NOTAM Settings

NOTAMs can be filtered based on type. To filter NOTAMs, open the Map Settings (gear button) when the NOTAM layer is selected and tap **NOTAMs Settings**.

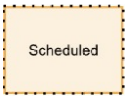
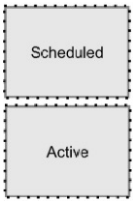
When the NOTAMs map layer is enabled, NOTAMs which restrict airspace or potentially present a danger to non-participating aircraft are unable to be turned off with the settings. This includes scheduled and active NOTAMs associated with Military Operating Areas, Warning Areas, Controlled Firing Areas, and Danger Areas (Europe).



NOTAM Settings

11.5.27.2 NOTAM Color Coding

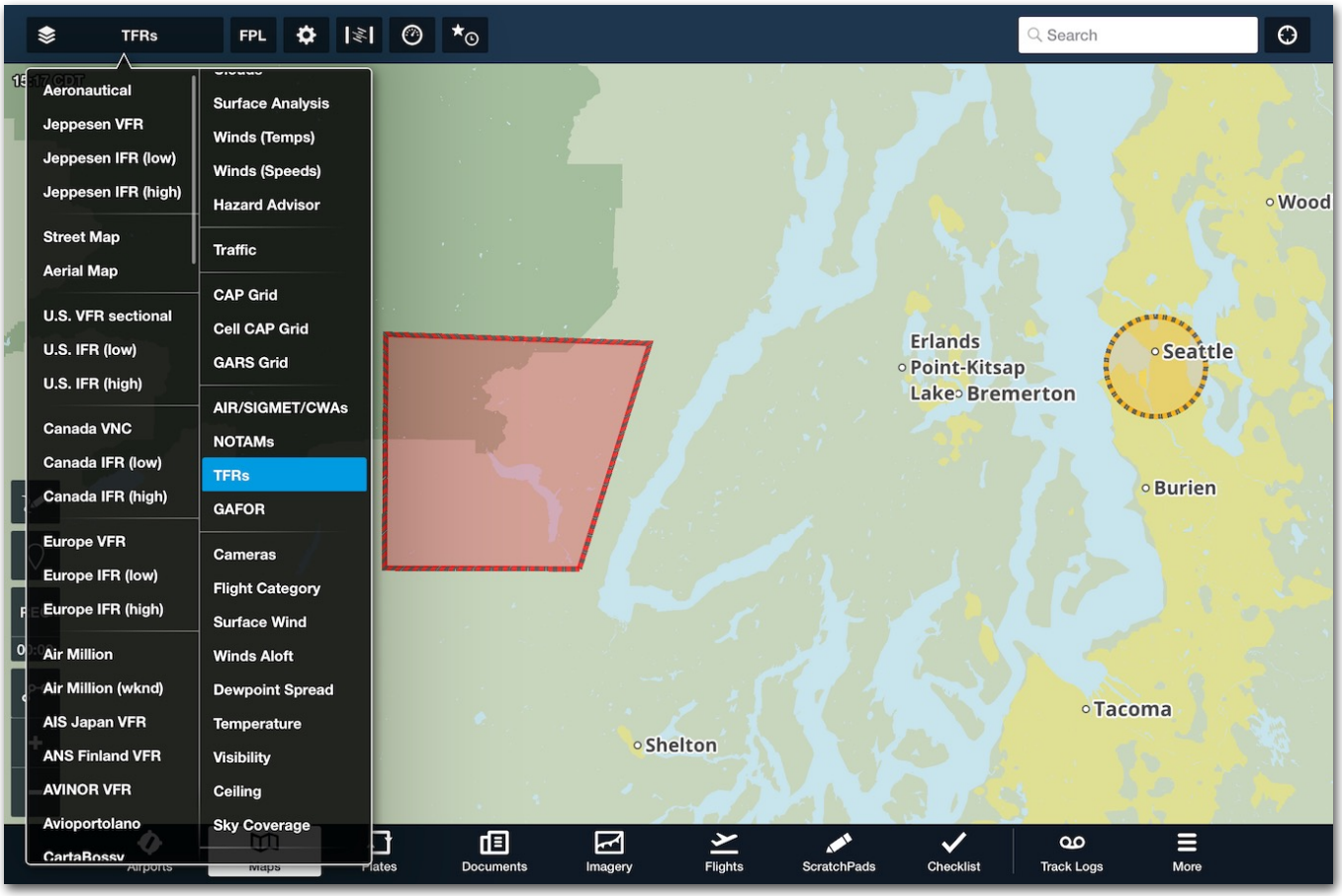
NOTAMs are color-coded based on NOTAM type and activation status.

NOTAM Color	Time Active	NOTAM TYPE
	Currently active	• **Restricted Area:** Prohibited, Restricted, Military Operation, Danger • **Warning Area:** Live Fire
	Currently active	• **Warning Area:** Parachute, Glider, UAV, Demolition, Air Display
	2 hours prior to activation	• **Restricted Area** • **Warning Area**
	2 hours prior to activation and currently active	• **Airspace** • **Obstacles** • **Obstacle lighting** • **Aerobatics**
	Currently active	• **Obstacle NOTAMs**

NOTE: A red NOTAM does not guarantee the airspace is restricted. Tap a NOTAM to reveal NOTAM details to determine the status of the airspace.

11.5.28 TFR Layer

The Temporary Flight Restriction (TFR) map layer is available when the iOS device region is set to the United States (TFRs are issued exclusively for the United States).



TFR Map Layer

11.5.28.1 TFR Color Coding

TFRs are color-coded based on their activation status:

TFR Color	Meaning
	**Scheduled TFR**: Displayed when the TFR is more than eight hours from activation.
	**Active TFR**: Displayed from eight hours before activation until expiration.

TFR Color Definitions

IMPORTANT: Graphical TFR information displayed is *only* updated when the TFR layer is selected while connected to the Internet or a Sirius XM receiver.

TFRs disseminated by the FAA lacking graphical shape information will not be depicted on the map. Pilots must thoroughly brief planned flights. Supplementary TFR information is accessible on the Airports page under NOTAMs > TFR/ARTCC. Flight Service Station (FSS) or ATC can also verify planned routes do not intersect TFRs.

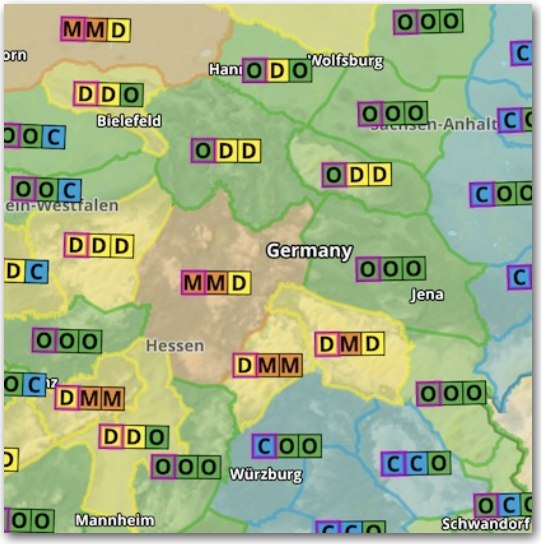
While connected to the Internet, use the **Pack** feature to ensure all relevant TFR and weather data is downloaded before flight. TFRs issued *after* packing will not be shown in the app when not connected to the Internet.

11.5.29 GAFOR Layer (Europe Only)

The General Aviation Forecasts (**GAFOR**) layer displays color-coded indexes for regions in Germany and route forecasts for Switzerland, Austria, and Slovenia.

GAFOR is updated multiple times daily but is typically unavailable between 0000Z–0300Z. During this time, the layer displays hash marks and “Data not available.”

Tap a GAFOR icon to view the index, forecast periods, reference altitude, cloud base (in feet), and visibility (in kilometers).



GAFOR

The GAFOR Indexes are:

GAFOR Index	Germany & others	Switzerland
C - Clear	Visibility > 10km and cloud bases > 5,000ft (Germany only)	
O - Open	Visibility ≥ 8km and cloud bases ≥ 2,000ft	
D - Difficult	Visibility ≥ 5km and cloud bases ≥ 1000ft < 2000ft	Visibility ≥ 5km < 8km and cloud bases ≥ 1500ft < 2000ft
M - Marginal	Visibility ≥ 1.5km and cloud bases ≥ 500ft < 1000ft	Visibility ≥ 2km < 5km and cloud bases ≥ 1000ft < 1500ft
X - Closed	Visibility < 1.5km and any cloud bases *or* Any Visibility and cloud bases < 500ft	Visibility < 2km and cloud bases < 1000ft

11.5.30 Cameras Layer

Cameras displays connected airport cameras on the map. Tap a camera icon to display the most recent camera views. See **Cameras** for additional details.

11.5.31 Flight Category Layer

The Flight Category layer displays METAR-derived weather conditions on the map, indicating current Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) status.

The layer updates every five minutes when connected to the Internet. Once flight category data exceeds three hours, it is removed from the map.

11.5.31.1 Flight Category Legend

Flight category conditions are represented using standardized color codes.

Icon Color	Flight Category
	**LIFR:** Ceiling less than 500 feet or visibility less than 1 mile.
	**IFR:** Ceiling 500 to less than 1,000 feet or visibility 1 to less than 3 miles.
	**MVFR:** Ceiling 1,000 to 3,000 feet or visibility 3 to 5 miles inclusive.
	**VFR:** Ceiling greater than 3,000 feet and visibility greater than 5 miles; includes sky clear.
	**Unknown:** Weather conditions are unknown.

11.5.32 Surface Wind Layer

The Surface Wind layer displays METAR-derived surface wind speed and direction on the map.

This layer is updated every five minutes when connected to the Internet.



Surface Winds (SiriusXM)

11.5.32.1 Wind Barb Symbology

Wind barb direction is indicated in **true degrees** by a **stem** (line) pointing in the direction the wind is coming from. Wind speed is represented using barbs on the stem:

- Short barb = 5 knots
- Long barb = 10 knots
- Flag = 50 knots.

Multiple barbs may be combined on a single stem to represent higher wind speeds.

Barb Icon	Meaning
	Calm
	Variable
	5 knots / 315°
	15 knots / 45°
	40 knots / 180°
	60 knots / 270

Wind barbs icons and descriptions

11.5.32.2 Surface Wind (Wind Barb Color)

Wind barbs are color-coded to represent different wind speed ranges at the surface. Each color corresponds to a specific wind speed range.

Surface Wind Barb Color	Meaning
	Peak <20 knots
	Peak 20-30 knots
	Peak >30 knots

Surface wind barb color

11.5.33 Surface Wind Analysis Layer

Surface Wind Analysis is generated from an automated forecast model and requires a GDL 51 or GDL 52 SiriusXM receiver.

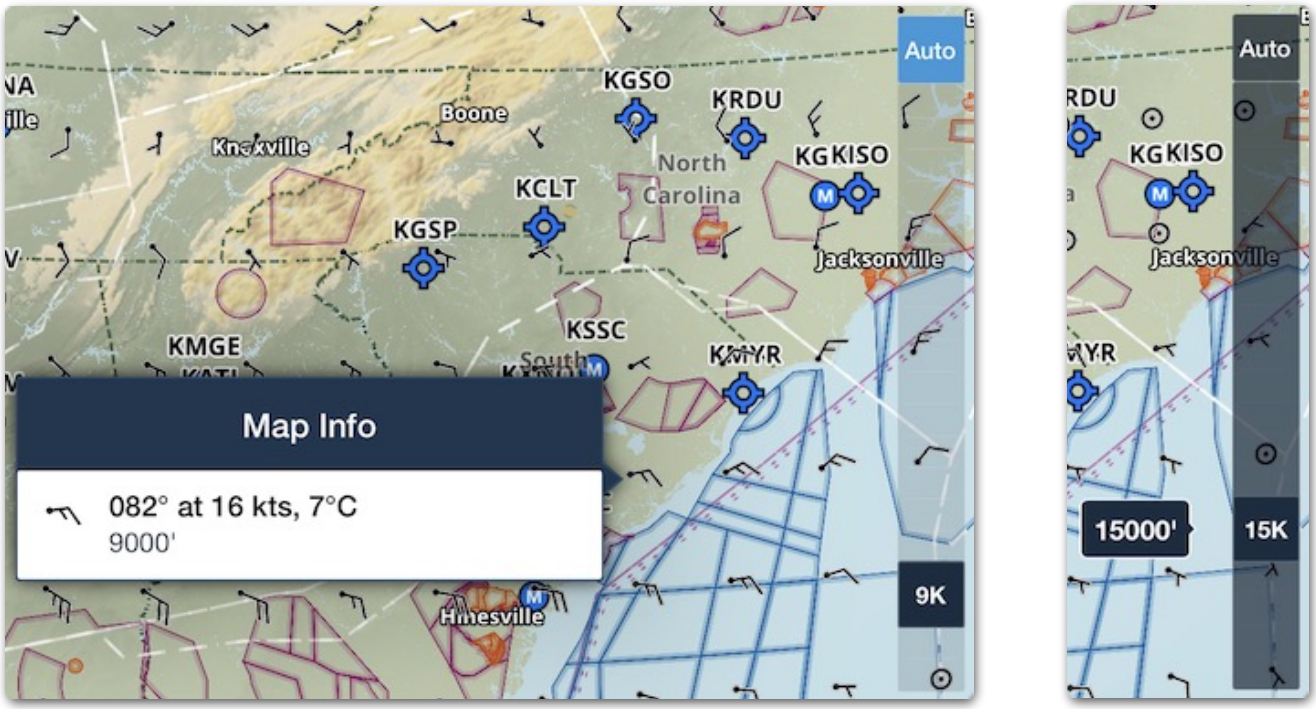
It displays forecast wind speed and direction at tens of thousands of evenly spaced points across the country and is useful for identifying low-level wind circulations over broad areas.

11.5.34 Winds Aloft Layer

Winds Aloft displays forecast wind speed, direction, and temperature on the map.

Forecast winds from 3,000 ft to FL540 are shown in 3,000 ft increments. To adjust the forecast altitude, tap and hold the **altitude slider**, then move it up or down to the desired level. In flight, tap the **Auto** button to automatically set the altitude to the current cruising altitude.

Tap a **wind barb** at the selected altitude to view detailed forecast data for the current three-hour forecast period.



Winds Aloft

NOTE: Winds Aloft data must be Packed for offline use. If connected to an ADS-B receiver, data is available without packing.

11.5.34.1 Winds Aloft Legend

Winds Aloft values are displayed using color-coded wind barbs to represent varying wind conditions. Color interpretations differ for altitudes above and below 12,000 feet.

Winds Aloft Barb Color	Meaning
	0-29 knots
	30-39 knots
	40-49 knots
	50-59 knots
	60-69 knots
	≥70 knot

Winds aloft barb color below 12,000 feet

Winds Aloft Barb Color	Meaning
	0-69 knots
	70-89 knots
	90-109 knots
	110-124 knots
	125-149 knots
	≥150 knot

Winds aloft barb color above 12,000 feet

11.5.35 Dewpoint Spread Layer

Dewpoint Spread displays METAR-derived dewpoint spread on the map. The weather layer is updated every five minutes when connected to the Internet.

11.5.35.1 Dewpoint Spread Legend

Dewpoint spread is indicated using color coded icons.

Icon and Color	Meaning
	0-4° C: Orange
	≥5° C: Green

Dewpoint Spread markers

11.5.36 Temperature Layer

Temperature displays METAR-derived surface temperatures on the map.

This layer is updated every five minutes when connected to the Internet.

11.5.36.1 Temperature Legend

Temperature values are shown using color-coded icons to represent different temperature ranges.

Icon and Color	Meaning
	<3° C: Red
	3-34° C: Green
	≥35° C: Orange

Temperature marker color definitions

11.5.37 Visibility Layer

The Visibility layer displays METAR-derived visibility values on the map.

This layer is updated every five minutes when connected to the Internet.

11.5.37.1 Visibility Legend

Visibility values are represented using color-coded icons, each indicating a specific visibility range.

Icon Color	Visibility Value
	<1 Statute Mile
	1-2 Statute Miles
	3-5 Statute Miles
	>5 Statute Miles

Visibility marker color definitions

11.5.38 Ceiling Layer

The Ceiling layer displays METAR-derived ceiling conditions on the map.

This layer is updated every five minutes when connected to the Internet.

11.5.38.1 Ceiling Legend

Ceiling values are represented using color-coded icons, each indicating a specific ceiling range.

Icon Color	Ceiling Value
	<500 feet
	500’-999 feet
	1000’-2999 feet
	≥3000 feet

Ceiling marker color definitions

11.5.39 Sky Coverage Layer

Sky Coverage displays METAR-derived sky coverage conditions on the map.

This layer is updated every five minutes when connected to the Internet.

11.5.39.1 Sky Coverage Legend

Sky coverage values are represented using **color-coded icons**, each corresponding to a specific level of sky coverage.

Sky Coverage Icon	Meaning
	Sky Clear
	Few
	Scattered
	Broken
	Overcast
	Vertical Visibility

Sky Coverage marker definitions

11.5.40 PIREP Layer

PIREP displays pilot weather reports (PIREPs) on the map, providing observations of in-flight conditions.

11.5.40.1 PIREP Legend

PIREPs are represented using specific icons, with each icon corresponding to a particular reported condition.

Icon	Meaning
	Icing PIREPs (increasing severity)
	Turbulence PIREPs (increasing severity)
	Sky & Weather PIREP

PIREP icon definitions

11.5.41 Lightning Layer

Lightning displays a graphical representation of the observed cloud-to-ground lightning strike density and polarity every five minutes from the U.S. National Lightning Detection Network (NLDN).

11.5.42 Obstacles Layer

Obstacles show obstacle markers based on Jeppesen obstacle data.

11.5.43 User Waypoints Layer

All User Waypoints associated with the account are shown on the Map. See **User Waypoints** for more information.

11.5.44 Fuel Layers

Fuel prices - prices for 100LL and Jet-A fuel. Fuel prices are color-coded by price in the region where the airport is located - less expensive prices are in green, average in orange, and most expensive in red. UL94, UL91/96, and Mogas fuel are not depicted as a map layer.

11.5.45 Custom Map Layers

Custom Map Layers displays a custom KML or KMZ file on the Map. Multiple KML and KMZ files can be displayed at a time. See the **Custom Map Layers** section for additional details.

11.6 Weather Layer Time Slider

A time slider appears at the bottom of the screen when an observed or forecast-based weather layer is selected. Observed weather, such as radar and satellite, will display weather imagery from the past. Forecast weather, such as AIRMETs, SIGMETs, and Center Weather Advisories will display what the weather is expected to do in the future.

Tap the play button on the left to animate the layers. The play button advances the time slider frame-by-frame, while the timestamp on the left shows the date and time when each frame is valid.



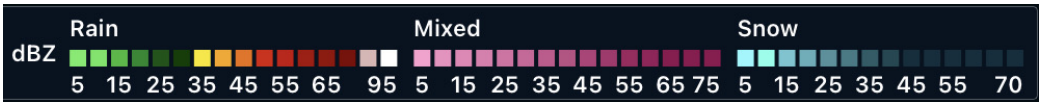
Forecast Weather Time Slider

Forecast-based weather layers use a vertical white bar on the time slider to indicate the present time. Manually control the animation by tap-holding on the time slider and dragging it left or right to view different frames or by tapping on the line to the left or right of the slider to advance it one frame at a time in either direction.

11.7 Weather Legends

When one of the following weather layers are selected, a legend can be displayed near the bottom of the Maps view. The legend is toggled on and off using the **Map Settings** menu and will update based on the selected layer.

- Radar
- Enhanced Satellite
- Color IR Satellite
- Icing and Turbulence
- Clouds
- Winds (Temps/Speeds)



Map Legend (Radar)

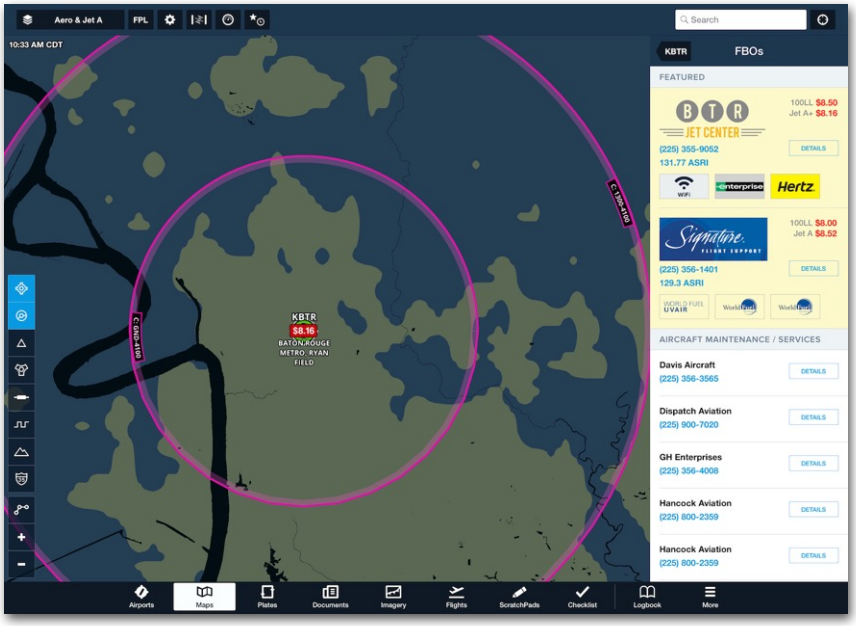
11.8 Maps Sidebar

The sidebar is displayed when map layers are enabled and a map element is tapped. The sidebar is also shown when the map is pressed and held (no active map layer required). When the map is pressed and held, the sidebar reveals the **Add to Route** menu.

The sidebar responds to tapped elements to display relevant information. For example, if the **Fuel: Jet A** map layer is enabled and a fuel price is tapped, the sidebar automatically displays FBO information. Similarly, tapping a METAR-based weather layer (flight category, visibility, etc.) opens the airport details view with the METAR tab selected. If a VFR Waypoint is tapped on the Aeronautical Map layer, the sidebar displays information such as its waypoint type, **ForeFlight Identifier**, and whether or not it is a compulsory reporting point.

The sidebar's airport details view displays all the same information as the full-screen **Airports** view. When an Aeronautical map airport icon is tapped, the airport details view opens to the Info tab. If the **Show Weather First** setting is enabled, the sidebar opens to the METAR tab.

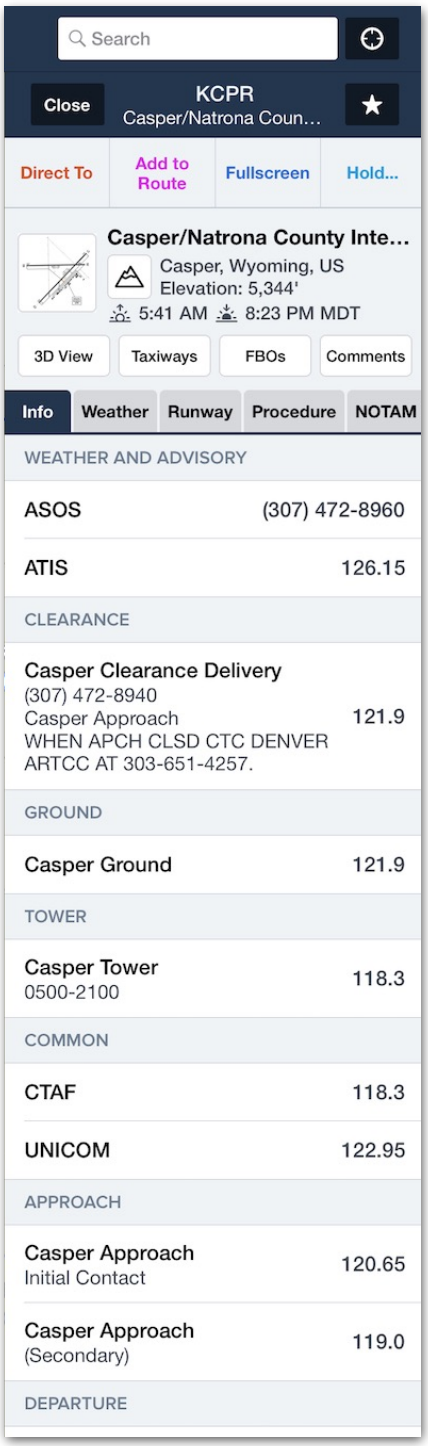
Dynamic map layers such as Radar, Satellite, Icing (US & Global), Turbulence (US & Global), Clouds, and Winds (Temps & Speeds) do *not* reveal the sidebar with a single tap.



Maps Sidebar - FBO View

11.8.1 Airport Details Menu

When an Aeronautical Map Layer is displayed, tapping an airport on the map opens the Airport Details Menu in the sidebar with the functionality described below.



Airport Details Sidebar

Touch Planning Actions

The top of the Airport Details Menu provides the following Touch-Planning actions. Many of these options are described in further detail in the **Flight Planning** chapter.

- Tapping **Direct To** for an airport on the current route will create a route from the present position to the airport and keep all waypoints after the airport. Tapping **Direct To** for an airport not on the route will create a route from the present position to the airport and erase any route in the FLP Editor.
- To add the selected airport as the next element in the current route, tap **Add to Route**. The selected airport will be added to the end of the route as the last waypoint in the Flight Plan (FPL) Editor.
- To open the selected airport in the Airports view, tap **Fullscreen**.
- To open the **Hold Advisor** for the selected airport, tap **Hold**.

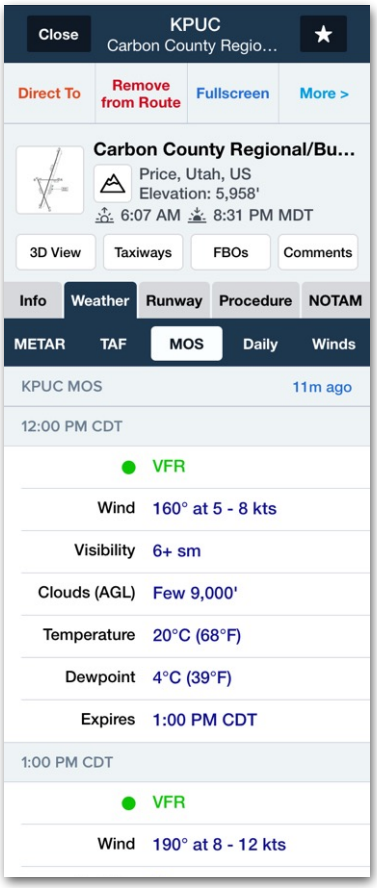
If the selected airport is already in the route, tap **More >** to reveal the following additional actions:

- If the selected airport is already in the current route, tap **Remove from Route** to remove it.
- To add an airport to the route when it is already an earlier part of the route, tap **Add Again**.
- To add a point at an arbitrary distance before the end of the leg, tap **Along-Track Offset**.
- To include a delay or stay at the current airport, tap **Set Altitude/Speed/Time**. This action is only available for Premium and Business Performance subscribers.
- To designate a runway at the selected airport, tap **Select Runway**.

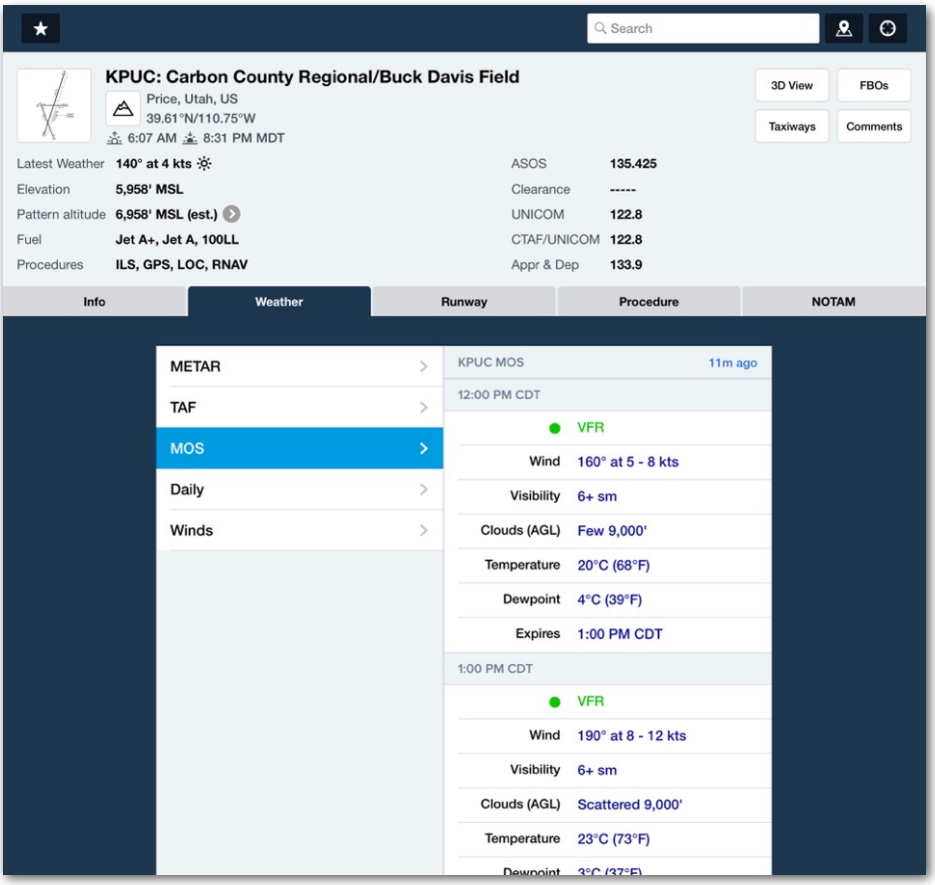
Mini Airports View

Underneath the Airports Details Menu touch-planning options are buttons for viewing airport details. This mini Airports view provides nearly identical functionality to what is offered when an airport is displayed in the Airports view.

For additional airport detail information, see the **Airports** chapter.



Maps Sidebar



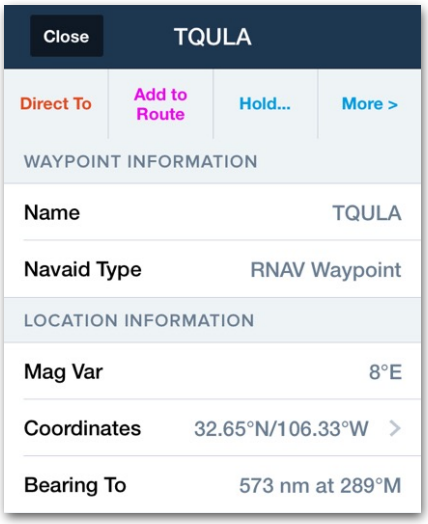
Airport View

11.8.2 Waypoint Information Menu

When a Map Layer is displayed, tapping a navaid or waypoint on the map opens a sidebar with the functionality described below.

Touch Planning Actions

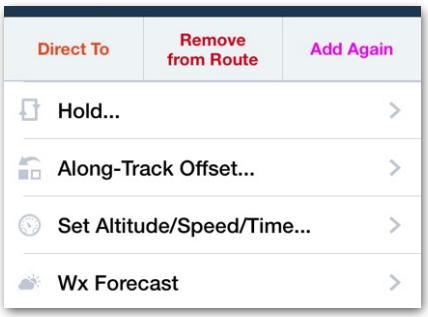
The top of the Waypoint Details Menu provides the following list of Touch-Planning actions. Many of these options are described in further detail in the **Flight Planning** chapter:



Waypoint Sidebar

- Tapping **Direct To** for a waypoint on the current route will create a route from the present position to the waypoint and keep all waypoints after the waypoint. Tapping **Direct To** for a waypoint not on the route will create a route from the present position to the waypoint and erase any route in the FLP Editor.
- To add the selected waypoint as the next element in the current route, tap **Add to Route**. The selected waypoint will be added to the end of the route as the last waypoint in the FPL Editor.
- To open the **Hold Advisor** for the selected airport, tap **Hold**.

If the selected waypoint is already in the route, tap **More >** to reveal the following additional actions:

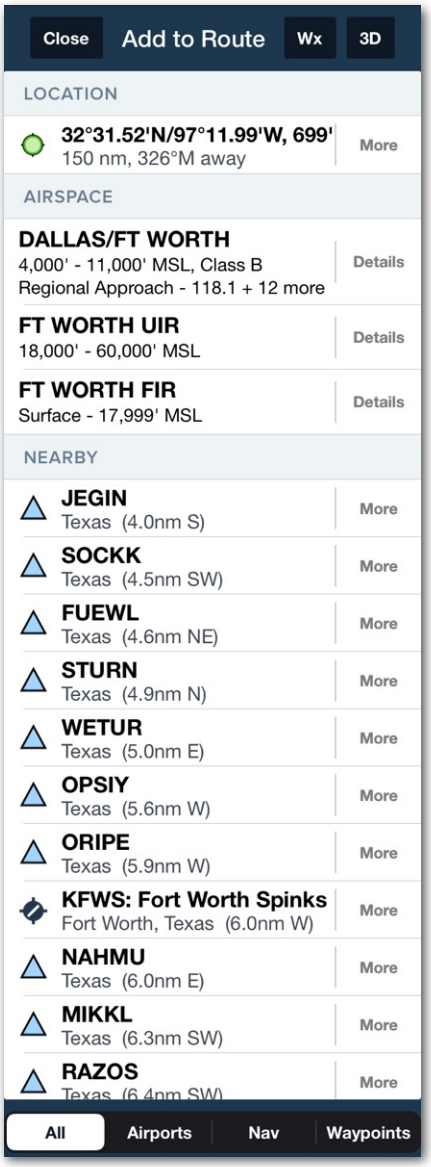


More Actions Menu

- If the selected waypoint is already in the current route, tap **Remove from Route** to remove it.
- To add a waypoint to the route when it is already an earlier part of the route, tap **Add Again**.
- To add a point at an arbitrary distance before the end of the leg, tap **Along-Track Offset**.
- To include a delay or stay at the current waypoint, tap **Set Altitude/Speed/Time**. This action is only available for Premium and Business Performance subscribers.
- To view an hourly and daily local forecast, tap **Wx Forecast**. This will display local weather data provided by The Weather Company.

11.8.3 Add to Route Menu

The Add to Route Menu is displayed in the sidebar when the map is tapped and held. The menu allows creating **user waypoints**, planning flights, and viewing aeronautical details.



Add to Route Menu

There are two buttons at the top of the menu. The **Wx** button displays the Daily Weather pop-over. The **3D** button offers an aerial three-dimensional view centered around the coordinates (Premium, Business Performance, or MFB Performance plan required).

Add to Route Design

The Add to Route menu is divided into three sections.

Location

The location section displays the coordinates and highest elevation within 0.25 nautical miles. The coordinate format is determined by the **Unit/Time** setting. To copy coordinates tap the **More** > **Copy** buttons to open the Coordinate Formats pop-over.

Airspace

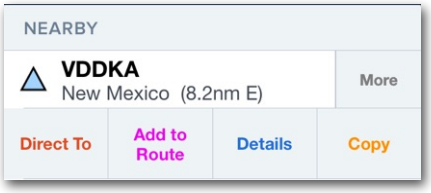
The airspace section lists all airspace from the surface to 60,000 feet. Tap **Details** to highlight the airspace on the map. The airspace details view displays frequencies, NOTAMs, RVSM cruise tables, operational notes, speed restrictions, prior notification procedures, and communication details for CPDLC and satellite services.

Nearby

The nearby section lists nearby airports, navigational aids, and waypoints, sorted by distance. Icons are provided to assist with determining the type. The **All**, **Airports**, **Nav**, and **Waypoint** buttons at the bottom of the menu filter the nearby list.

Heliports, Private Airports, and Seaplane bases are only included in the nearby list if the **All** or **Airports** filter is selected *and* the airport types are enabled in the Aeronautical Map > **Airport settings**. Tap an element in the waypoint list to append it to the end of the existing route.

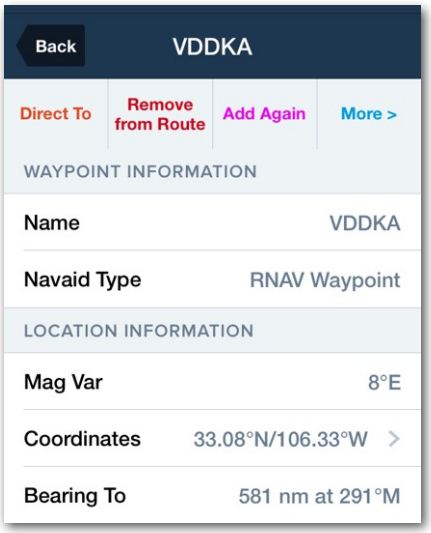
Touch Planning Actions



More Waypoint Details

Tap the **More** button next to the Location or Nearby waypoint to open the Touch Planning pop-over. The following list of Touch-Planning actions are available and described in further detail in the **Flight Planning** chapter.

- Tapping **Direct To** for a waypoint on the current route will create a route from the present position to the waypoint and keep all waypoints after the waypoint. Tapping **Direct To** for a waypoint not on the route will create a route from the present position to the waypoint and erase any route in the FLP Editor.
- To add the selected waypoint as the next element in the current route, tap **Add to Route**. The selected waypoint will be added to the end of the route as the last waypoint in the FPL Editor.
- To open the Coordinate Formats pop-over and copy coordinates, tap **Copy**.



Waypoint Details

Tapping the **Details** button opens the Details pop-over with the following additional functions:

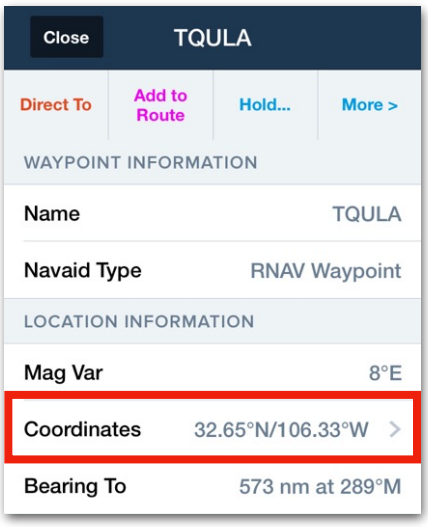
- If the selected waypoint is already in the current route, tap **Remove from Route** to remove it.
- To add a waypoint to the route when it is already an earlier part of the route, tap **Add Again**.

Tap the **More >** button to open the All Actions pop-over with the following actions:

- To open the **Hold Advisor** for the selected waypoint, tap **Hold**.
- To add a point at an arbitrary distance before the end of the leg, tap **Along-Track Offset**.
- To include a delay or stay at the current waypoint, tap **Set Altitude/Speed/Time**. This action is only available for Premium and Business Performance subscribers.
- To view an hourly and daily local forecast, tap **Wx Forecast**. This will display local weather data provided by The Weather Company.

11.8.4 Coordinate Copying

Coordinate Copying allows a user to select the desired coordinate format and copy it to the clipboard. The coordinates can be pasted to other fields within ForeFlight, notes, or other apps (Waypoint Copying requires a Premium, Business Performance, MFB One, or MFB Performance plan).



Waypoint Sidebar

Copying Airport Coordinates

To copy airport coordinates, follow these steps:

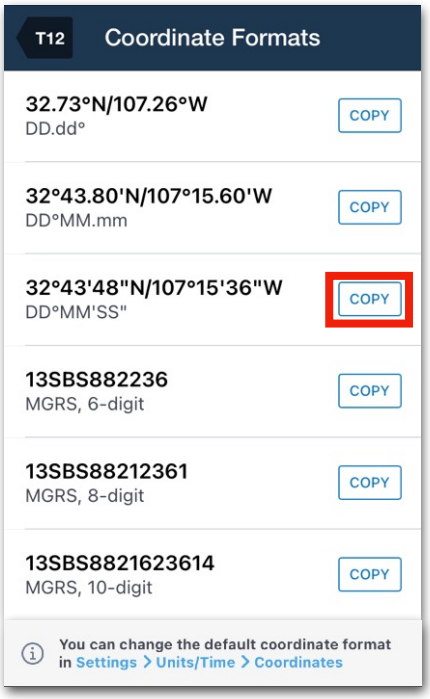
1. Tap on the airport in the Main Maps View to open the Airport Details Menu in the sidebar.
2. With the **Info** tab selected, scroll down to FEATURES.
3. Tap on the **COPY** button next to the Location coordinates to open the Coordinate Formats pop-over.

See **Airport Info Tab** for more details.

Copying Waypoint Coordinates

To copy waypoint coordinates, follow these steps:

1. Tap on a waypoint in the Main Maps View to open the Waypoint Information Sidebar.
2. Tap on Coordinates to open the Coordinate Formats pop-over.
3. Tap **COPY** next to the desired coordinate format.

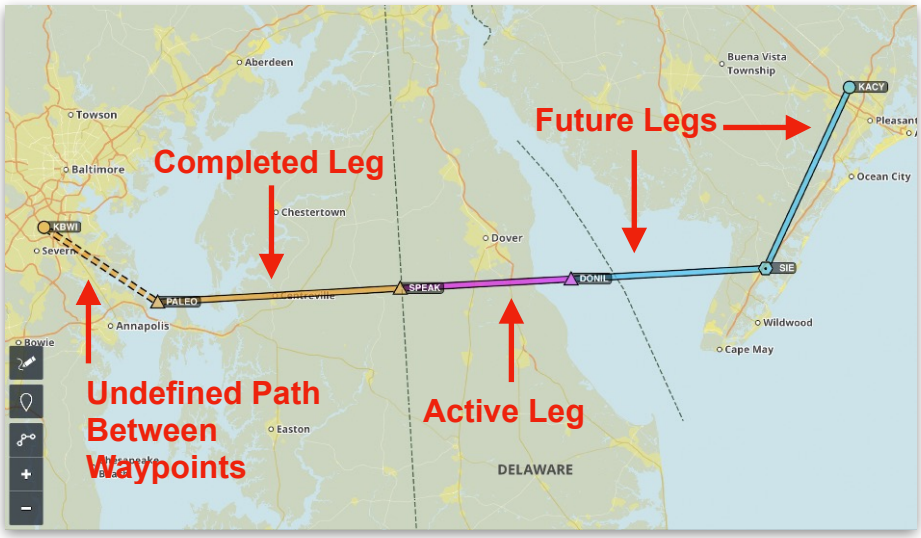


Coordinate Formats

A link at the bottom of the pop-over will open Coordinates in settings to change or verify the default user setting. Tap **Settings > Units/Time > Coordinates** to open the Coordinates settings pop-over.

11.9 Route Line

The route line is generated dynamically on the map. Each leg snaps between waypoints and is color-coded to communicate information to the pilot. This behavior is described below.



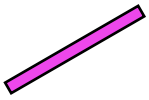
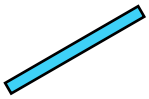
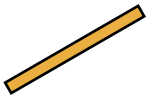
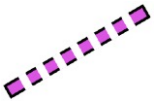
Route Line Color and Style



Overlapping Route Lines

11.9.1 Route Line Colors

The appearance of each leg conveys meaning as described in the following table. Color represents the flight's progress. Style conveys actual or approximate routing and shows when the route overlaps itself.

Color	Meaning
	**Magenta** lines represent the active leg of the flight plan. The first leg of a new route is always magenta.
	**Blue** lines represent future legs.
	**Orange** lines represent completed legs.
	**Dashed** lines indicate an approximate path to the next waypoint. Like solid lines, they can be **magenta**, **blue**, or **orange**. This is common when expecting radar vectors from ATC during an instrument procedure.

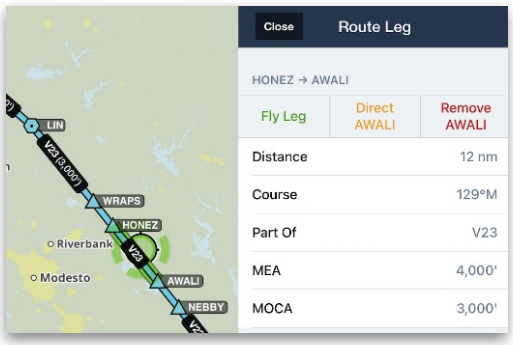
Style	Meaning
	**Overlapping** lines indicate two or more legs on the route overlap one another. As a flight progresses, the legs are displayed to maximize their visibility. Specifically: • The active (**magenta**) leg is always displayed on top of the completed (**orange**) or future (**blue**) legs it overlaps. • When a flight starts, the outbound legs are centered and on top of inbound legs. • When all overlapped outbound legs are complete, those legs are offset and moved under the inbound legs.

11.9.2 Route Waypoints

Waypoints in the route are drawn with an icon to represent their type, such as a VOR. For more information, see the discussion of **Aeronautical Map Symbols**.

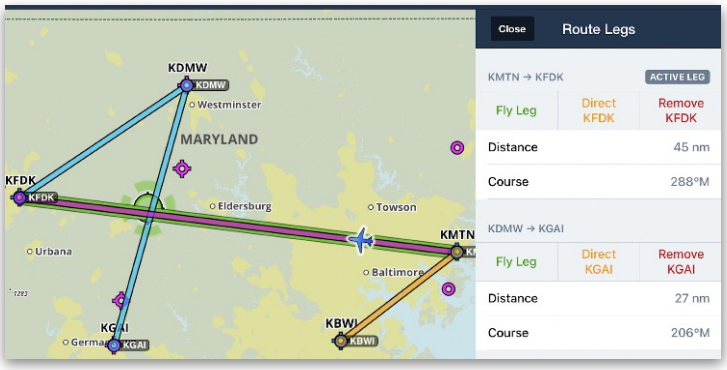
11.9.3 Route Details

Tap on any leg in the route to access certain information and actions. The Route Leg popup includes the length and magnetic course, and if the leg is part of a named airway, the popup also includes the name of the airway, the leg MEA, and the leg Minimum Obstruction Clearance Altitude (MOCA), if it has one. If **Corridor Activation** is set to Show, or when it is set to Automatic and the Profile View or Hazard Advisor is displayed, the popup also shows the **highest-point markers** of the leg. The buttons along the top of the popup allow activating the leg (**Fly Leg**), flying **Direct** to the waypoint at the end of the leg, or to **Remove** the waypoint at the end of the leg.



Tap a leg to show its details

If the leg tapped overlaps another leg, the sidebar opens showing each leg overlapping the region tapped. If one of the overlapping legs is currently being flown, it will have an **ACTIVE LEG** badge.



Tap an overlapped region to show all its legs

11.9.3.1 LSALT Calculator

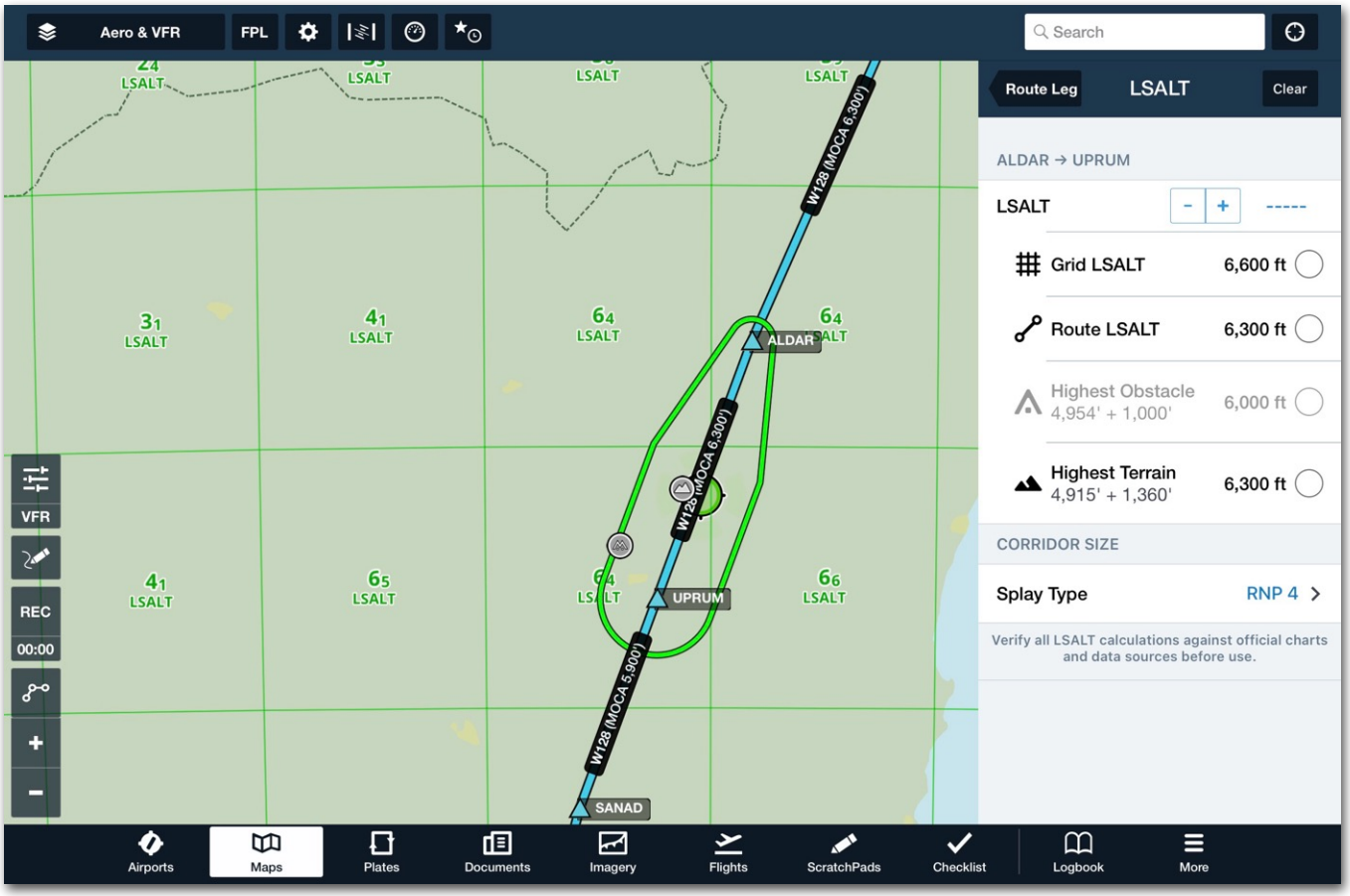
The **LSALT Calculator** may be displayed on the Route Details to show lowest safe altitude calculations per leg. See **Map Settings** to enable the LSALT Calculator.

To calculate LSALT:

1. Tap the leg to be calculated.
2. Tap LSALT in the Route Leg sidebar.
3. Manually enter a custom LSALT

   OR

4. Tap a radio button for the desired calculation.

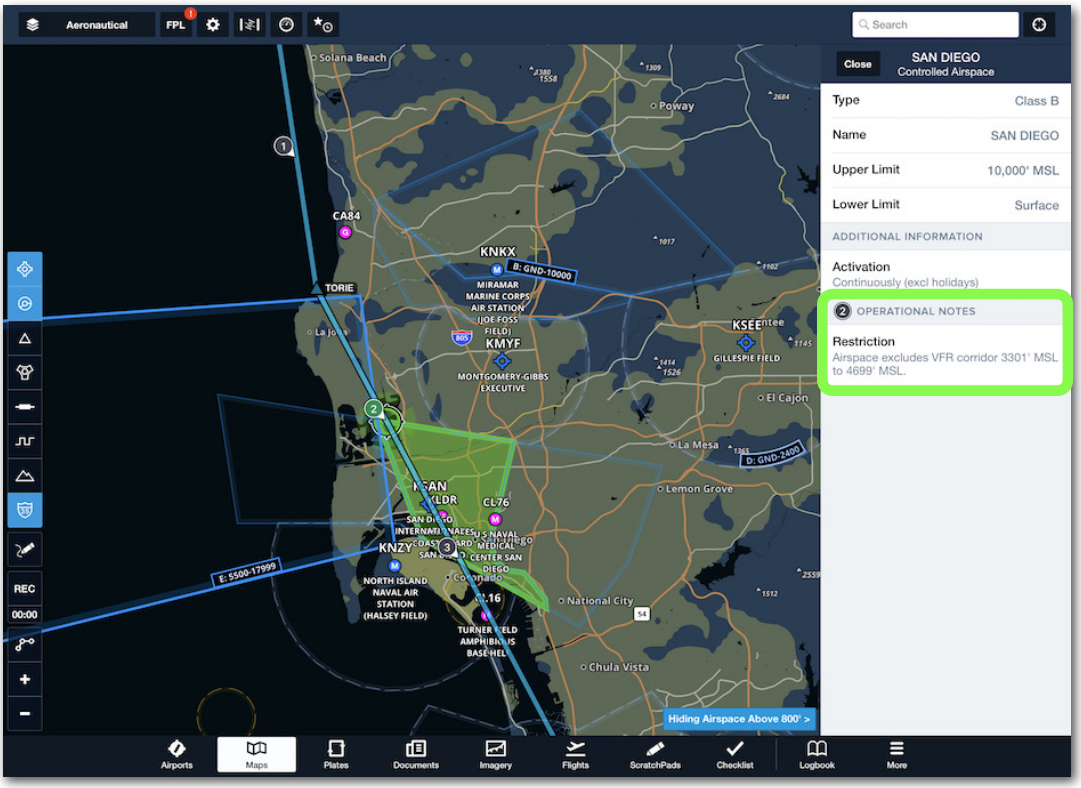


Route Details LSALT Calculator

11.9.4 Operational Note Flags

The Airport and Nav Database includes Jeppesen-sourced Operational Notes. Notes can be issued for airspace, airways, waypoints, navaids, and more. Operational Notes can be displayed in the Sidebar regardless of subscription type or settings.

With a *Performance-tier* subscription, numbered flags can be displayed on the map for each Operational Note that exists along the planned route. Flags are numbered sequentially for each Operational Note encountered. Tapping a flag highlights it and opens the Sidebar with the details of the Operational Note displayed.



Planned Route with Operational Notes in Sidebar

To enable Operational Note Flags:

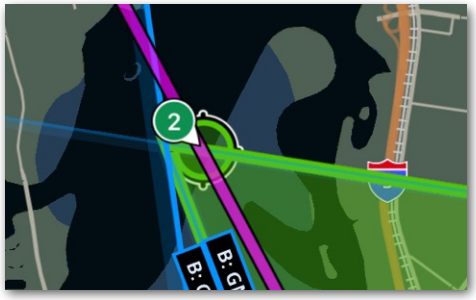
1. Open the Map Settings menu (gear button in upper toolbar).
2. Scroll down and enable the **Operational Note** setting.

NOTE: Operational Notes can be viewed in the Sidebar with the Operational Note setting disabled. The Operational Note setting only enables the flags.

Flags

Operational Note Flags are displayed at the waypoint where the note exists.

If an Operational Note relates to airspace, a flag is displayed at the point where the route intersects the airspace. The planned altitude (including climb and descent) must be within 1000 ft (vertically) of the airspace for the flag to appear.

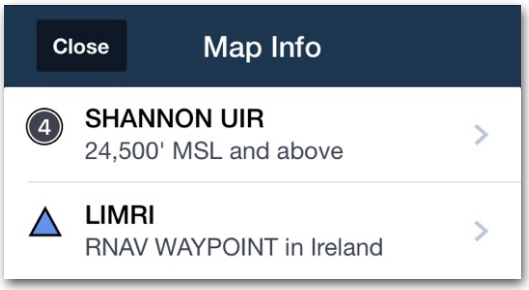


Airspace Flag

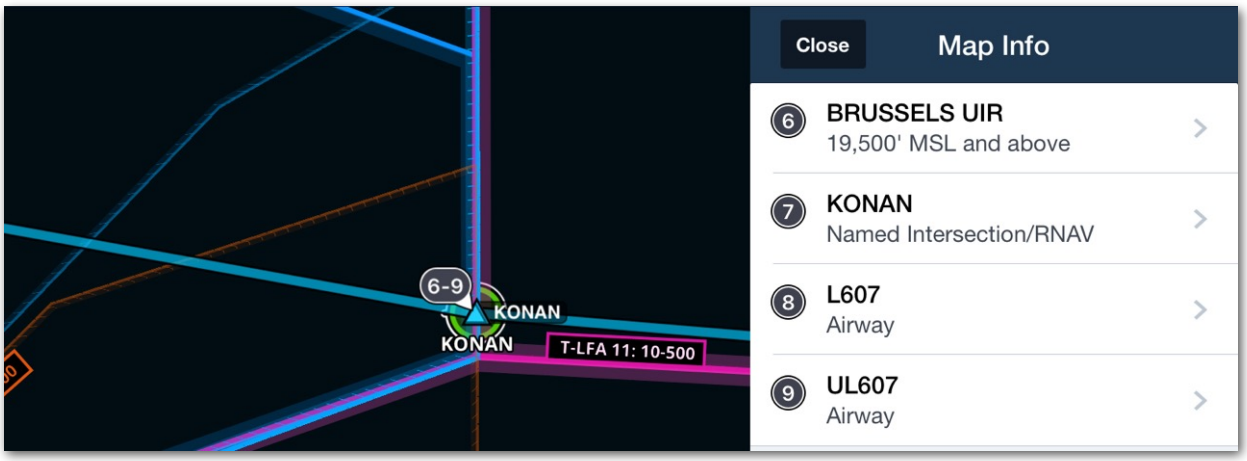
Multiple Operational Notes

When an Operational Note is co-located with a waypoint, tapping the flag results in the Sidebar displaying the Operational Note and the waypoint. Tap the numbered flag to display the details of the Operational Note.

When more than one Operational Notes exist where a flag is located, the flag will show the range of notes, separated by a dash (e.g., 6 - 9). Tap the flag to display the notes in the Sidebar.



Numbered Operational Note and Waypoint



Operational Notes (6 - 9)

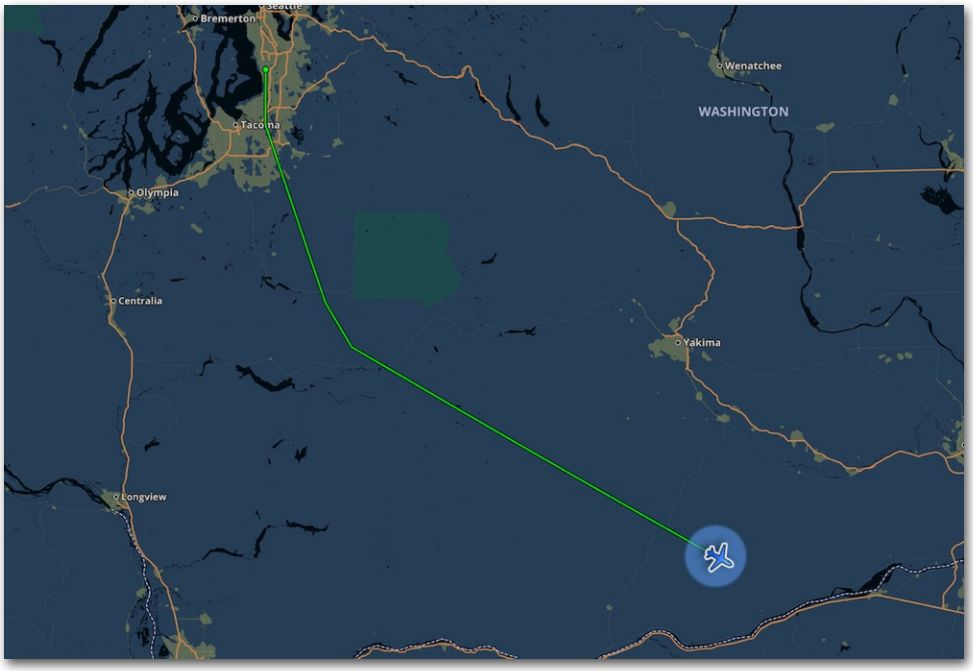
11.10 Breadcrumbs

Breadcrumbs are an optional feature included with all ForeFlight plans that draw a thin green line on the Map indicating the path since takeoff. When enabled in **More** > **Settings**, breadcrumbs automatically displays when groundspeed exceeds 40 knots and height AGL exceeds 250 feet. Breadcrumbs automatically stop when height AGL decreases below 250 feet or groundspeed slows below 40 knots. For a video demonstration, visit our **Video Library**.

Breadcrumbs remain displayed on the Map until manually cleared or the user-specified time has elapsed without another flight being detected. To adjust how long breadcrumbs are displayed, tap **More** > **Settings** > **Breadcrumbs Clear After** and select an option.

As described in the **next section**, Breadcrumbs can be saved alongside the track log recordings.

IMPORTANT: Breadcrumbs do not record pitch, bank, or gLoad data.



Flight with Breadcrumbs Enabled

11.10.1 Saving a Breadcrumb

Breadcrumbs are independent of **Track Logs**. However, they can be saved as a track log, which serves as an alternative (or supplement) to manually or automatically recording a flight.

When a breadcrumb is saved, it is accessible from the Track Logs view and is indistinguishable from other track logs. Breadcrumbs do not affect ongoing track log recordings. In other words, a track log can be recorded for a flight and a breadcrumb saved for the same flight.

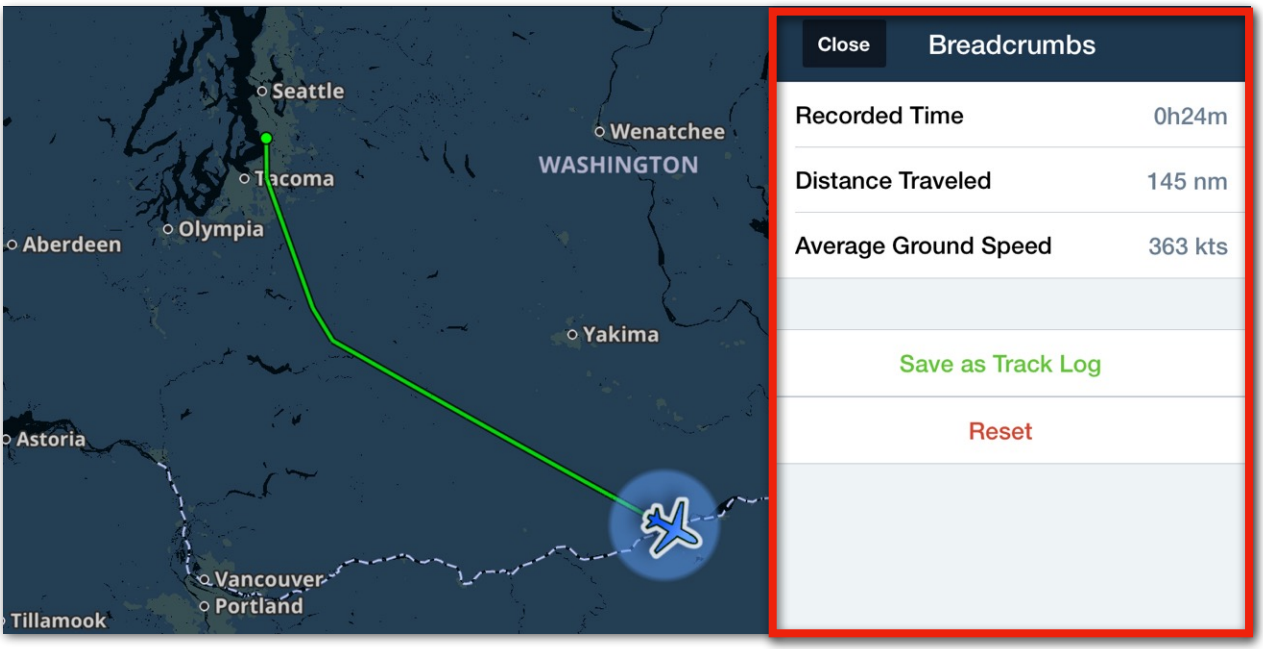
Breadcrumbs can be saved at any time. This is useful for saving a particular maneuver or portion of flight. After a breadcrumb is saved, it is cleared from the map and a new breadcrumb is automatically started if groundspeed exceeds 40 knots and height AGL exceeds 250 feet.

NOTE: It is not possible to save a breadcrumb while also leaving it on the map.

To save a breadcrumb, tap it and select **Save as Track Log** from the sidebar.

Clearing a Breadcrumb

To clear a breadcrumb without saving it, tap the breadcrumb and select **Reset**.



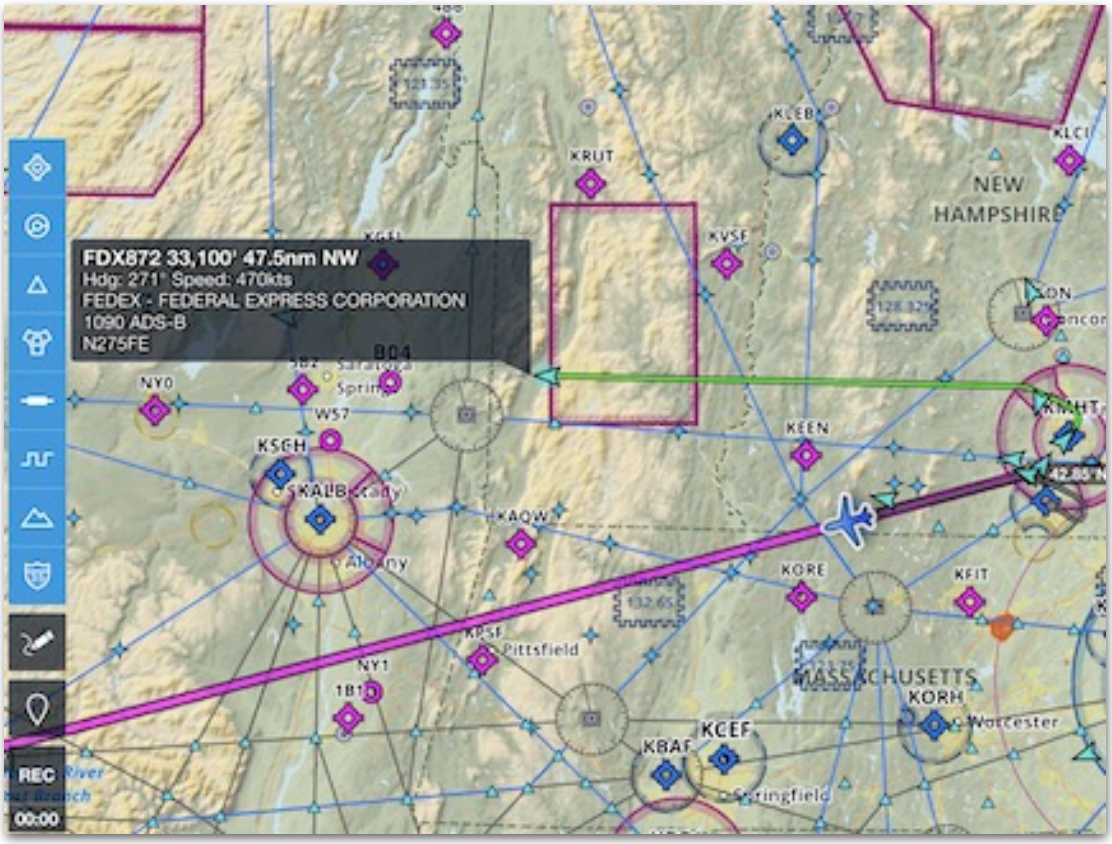
Breadcrumbs Sidebar View

11.10.2 Traffic Breadcrumbs

When connected to an ADS-B or FLARM receiver, breadcrumbs can be displayed on the map for a traffic target by tapping its traffic icon. Traffic Breadcrumbs require a ForeFlight Essential or higher subscription and are enabled by default. Disable this feature in **More** > **Settings** or **Map Settings**.

The traffic target breadcrumb depicts where the target aircraft has been since the ADS-B or FLARM receiver started receiving traffic data from the target (up to 30 minutes). This applies to both airborne and ground traffic targets.

This feature is useful for determining what type of flying the aircraft is doing and may help determine where the aircraft is going next.



Traffic Breadcrumb

Traffic Labels

When Traffic Breadcrumbs are enabled and a traffic icon is tapped, a pulsing halo is displayed around the icon, indicating it is the selected aircraft.

The selected aircraft displays a label with information from its transponder. Tap the label to hide it while leaving the traffic breadcrumb displayed. Tap the traffic icon again or anywhere else on the map to deselect the traffic target, thus hiding its breadcrumb, pulsing halo, and label (if applicable).



Traffic Label Displayed

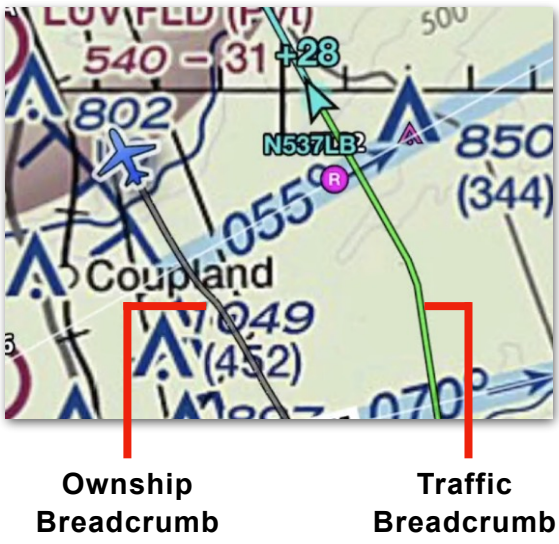


Traffic Label Hidden

Ownship and Traffic Breadcrumbs

Only one green breadcrumb can be displayed at a time. When breadcrumbs are enabled for ownship and a traffic breadcrumb is displayed, ownship breadcrumb is temporarily depicted as a dark gray line.

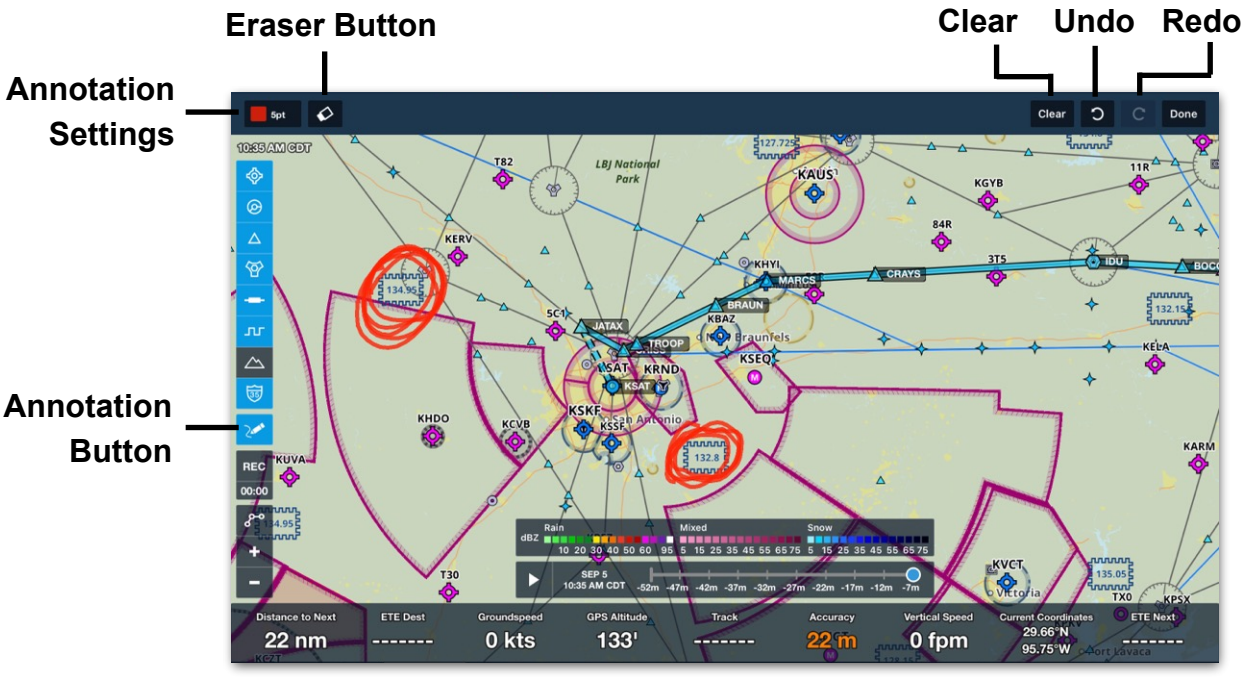
Tap the traffic icon again or anywhere else on the map to deselect the traffic target, restoring ownship breadcrumb to a thin green line.



11.11 Map Annotations

Map Annotations is a feature enabling users to freely draw on the map for the purpose of highlighting or making notes about specific elements or locations. To enable map annotations, tap the **Annotation Settings** (gear) button, scroll down to **Map Annotations** and toggle on. To activate annotations, tap the **Map Annotation** button on the left sidebar. Use one finger, a stylus, or an apple pencil to draw and two fingers to move the map. To adjust map annotation opacity, line thickness, or color, tap the **Map Annotation Settings** button located on the top left of the map page.

Map annotations remain on the map until cleared and automatically scale as the map is zoomed in and out. To clear all map annotations, tap the **Annotation** button, and tap the **Clear** button near the top of the screen**.** The **Eraser** button can be used to remove individual annotations. Tap the **Undo** or **Redo** buttons near the top of the screen to remove or add back the most recent annotation changes.



Map Annotation Settings

When using an Apple Pencil, the **Auto Apple Pencil Drawing** setting allows adding map annotations by touching the Apple Pencil to the iPad's screen without tapping the **Annotation** button first. Double-tapping with a finger, towards the tip, on the flat edge of the Apple 2 Pencil will switch between Writing and Eraser modes. Normal touch gestures still allow panning, zooming, or tapping on map objects.

11.12 Marked Positions

Marked Positions (available in Premium and Business Performance plans) can drop a position marker (green pin shape) at any point along the flight. To enable Marked Positions, tap the Maps Settings (gear) button and turn the Marked Positions switch ON. For a video demonstration, see **Marked Positions**.



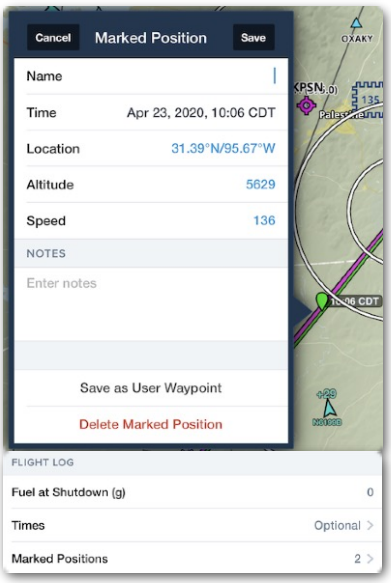
To add a Marked Position, tap the Pin button on the left side of the map. Each position marker (green pin shape) includes the current time, GPS coordinates, altitude, and speed and can be named and additional notes added. If a name is not entered, the marker name shown on the Maps page is the time when the marker was dropped.

Markers are included in a **track log** recorded during the flight, and can be shared as part of the Track log, viewed in a flight whose ETD and duration span the time when the marker was dropped, and exported from the flight as a KML or CSV file.

The pins for positions marked during a particular flight are automatically hidden from the map 15 minutes after the end of the flight.

11.12.1 Editing Marked Positions

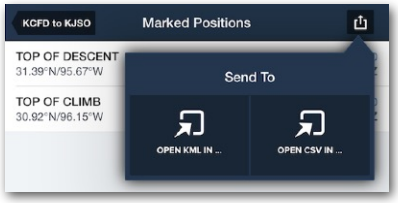
While a Marked Position is displayed on the map the information can be edited by tapping the green pin, then tapping the “Edit” button. Make any desired changes, then tap Save. While Editing a Marked Position it can be saved as a User Waypoint, so it can then be added to the Route or used as part of a Search & Rescue (SAR) pattern.



After the flight, edit a Marked Position by viewing the Track Log containing the position and tapping the Marked Position or tapping the Track Log “Info” button and scrolling down to the Marked Position, or by opening a Flight whose ETD and duration span the time when the marker was dropped and scrolling down to the “Flight Log” section.

11.12.2 Exporting Marked Positions

After a flight, positions marked during a flight can be directly exported as a KML or CSV file by tapping “Marked Positions” in the Flight Log section of the flight. Tap an individual Marked Position to edit its information, or tap the “Send to” button in the upper-right and choose the export file type.

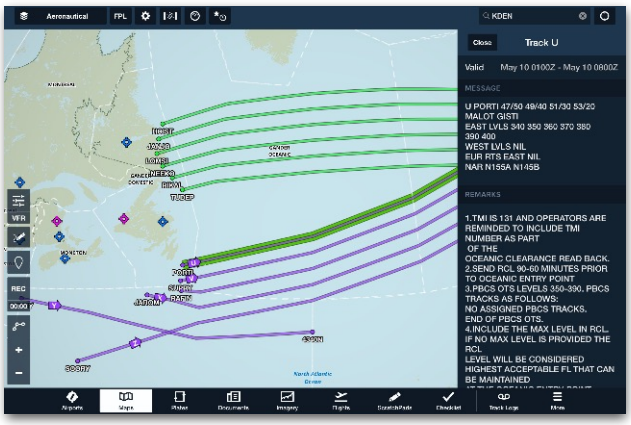


Exporting Marked Positions

Marked Positions are saved in a Track Log and are included when the Track Log is exported as a KML for use in another app.

11.13 Organized Track Systems

ForeFlight Mobile includes the option of displaying Organized Track Systems (OTS) for North Atlantic and North Pacific (Premium or Business Performance plan required).



Organized Track System

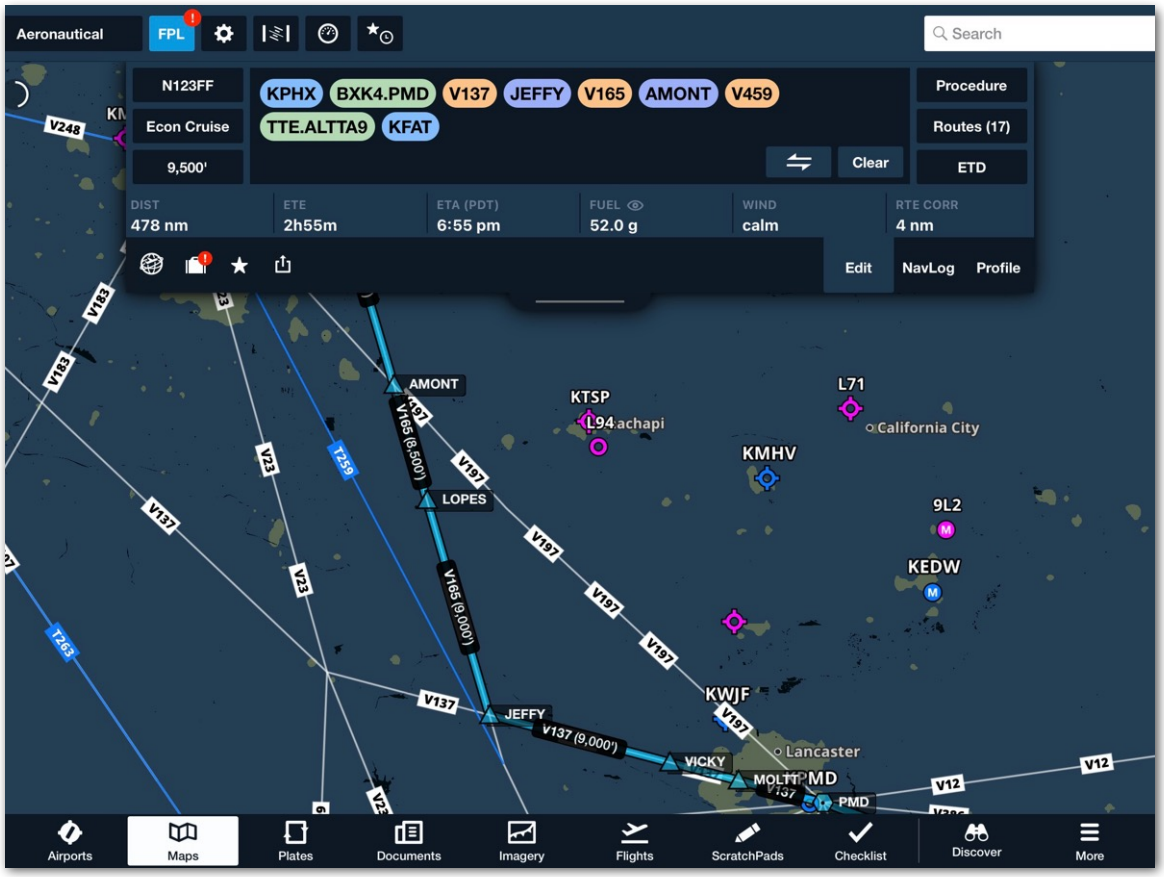
Tracks are updated automatically, and tapping on a track shows additional details such as valid times and controller notes.

Display the tracks by selecting the Aeronautical Data layer, then tapping the Aeronautical Drawer button, then tapping the Settings button, and turning the **Show Organized Tracks** switch ON. Toggle East or West track display by tapping **East** or **West**.

Organized Tracks cannot be automatically added to a route. However, the points on a track can be added manually using touch planning.

11.14 Smart Airway Labels

When the route entered in the Route Editor includes one or more airways, dynamic labels appear along each airway segment with information about the segment, including the name of the airway, the segment MEA, and the segment MOCA, if it has one. These labels expand to fill available space between waypoints, adding more information as the map is zoomed in.



Smart Airway Labels

Smart airway labels only appear when an airway is explicitly named in the Route Editor, meaning that one of the route bubbles is the airway name. To ensure all airway labels are shown, turn the Airway Decoding Setting to “All Waypoints Shown”. Building a route with the individual waypoints in an airway but without naming the airway itself will result in the airway labels not appearing.

Smart airway labels are tied to other route labels and can be disabled by turning off Route Labels in **Maps Settings**.

11.15 Attitude Indicator/Synthetic Vision

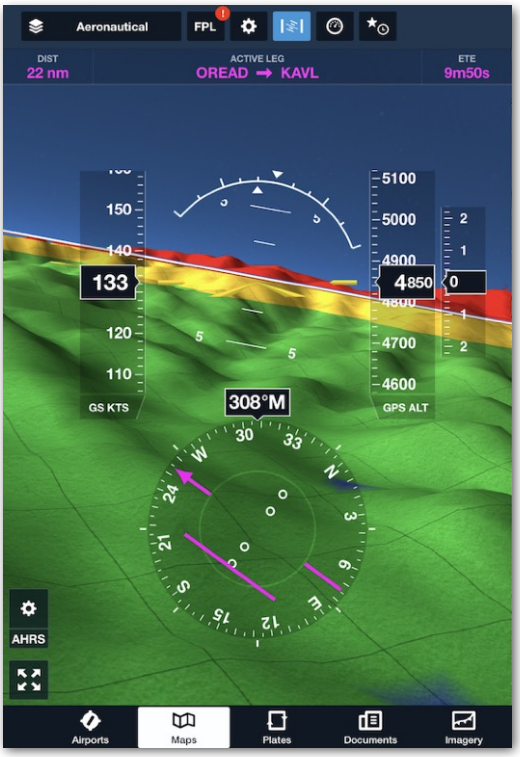
For Starter subscriptions, the Attitude Indicator (AI)/Synthetic Vision (SV) display will show altitude, ground track, ground speed, and rate of climb on the iPad. If connected to a Sentry or other supported AHRS-equipped external device, the display will also include an AHRS-derived horizon (pitch & roll). If using a GPS source that does not include an AHRS sensor, attitude information (pitch, roll) is not displayed, and the horizon will appear level regardless of attitude. When receiving valid METAR data, such as FIS-B from a Sentry, the calculated barometric altitude replaces GPS altitude, and a **Baro Alt** label is displayed below the altitude tape.

Essential and Premium subscriptions will also include a 3D depiction of the obstacles and terrain ahead (Synthetic Vision). Tap the **Attitude Indicator (AI)/Synthetic Vision (SV)** button at the top of the Maps page to view the AI/SV display.



No Attitude Information

Starter Account

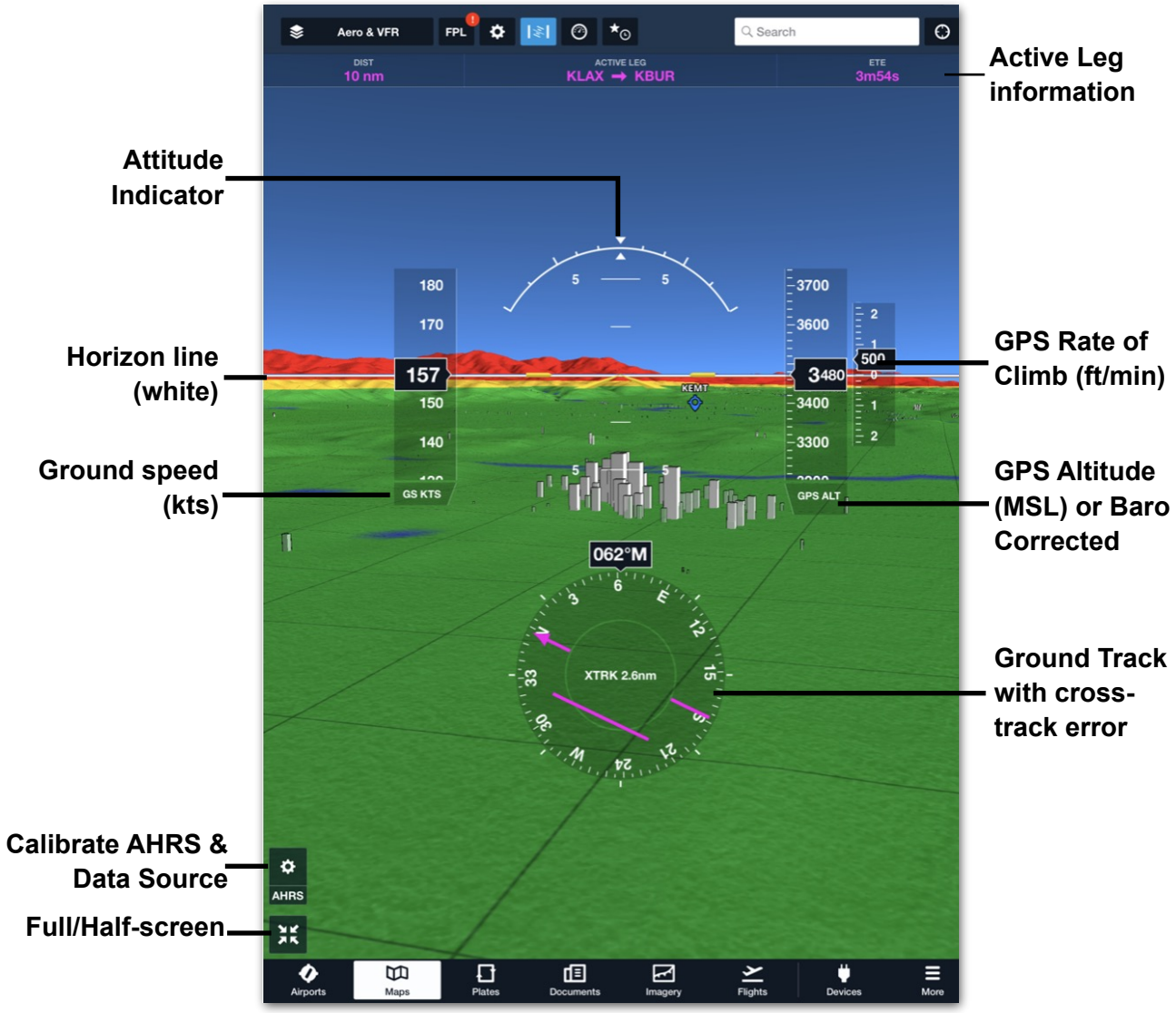


Attitude Information

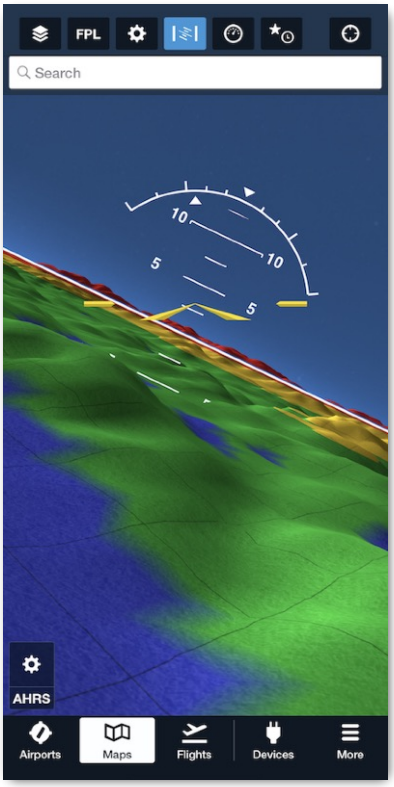
Synthetic Vision

Obstacles and terrain are colored based on the relative altitude (tied to the Profile view altitude selection). Terrain color can be red, yellow, or green and is based on the user-set **Hazard Altitudes** setting. The terrain grid lines on the Synthetic Vision (SV) view are aligned North-South and East-West for easy orientation.

When the iPad is in landscape orientation, the AI/SV display is shown on the left side of the screen. When the iPad is in Portrait orientation, the AI/SV display is shown at the top of the screen on the Maps page. Tap the **Full/Half-screen** button in the lower-left corner of the screen to switch between split-screen and full-screen AI display in either landscape or portrait orientation.



11.15.1 iPhone Attitude Indicator



The iPhone AI/SV display is always full-screen and does not include the “tapes” for Ground speed, GPS rate of climb, GPS altitude, or the Ground Track compass circle. The instrument panel may be displayed at the bottom of the iPhone screen and instruments such as GPS altitude, Ground Speed, Etc choosen.

The iPhone AI/SV display works in portrait and landscape orientation on any iPhone currently supported by ForeFlight Mobile except the iPhone 5, 5C, 5S, and SE.

The AI/SV display will automatically begin dimming to a darker “night” mode beginning 20 minutes before local sunset and will be fully dimmed 20 minutes after sunset. 20 minutes before local sunrise, the AI/SV display will automatically begin brightening to “day” mode.

NOTE: The iPhone Display Zoom setting must be set to **Default** to use SV. To adjust this on the iPhone go to **Settings** > **Display & Brightness** > **Display Zoom** and select **Default**.

WARNING: The ForeFlight AI/SV display is for informational purposes only. Do not use the ForeFlight AI/SV display as a primary instrument in any phase of flight.

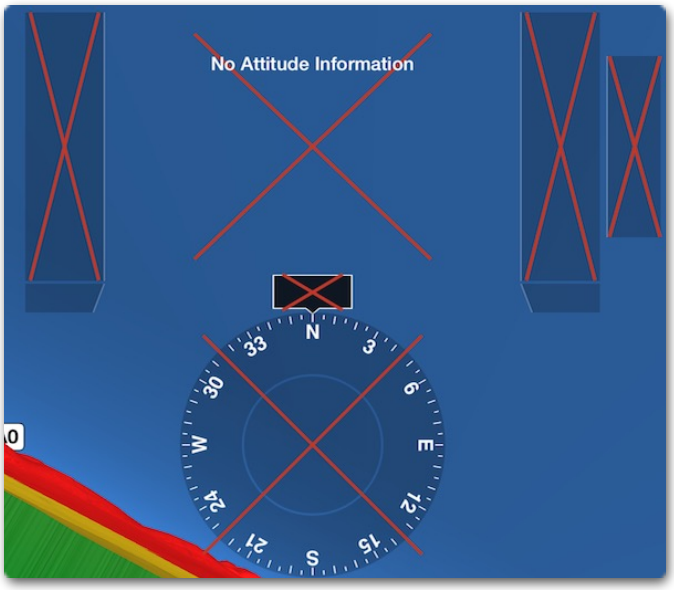
Red chevrons are shown on the AI/SV display if the nose-up or nose-down attitude approaches 30 degrees. The chevrons point in the direction of pitch recovery.



Red Chevrons beyond 30 degrees

Unreliable GPS

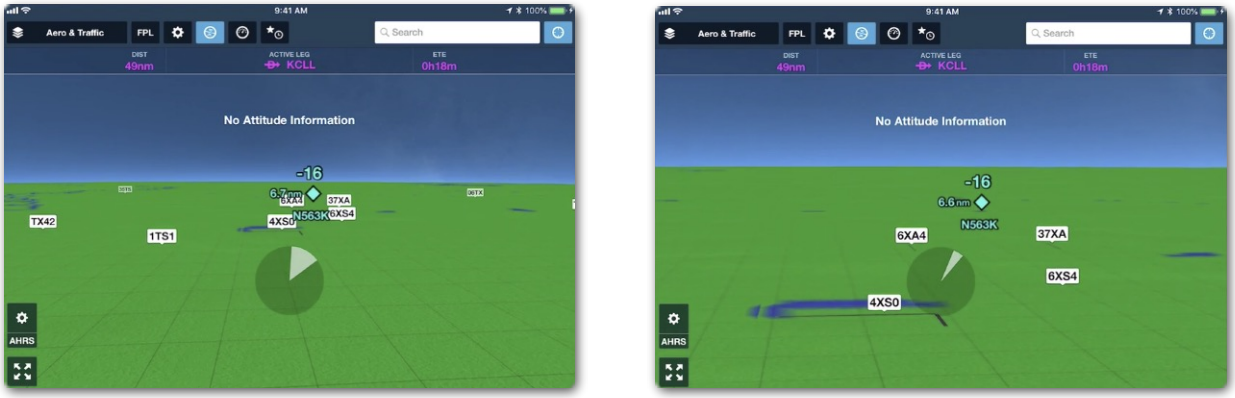
In the event that AHRS or GPS data becomes unreliable, the affected instrument(s) will be X'd out until reliable data is received.



Unreliable GPS data

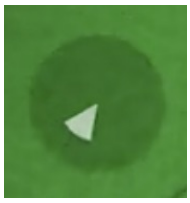
11.15.2 Glance Mode

Swipe within the Synthetic Vision window to enter Glance Mode, an interactive experience with zoomable 360-degree view of the terrain, obstacles, airports, and traffic (requires a compatible ADS-B receiver) around the aircraft.

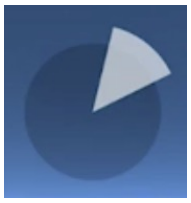


Once Glance Mode is enabled, the heading, altitude, and groundspeed indicators disappear to provide a more open view, and a circular field of view indicator including a “slice” appears to show the camera orientation relative to the ground track and the horizon.

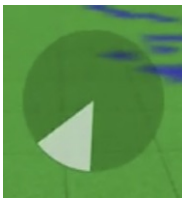
Use single-finger touch to pan the view both horizontally and vertically, and use two fingers pinch to zoom in (up to 10x) and out. The view indicator “slice” narrows as the view zooms in, widens as the view returns to normal, gets shorter as the view tilts down, and gets longer the view tilts up:



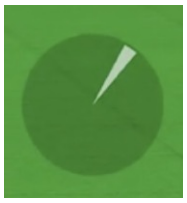
View tilted down



View tilted up



View zoomed out



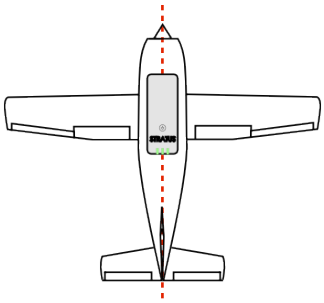
View zoomed in

A radial timer begins moving clockwise around the view indicator after the last touch, and Glance Mode automatically exits if no touches are received within six seconds. In this example, approximately two seconds have passed since the last touch.



Alternatively, tap on the view indicator to manually exit Glance Mode and return the view to its default forward direction.

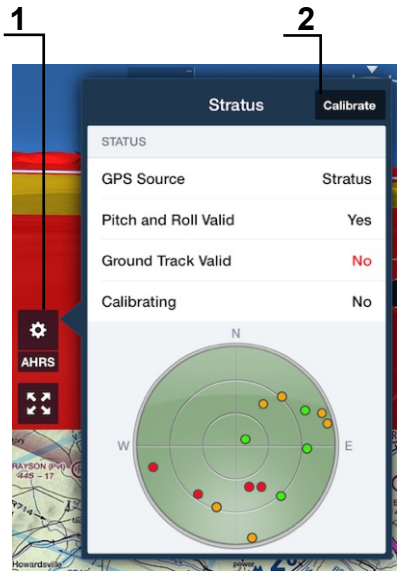
11.15.3 Portable AHRS Positioning

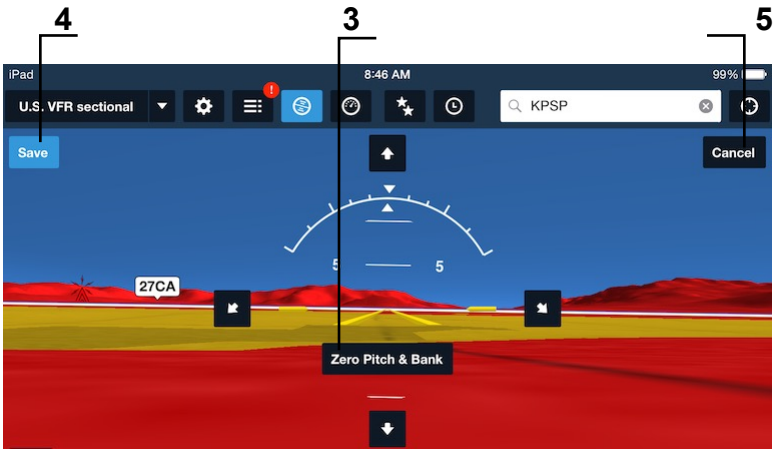


For accurate pitch & roll indications, a portable AHRS device should be positioned in the aircraft in a stable location that will not shift or move during the flight. If the portable AHRS shifts or moves, the AI/SV display may need to be recalibrated.

Calibrate the AI/SV display

When using an AHRS device, the Attitude Indicator can be calibrated to straight and level by tapping the AHRS data source label (1) in the lower-left of the Attitude Indicator display. Tap **Calibrate** (2) on the popup window and then tap on the **Zero Pitch & Bank** (3) to automatically set the current condition as level. On the iPad tap on any of the four Pitch & Bank arrows to adjust the pitch and roll in small increments. To save the calibration tap **Done** (4) in the upper left corner of the display. Or tap **Cancel** (5) to cancel the calibration.





11.16 Map Search

To center the map on an airport, navigation aid, or waypoint, tap the *Search* box in the top right of the Airports, Maps, or Plates view. Type the location's name or identifier, and tap the **Search** button on the keyboard.

Search is available by name, identifier, latitude/longitude, or bearing and distance from a waypoint. The waypoint will be shown with a marker. Entering a waypoint will not clear routes showing on the Maps view. To remove the animated waypoint marker, tap elsewhere on the map.

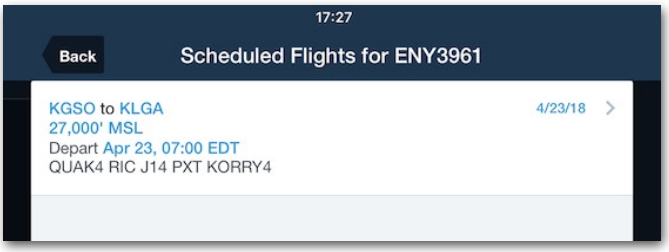
Example Searches:

- KJFK - Centers the map on KJFK airport.
- GARBENHEIMER WEISEN - Centers the map on the airport of the same name in Germany.
- FLW - Centers the map on the FLW VOR.
- 32.3N/99W - Centers the map on the latitude/longitude.
- 324455/-0804557 - Centers the map on 32°44'55"N, 80°45'57"W.
- N324455/W0804557 - Centers the map on 32°44'55"N, 80°45'57"W.
- 3244.92/-08045.95 - Centers the map on 32°44'55"N, 80°45'57"W.
- 3244556/-08045576 - Centers the map on 32°44'55.6"N, 80°45'57.6"W.
- 4952N - ARINC 424 coordinates, centers the map at 49N 52W.
- HIGAL/320/15 - Centers the map on 15nm bearing 320°M from HIGAL. If a VOR is given as the reference waypoint, then the directional information is assumed to indicate a radial, not a bearing.
- LAX/246R/20 - Centers map on the 246 radial, 20nm from LAX.
- LAX/246M/20 - Centers map on the 246 Magnetic bearing, 20nm from LAX.
- LAX/246T/20 - Centers map on the 246 True bearing, 20nm from LAX.
- MZB293/SLI148 - Centers map on intersection of MZB's 293 radial and SLI's 148 radial.

For more information about the following SAR grid waypoint options, see the Search and Rescue Supplement in Documents > Drive > ForeFlight.

- CAP@ORD451C - Centers the map on the middle of CAP Grid ORD451, quadrant C.
- CAP@40092CD - Centers the map on the middle of CAP Cell Grid 40092CD.
- GARS@176LW3 - Centers the map on the middle of GARS Grid 176LW, quadrant 3.
- 15RTN50008000 or MGRS@15RTN50008000 - Centers the map on the middle of MGRS grid UTM zone 15, latitude band R, 100,000m grid square TN, easting 5000, northing 8000. MGRS coordinates no longer require entering MGRS@... before the coordinate values.
- N#### or a flight eg: ENY3961 - shows any flight that is either currently en route, or scheduled to depart in the next 24 hours (based on currently filed flight plans) for that aircraft. Tap the entry to add that route to the NavLog.

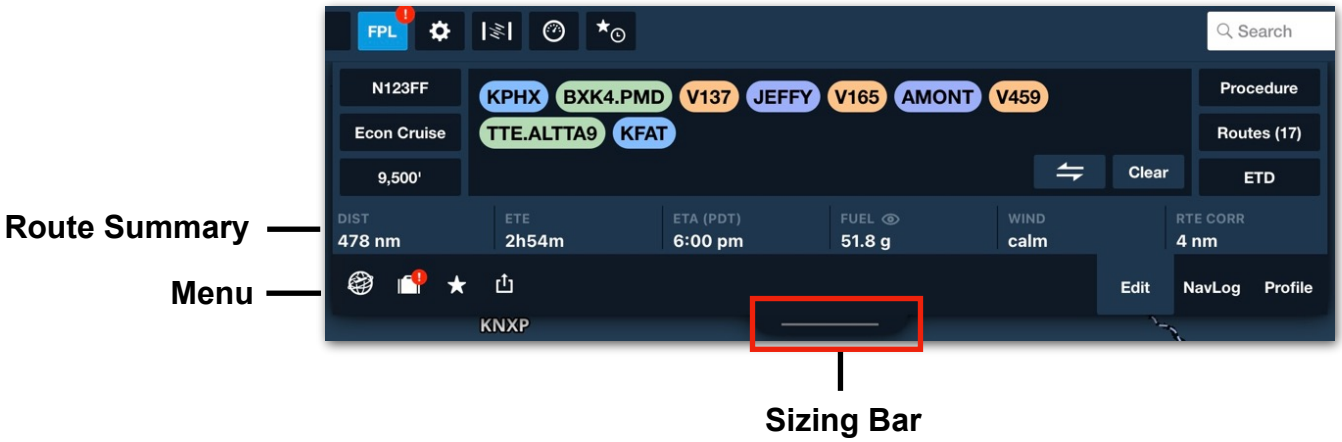




11.17 Flight Plan Drawer

The Flight Plan (FPL) drawer contains three unique views which are listed below. The views are accessed with buttons located near the bottom right corner of the FPL drawer. To access the views, tap the **FPL** button in the upper toolbar to display the menu. To adjust the size of the drawer tap and drag the sizing bar to the desired size.

- **Edit** - Displays the Flight Plan Editor.
- **NavLog** - Displays the navlog for the planned route.
- **Profile** - Displays the Profile View (Essential subscription or higher required).

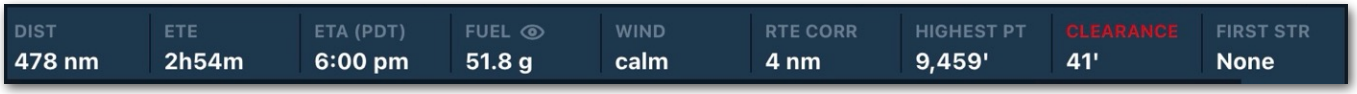


11.17.1 Route Summary

The bottom of the FPL Drawer contains a summary of the planned route. Tap Profile view for additional hazard summary data.



Route Summary



Route Summary (Profile)

Total route distance, estimated time en route (ETE), estimated time of arrival (ETA), required fuel, average wind component, and selected route corridor are displayed in the Route Summary. The Route Summary (Profile) adds highest point, clearance, and first strike.

ETE is determined by evaluating the route, including the planned cruise altitude, forecast winds, and the selected performance profile. If an estimated time of departure (ETD) is specified, the ETA is populated. If an ETD is not selected, the ETA field is blank.

The fuel field depicts the fuel required for the route using the selected performance profile (not including alternate fuel requirements). Tap the fuel field to open a detailed fuel schedule.

The average wind component for the route is displayed for flights within seven days. Beyond seven days, wind forecasts can be unreliable and the summary will calculate the route using a zero wind condition.

The route corridor indicates the width selected in the hazard settings menu.

Highest point shows the elevation of the highest terrain within the route corridor.

Clearance shows the difference in altitude between the flight plan and the highest obstacle.

The first strike is the distance from the present position to an obstacle higher than the planned altitude.

11.17.2 Flight Plan Menu Bar

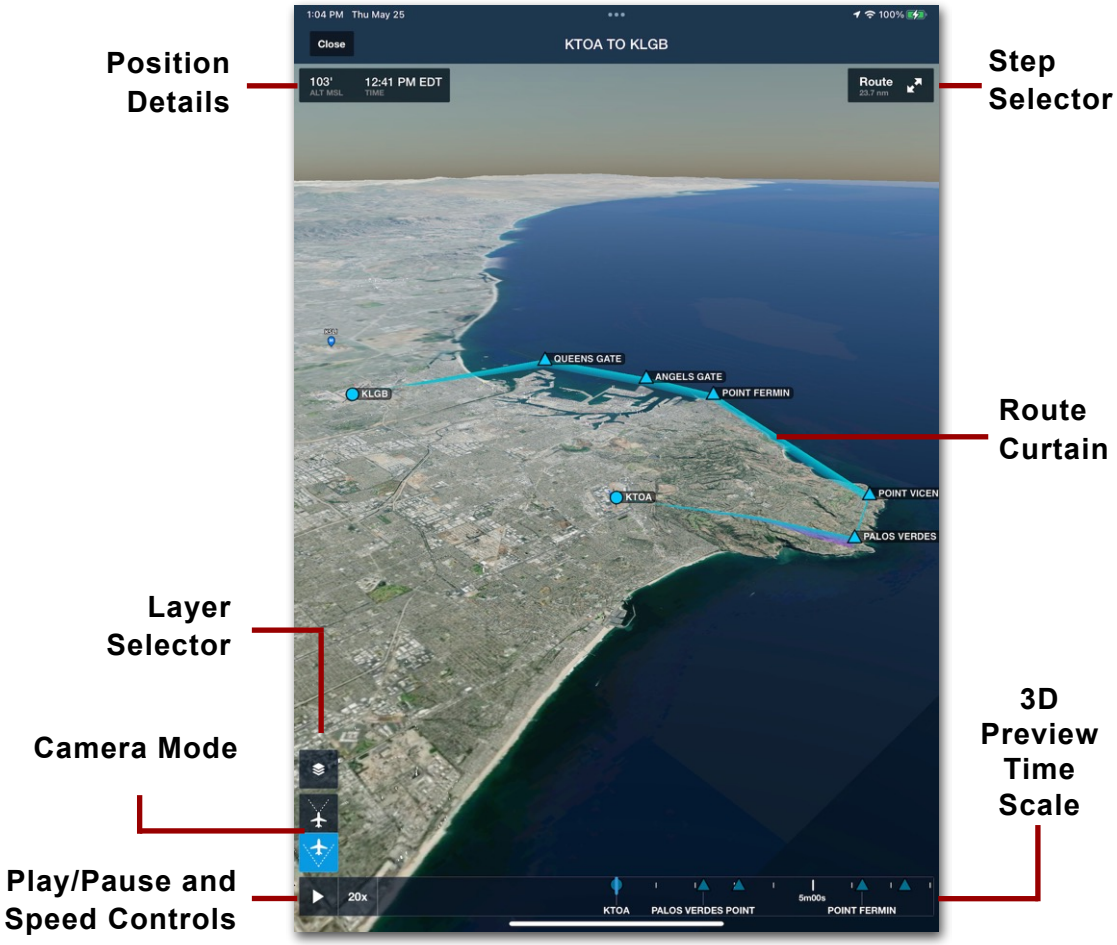
The flight plan menu bar has buttons for **3D Preview**, **Trip Pack**, **Favorite** (saving the route) and, **Sharing**.



11.17.3 3D Preview

Route 3D Preview is a Performance-tier feature that allows pilots to generate a 3D video of the route plotted in the FPL Editor. This helps pilots visually familiarize themselves with the route before takeoff.

To use this feature, construct a route and tap the **3D Preview** button (shaped like a globe). The Route 3D Preview window opens over the previous screen and includes the elements described below.

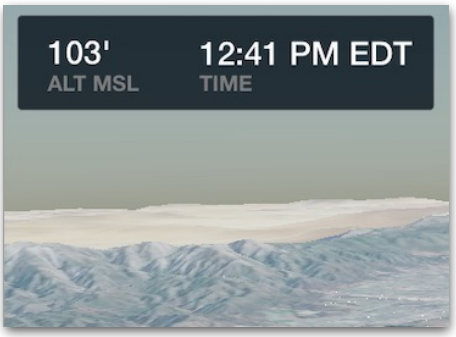


3D Preview

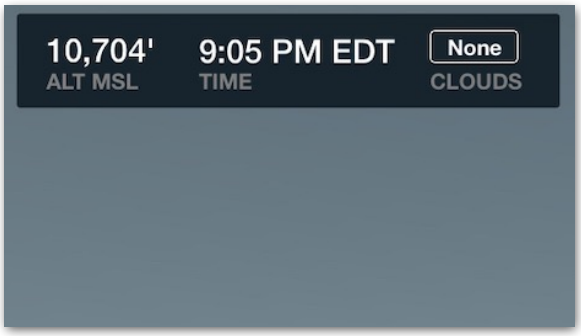
Position Details

The top left corner of the Route 3D Preview window provides details about the current moment in the preview video. By default, this includes the current MSL altitude and the time based on the planned departure time.

If a **weather layer** is selected, additional information about that weather is added to the Position Details. The information in Position Details represents weather at the planned altitude, not the altitude set in the altitude slider.



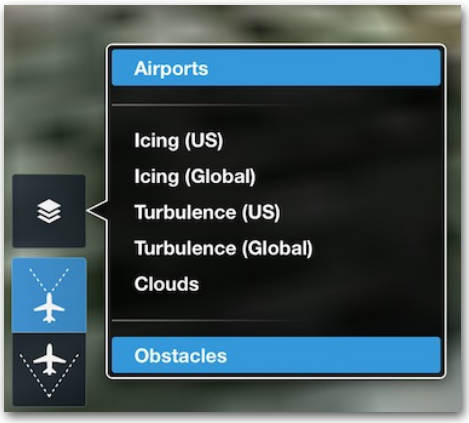
Position Details



With Cloud Coverage

Layer Selector

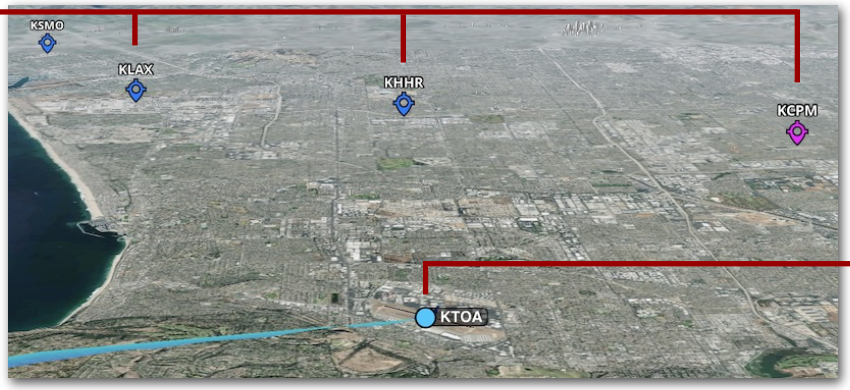
The Route 3D Preview can display or hide certain map and weather features along the route. To display these features, tap the layer icon and select one item in each section from the available options.



3D Preview Layer Selector

Tap **Airports** to display or hide nearby airports along the route. Airports are displayed using standard aeronautical map symbols.

Tap an airport icon to display its details. Departure, destination, and any other airports that are part of the route are instead represented as blue circles and cannot be hidden by this layer.

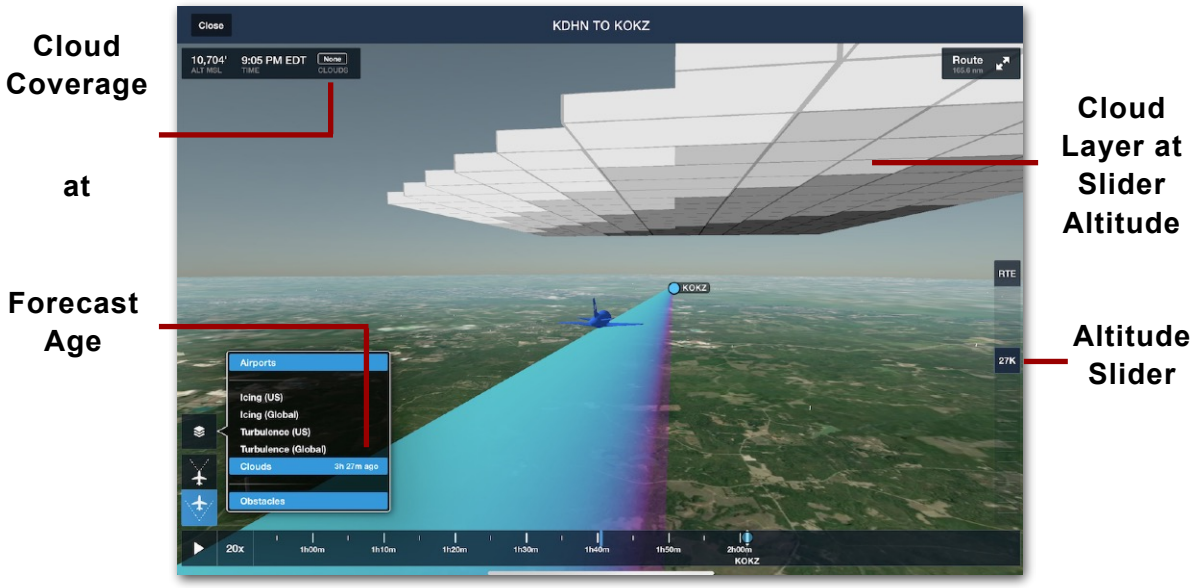


Airports Layer

Tap one of the available weather layers (**Icing (US)**, **Icing (Global)**, **Turbulence (US)**, **Turbulence (Global)**, or **Clouds**) to display the forecast weather of that type along the route. When the layer is first tapped, the age of the weather forecast is shown next to the label.

A slider on the right side of the screen can be used to display the selected weather as colored graphics at different altitudes. Tapping the **RTE** button at the top of the slider causes the slider to adjust in real-time to match the planned flight altitude as the video is animated.

Displaying this layer also adds a label to the **Position Details** box indicating the severity of that weather at the current position of the aircraft in the playback video.



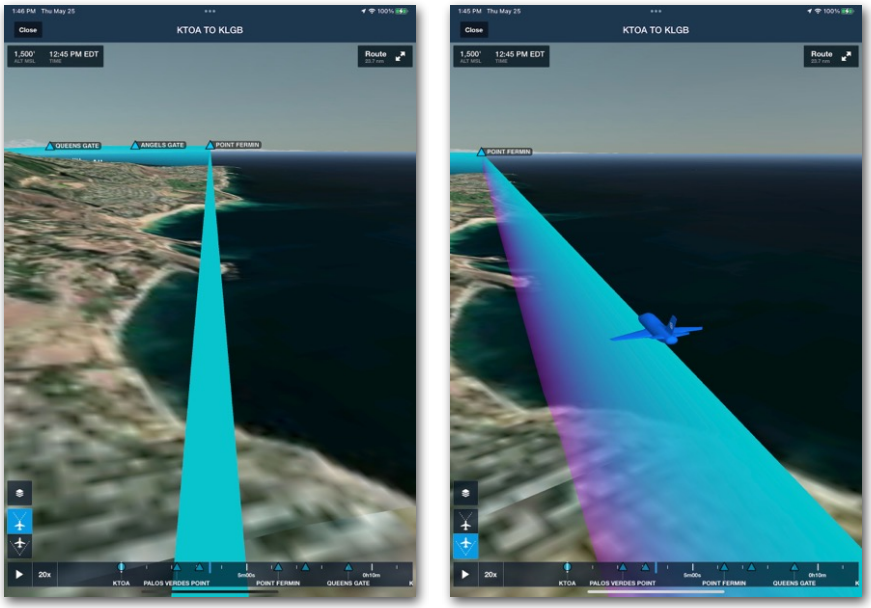
Weather Layer (Clouds)

Camera Mode

At the bottom left corner of the Route 3D Preview window, two buttons allow the camera perspective to be switched between third-person perspective (top button) and first-person perspective (bottom button).

While in third-person camera mode, use a single finger to pan the view around and the 2-finger “pinch to zoom” to zoom the view out behind the current aircraft position.

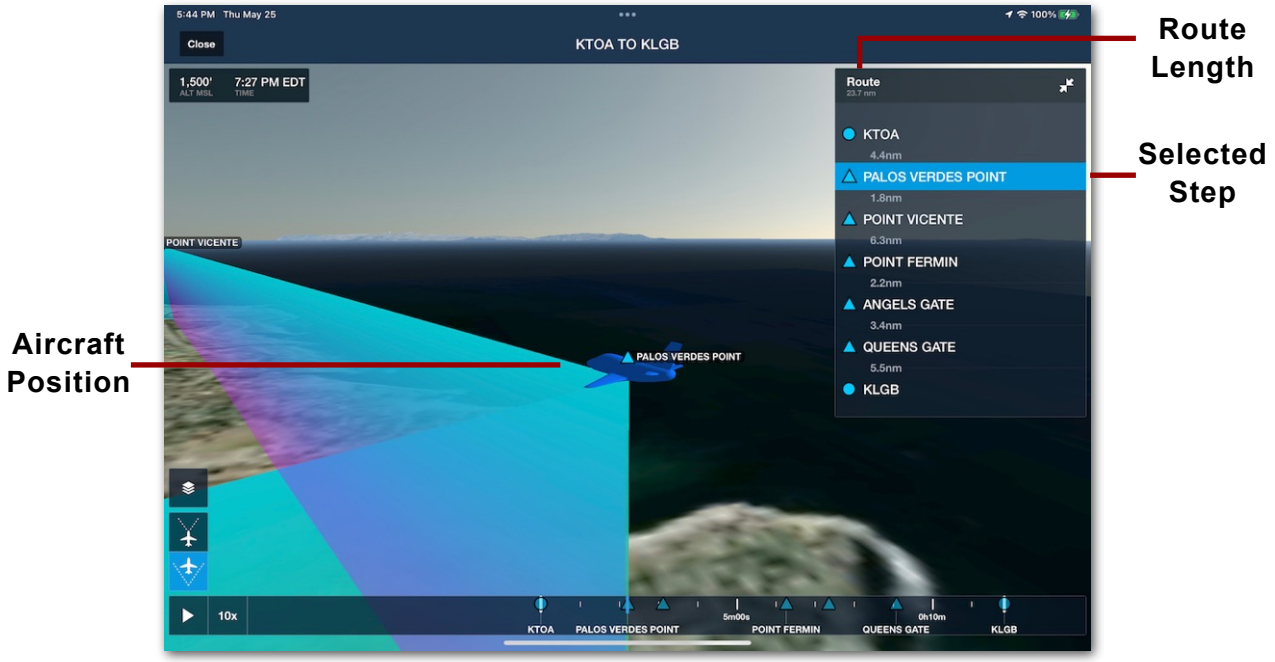
While in first-person camera mode, use the same gestures as above. However, the camera zooms forward from the cockpit rather than out from the rear of the aircraft. Also, once fingers are lifted from the device, the camera returns to the forward position after five seconds as indicated by a radial timer. Tap this timer to instantly return the camera forward.



Camera mode (1st versus 3rd person)

Step Selector

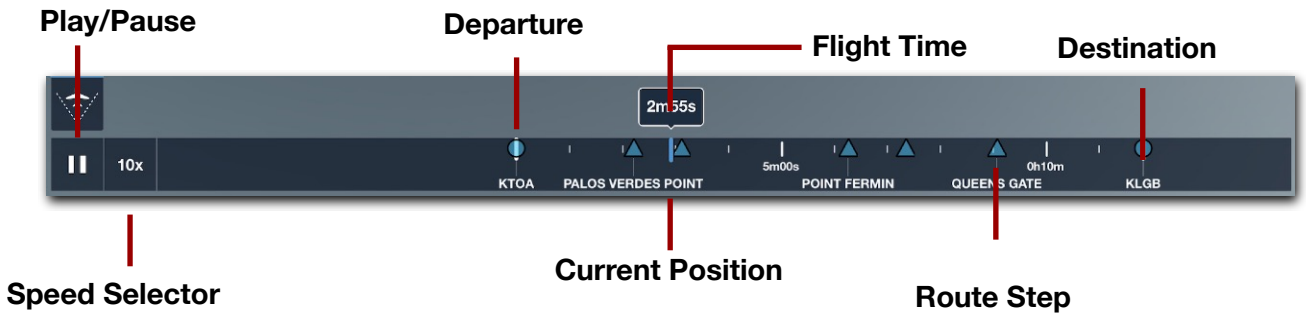
At the top right corner, the Route 3D Preview window displays the length of the route (23.7 NM in the example below) and can be tapped to show a list of steps in the route. Tap any of the steps to rewind or fast-forward the preview video to the beginning of that step. Tap Route to expand or collapse the list of steps.



Step Selector

Video Preview Controls

Along the bottom edge of the Route 3D Preview window is a set of controls that can be used to show specific moments in the route preview video. The preview controls include the following elements.

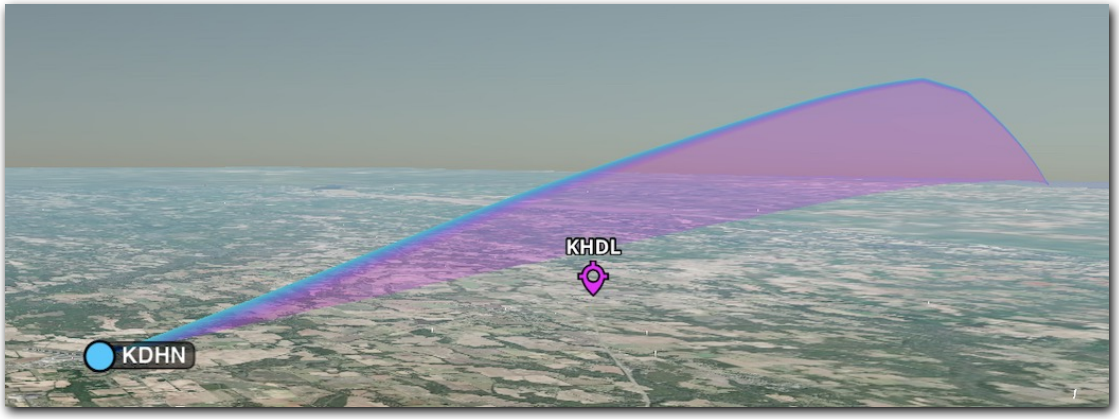


- **Play/Pause**: Tap the Play/Pause button on the left side to start and stop the video animation.
- **Speed Selector**: Tap the Speed Selector button (defaulted to 1x) to play the video at 1x, 3x, 5x, 10x, or 20x speed.
- **Current Position / Flight Time**: A vertical blue line on the time scale indicates the current position of the aircraft in the preview video. When the video is playing, the total flight time displays above the current position.
- **Route Steps**: Blue triangles along the Time Scale indicate when a step in the route begins. The departure and destination airports are indicated by blue circles. These icons correspond with items in the Step Selector list, but they cannot be tapped to change aircraft position.
- **Time Scale**: Slide one finger left or right along the Time Scale to move the video to a specific moment. The Time Scale extends from the beginning to the end of the route, as indicated by large vertical white lines.

Route Curtain

The horizontal and vertical path of the route is drawn as a translucent curtain extending from the surface up to the planned flight altitude. The route line above the curtain is always blue, but the curtain can be one of three colors:

- Magenta for the active leg.
- Blue for a future leg.
- Yellow for a completed leg.



Route Curtain

11.17.4 Pack

Pack provides a method for downloading all charts, weather, NOTAMs, TFRs, fuel price data, comments, and 3D View Aerial Imagery needed for the planned route. Pack can be accomplished from the Maps or Flights pages. For more information, see the **Pack** section.

11.17.5 Favorite Routes

The star button toggles the favorite status of the current route. When the star icon is orange, the current route has been saved as a favorite. When marking a route as a favorite, the route can be named as something other than the default Origin-to-Destination name. Having a custom name can be helpful when searching for a route in the Favorite Routes list.

11.17.6 Route Sharing

Routes can be shared via various methods. Tap the share (Send To) button and select one of the sharing options.

- **Mail** creates a new email message with the navigation log and a screenshot of the trip. The message also includes a link that other ForeFlight Mobile users can tap to load the route onto their iPad or iPhone. **NOTE:** This option only appears if an email account is set up in the device's Mail app.
- **Flights** copies the current route and performance data to an empty flight plan on the Flights view. **NOTE:** Tapping this button does not directly file the flight plan or submit a request for a briefing.
- **Plates** creates a Flight Binder and automatically plates relevant to the planned route for the departure and destination airports.
- **Logbook** creates a new logbook entry and auto-fills it with the current route, aircraft, and estimated time en route.
- **Clipboard** will copy the flight plan to the iPad internal clipboard to allow pasting in another application.
- Share FPL File allows routes to be shared to other iOS devices on the same Wi-Fi network that are running ForeFlight (listed by device name). Wi-Fi ADS-B receivers such as Sentry accommodate Cockpit Sharing. This feature is enabled in **More** > **Settings**.
- **Print** allows printing of the navigation log to a connected AirPrint printer.

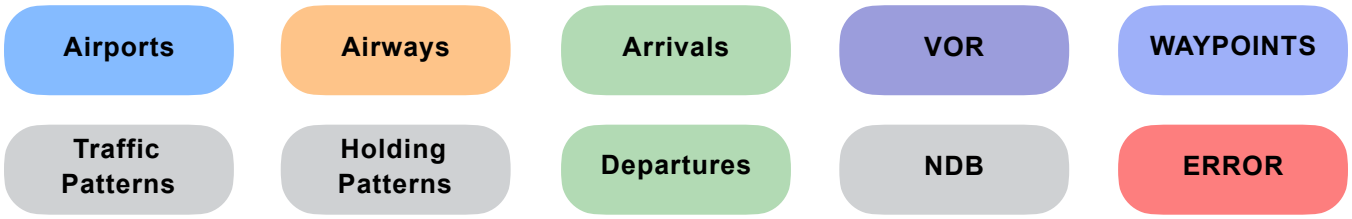
11.17.7 Route Editor

The Route Editor (FPL menu Edit view) is used to plan routes. To create a route, tap within the dark blue space of the route editor and use the keyboard to enter route elements. See the **flight planning chapter** for additional information.



Route Editor (FPL - Edit Mode)

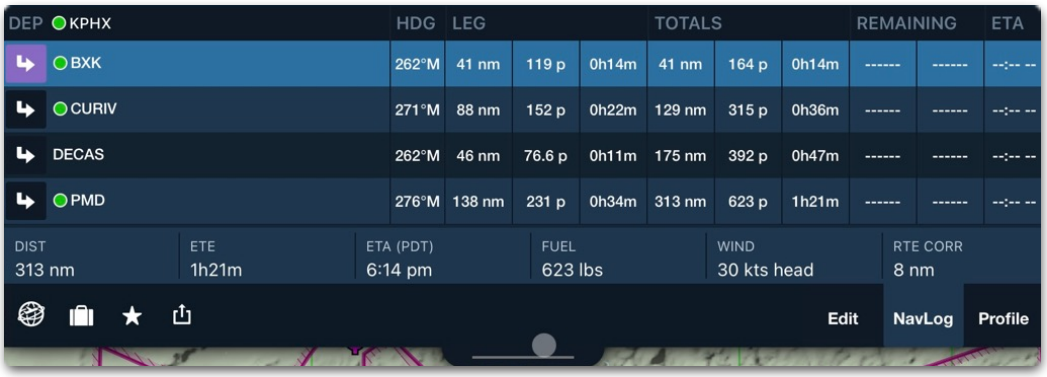
Route elements are any airport, navigational aid, waypoint, airway, or procedure. Route elements are color-coded based on type.



Route Editor - Element Icon Colors

11.17.8 NavLog

The navigation log (FPL - NavLog mode) on the Maps view displays each leg of the route, with course (or heading, if winds aloft are included for the route), distance, fuel burn, and time data. The table listing shows the end points of each leg, the totals for the route and leg, and ETA.



On smaller screens, it is not possible to display all of the columns. Only the destination, departure, heading, and distance/fuel/time totals are depicted. This NavLog is independent of the **Navlog** generated from the Flights view.

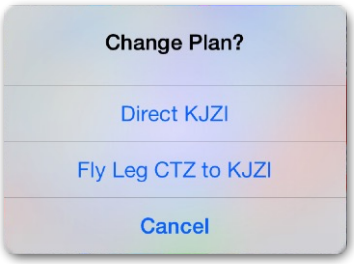
- Planned Data: Information in the *Heading* (or *Course), Totals,* and *Leg* columns represent the *planned* route and is based on the information provided in the *Search* box, or based on the selected aircraft performance profile. This information is *not* updated once displayed.
- Real-Time Distance, ETE/ETA: The *Remaining* and *ETA* columns are updated in real time based on current GPS position and groundspeed. The distance remaining on the leg, estimated time en route for the leg, and estimated time of arrival at the next waypoint are displayed.

  NOTE: during pre-flight planning on the ground, the *Remaining* and *ETA* columns will not show accurate information, because they require actual (real time) GPS speed and position to update.

- DIST, ETE, ETA, Fuel, Wind, and RTE CORR: The information lower-left below the table are planned values calculated when the route is entered, so are not updated in flight.

Tap on a waypoint ID in the table to jump to that waypoint on the map.

Tap the arrow button to adjust the route to any leg, or direct to a waypoint on a leg.



11.17.8.1 LSALT Calculator

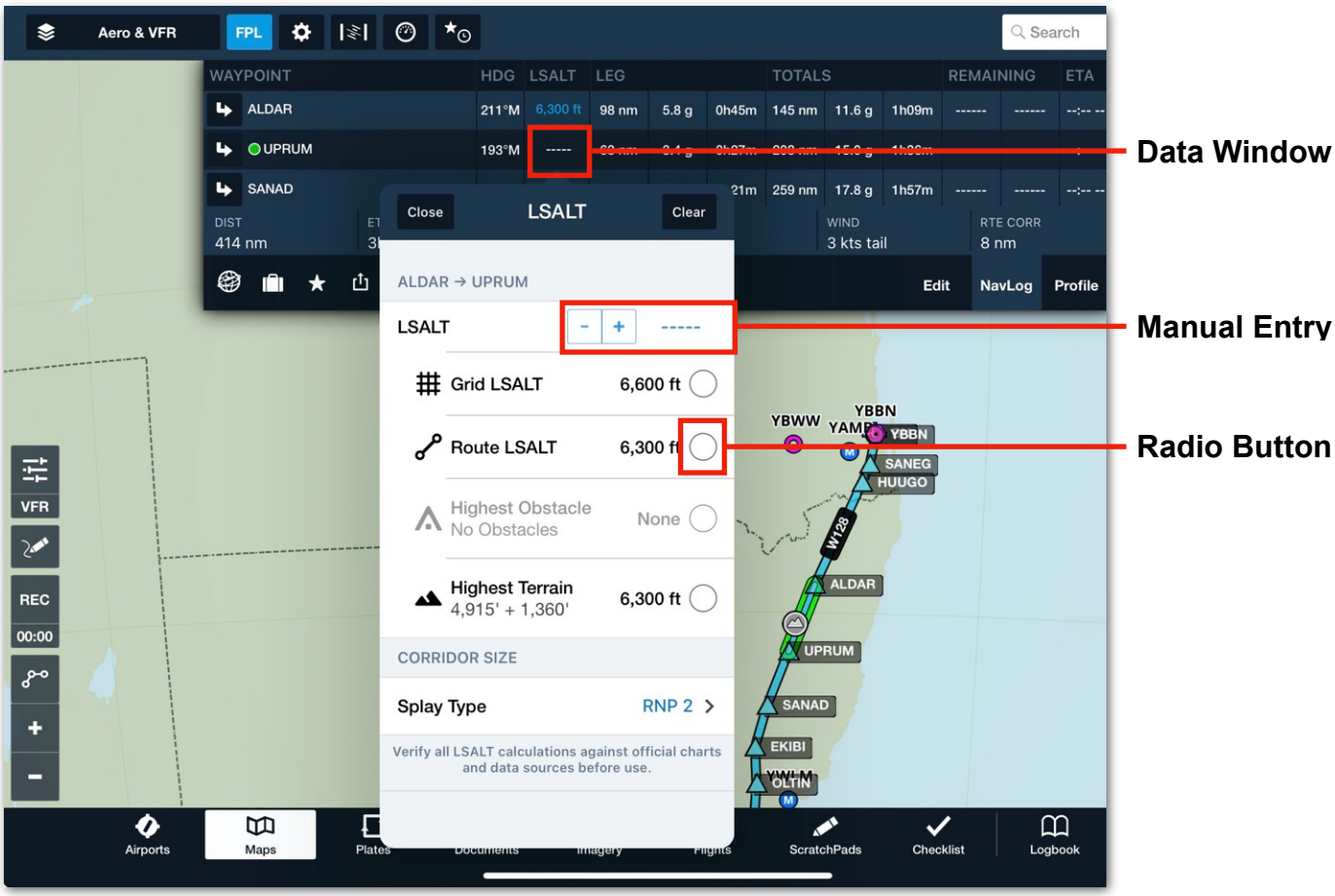
The **LSALT Calculator** may be displayed on the NavLog to show lowest safe altitude calculations per leg. See **Map Settings** to enable the LSALT Calculator.

To calculate LSALT:

1. Tap the LSALT data window of the leg to be calculated.
2. Manually enter a custom LSALT

   OR

3. Tap a radio button for the desired calculation.

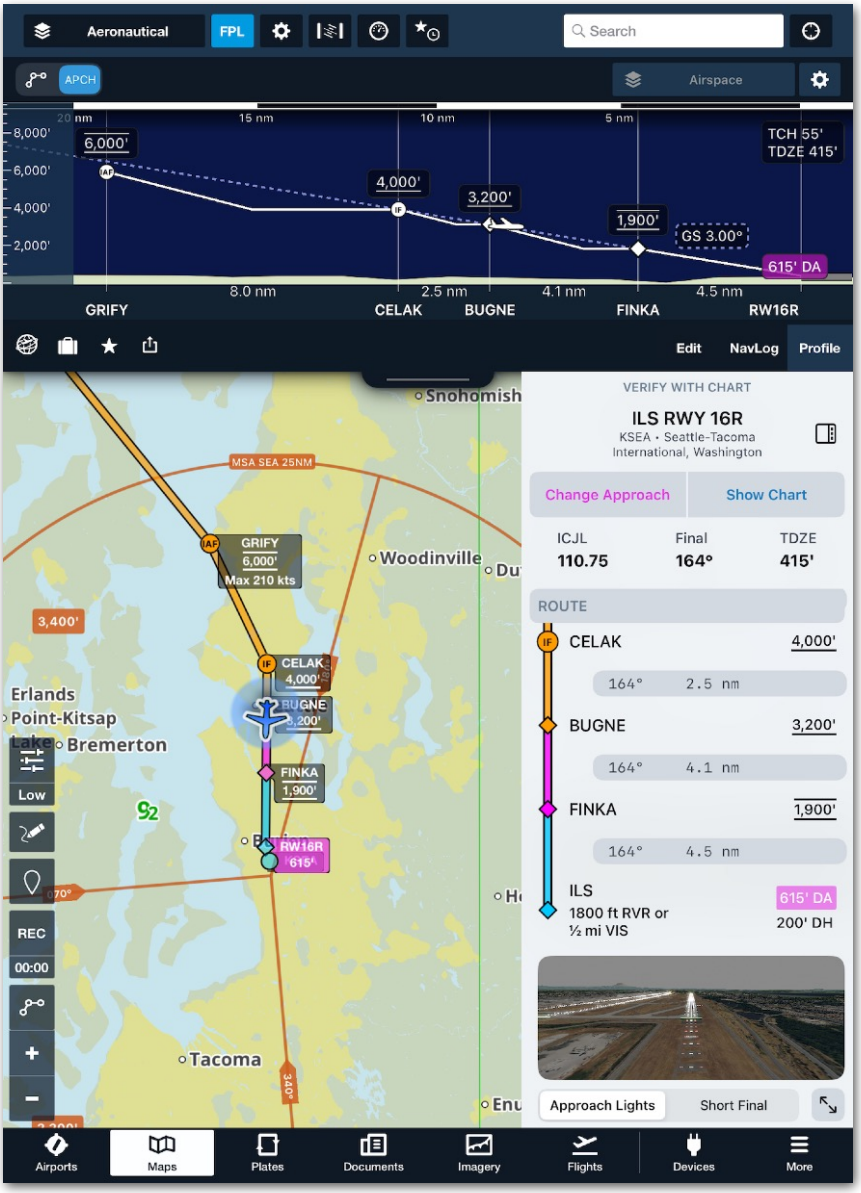


NavLog LSALT Calculator

11.18 Dynamic Procedures

Dynamic Procedures delivers streamlined procedure data based on user-selected parameters, integrated with the moving map, profile view, and a dedicated sidebar. This feature extracts and presents key procedure elements as structured, interactive components. Information such as frequencies, minimums, notes, and waypoint data is filtered based on selected criteria.

Dynamic Procedures is available in the U.S. and Canada. Access requires an Essential, Business Pro, or higher subscription with regional coverage for the area of interest (U.S., Canada, or both).



Dynamic Procedures

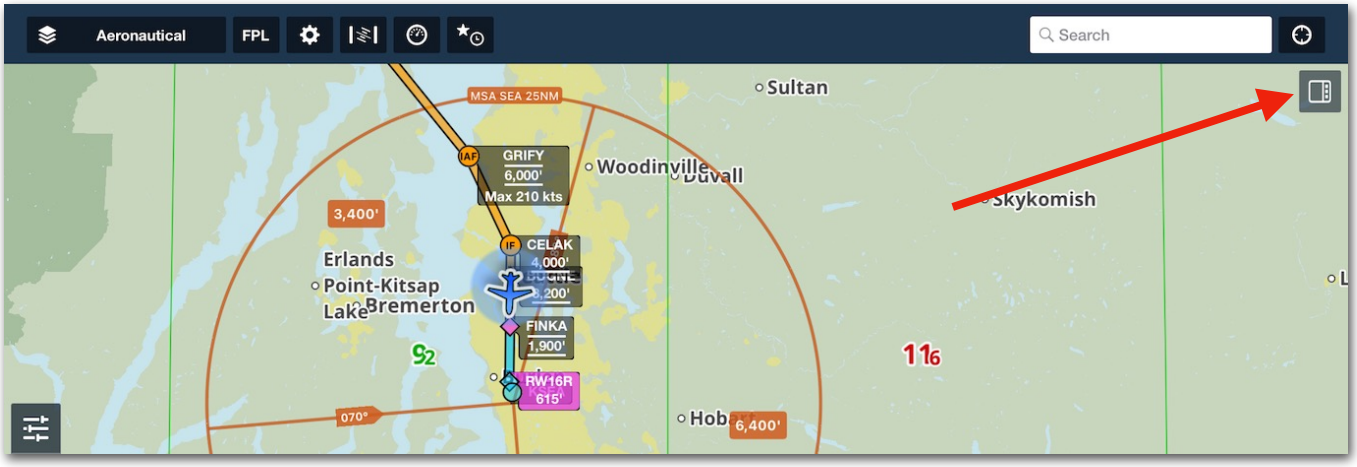
11.18.1 Access the Procedures Sidebar

To access the Procedures Sidebar:

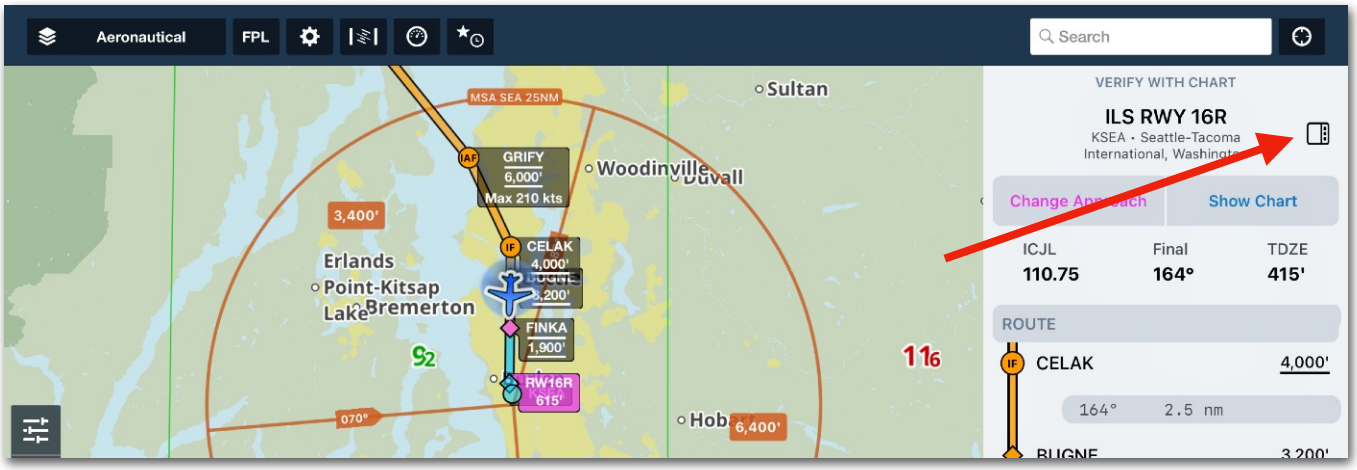
1. Create a route using the **FPL Editor**.
2. Tap **Procedure** in the **FPL Editor** and select an approach from the **Procedure Advisor**.
3. Define the **Procedure Advisor** parameters and tap **Add to Route**.
4. Tap  to open the Procedure Sidebar.

11.18.2 Close the Procedures Sidebar

To close the sidebar tap  .



Dynamic Procedures Show Button



Dynamic Procedures Hide Button

11.18.3 Procedures Sidebar

The procedure sidebar contains key procedure details in a briefing format for a selected approach.

Procedure Identification: Displays procedure name, airport, nav aid identifier, final approach course, and Touch Down Zone Elevation (TDZE).

- Tap **Change Approach** to modify or change the currently selected procedure.
- Tap **Show Chart** to display the associated chart on the map.
- Tap **Hide Chart** to hide the associated chart.

NOTAMS: Displays the number of NOTAMs associated with the selected approach. Tap to open NOTAMs view in the sidebar. See Alert NOTAMs.

Communication: Lists the relevant frequencies for the procedure. Dots at the bottom of the section indicate additional entries, accessible by swiping.

Notes: Displays the relevant notes for the procedure and selected variables.

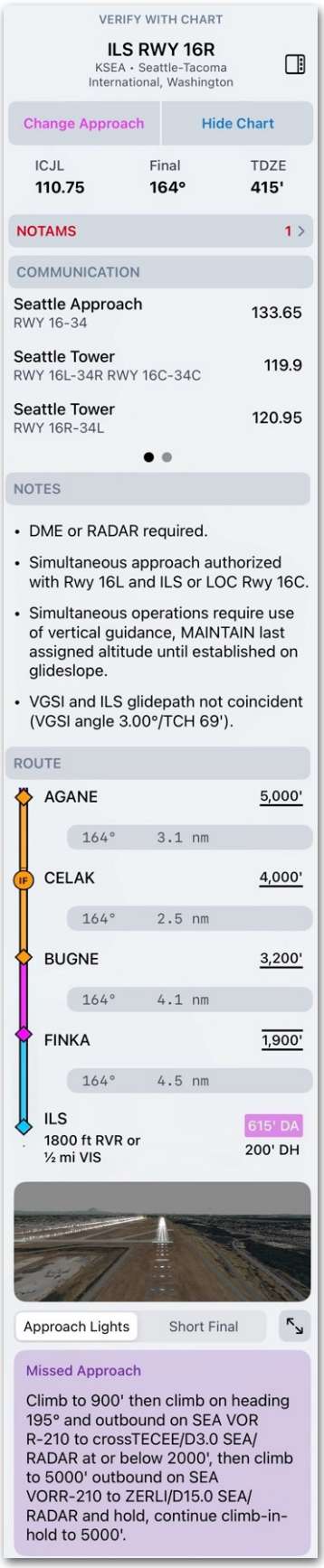
Route: Lists waypoints, altitude, course, distance, and speed restrictions of the procedure. Line colors indicate:

- **Magenta** - Active segment
- **Blue** - Upcoming segments
- **Orange** - Completed segments.

Airport View: Provides a visual indication of the airport environment on approach. The three button options are:

- Tap **Approach Lights** to view the approach light configuration.
- Tap **Short Final** to view the runway near the threshold.
- Tap ↘ to open the **3D view** pop-over. 3D view requires a Premium subscription.

Missed Approach: Textual description of the missed approach procedure.

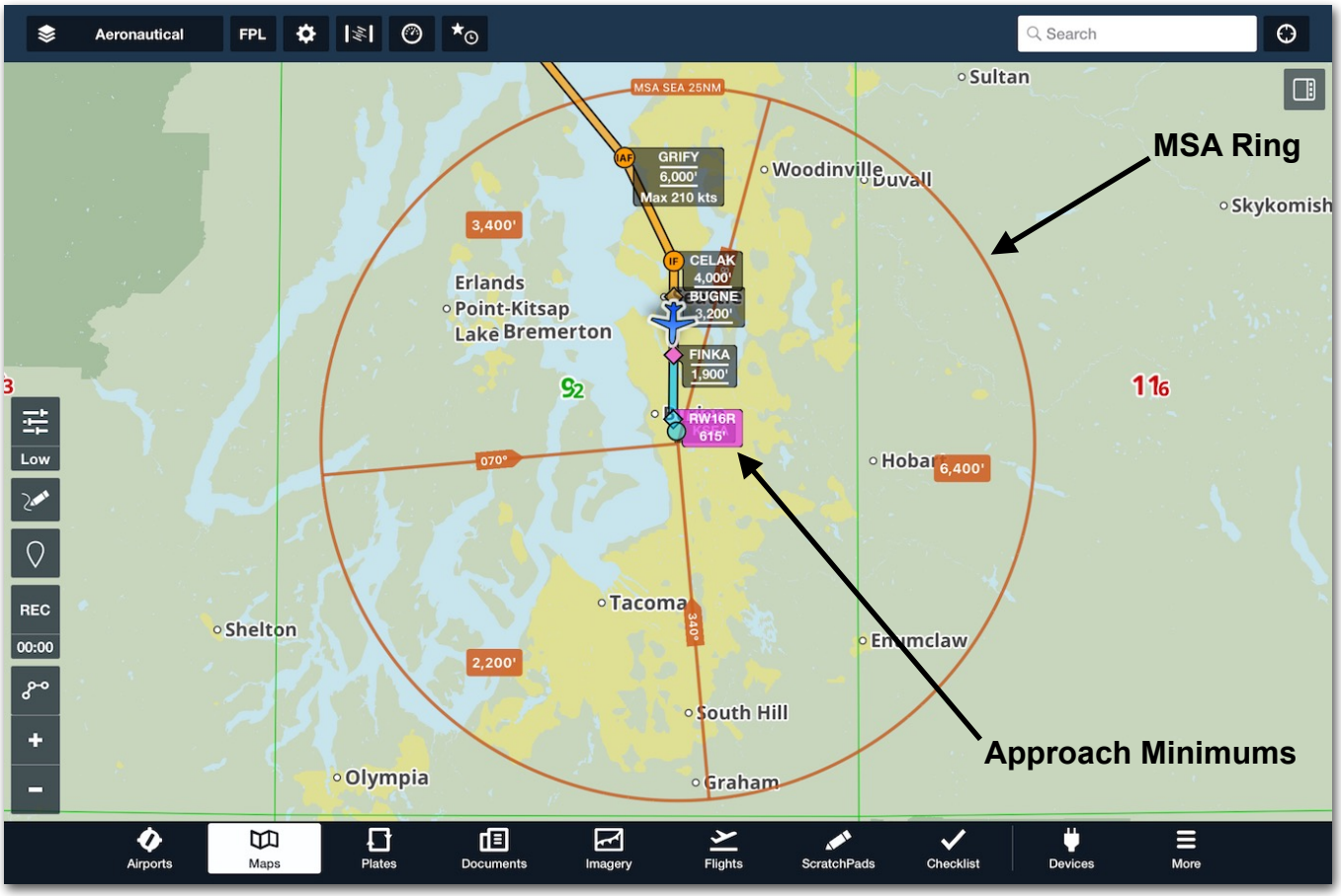


Procedures Sidebar

11.18.4 Map Elements

When Dynamic Procedures are enabled, additional map elements are displayed:

- An MSA ring overlays the map, when applicable.
- Approach minimums are shown in context on the moving map.

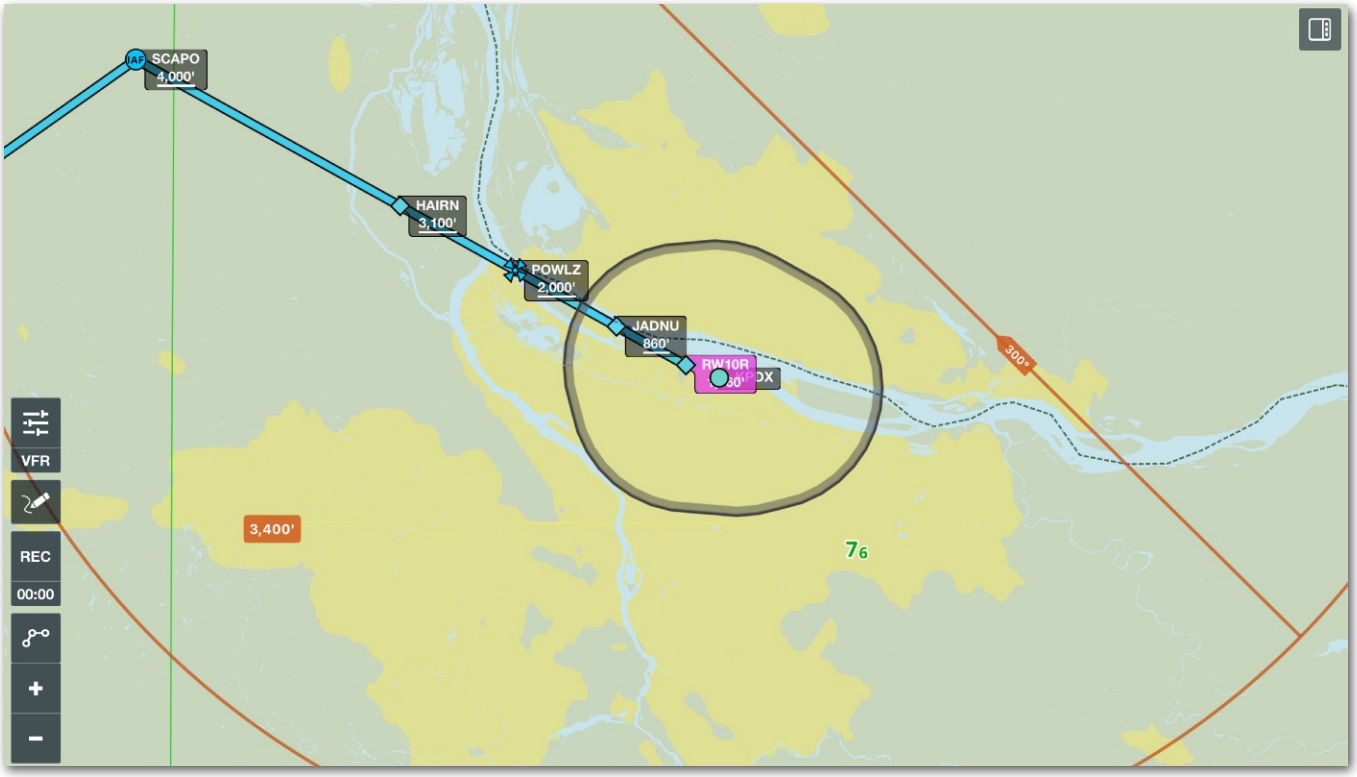


Dynamic Procedures Map Elements

11.18.4.1 Circle to Land Display

When circling minimums are selected for an approach, the circling visibility minimums are depicted on the map at the distance required by the aircraft category selection.

WARNING: Depicted circles are generated generically and may not represent the required circling area. Circling minimums with notes such as “NOT AUTHORIZED WEST OF AIRPORT” may not be depicted.



Circle to Land

11.18.5 Approach Profile View

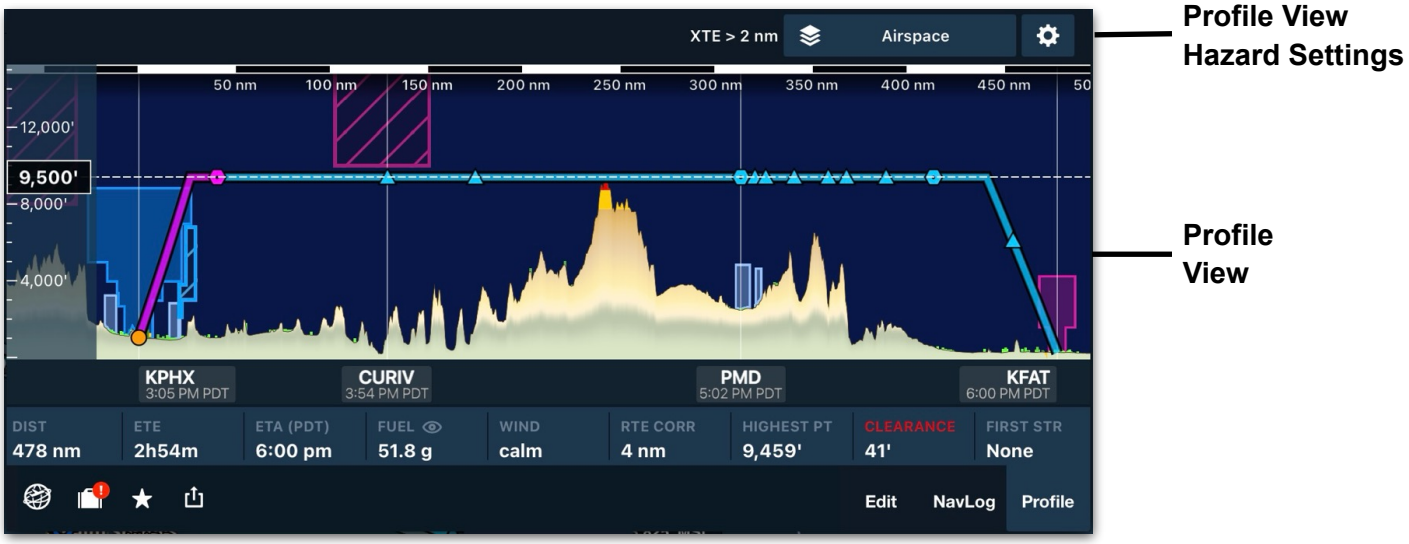
The **Dynamic Procedure Approach Profile** is available in the **FPL Profile** view. To access:

1. Open the **FPL Editor**.
2. Tap **Profile**.
3. Tap **APCH** to display the **Dynamic Procedure Approach Profile**.

11.19 Profile View

Profile View displays a cross-section of the planned route including the climb, en route, and descent phases. Climb and descent rates are based on the selected performance profile and forecast weather.

Profile View is available on iPad and iPhone by selecting **Profile** from the bottom right corner of the FPL window. Profile View requires an Essential or higher subscription.



11.19.1 Profile View Hazards (Terrain & Obstacles)

Profile View displays terrain and obstacle hazards along the route. The hazards displayed in Profile View are determined by the **Corridor Width** setting in the Profile View Hazard Settings.

Corridor Width specifies the *total* distance (perpendicular to the route) for which hazards are analyzed. For example, an 8 NM corridor width setting displays all hazards within 4 NM on either side of the route.

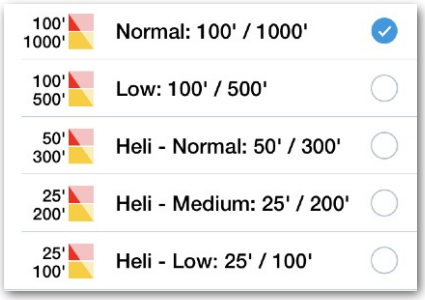
11.19.2 Cross Track Error (XTE)

When the GPS position (on the ground or in the air) is more than half the corridor width distance from the route, a cross track error (XTE) notation is displayed to the right of the Profile View Hazard settings button. The XTE notation indicates the flight is outside the lateral range of displayed hazards.

11.19.3 Hazard Colors

Obstacles in Profile View are green and terrain is tan when the planned height above hazards exceeds the selected **Hazard Altitude** setting. Hazards in Profile View become yellow or red when the planned height above hazards is less than the Hazard Altitudes selection.

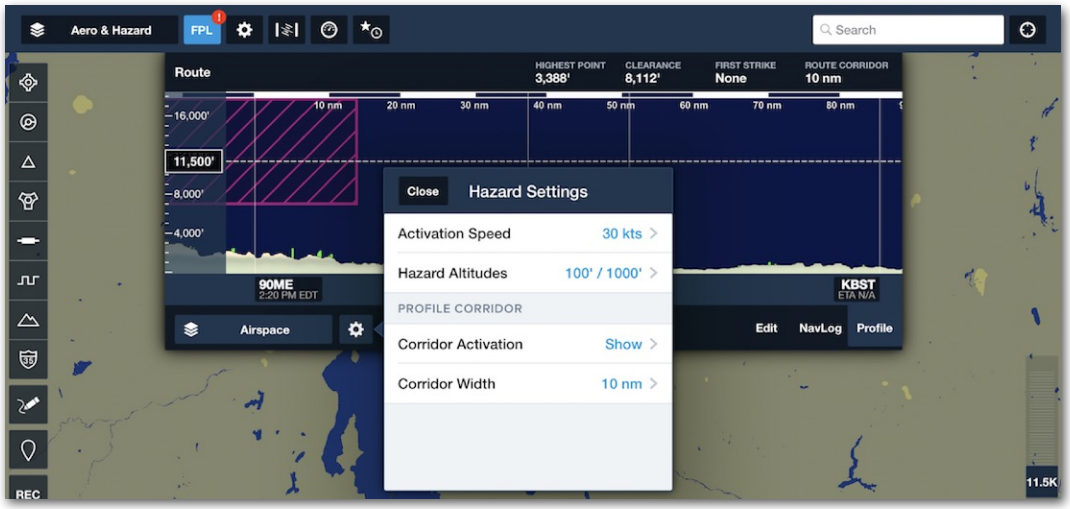
Hazard Altitude settings are available at the bottom of the Profile View Hazard settings menu (gear button) and in **More** > **Settings** > **Hazard Altitudes Setting**.



Hazard Altitudes

There are five hazard altitude settings. The **Normal 100'/ 1000'** setting is selected by default.

With a hazard altitude setting selected, hazards change to **yellow** when clearance is less than the higher hazard altitude setting. Hazards change to **red** when clearance is less than the lower hazard altitude setting. For example; when **Normal 100' / 1000'** is selected, hazards are **yellow** when clearance is less than 1000' AGL and **red** when clearance is less than 100' AGL.

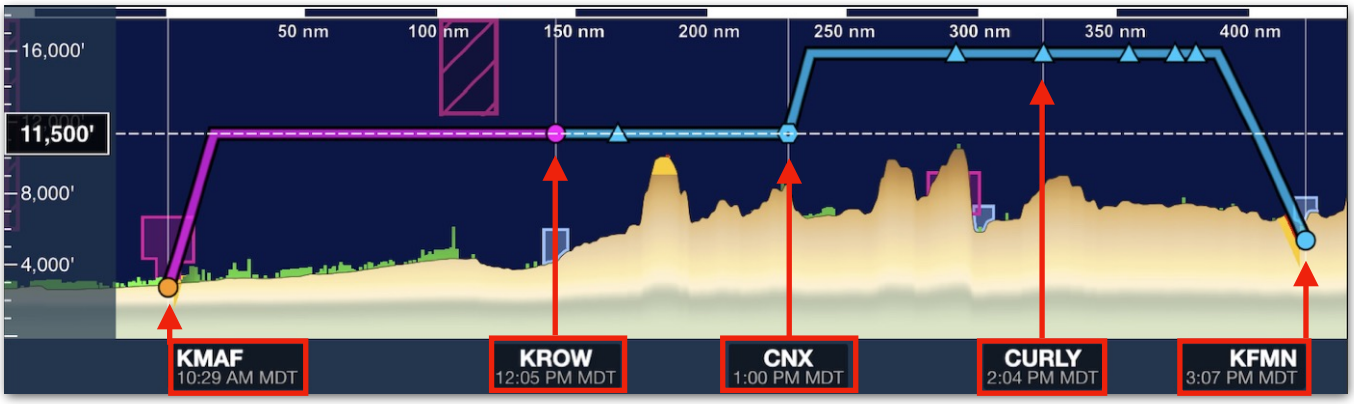


Profile View Hazard Settings

11.19.4 Profile View Waypoints

Waypoints and their estimated crossing time are displayed near the bottom of Profile View. Crossing time is based on the estimated time of departure and is not updated in flight to reflect actual groundspeed. If a route contains multiple waypoints, Profile View may hide waypoints to avoid overlapping labels (see image below). Use two fingers to zoom in on Profile View to display hidden waypoints.

Use Two-Finger Zoom to Show More Waypoint Labels

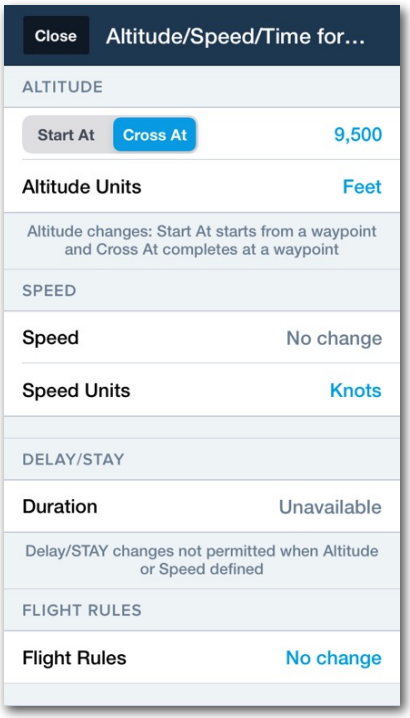


Waypoints Labeled at Bottom

11.19.5 Waypoint Menu

Route changes can be made from the FPL Route Editor, Maps View, or from within Profile View. See **Route Editor** for more information. To edit a route using *Profile View*:

1. Use two fingers to zoom in on a waypoint in Profile View (if necessary).
2. Tap the waypoint near the bottom of Profile View.
3. Use the waypoint menu to specify a delay, altitude, speed, or flight rule change.
4. Tap **Close** in the upper-left corner of the waypoint menu (or anywhere outside the waypoint menu) to save the changes.

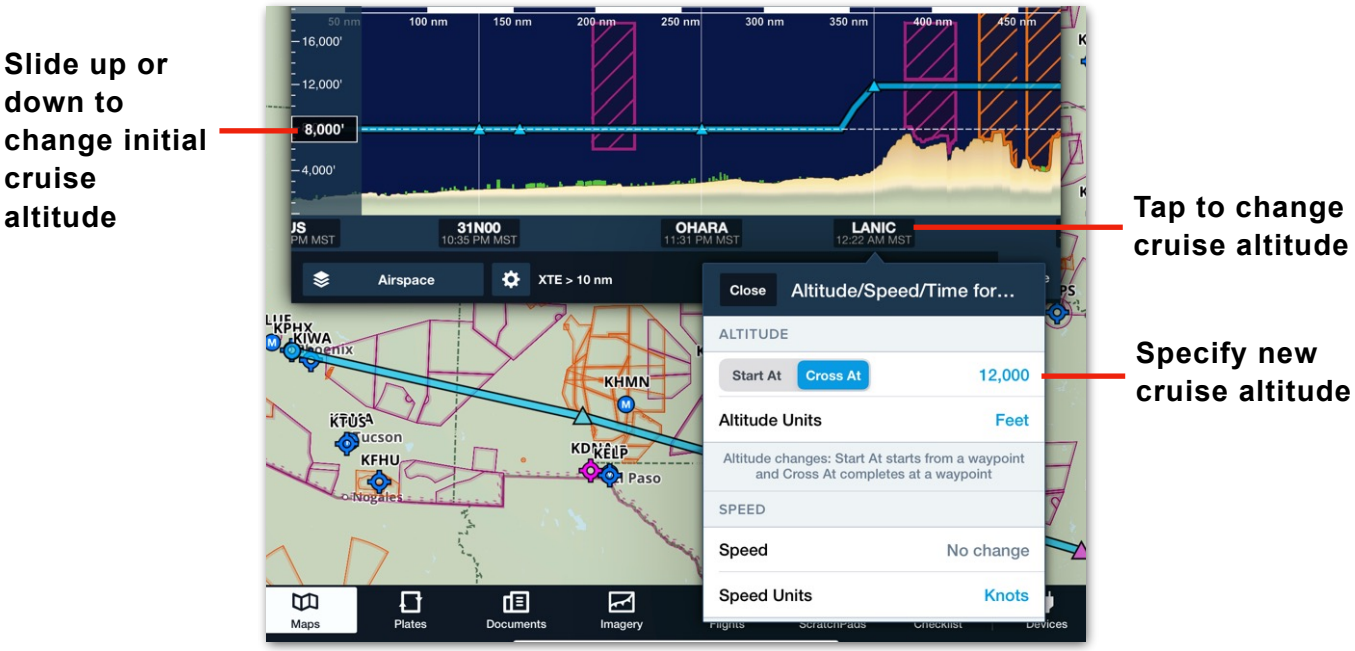


Waypoint Menu

11.19.6 Altitude Changes in Profile View

The initial cruise altitude for the route is displayed in a black box on the left side of Profile View. Slide the altitude box up or down to adjust the *initial* cruise altitude.

Cruise altitude for subsequent legs can be adjusted by tapping a waypoint where the altitude change is to occur and manually entering a new cruise altitude in the waypoint menu.

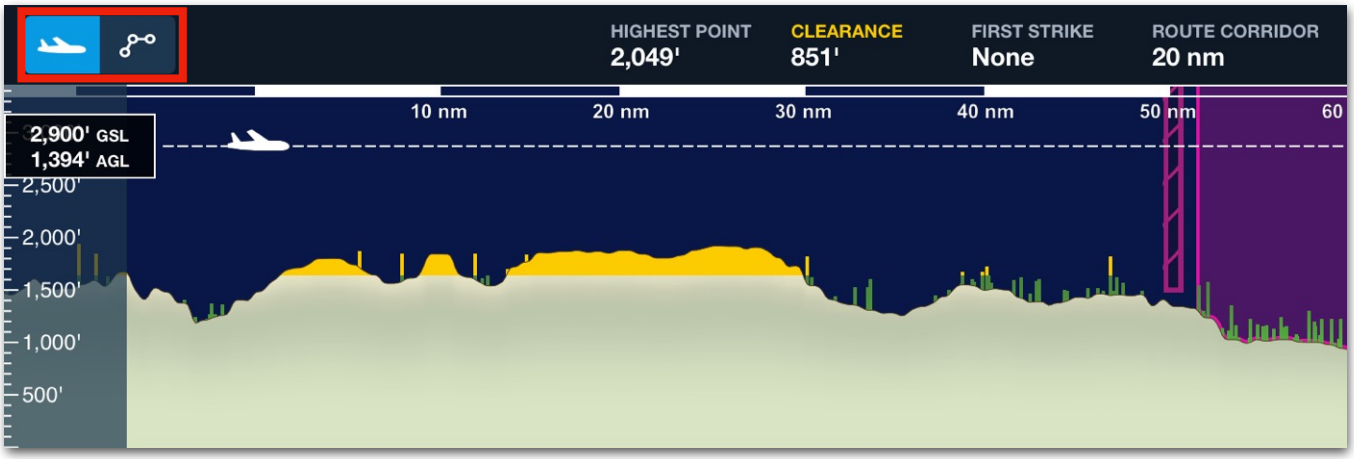


Profile View Altitude Changes

11.19.7 Profile View in Flight

In flight, Profile View automatically switches to flight mode. Flight mode displays airspace, obstacles, and terrain 60 NM ahead of the location based on the current GPS track. To switch between flight and planning mode, tap the button in the top left corner of Profile View. Flight and planning buttons are only available when ForeFlight detects the aircraft is in flight.

When flying, the **Route** button displays the current position along the planned route. Tap the **Aircraft** button to return to flight mode. In flight mode, the Profile View automatically displays an aircraft symbol and horizontal dashed line at the geometric altitude relative to sea level (GSL). Height above ground (AGL) is shown below the GSL altitude.

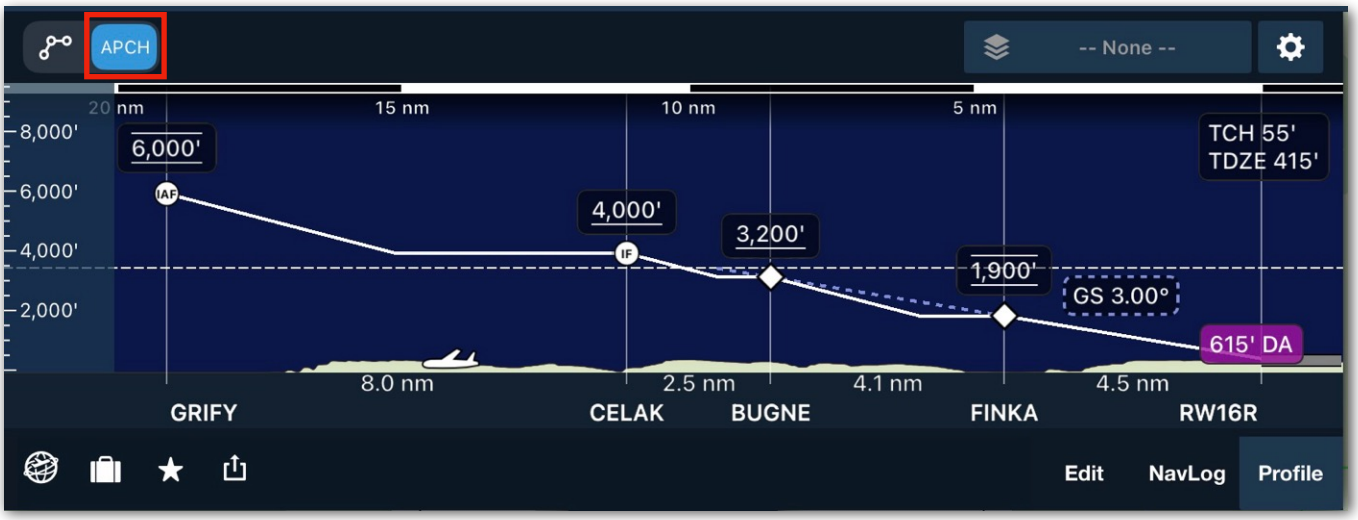


Profile View in Flight (based on current GPS ground track)

11.19.8 Dynamic Procedure Approach Profile

The procedure descent profile and glide path are viewable in profile view. The procedure waypoints and approach minima identified during procedure selection will display along with glide path, TCH, TDZE, and distances.

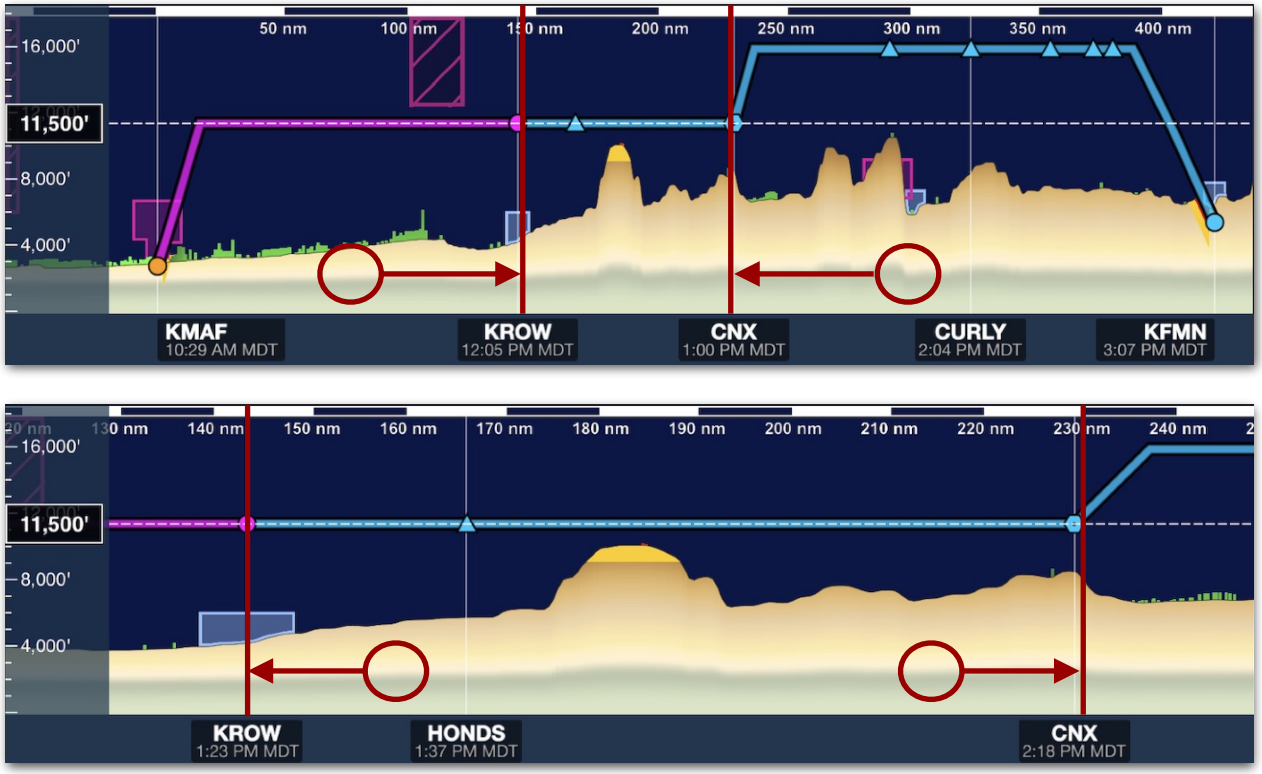
To display the procedure tap the **APCH** button.



Procedure Advisor Profile View

11.19.9 Profile View Zoom

Profile View automatically scales to show the entire route. To zoom in on an area of interest, touch two fingers to the Profile View and slide them apart horizontally. Pinch them together to zoom out.

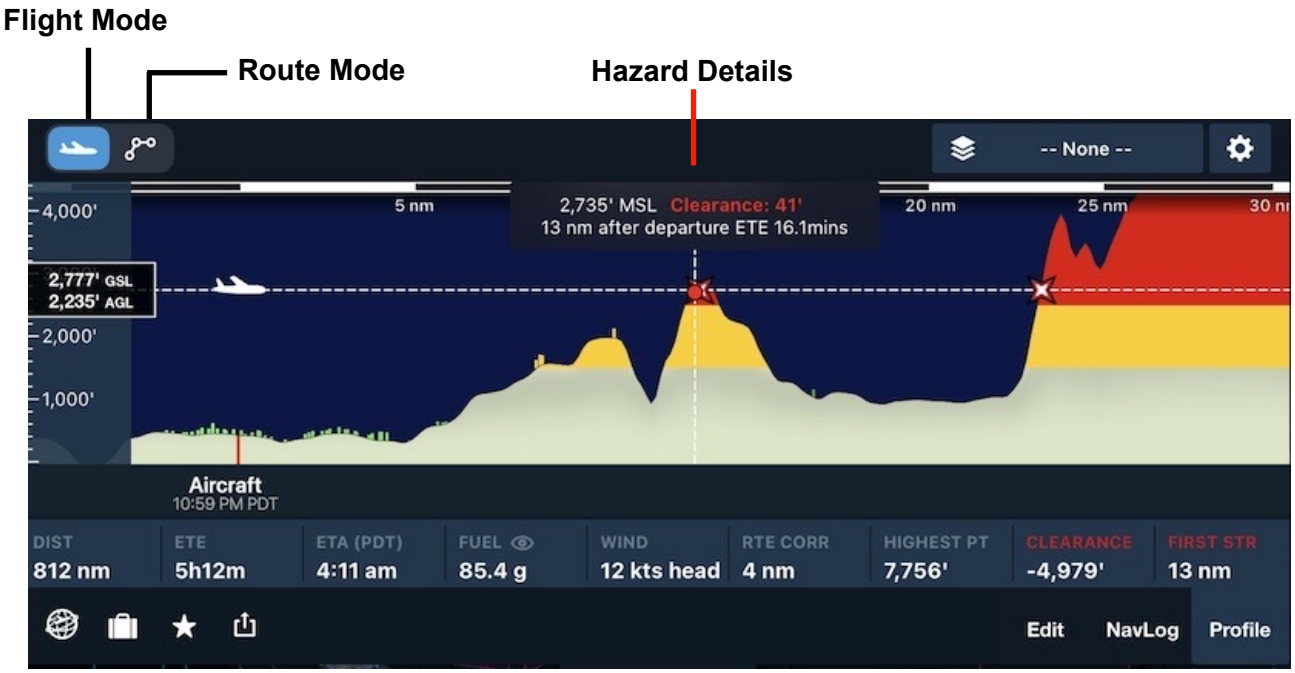


Zooming In/Out of the Same Region

11.19.10 Profile View Scrubbing

To analyze potential hazards during preflight, tap and hold one finger on the Profile View at a specific point along the route. This places a **marker** at the corresponding point on the map and displays the following hazard details relevant at that point:

- The MSL height of the point above terrain/obstacle hazards within the lateral bounds of the user-specified **Corridor Width**.
- The vertical clearance of the point from underlying terrain or obstacle hazards within the lateral bounds of the user-specified **Corridor Width**. The label font color indicates vertical proximity to hazards and can be red or yellow based on the user-set **Hazard Altitudes** setting.
- The NM distance and ETE (above 60 KTS) of the marker from the current position while in flight (**Flight Mode**) or the departure point if in **Planning Mode**.



In-Flight Profile View Hazard Details

While in flight mode, a marker can be set in front of the position by tap and holding on the Profile View in front of the aircraft. The marker will remain there, providing hazard information, until the screen is tapped or leaving the Profile view.

NOTE: If the **Airspace layer** is enabled and a point within controlled airspace is scrubbed, the boundaries of that airspace are highlighted both in the Profile View and on the map.

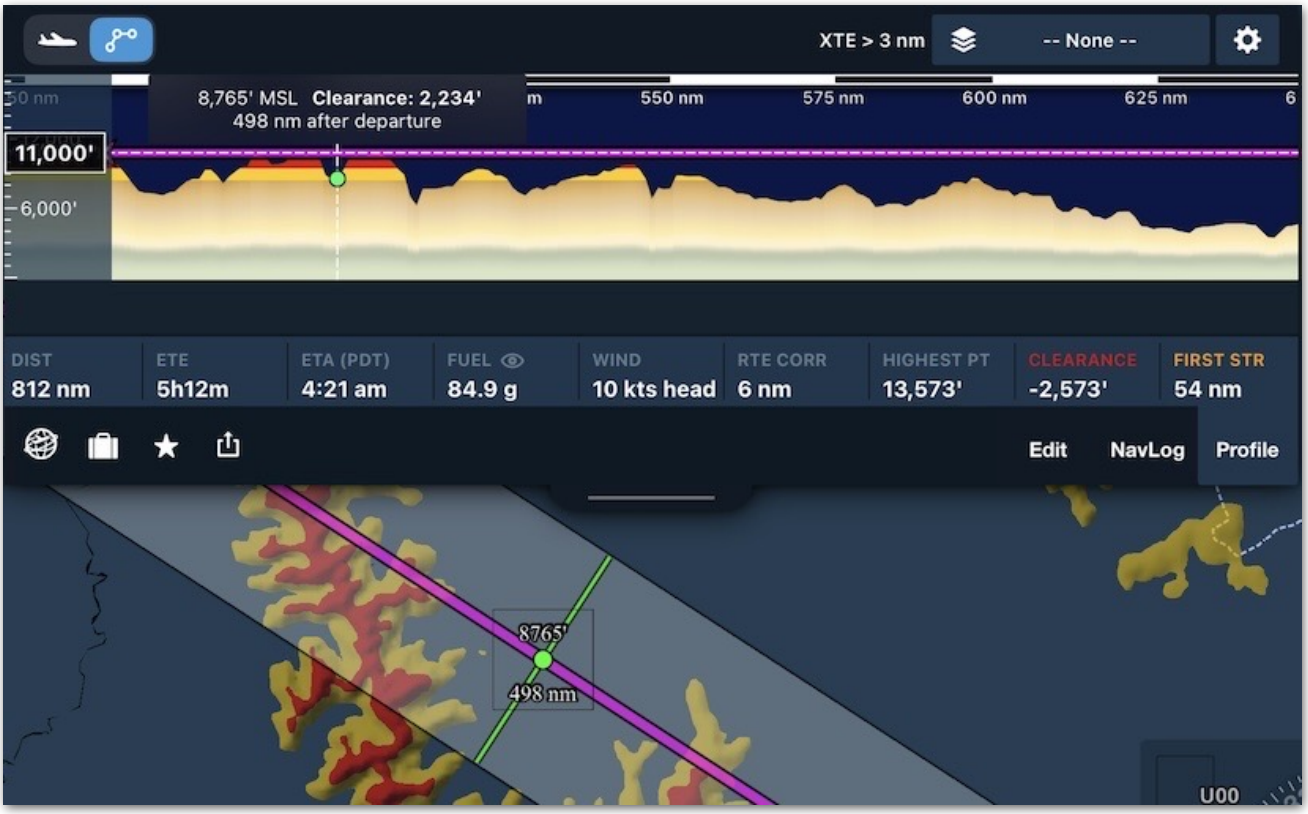
Scrubbing the Profile View

To see details for different points along the route, tap and hold one finger on the Profile View as above, then drag the finger left and right across the Profile View. The hazard details are updated at each new point, and the **marker** moves along the route line on the map.

Marker Characteristics

As the marker moves along the route line on the map, it uses width and color to provide additional details about each point:

- **Marker Width**: The marker always spans the user-specified **Corridor Width**. This can be used to visualize how far to the left and right of the route centerline ForeFlight scans for potential hazards, even when the Profile Corridor is not displayed.
- **Marker Color**: The color of the marker indicates the vertical proximity to underlying obstacles or terrain within the user-specified **Corridor Width**. The marker color is red, yellow, or green, depending on the user-set **Hazard Altitudes** setting.



Scrubbing the Profile View

11.19.11 First Strike and Clearance Calculations

A first strike and clearance analysis is conducted during planning and while in flight.

In planning mode, clearance is the difference between the highest hazard within the **route corridor** and the planned cruise altitude, including its climb and descent performance. In flight mode, clearance is the difference between the highest point looking 60 NM ahead of the current track, inside the user-defined corridor, and the current GSL.

> **NOTE:** For short routes (of less than 12 NM), the Clearance field displays a blank line "---". This is because ForeFlight adds a 5 NM buffer to the start and end of the Profile Corridor, within which clearance calculations cannot be made.

Hazard information is displayed in the Profile View header. While in flight, the distance and time (based on the current groundspeed) to the *First Strike* is displayed.

> **IMPORTANT:** To account for takeoff and landing, hazards within 5 NM of the departure and destination airports are not factored in the first strike calculation. Hazards within 5 NM of the departure and destination airports are not factored in the clearance calculation.

The *Clearance* and *First Strike* labels are color-coded as follows:

- Clearance values less than 1,000 feet result in a yellow **Clearance** label.
- Clearance values less than 100 feet result in a red **Clearance** label.
- If a first strike is anticipated in planning mode, the **FIRST STRIKE** label is yellow and will show the distance remaining to impact.
- If a first strike is anticipated in flight mode, the **FIRST STRIKE** label is yellow and will show the distance and time remaining to impact.
- In flight mode, the label changes to red when the clearance is zero or less and the time to **FIRST STRIKE** is 20 minutes and will show the distance and time remaining to impact.

11.19.12 Obstacle/Terrain Strike Indicators

Obstacles and terrain hazards within the lateral boundaries of the **Profile Corridor** are marked with a star on the Profile View diagram if their height exceeds the planned aircraft altitude at that point. This star represents the potential of the aircraft to strike the hazard at its planned flight altitude. As shown in the image below, the impact point of each hazard is marked.

Obstacles and terrain are considered hazards if they are within the user-specified **Profile Corridor**.

In Flight Mode, only obstacles and terrain ahead of the current position are considered. First-strike markers and **hazard coloration** are not applied to anything behind the current flight path.

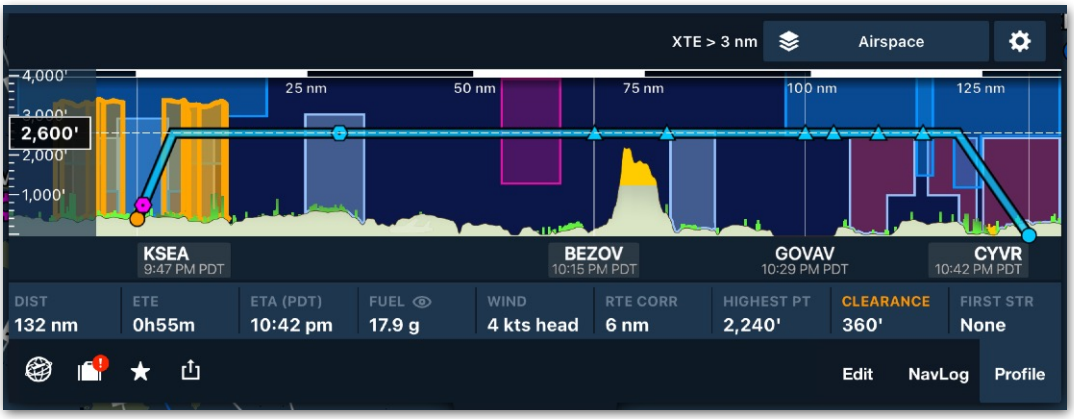
This safety buffer is demonstrated in the image below. The 40-NM Profile Corridor encompasses two 1,000-ft AGL towers south of the route line even though the aircraft passes well to their north. Both towers are given strike indicators.



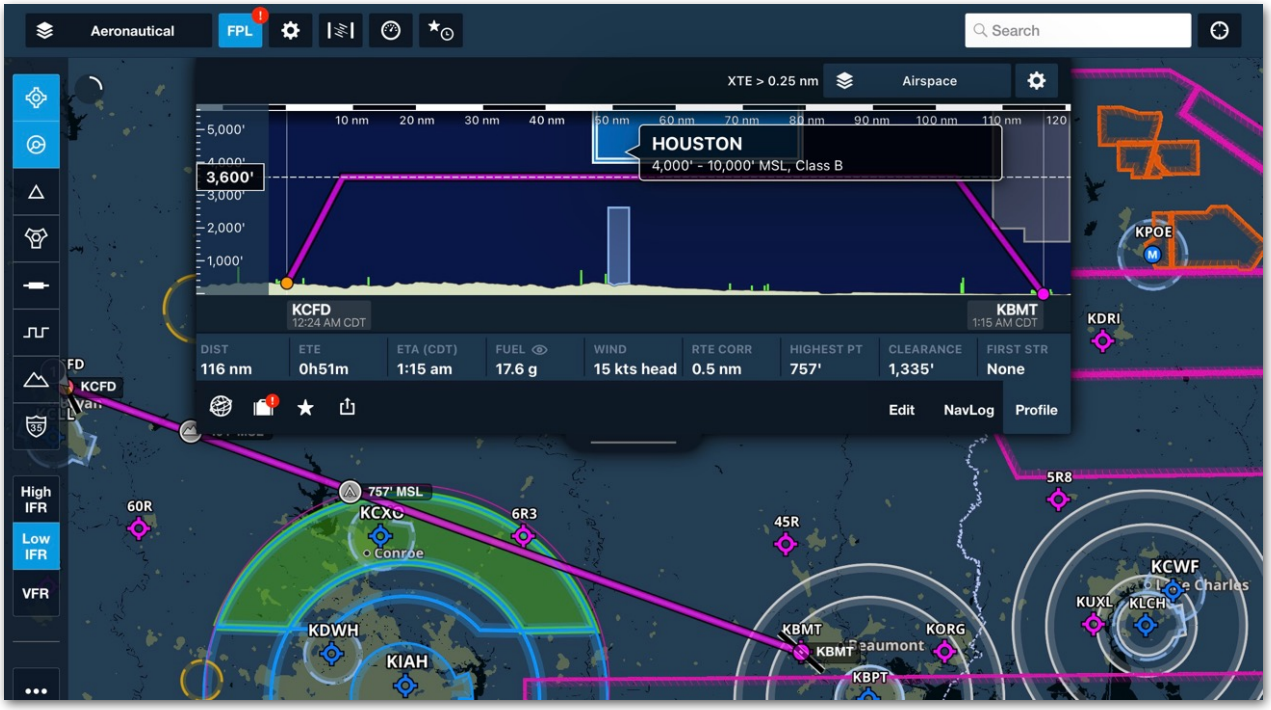
Obstacle/Terrain Strike Indicators

11.19.13 Airspace in Profile View

Tap the Layer Selector to show or hide airspace in the Profile View. Tap within an airspace's boundary to reveal airspace details and to highlight the airspace on the map. When the **Airspace** layer is selected, controlled airspace, special use airspace, and TFRs within 1 NM of the planned route are depicted in Profile View.



Airspace Details in Profile View



Airspace Highlighted on Map

11.19.14 Weather in Profile View

Premium and Business Performance plans offer a cross-sectional view of icing, turbulence, and cloud forecasts along the planned route. Tap the layer selector to enable the Icing, Turbulence, or Cloud forecast.

Weather in Profile View uses the same color scales as the map to depict varying intensities for each layer at multiple altitudes in relation to the route line.

Profile View automatically considers the planned departure and en route times to display the appropriate weather forecast. For longer flights, multiple forecast periods are blended together.

ForeFlight will display Icing, Turbulence, and Cloud forecasts in Profile View during a flight if **Pack** was used to download the data while connected to the Internet. Profile View does not support ADS-B Icing, Turbulence, or Cloud weather layers.

If no forecast data is available for all or part of the route, either because the duration of the flight exceeds the forecast period, or because **Pack** was not used prior to the flight, Profile View shows hatch lines at the position along the route that corresponds to when the data is not available.

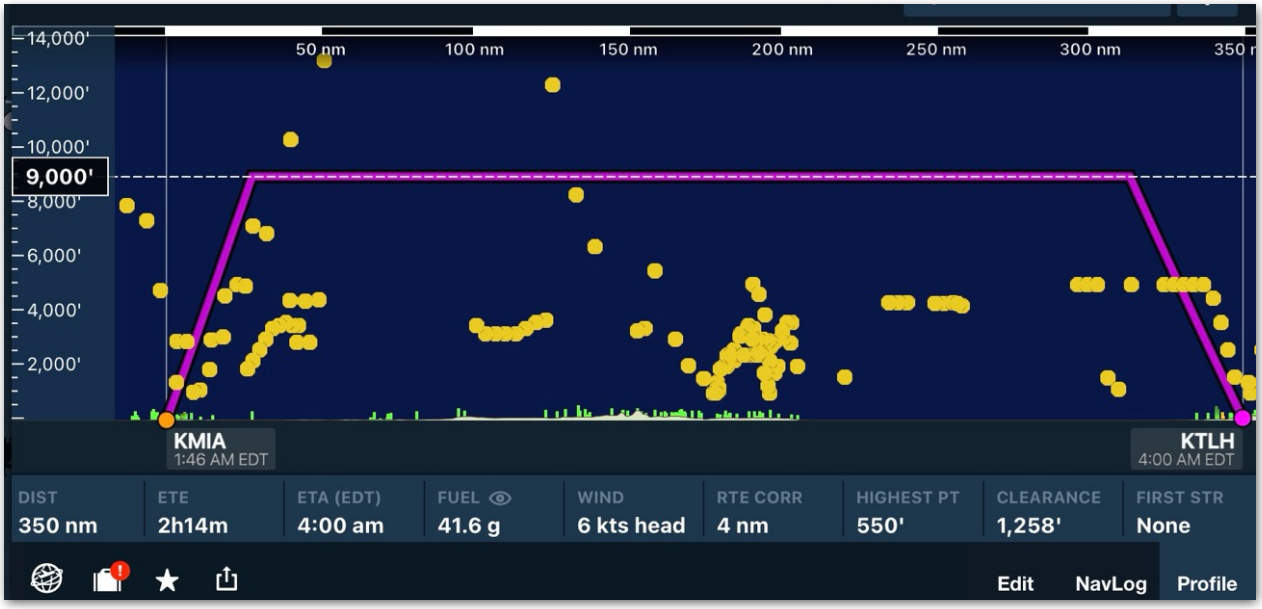


Clouds in Profile View

11.19.15 Reported Turbulence in Profile View

Reported Turbulence offers a cross-sectional view of turbulence along the planned route. To enable it, tap the layer selector and tap **Reported Turbulence**.

Reported Turbulence in Profile View uses the same symbology as the **map** to depict varying turbulence levels in relation to the route line. Reports within 20 NM of the route line are displayed. Reports closest to the route line will be displayed on top of reports located in the same route plane and altitude but further laterally from the route line.



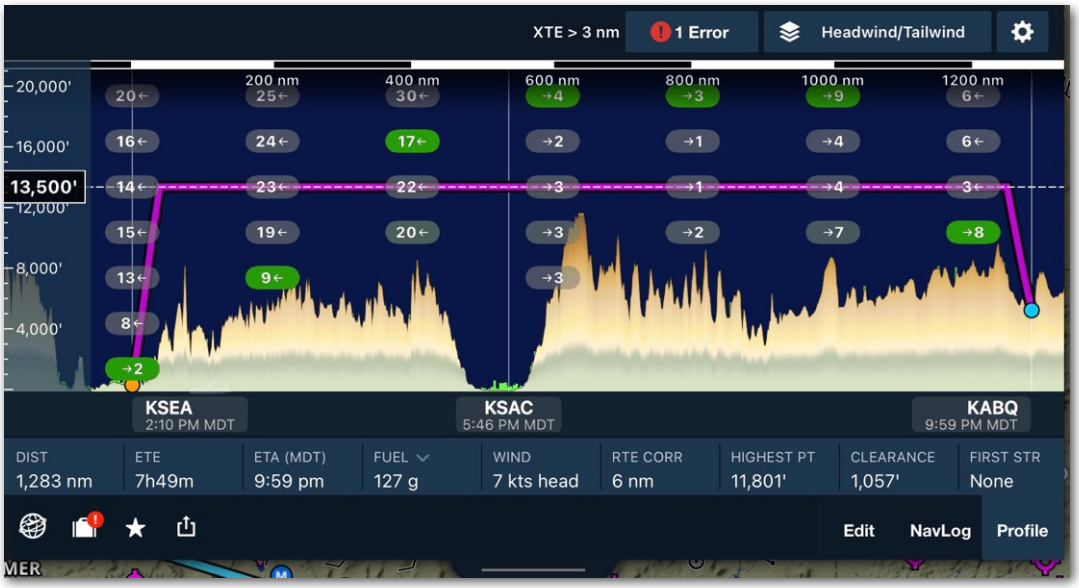
Reported Turbulence in Profile View

NOTE: Access to Reported Turbulence may necessitate additional prerequisites beyond standard package offerings. See the ForeFlight Website for additional information on options to access Reported Turbulence

11.19.16 Profile View Headwind/Tailwind and Est Groundspeed

The **Headwind/Tailwind** selection offers a cross-sectional view of anticipated headwind or tailwind components along the planned route. More advantageous winds within the profile altitude scale will be highlighted in green.

The **Est Groundspeed** selection offers a cross-sectional view of estimated ground speed calculations along the planned route. The highest groundspeed within the profile altitude scale will be highlighted in green.



Headwind/Tailwind Profile

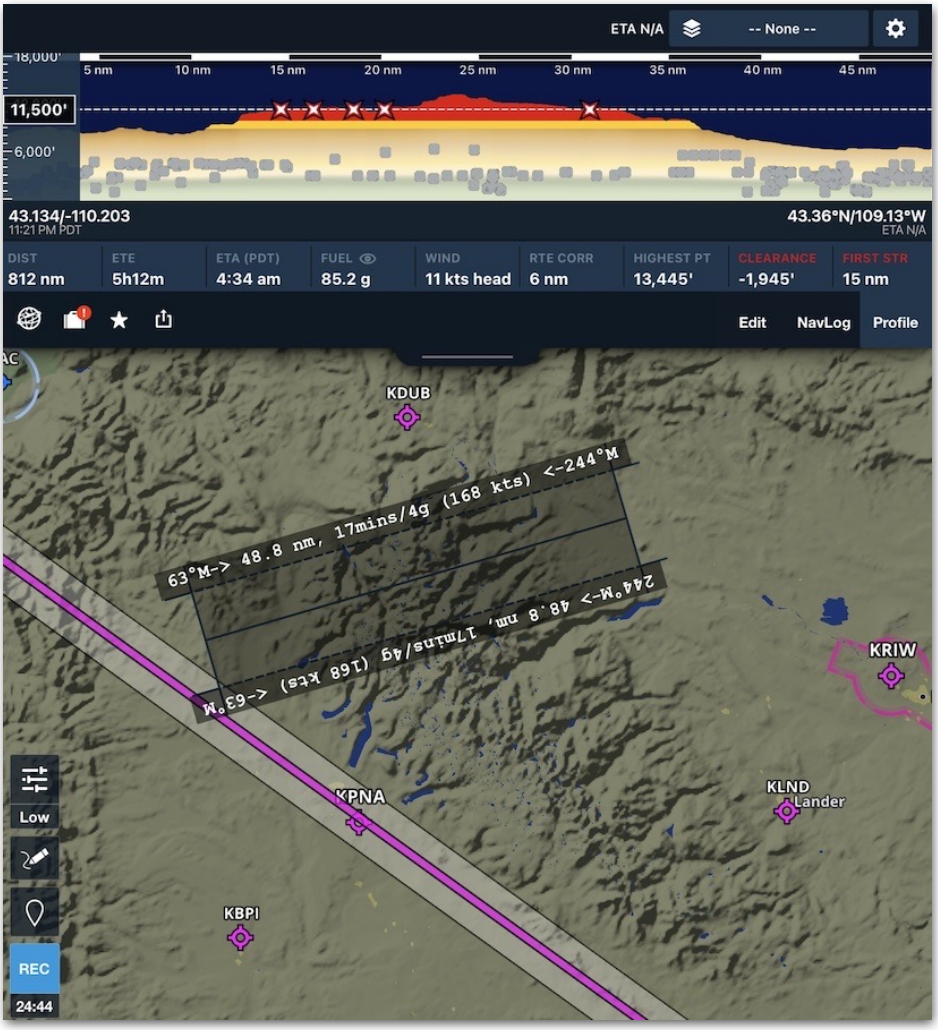


Groundspeed Profile

11.19.17 Profile View Ruler

When touching two fingers to the Maps page to display the ruler, Profile View changes to display the airspace, obstacles, terrain, and selected weather information under the ruler.

When the ruler is displayed on the map, scrub along the Profile view to see the, altitude and terrain clearance popup for the area corresponding to points along the ruler path. Single-tap on the Maps page to remove the ruler and return to the Route/ Flight Profile view.



11.19.18 Profile View Profile Corridor

If the **Corridor Activation** setting is set to Automatic, the **Profile Corridor** displays automatically whenever the Profile View is displayed.

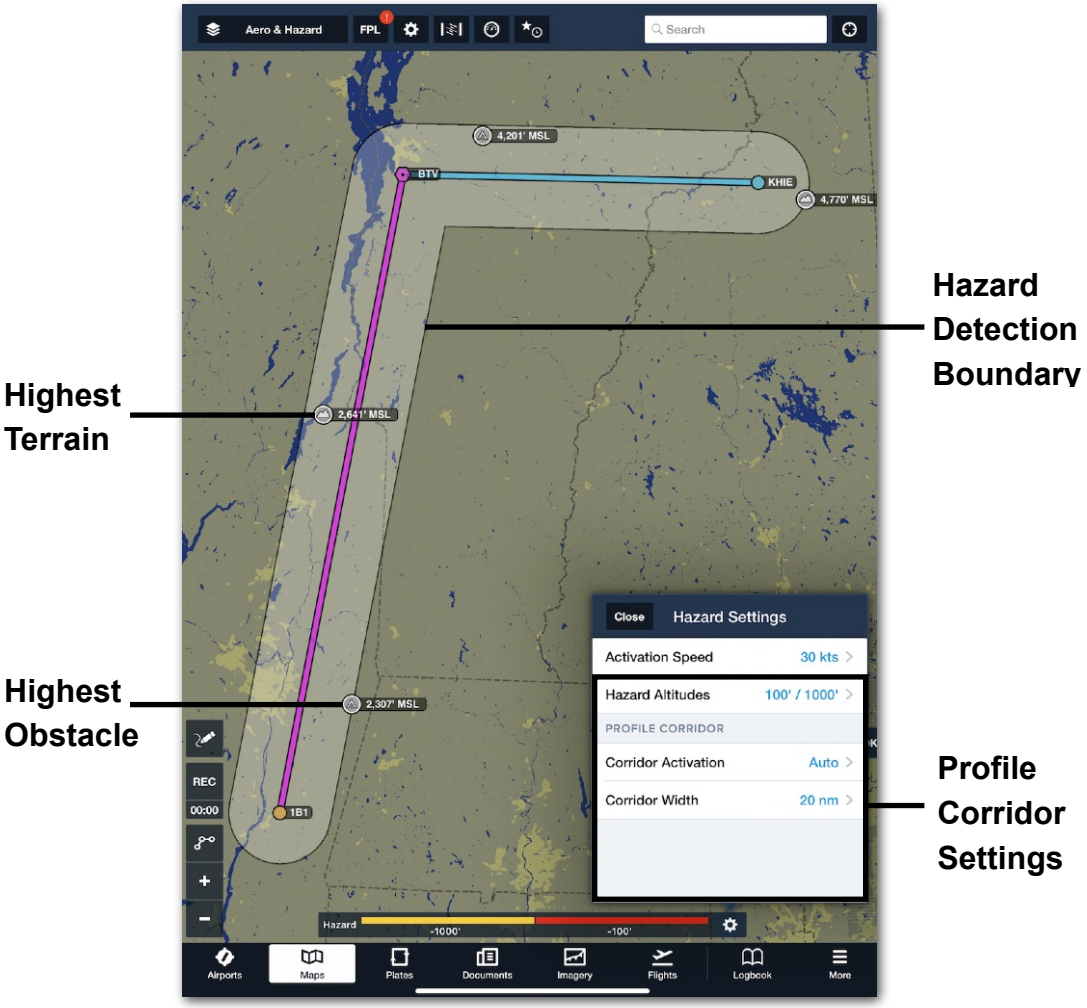
11.20 Profile Corridor

The Profile Corridor is an optional map feature that depicts the hazard detection range on either side of the route line and identifies the highest terrain and obstacle hazards along each leg in the route. The Profile Corridor is related to the **Profile View** and **Hazard Advisor** and requires an Essential or higher subscription to use.

11.20.1 Hazard Detection Boundary

As depicted in the screenshot below, the Profile Corridor is shown as a transparent boundary enclosing the route and bending to follow each leg. The size of this boundary is determined by the Corridor Width setting.

NOTE: The hazard detection boundary may lose uniformity around legs less than 2 NM long. For details, see **this article** in the ForeFlight Support Center.



11.20.2 Profile Corridor Settings

The following options in the **Hazard Settings** menu affect the Profile Corridor.

Hazard Altitudes

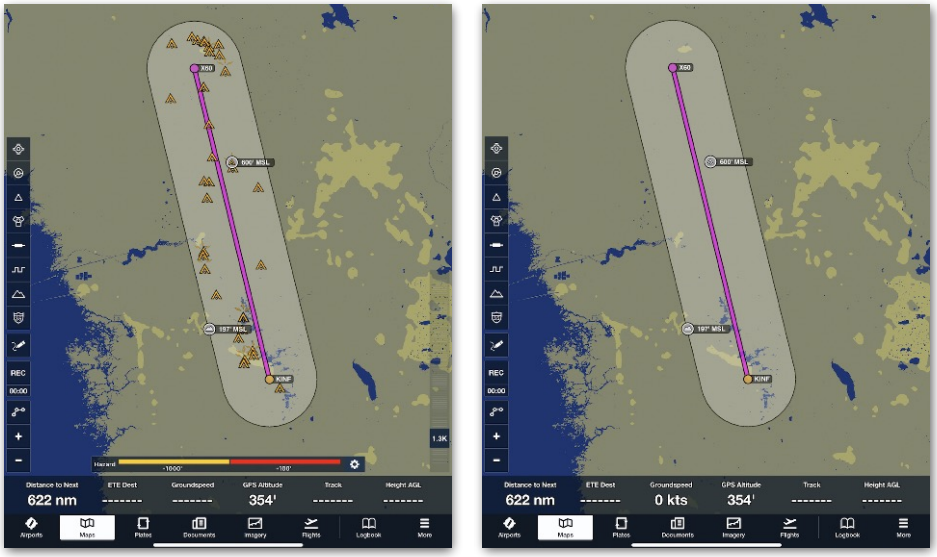
When the **Hazard Advisor** map layer and Profile Corridor are both displayed, the Profile Corridor shows the highest-point markers along each leg and all obstacles along the route that present a hazard at the current altitude (or the current setting of the Altitude Slider). The minimum height of obstacles displayed, and their color, depends on the **Hazard Altitudes** setting.

When the Hazard Advisor map layer is not displayed, the Profile Corridor only shows the highest terrain and obstacle markers along each leg.

Interaction with Hazard Advisor

Both the Profile Corridor and Hazard Advisor can display obstacles along the route. They interact in the following ways:

- When Profile Corridor is on but the Hazard Advisor map layer is off, the Profile Corridor displays *only* the highest-point markers along each leg of the route.
- When both the Profile Corridor and Hazard Advisor map layer are on, the Profile Corridor displays the highest-point markers *and* may display additional obstacles along the route when the Hazard Advisor is in Active Mode.
- When Profile Corridor is off and the Hazard Advisor map layer is on, obstacles are displayed only when the Hazard Advisor is in Active Mode.



Profile Corridor With and Without Hazard Advisor

Corridor Activation

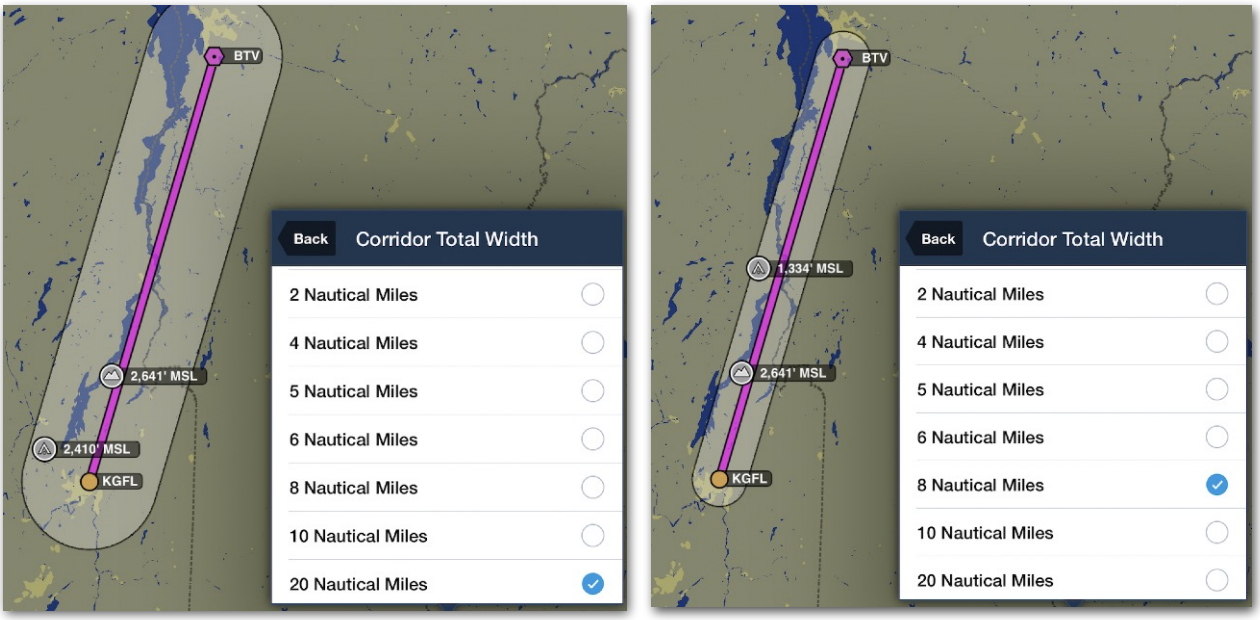
This setting controls when the Profile Corridor appears around the route line. The default setting is Automatic, but there are three options:

- **Automatic** causes the Profile Corridor and highest-point markers to display whenever the Hazard Advisor layer is on or the Profile View is open.
- **Show** causes the Profile Corridor and highest-point markers to display at all times.
- **Hide** disables the Profile Corridor and highest-point markers even when the Hazard Advisor layer is on or the Profile View is open.

Corridor Width

This setting (ranging from 0.5—100 NM), determines the width of the Profile Corridor. When this setting is changed, the Profile Corridor visibly expands or contracts around the route line. This may assign new highest-point markers for each leg.

NOTE: Changing the Corridor Width also affects how terrain and obstacles display in the **Profile View** and **Hazard Advisor**.



Changing Corridor Width (and Highest Points)

11.20.3 Highest-Point Markers

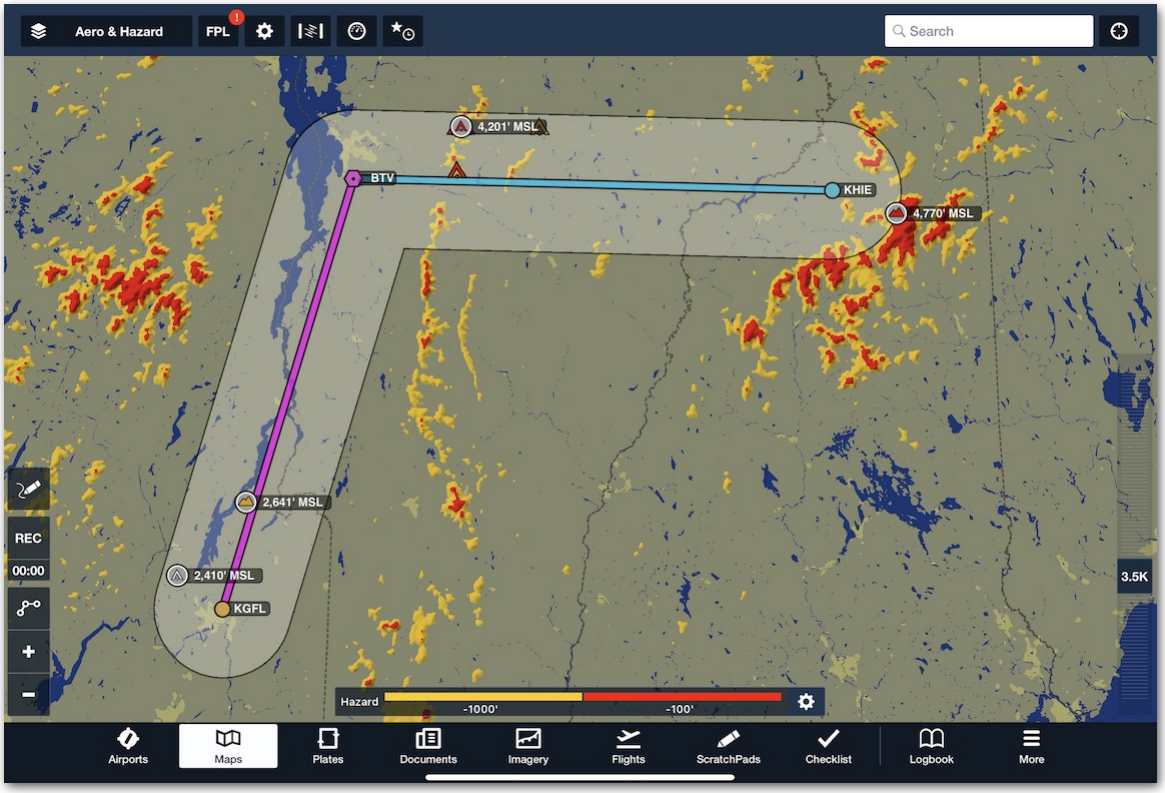
When the Profile Corridor is active, it displays two markers on each leg in the route indicating the locations of the highest terrain and highest obstacle along that leg.

NOTE: If several highest-point markers are close together on the map, the marker with a highest altitude may cover up the others. Zooming in closer should make the other markers easier to see.

Highest-Point Marker Color

The color of the highest-point markers is determined by the **Hazard Altitudes** setting and may be red, yellow, or white depending on their height relative to the aircraft altitude or the altitude set on the Hazard Advisor slider.

- **Red** markers depict terrain or obstacles within the alert altitude buffer.
- **Yellow** markers depict terrain or obstacles within the cautionary altitude buffer.
- **White** markers depict terrain or obstacles below the cautionary altitude buffer.

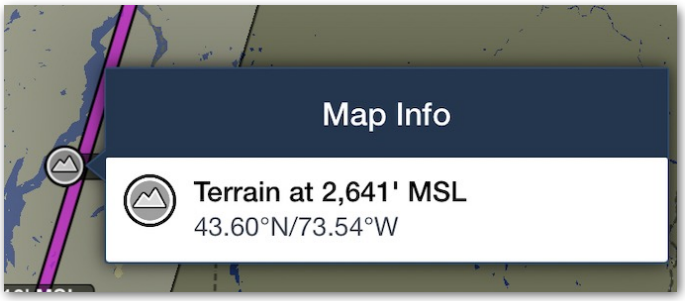


Highest-Point Marker Colors

Marker Info

Each marker is labeled in MSL altitude. Tapping a marker provides the following additional information:

- Tapping **Highest Terrain** markers provides the point's MSL altitude and latitude/longitude coordinates.

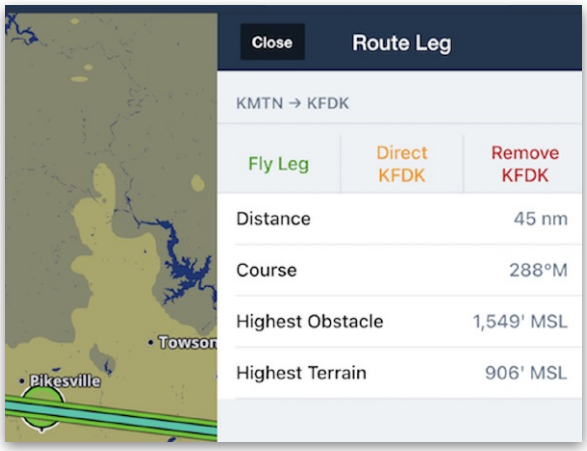


- Tapping **Highest Obstacle** markers provides the point's MSL altitude, type, AGL altitude, and lighting details.



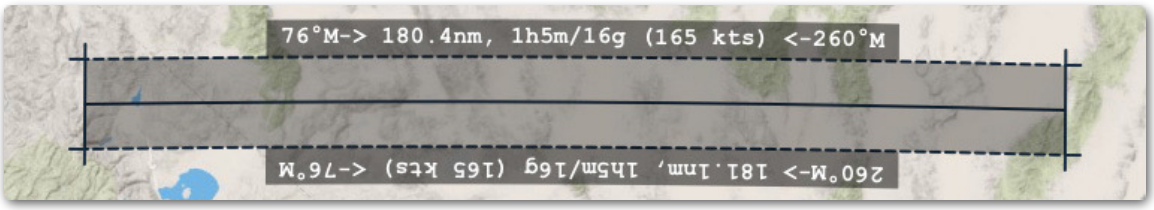
Marker Info in Sidebar

When Corridor Activation is set to Show, or when it is set to Automatic and the Profile View or Hazard Advisor is displayed, tapping a route leg shows its highest-point markers in the **Route Details sidebar**.



11.21 Ruler

Distances can be measured on the Maps view at any time by holding down two fingers on the map until the ruler appears. Hold both fingers on the Map and slide them across the map to reposition the ruler to take measurements between other locations. The ruler is also handy for quickly visualizing great-circle (direct) routes between two points. When measuring distances less than three nautical miles the distance will also be displayed in feet, helpful for measuring available runway.



Ruler

When using the ruler in flight, the current groundspeed will be used to show the time of travel for the distance measured. When not in flight, the TAS from the current route or default aircraft will be used instead.

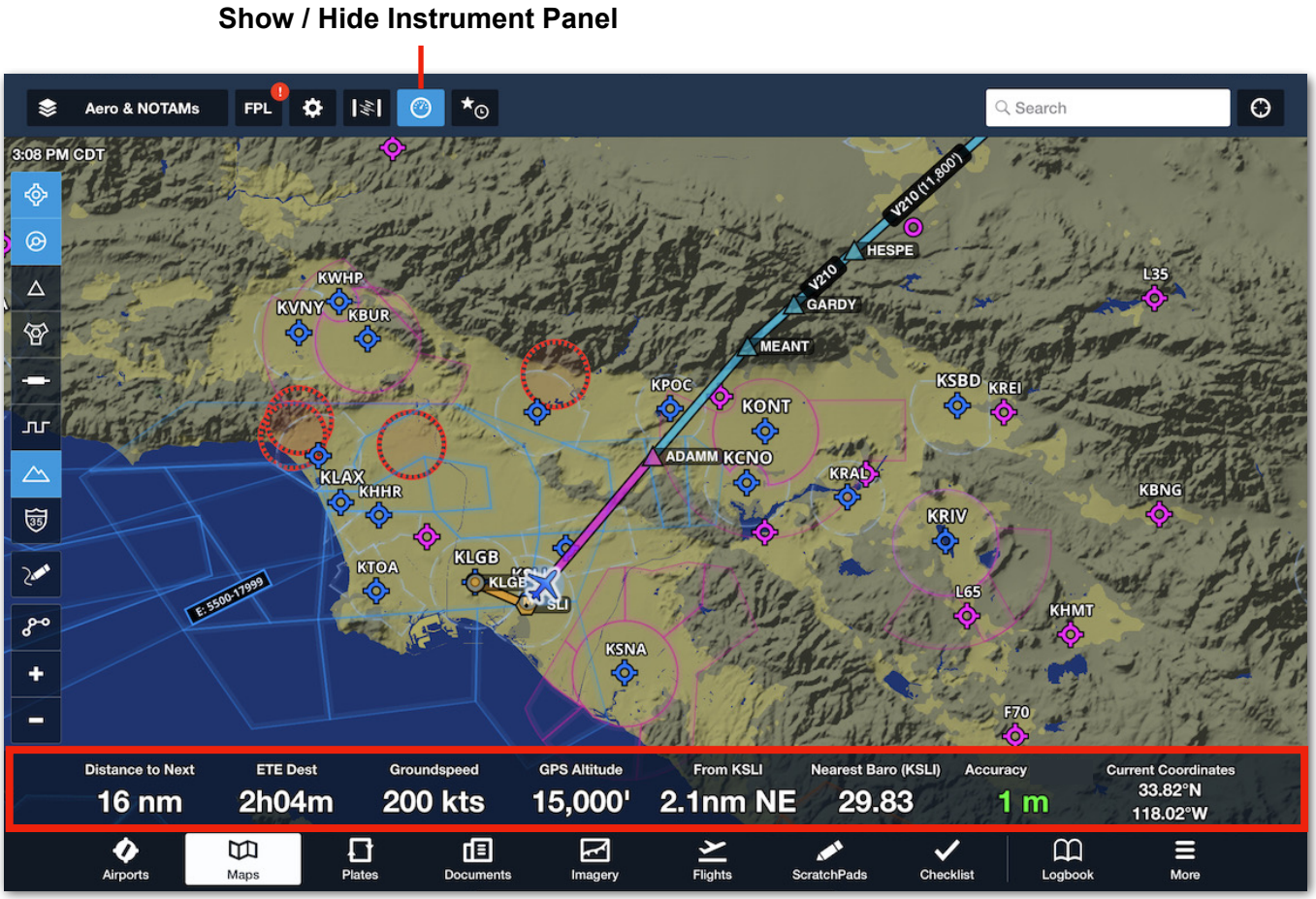
Fuel burn estimates are also shown using the fuel burn provided for the current route or from the default aircraft. All time and fuel estimates are based on no-wind conditions. Initial course bearings are also shown from each side of the ruler.

The ruler will remain on the Map after the fingers are removed. To remove the ruler, tap on the Map.

11.22 Instrument Panel

The Maps view has an optional instrument panel which can display real-time information about the flight. To show or hide the Instrument Panel, tap the instrument button (airspeed indicator) in the upper toolbar.

On the iPad, six instruments are displayed in portrait mode and eight in landscape mode. On iPhones, up to five instruments are displayed in portrait and eight in landscape. Smaller iPhones display four instruments in portrait and six in landscape. The instruments on the right and left ends of the instrument panel in landscape mode are hidden when the device is rotated to portrait.



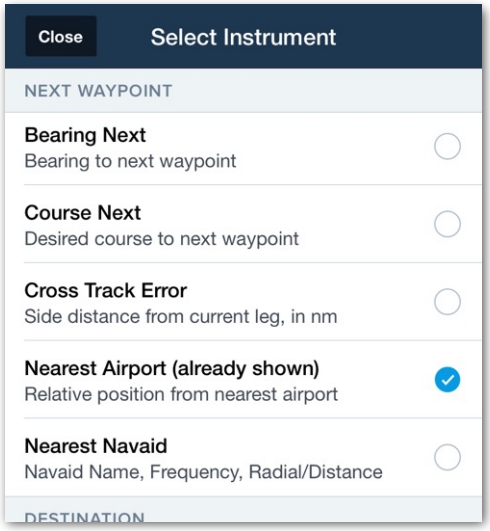
Instrument Panel

11.22.1 Instruments

The default instruments displayed in the Instrument Panel can be replaced with an instrument of choice by tapping an instrument and selecting a new one from the popup list.

The *Select Instrument* menu displays all available instruments. In portrait mode, the additional instruments visible in landscape are shown as being (already shown) even though they are not visible on the screen.

Instruments are grouped into four sections. Each instrument, and the subscription required to see it, is described below.



Select Instrument Menu

NOTE: Many instruments can be configured for different units of measurement. Examples include time (local, Zulu, or station), vertical speed (feet or meters per second), and compass direction (Magnetic or True). This is done by tapping **More > Settings > Units/Time** and selecting the applicable option.

Standard Instruments

- **Groundspeed** displays GPS groundspeed.
- **GPS Altitude** displays geometric altitude as determined by an **external GPS** or the iOS device's internal GPS.
- **Height AGL** displays the GPS altitude above the highest terrain within a 1/4 NM circle around the present location. The Height AGL instrument requires a groundspeed of 40 knots or greater and an Essential or Premium subscription.
- **Height MEF** displays a dynamic Maximum Elevation Figure (MEF) for a half degree latitude by half degree longitude box centered on the aircraft location when moving at 40 knots or greater. Height MEF is calculated as: the tallest obstacle or terrain in that box, rounded up to the nearest 200 feet. The Height MEF instrument requires an Essential or Premium subscription.
- **Grid MORA/Grid LSALT** displays the **MORA or LSALT** of the current location in feet.

- **Pressure Altitude** displays pressure altitude as derived by an outside barometric sensor, if present. When Pressure Altitude data is being sent from the Satcom Direct Router to ForeFlight, the Pressure Altitude instrument will display Pressure Altitude (A429), and will have an Indicated tag underneath, indicating that the value represents the actual indicated altitude. If connected to a source that can provide actual indicated altitude, the Pressure Altitude instrument will display a value with a “Corrected” label.
- **Cabin Pressure** The pressure sensor built into an iPad or iPhone uses the pressure sensor to populate the Cabin Pressure instrument. If Pressurized Cabin is enabled in the connected device’s settings, only the Cabin Pressure instrument will display a value.
- **Baro Altitude** displays pressure altitude corrected for local barometric pressure. This instrument requires a **connected device** that provides pressure altitude and cannot rely on the barometric pressure sensors built into newer iOS devices. The source of pressure data (e.g., Connext) and the local barometric pressure are displayed in the instrument. The local pressure from the nearest station (up to 100 NM from the current position) is used to determine the Baro Alt.
- **G-Meter** displays loads placed on the pitch axis during flight when connected to Sentry Plus. Real-time accelerometer data can be displayed on the Sentry Plus OLED display and on the instrument panel.
- **Track** displays the ground track as determined by GPS. If connected to a device which can provide track (e.g. Satcom Direct), ForeFlight displays the track provided by the external device.
- **Accuracy** displays GPS accuracy as reported by a connected external device or the integrated iOS GPS processor. The Accuracy instrument is color-coded. The lower the accuracy number, the more accurate the position data. See **Ownship** for additional GPS accuracy implications.

  Green - 20 meters or less. **Orange** - 20 to 60 meters **Red** - Greater than 60
- **Rate of Turn** shows the rate of turning degrees per second.
- **Vertical Speed** displays vertical speed in feet per minute or meters per minute as determined by the GPS. The units used to measure vertical speed can be edited in More > Settings > Units/Time > Altitude Instruments.
- **Climb Gradient** displays the climb gradient in feet per nautical mile (ft/NM) or meters per nautical mile (m/NM). The units used to measure the climb gradient can be edited in More > Settings > Units/Time > Altitude Instruments.

- **Nearest Baro** displays the barometric pressure for the nearest reporting station.

Next Waypoint Instruments

- **ETE Next** shows the estimated time en route (ETE) to the next waypoint in hours, minutes, and seconds.
- **ETA Next** shows the estimated time to arrival (ETA) at the next waypoint in the selected time format (local, station, or Zulu).
- **Distance to Next** shows the distance to the next waypoint in the selected format (nautical miles, statute miles, or kilometers).
- **Bearing Next** shows the current magnetic bearing to the next waypoint in the selected format (Magnetic or True). If the aircraft remains on the desired flight track, this will read the same as the Course Next instrument.
- **Course Next** shows the desired magnetic course from the previous waypoint to the next waypoint in the selected format (Magnetic or True).
- **Cross Track Error** shows the lateral distance from the current leg in the selected format (nautical miles, statute miles, or kilometers).
- **Nearest Airport** shows the Cardinal position and distance from the nearest airport to the present location in the selected format (nautical miles, statute miles, or kilometers. If a **Min. RWY Length** is specified, the nearest airport instrument respects the selection.
- **Nearest Navaid** shows the identifier, frequency, radial (magnetic), and distance from the nearest navaid.

Destination Instruments

- **ETE Dest** shows the estimated time en route (ETE) to the destination in hours, minutes, and seconds.
- **ETA Dest** shows the estimated time to arrival (ETA) at the destination in the selected time format (local, station, or Zulu).
- **Distance to Dest** shows the distance to the destination in the selected format (nautical miles, statute miles, or kilometers).
- **Bearing to Dest** shows the current bearing in the selected format (Magnetic or True) needed to fly straight to the destination.

- **Descent to Dest** shows the vertical speed in the selected format (feet per minute or meters per minute) needed to reach the destination elevation at arrival.

Other Instruments

- **Current Coordinates** shows the current GPS coordinates in the selected format. See **Unit/Time** settings for additional information.
- **Zulu Time** shows the current Universal Coordinated Time (UTC) regardless of the selected time format.
- **Horizon Distance** calculates the estimated distance to the horizon based on the present altitude AGL, assuming a simplified, spherical model of the earth.
- **Blank** replaces the current instrument with an empty space. This allows more of the map to be viewable behind the panel.
- **Flight Time** displays the total time since takeoff. Takeoff is automatically detected when groundspeed exceeds 60 knots. This instrument requires an active **track log** recording to activate.

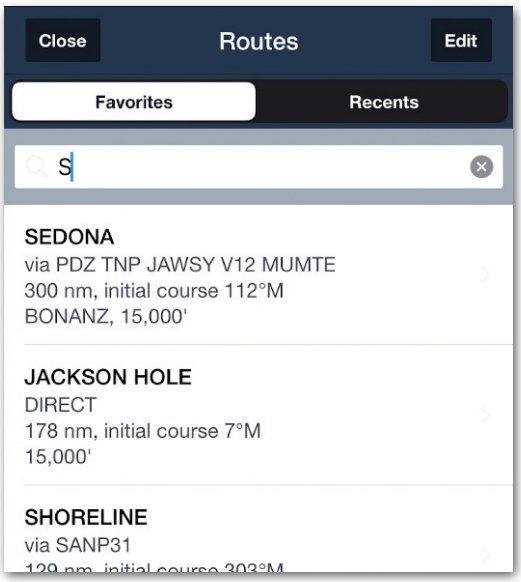
11.23 Favorite and Recent Routes

The **Star/Clock** button in the upper toolbar opens the Favorites / Recents menu. Use the tabs near the top of the menu to switch between Favorite and Recent routes.

Routes are automatically added to the Recent route list as flights are planned. Add routes to Favorites routes by tapping the star button at the bottom of the FPL view.

The Favorites list can be re-ordered. To re-order the list:

1. Tap the **Favorite** tab to display the list of Favorite routes
2. Tap **Edit** in the upper toolbar of the menu
3. Tap and hold the three bars of the flight (right side of the menu)
4. Without lifting, drag the flight up or down to the desired position
5. Release the finger
6. Repeat steps 3 - 6 as needed
7. Tap **Done**.



Favorite Route Menu

To delete a Favorite or Recent route, swipe from right to left on the route.

Changes to Favorite and Recent routes, including adding, removing, and changing the order of the routes are automatically synced to each device that is signed in to the ForeFlight Mobile account.

When searching for a Recent or Favorite route, the lists can be filtered by searching on the following items.

- Tail Number
- Destination / Departure
- Favorite Route Name
- Route Elements (waypoint).

PLATES

The Plates view serves as an electronic kneeboard, allowing pilots to organize, view, and swipe between plates in flight. It is ForeFlight Mobile's default tool for viewing plates and can be accessed in many ways.

12.1 Design

The following sections describe the two layouts and key features of the Plates view.

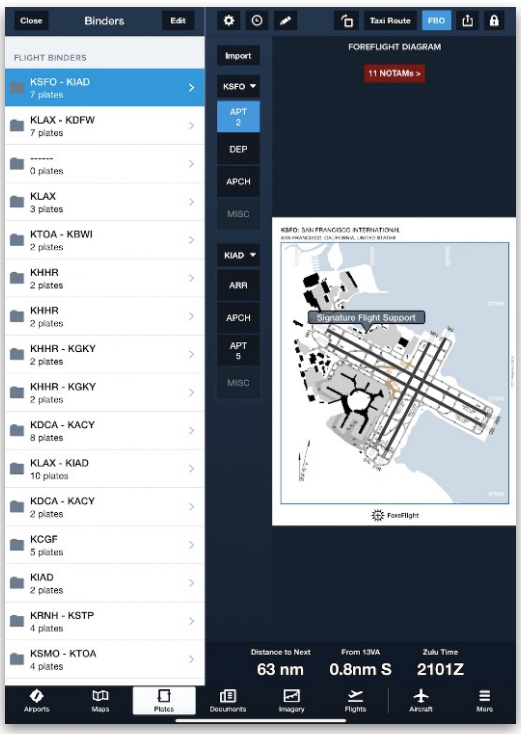
12.1.1 Layout

The Plates view displays one of two layouts depending on how it was accessed:

- **Full-Screen:** When a plate is opened on the Maps, Airports, or Flights view, ForeFlight switches to the Plates view to display the plate in full-screen mode. Users can tap the **Close** button to return to wherever they were in ForeFlight before opening the plate.
- **Split-Screen:** When the Plates view is opened directly by tapping **Plates** in the Navigation Toolbar, the view displays a split-screen layout with the Plates Viewer to the right of a collapsible **Binders Drawer**.



Full-Screen



Split-Screen

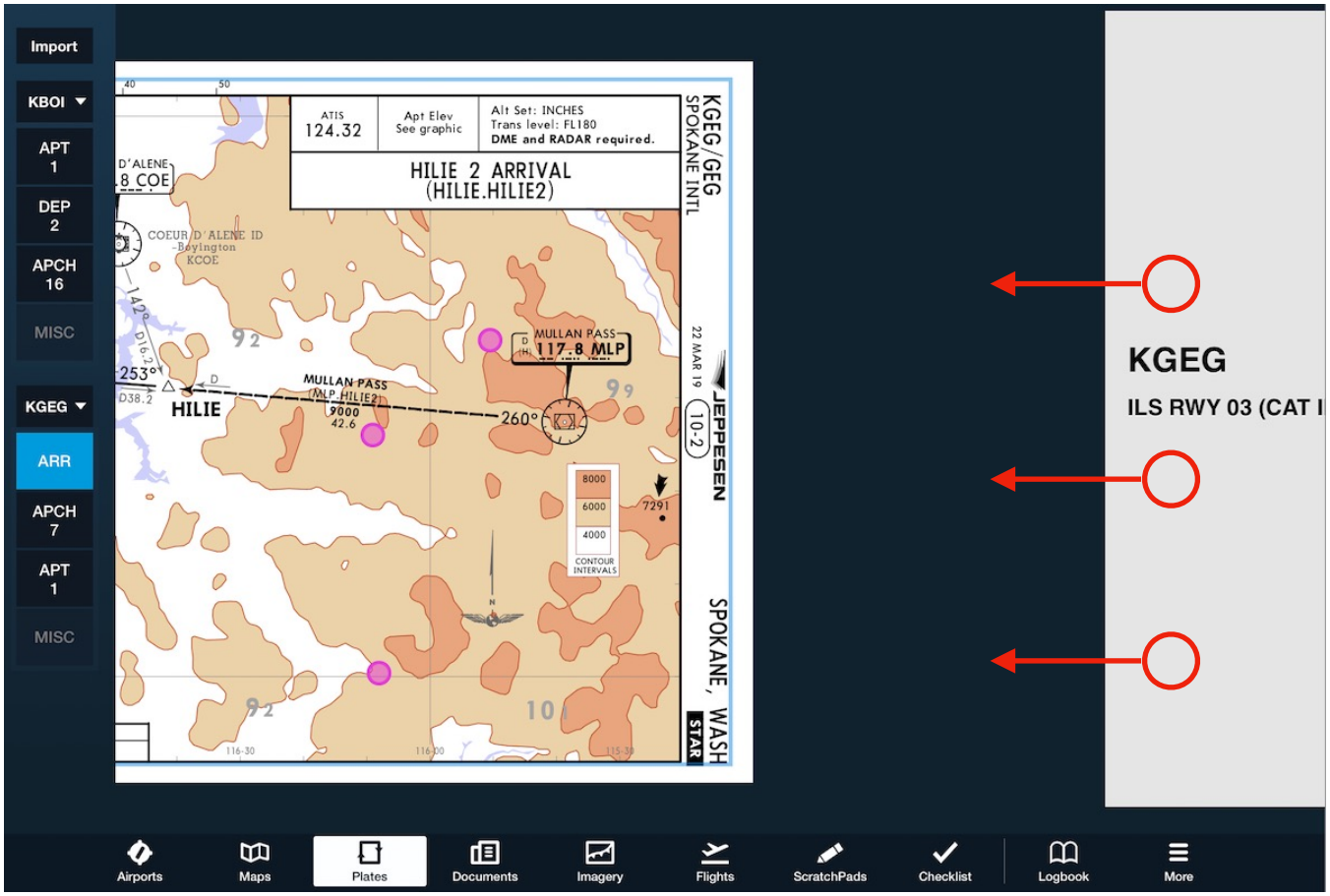
12.1.2 Key Features

The Plates view can be a powerful in-flight tool. The following are its key features.

Intuitive Navigation

The Plates view incorporates **on-screen finger gestures** to pan and zoom, and a three-finger swipe to quickly switch between plates in a binder.

This is meant to replicate the functionality of traditional paper kneeboards and to make using plates easier during busy flights.

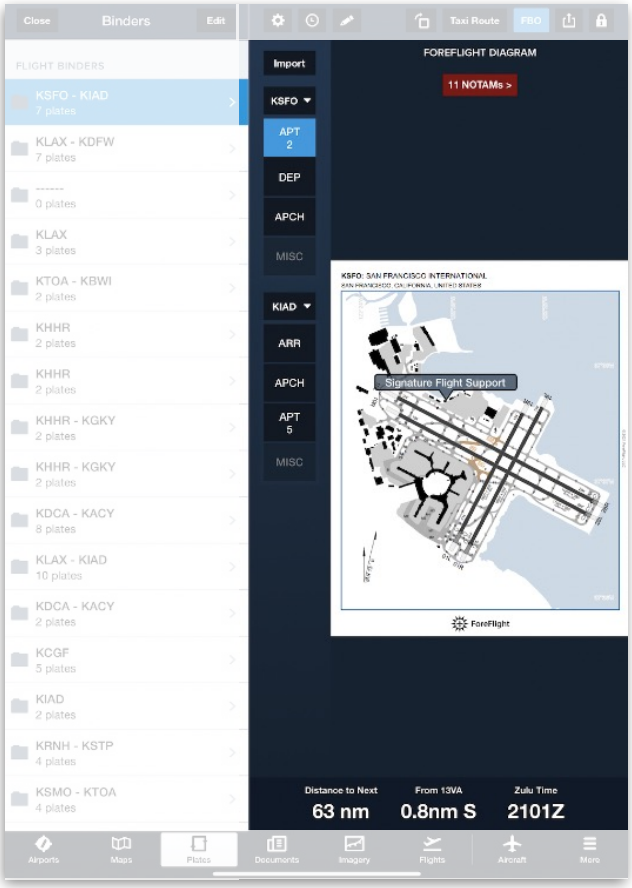


Three finger swipe to switch plates in a binder

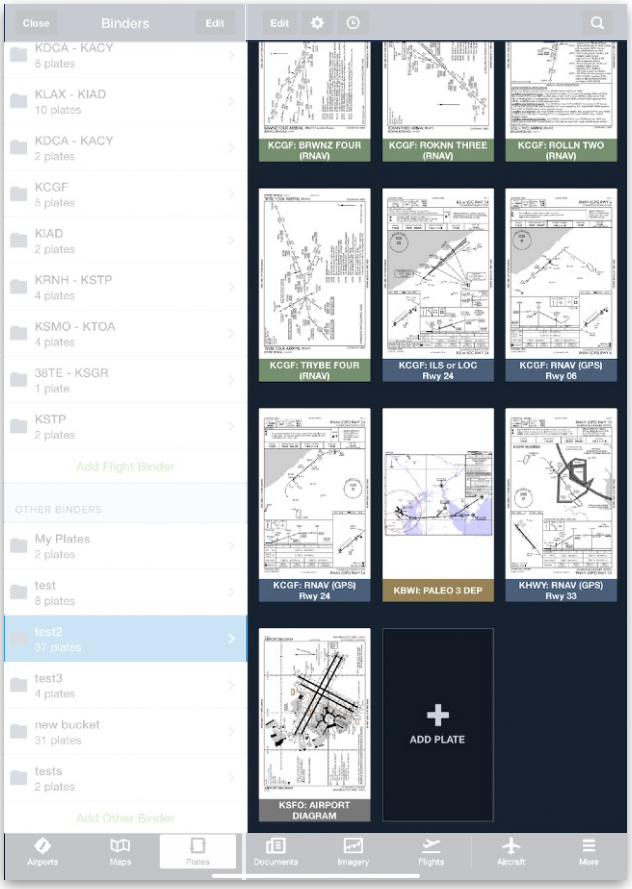
Binders Organize Plates for Flight

Plates can be organized into two types of binders (folders) for pilots to swipe through.

- **Flight Binders** are used to organize plates for a specific flight and can be generated from the Maps and Flights views.
- **Other Binders** are used for unstructured collections of plates.



Flight Binders View



Other Binders View

View Online Without Downloads

US, Canadian, European, and Australian plates can be viewed with an active internet connection. To view plates offline, they must first be downloaded.

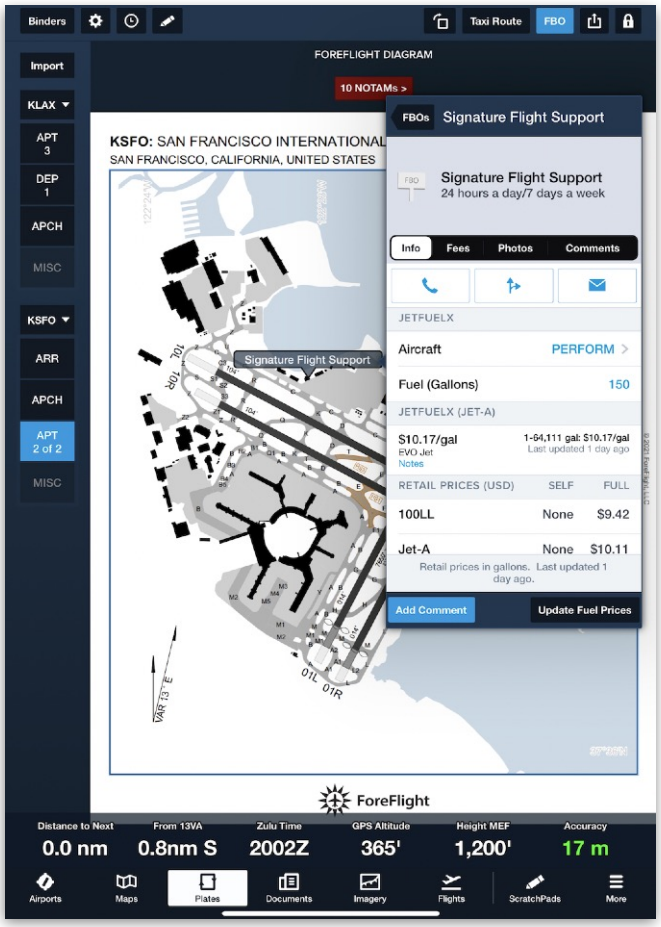
The availability of specific plates is limited only by the regions allowed in a subscription plan. **ForeFlight-generated plates** are available regardless of subscription.

12. PLATES

On-Plate Functionality

Plates in ForeFlight can be overlaid with dynamic features such as:

- **Alert NOTAM banners** that expand to display a list of applicable NOTAMs.
- **FBO labels** that show on-airport locations and details for each FBO.
- Custom **annotations**.
- A customizable **instrument panel** for monitoring real-time flight data while reading a plate.



FBO Labels and Information

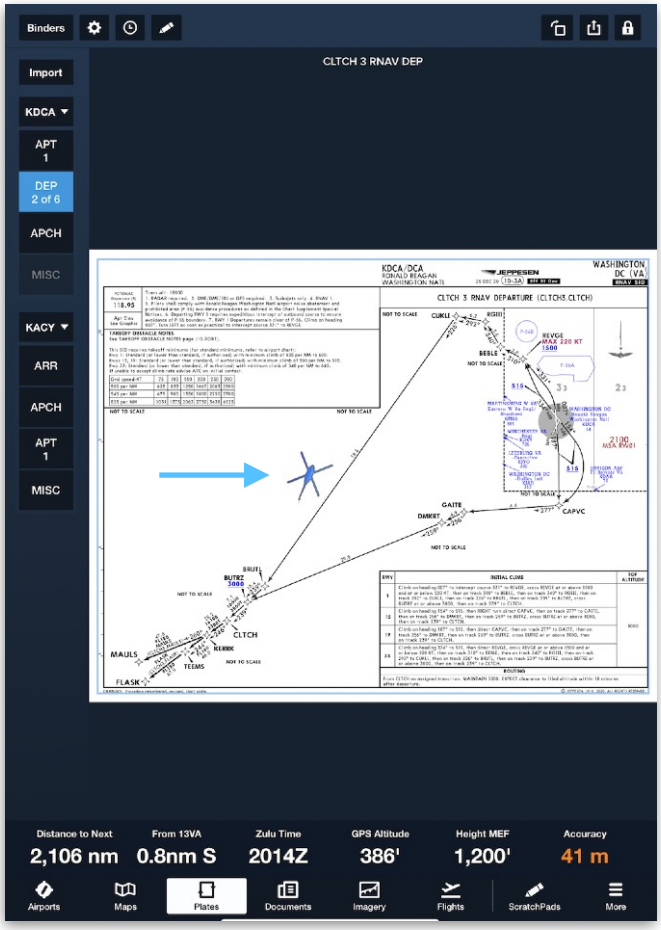


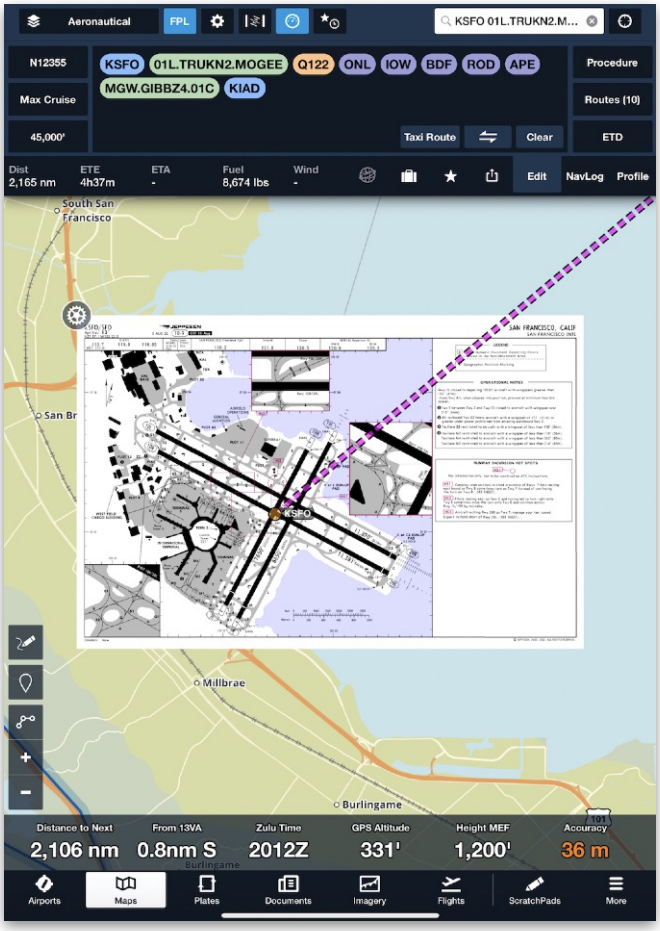
Annotations on Plates

Optional Features

The above Plates view features are available to all users. Additional optional features are described below:

- **Jeppesen** plates can be displayed in addition to the standard government and ForeFlight plates.
- Essential and higher subscribers can use **georeferenced** plates to show their aircraft position on a plate and overlay plates on the map.
- Premium subscribers can use a **Taxi Routes** tool to create taxi routes based on destination and taxi clearances.





Georeferenced Procedure

12.1.3 Types of Plates

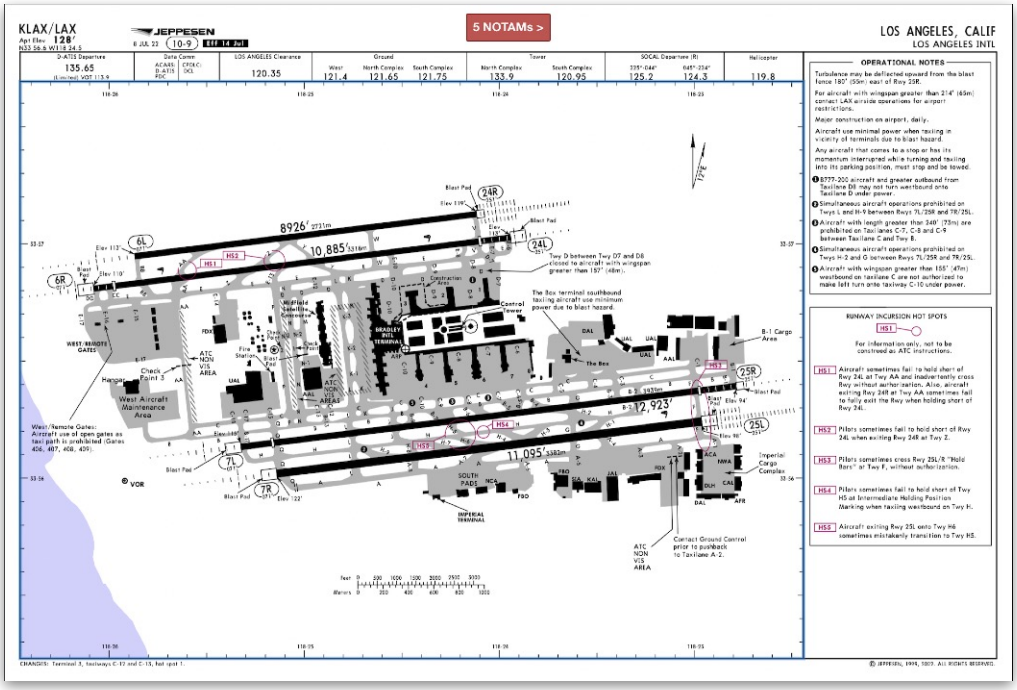
Plates encompass a variety of terminal procedures and documents including, but not limited to, the following: standard instrument departures (SIDs), instrument approach procedures (IAPs), standard terminal arrival procedures (STARs), airport diagrams, taxiway diagrams, obstacle departure procedures (ODPs), IFR takeoff minimums, alternate minimums, and special notes.

Plates can be published by different sources. When a user opens a plate, the version displayed varies based on availability and priority. It is not possible to reorder or assign plate priority. ForeFlight offers the following types of plates.

Jeppesen

Jeppesen plates are available to ForeFlight users who link their existing **Jeppesen subscriptions** or purchase Jeppesen coverage from ForeFlight. If Jeppesen coverage is installed on a device, the plates will appear above all other plates and are the default plates when selecting a procedure using the **Procedure Advisor**.

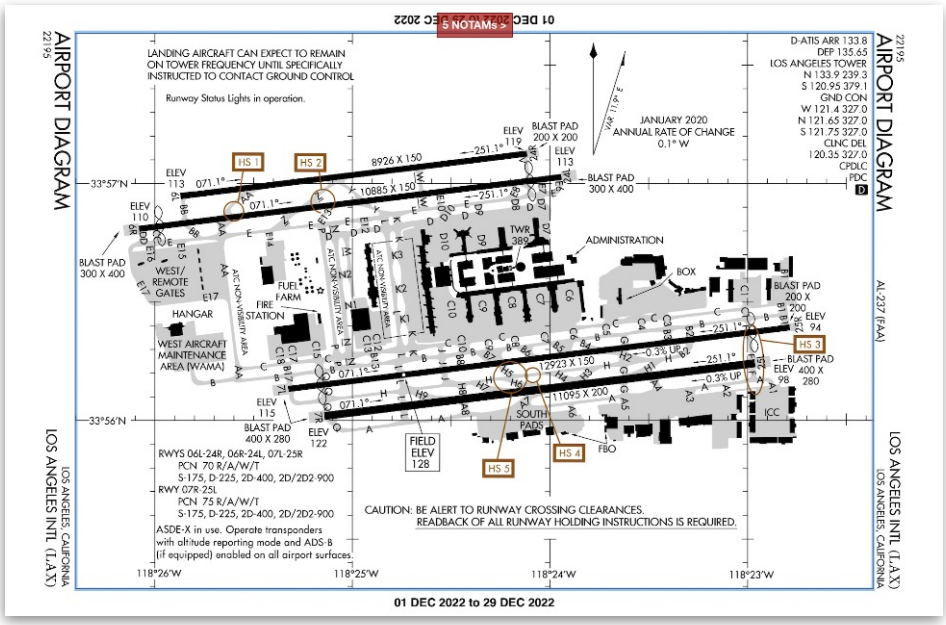
NOTE: Accounts with Jeppesen coverage installed default to the government procedures, but this can be changed using the **More** > **Jeppesen** > **Prioritize Jeppesen Plates** setting.



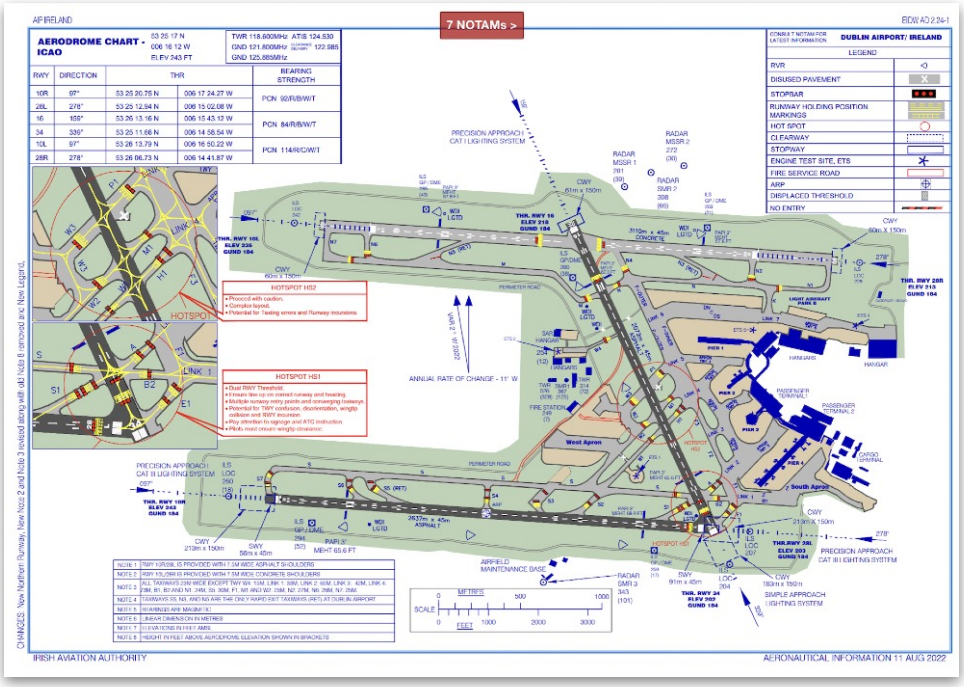
Jeppesen Airport Diagram for KLAX

Government

Terminal Procedures are available from the FAA with a United States subscription, from Nav Canada with a Canadian subscription, from Airservices with an Australian subscription, and from EUROCONTROL with a European subscription.



FAA (Los Angeles International)



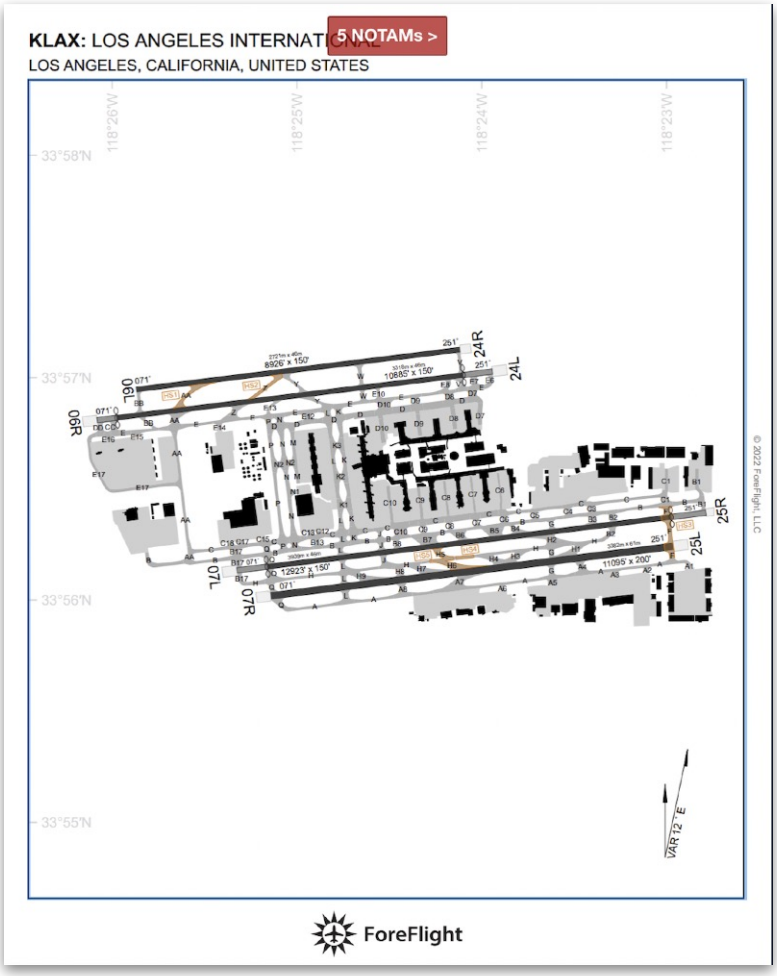
EUROCONTROL (Dublin International)

Optional European Charts

Optional European VFR and IFR plates (including airport diagrams, en route charts, and procedures) can be purchased. These can include optional chart add-ons for specific European countries offered by providers such as Jeppesen, IGN, DFS, SkyGuide, and Cartabassy. The full range of options is listed at **foreflight.com/europe/data**.

ForeFlight

ForeFlight creates its own versions of many airport diagrams as another option for users. These are displayed by default when neither Jeppesen nor government airport diagrams are available. ForeFlight plates have the ForeFlight logo in the bottom margin. ForeFlight Plates do not exist for all airports. However, unlike other types of plates, ForeFlight plates are available to all users regardless of their regional subscription.



ForeFlight Diagram for KLAX

BYOP

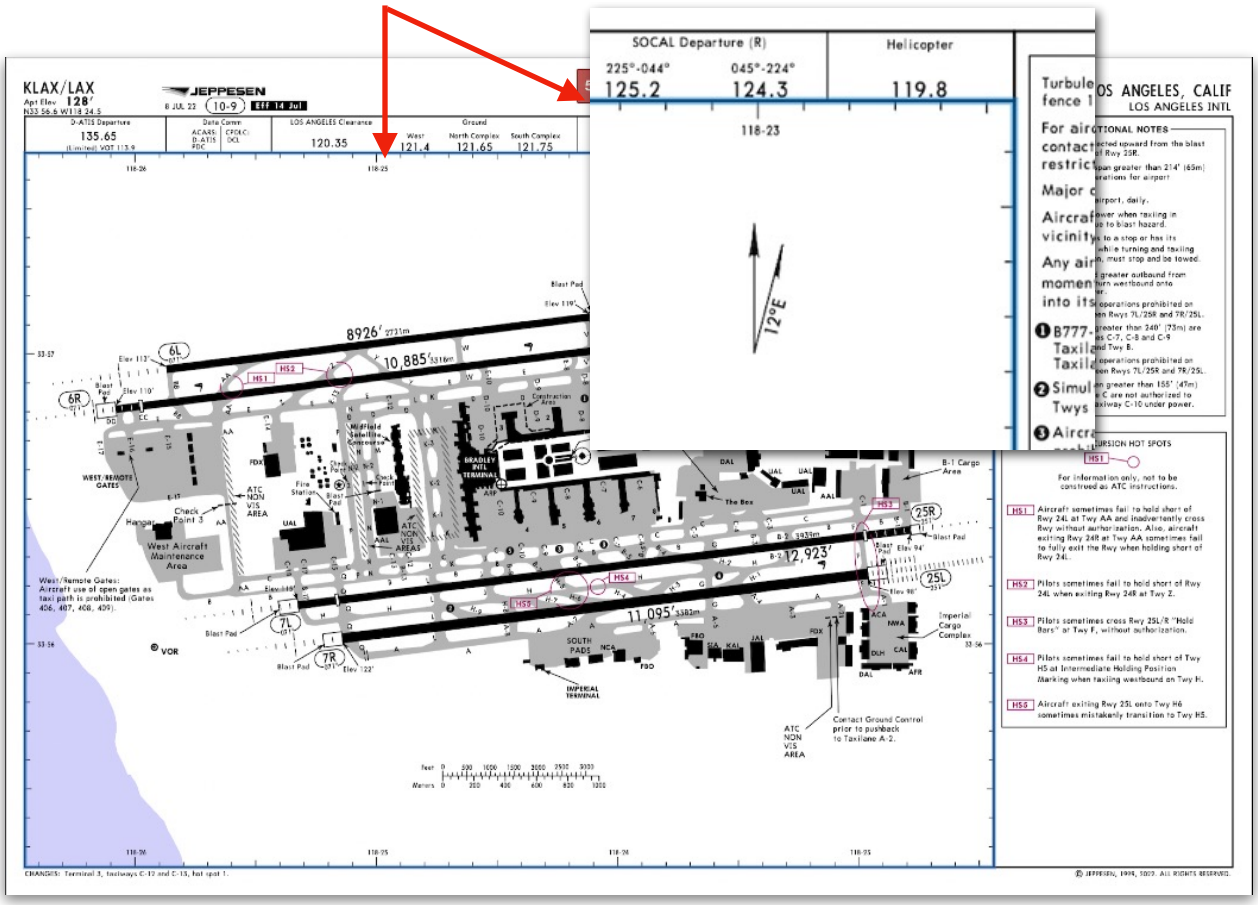
Custom plates can be associated with an airport using the **Bring Your Own Plates (BYOP)** feature.

Georeferenced

Georeferenced plates are Jeppesen, government, ForeFlight, or other plates that have an additional embedded geospatial layer.

A georeferenced plate can be identified by a thin blue box around the plan view area of the plate. Most plates are georeferenced. If a plate is not georeferenced, it is usually because it is not drawn to scale.

Blue border on georeferenced plate



Georeferenced Jeppesen Plate

Georeferenced plates can be precisely **overlaid on the Map** and used to **show position**. Georeference features requires an Essential or higher subscription



Georeferenced Plate on the Map

12.1.4 Plates Sync

Plates view functionality does *not* sync between devices on an account. Specifically, this means that **Flight Binders**, **Other Binders**, and **plate annotations** only exist on the device used to create them.

IMPORTANT: If ForeFlight is deleted and reinstalled, binders and plate annotations will be lost.

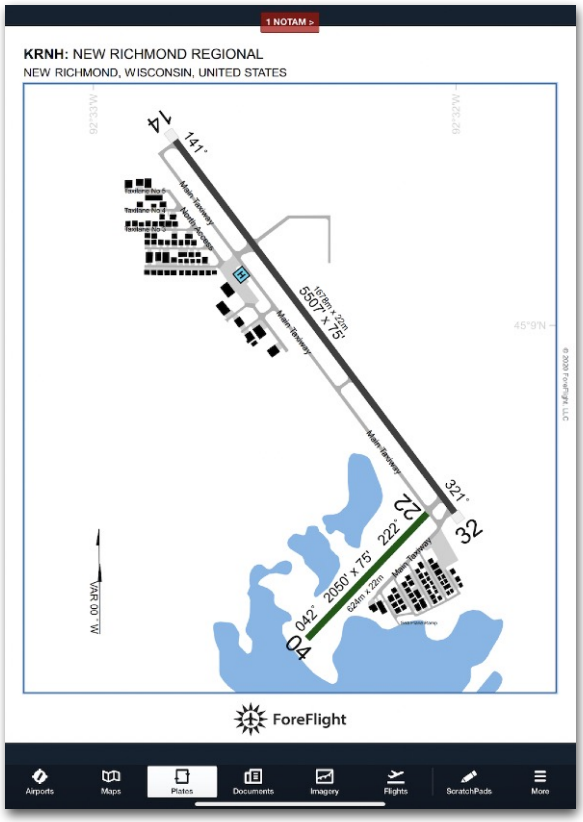
12.2 On-Plate Functionality

The actively displayed plate can be manipulated to resize, pan, and switch between adjacent plates, add annotations, show or hide the toolbar and instrument panel, and see information about NOTAMs, FBOs, and aircraft position.

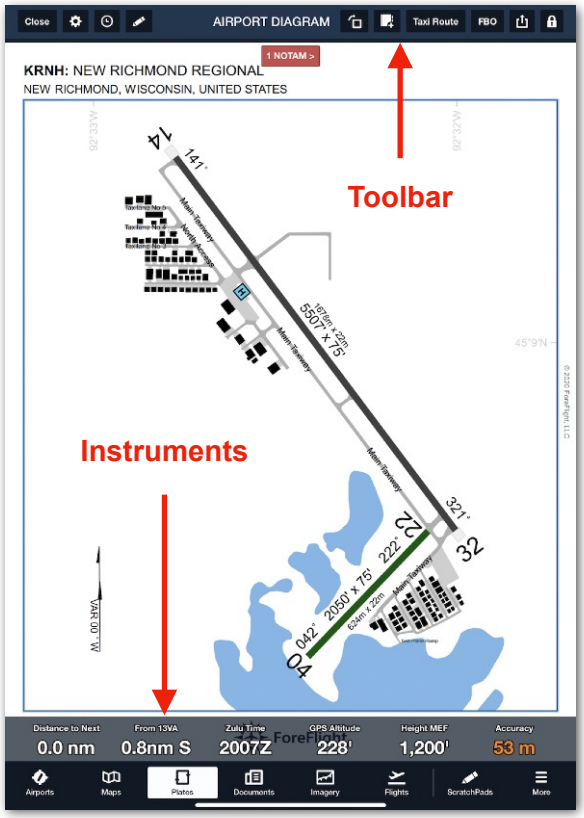
12.2.1 Onscreen Finger Gestures

Plates can be manipulated in the following ways using onscreen finger gestures as described below.

- **Panning and Zooming:** When a plate is zoomed in, drag one finger across the screen to pan in 360 degrees across the plate. To zoom in on a plate, touch the screen with two fingers and draw them apart. Use the opposite gesture to zoom out.
- **Swiping to Previous/Next Plate:** Swipe with three fingers left or right to display the previous or next plate. In a Flight Binder, swiping right on the last plate in a folder opens the next folder.
- **Toggling Toolbar/Instrument Panel:** Tap a displayed plate to hide the **Toolbar** and **Instrument Panel** (for navigational plates). Tap again to show the Toolbar and Instrument Panel.



Full Screen

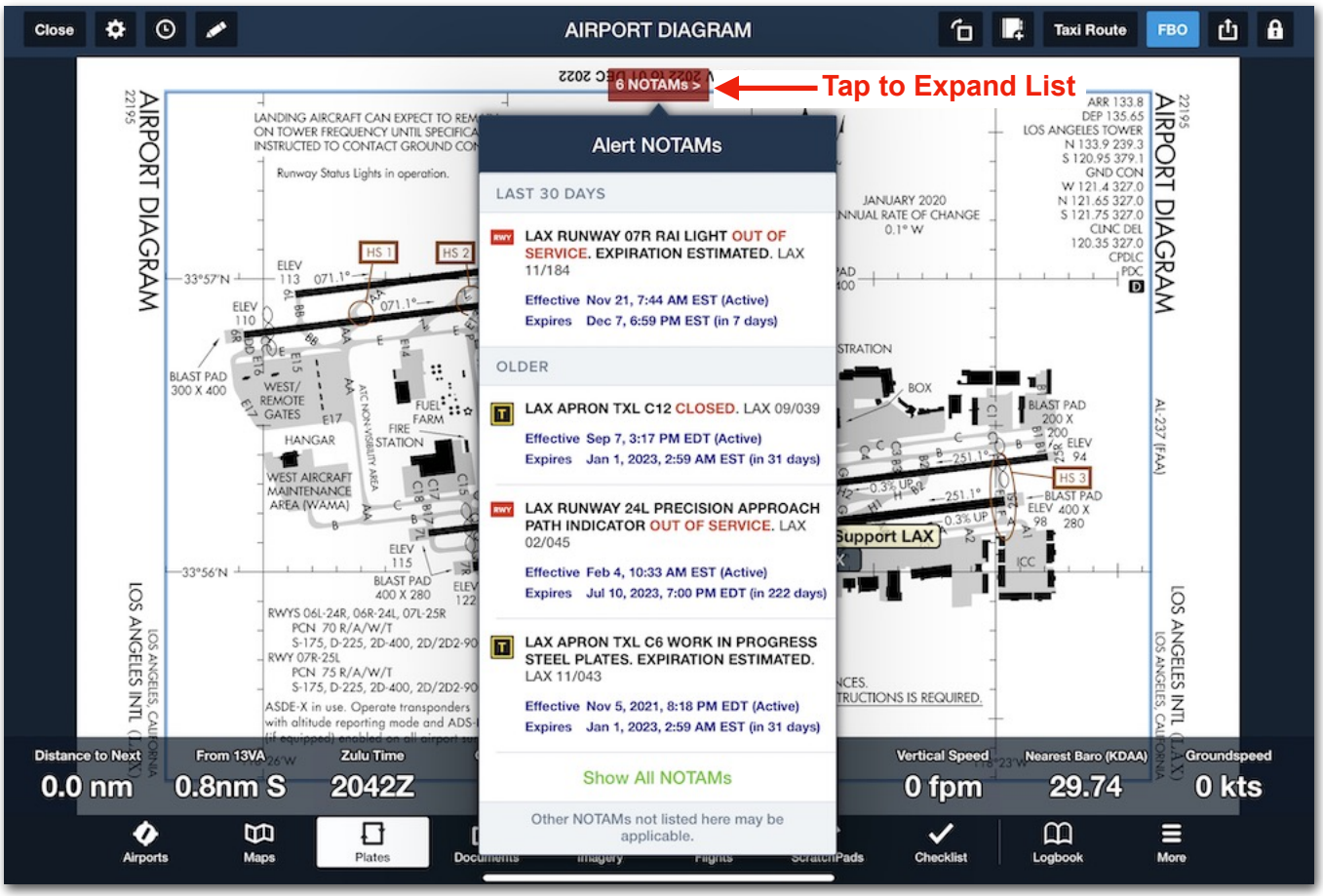


Toolbar and Instruments Showing

12.2.2 Alert NOTAMs

When a plate is displayed, ForeFlight cross-checks NOTAMs and displays a warning banner at the top of the plate showing a count of relevant NOTAMs related to that plate.

NOTE: The NOTAM Alert banner is not displayed when the Plate is **sent to Maps**.



Tap NOTAMs to view the list of Alert NOTAMs

Tap the banner to view the NOTAMs associated with the plate, grouped vertically by age. Tap **Show All NOTAMs** to see a breakdown of Airport, Obstacle, TFR/ARTCC, and Jeppesen NOTAMs for the airport. Tap again anywhere off of the popup to close it.

WARNING: Do not use Alert NOTAMs as a substitute for traditional preflight planning. ForeFlight Mobile is not guaranteed to display a complete list of NOTAMs relevant to the plate.

12.2.3 FBO Locations

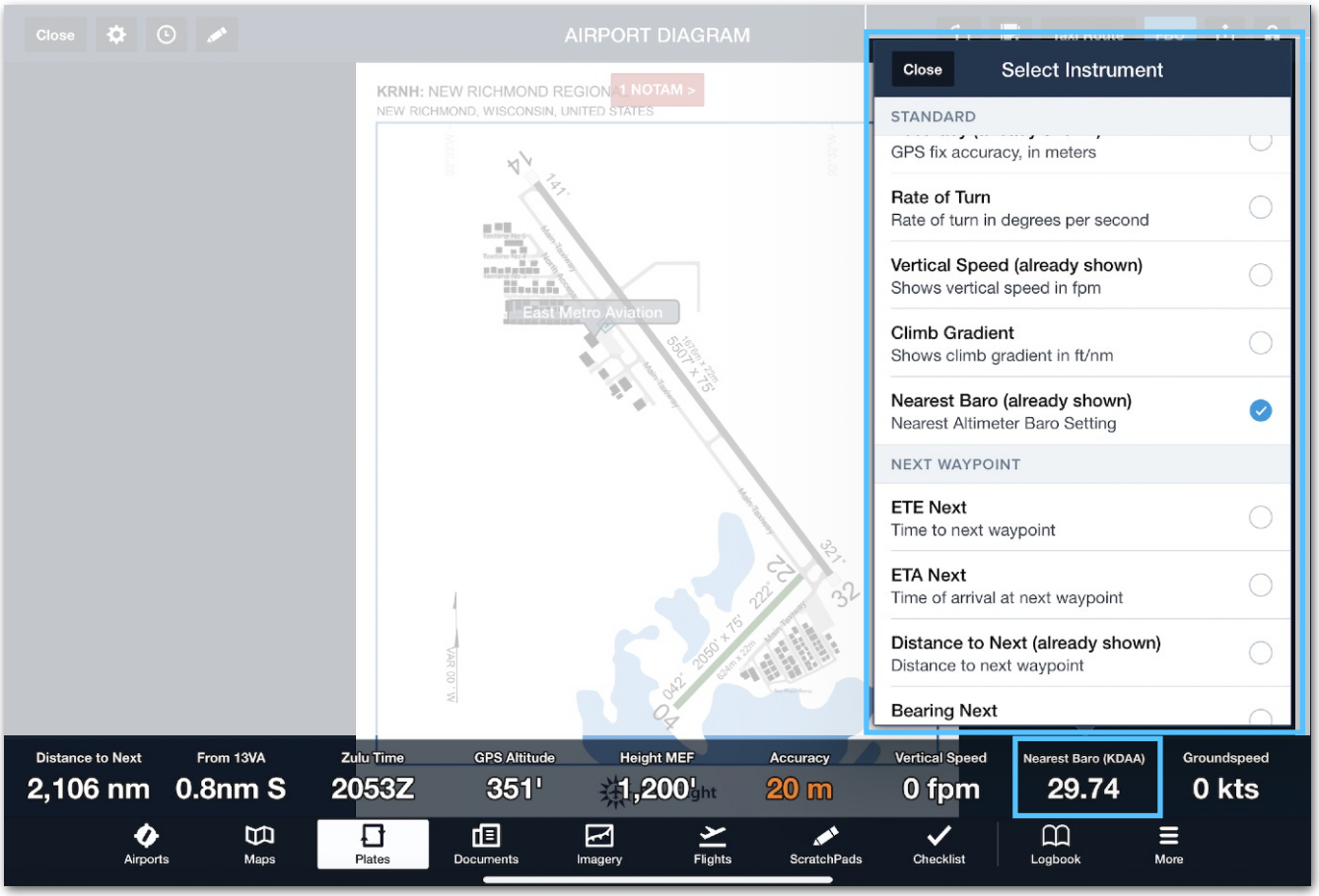
When viewing an airport diagram, tap **FBO** in the upper toolbar to show or hide the location of FBOs on the plate. Featured FBOs have yellow labels, while the rest have gray. Tap a label to open its **FBO Details**. FBO labels can also be shown when the airport diagram is **overlaid on the Map**.



FBO Location Labels

12.2.4 Instrument Panel

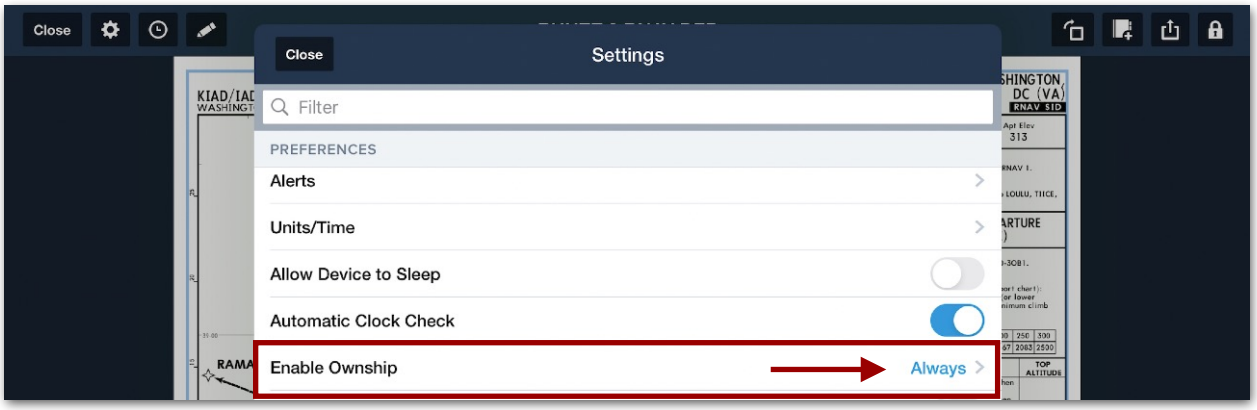
A semi-transparent instrument panel can be displayed underneath navigational plates such as airport diagrams, approach, arrival, and departure procedures. The number of instruments displayed varies based on device orientation, screen size, and binder being viewed. Tap the plate surface to show or hide the panel. Tap an instrument to customize it. This is the same **instrument panel** that can be displayed on the Maps view.



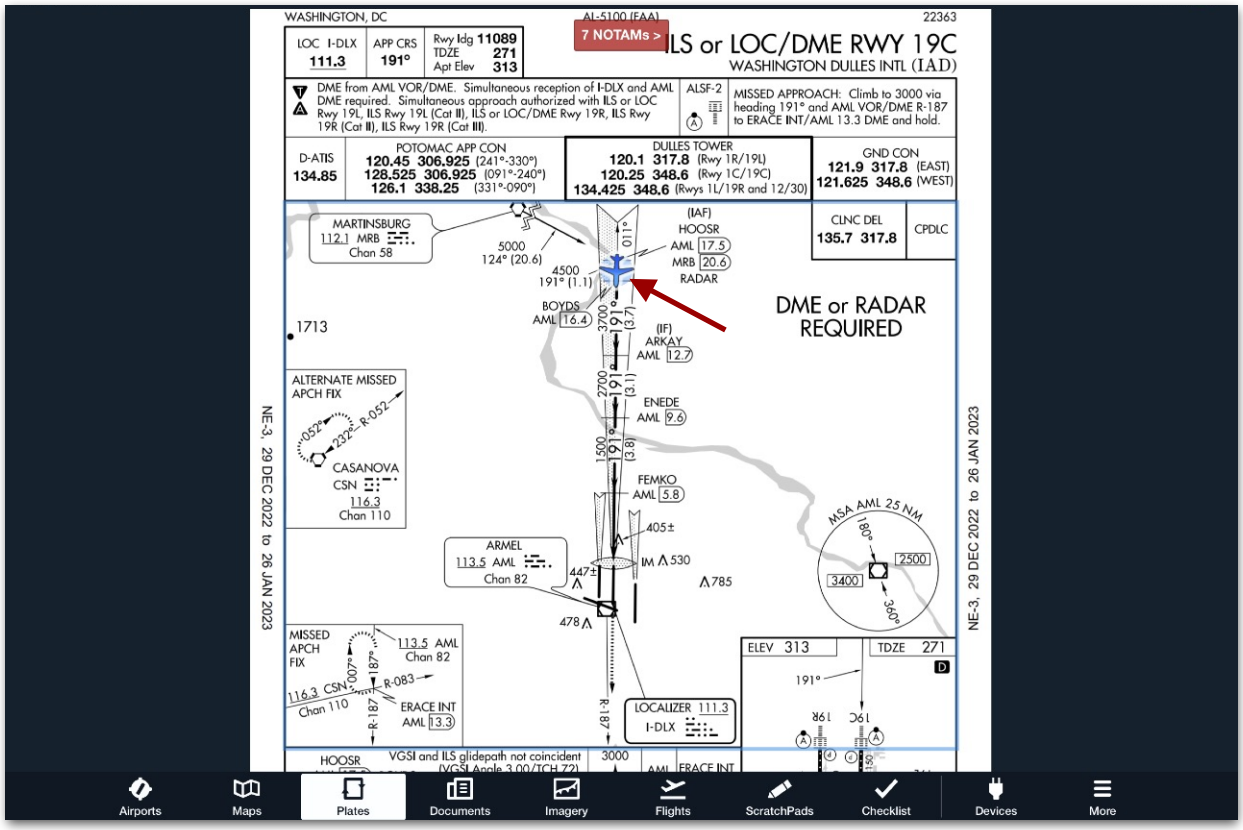
Customizing Instrument Panel

12.2.5 Position on Plate

Essential or higher subscribers can see their position on a **georeferenced** plate provided that they have toggled the **Enable Ownship** setting to **Always** or **Limited**.



Enabling Position Displayed on Plate



Current Position on Plate

12.3 Toolbar Controls

The Toolbar displays an array of plate controls that varies depending on the type of plate or binder being viewed. The full list of Toolbar controls and their functionality is described below.



12.3.1 Plate Settings

With any plate displayed, tap the Settings (gear) button to adjust screen brightness with a slider, or to invert plate colors. These settings are applied throughout ForeFlight Mobile, not just the Plates view.

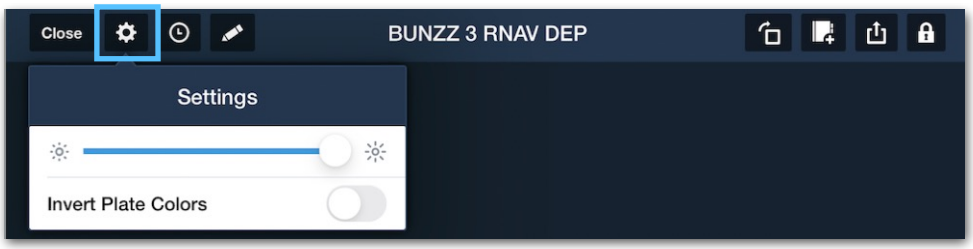
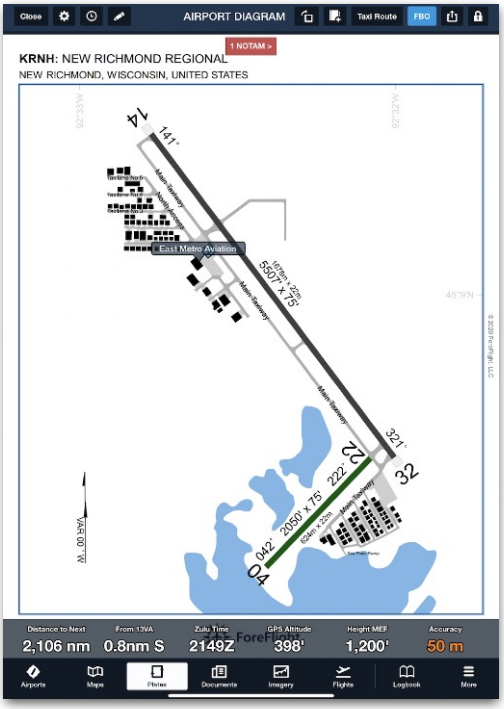


Plate Settings Menu



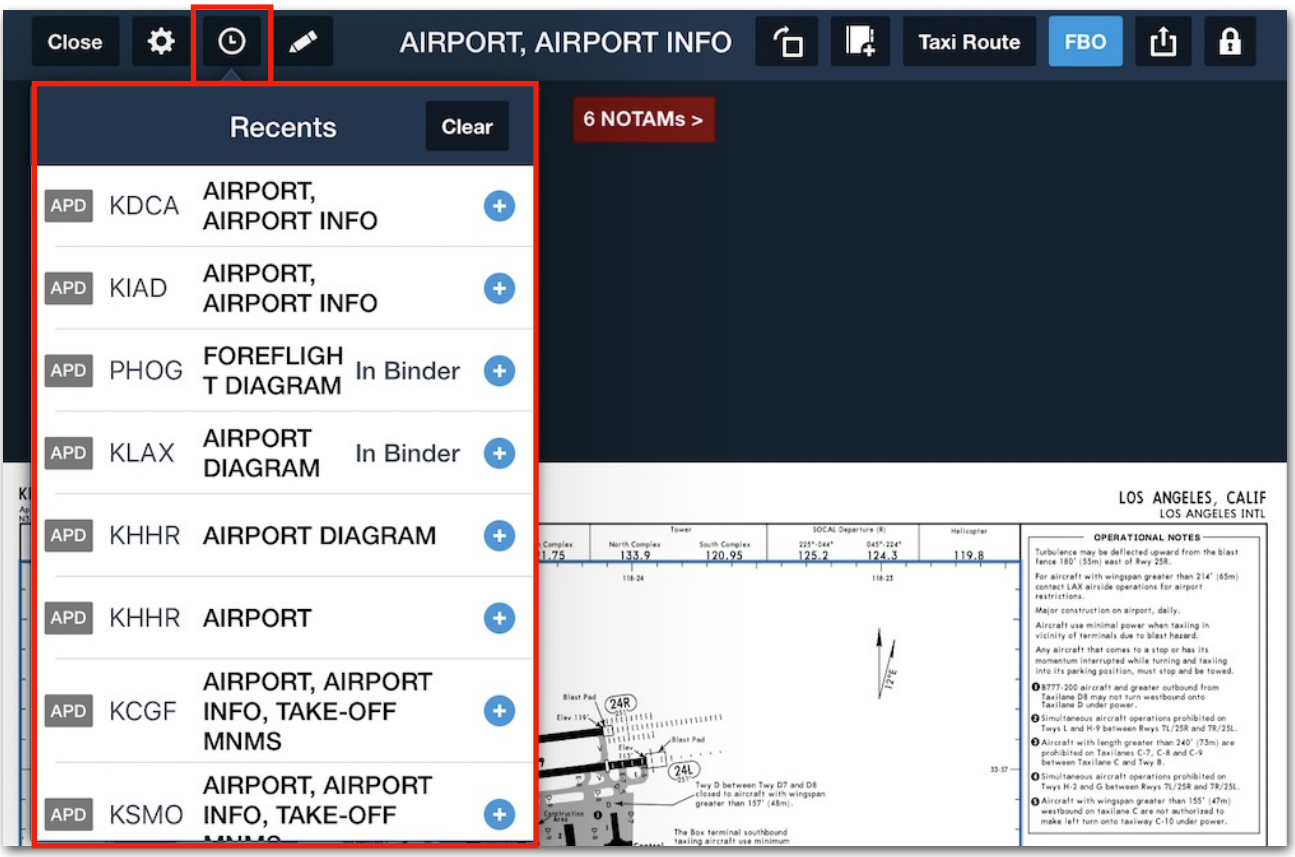
Standard Colors



Inverted Colors

12.3.2 Recent Plates

Tap the Recent Plates (clock) button to open a list of plates that were recently displayed in ForeFlight Mobile.



Recent Plates Searches

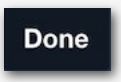
A colored box to the left of each plate name indicates its subject:

- **APD** - Airport Diagram, Airport Info, Airspace Diagram, Advisories, Low Vis Taxi Routes, Parking Gates, or ODP Obstacle Takeoff Notes
- **DP** - Departure Procedure
- **STAR** - Arrival Procedure
- **IAP** - Approach Procedure
- **MIN** - Takeoff Minimums (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors), Alternate Minimums.

Tap a plate name to display it, or tap **Clear** to empty the list. If an Other Binder has been left “open”, tap the **Plus (+)** button to add it to the binder. If the Plate is already added, the words “In Binder” are displayed.

12.3.3 Plate Annotations

To add annotations to a plate, tap the **Annotation (pencil)** button to open an annotations toolbar. Plate annotations do not sync between devices. The functionality of each annotation is described in **Annotations**. The following table describes each type of Plate annotation and what device it is available on. An Apple Pencil or stylus can be used instead of using a finger. Double-tapping with a finger, towards the tip, on the flat edge of the Apple 2 Pencil will switch between Pen and Eraser modes.

Button	Device	Purpose
	iPad iPhone	Use one finger to draw freeform annotations.
	iPad iPhone	Drag finger across plate to create rectangular outline.
	iPad	Drag finger across plate to create circular outline.
	iPad	Drag finger across plate to draw straight line.
	iPad	Draw multiple straight lines end to end that form a closed shape when the button is deselected.
	iPad	Draw multiple straight lines end to end.
	iPad iPhone	Type text on the plate using a keyboard with controls for font style, size, alignment, and color.
	iPad	Write a note on the plate visible as a small icon. Tap the paintbrush button to edit icon shape and color. The note icon can be tapped to open its contents.
	iPad iPhone	Drag finger across plate to select multiple annotations and group, copy, or delete them, as well as invert plate color.
	iPad iPhone	Edit annotation size, font, alignment, color, fill color, opacity, thickness, style, layer order, and color presets.
	iPad iPhone	Clear all annotations from the plate.
	iPad iPhone	Undo the previous annotation.
	iPad iPhone	Redo the previously undone annotation.
	iPad iPhone	Tap to finish adding annotations and return to the Plates Viewer.

12.3.4 Rotate

To rotate the plate clockwise, tap the **Rotate** button. Note that a plate shrinks to fit the device screen if its current orientation does not match the device orientation.



Portrait Orientation **Landscape Orientation**

12.3.5 Add to Binder

When an Other Binder has been left “open” in the Plates view as described **later**, and a plate is accessed from the Maps, Fights, or Airports view, the **Add To Binder (folder)** button is visible in the Toolbar. Tap this button to add the current plate to that binder.

12.3.6 Taxi Route

Premium subscribers viewing an airport diagram can tap the **Taxi Route** button to open a **tool used to create taxi routes** based on their desired destination and taxi clearances.

NOTE: If this button is not visible, it can be enabled by tapping **More > Account > ForeFlight Labs** and toggling on **Taxi Routes.**

12.3.7 FBO

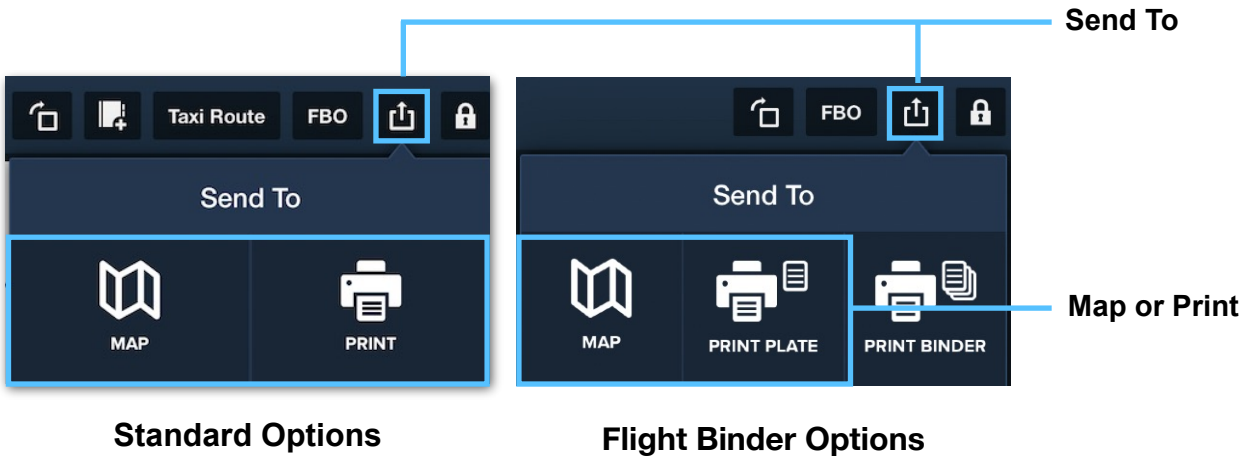
When viewing an airport diagram, the **FBO** button is visible in the toolbar. Tap it to show or hide **FBO location labels** on the diagram.

12.3.8 Send To Map/Print

To send the currently displayed plate to be **overlaid on the Maps view**, tap the **Send To** button and select **MAP**. This requires an Essential subscription and can only be done for **georeferenced plates**.

To send the currently displayed plate to a printer, tap the **Send To** button, select **PRINT**, and then select the iOS Printer Options.

The Send To button can also be used to **print an entire Flight Binder**.



Standard Options **Flight Binder Options**

NOTE: ForeFlight does not control printer settings or page sizes. This must be done in the printer interface.

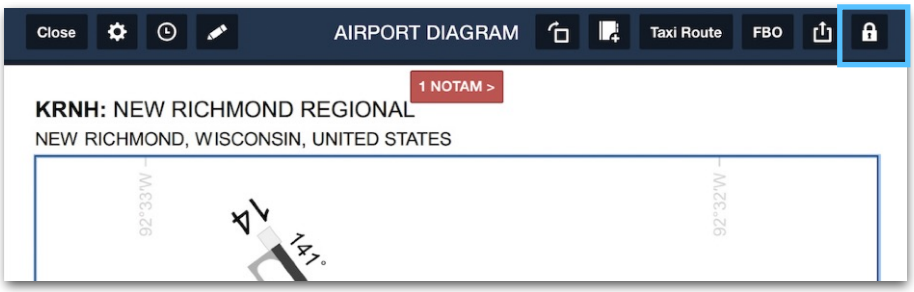
12.3.9 Lock

To disable **onscreen finger gestures** to prevent any accidental changes (such as while flying), tap the **Lock** button.

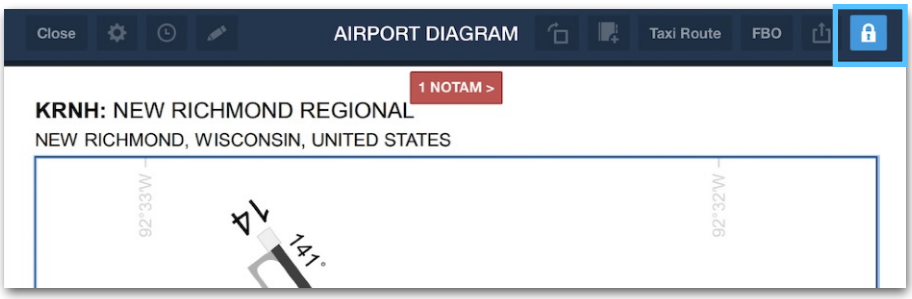
IMPORTANT: The Lock button does not lock plate orientation (portrait or landscape). To lock orientation, use the orientation lock setting on the iOS device.

To configure this control so it also disables every other button on the device screen, tap **More** > **Settings**, swipe down the Plates and Documents Views section, and toggle on **Lock Disables Buttons**. Then, when the Lock button is pressed, all functionality on the device screen will be disabled including:

- **Plates view Toolbar**: All buttons except Lock are disabled.
- **Plate**: All on-plate functionality such as Alert NOTAMs and FBO Labels are frozen. (Plates can still be tapped to **toggle the Toolbar and Instrument Panel**.)
- **Instrument Panel**: Instruments are visible but cannot be customized.
- **ForeFlight Navigation Toolbar**: The Plates view cannot be navigated away from.



Unlocked Buttons (Default)



Locked Buttons Cannot Be Tapped Until Lock Is Disabled

12.4 Plates on the Map

This feature is used to overlay geo-referenced plates on the Maps view. It requires a ForeFlight Essential, Premium, Business Pro, or Business Performance subscription.

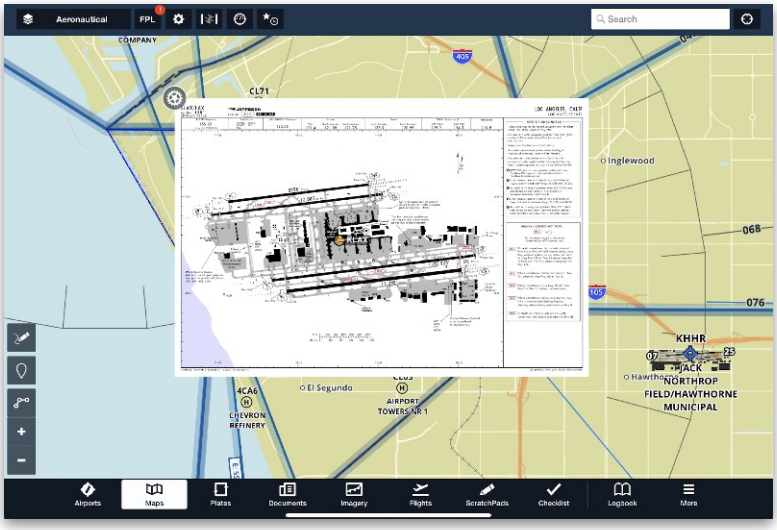


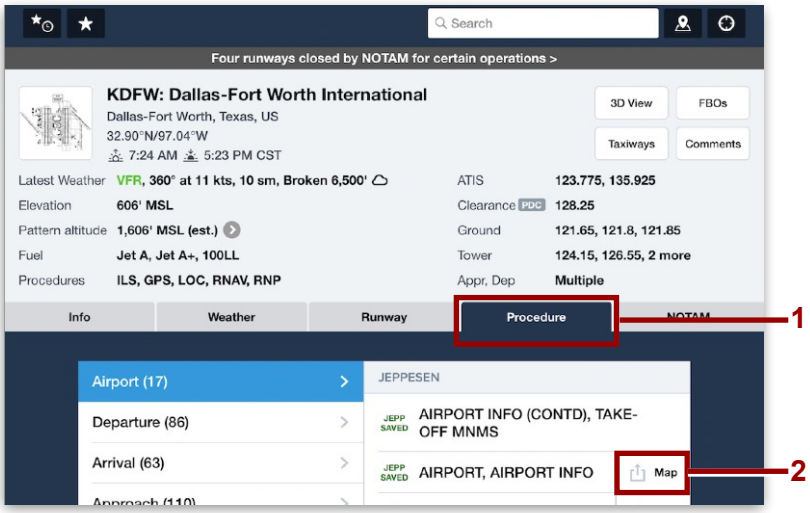
Plate Overlaid on the Map

12.4.1 Displaying Plates on the Map

The following five methods can be used to display a plate on the map.

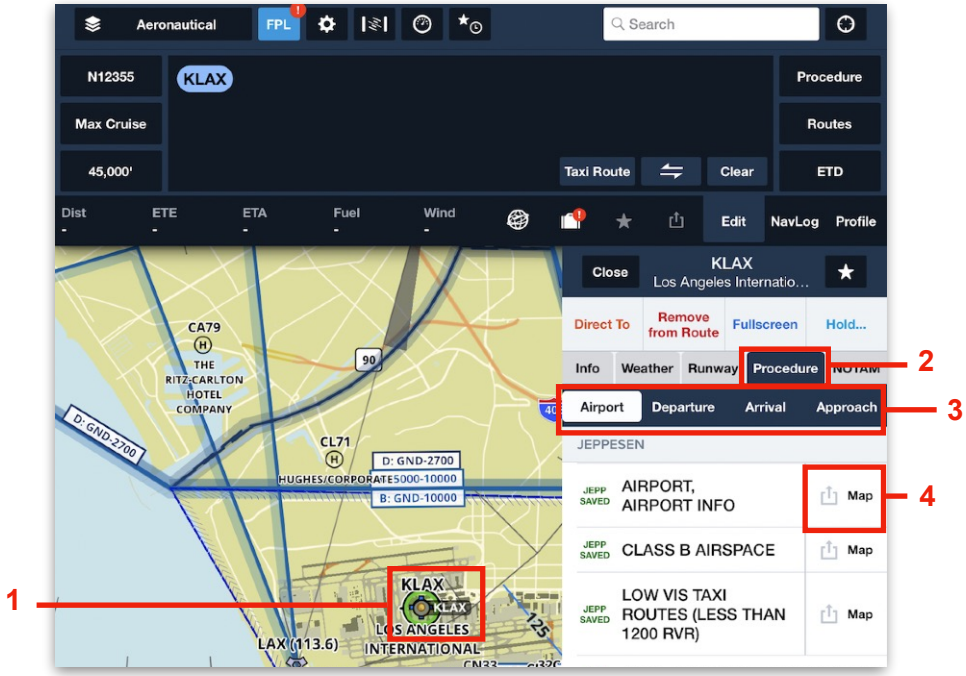
Method #1 - From the Airports View

Display a plate on the Airports view, open the **Procedures** tab, and tap **Map** next to the desired plate.



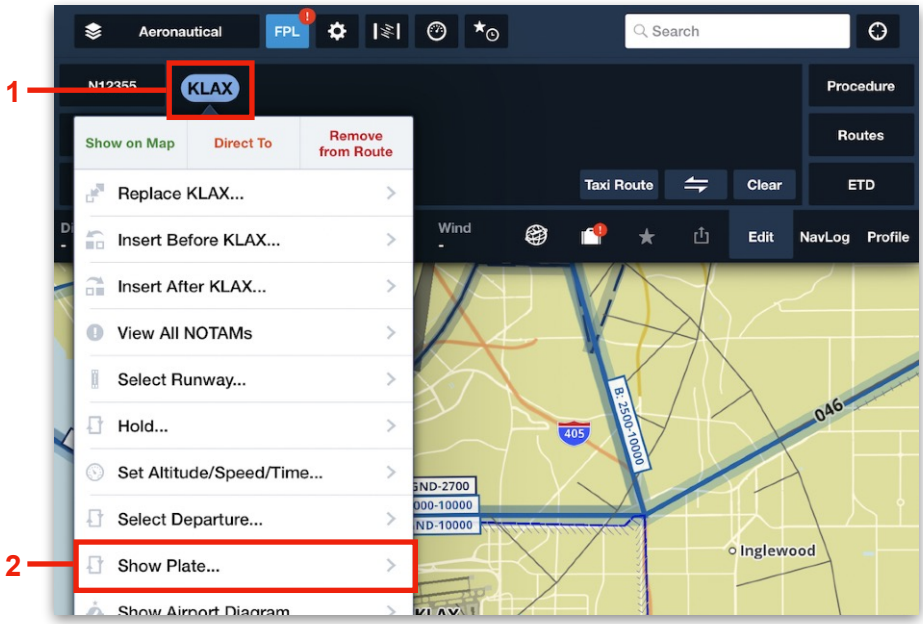
Method #2 - From the Maps View

Tap an airport on the map to display its details. Select the **Procedure** tab and the appropriate sub-tab (**Airport**, **Departure**, **Arrival**, or **Approach**). Tap **Map** next to the desired plate.



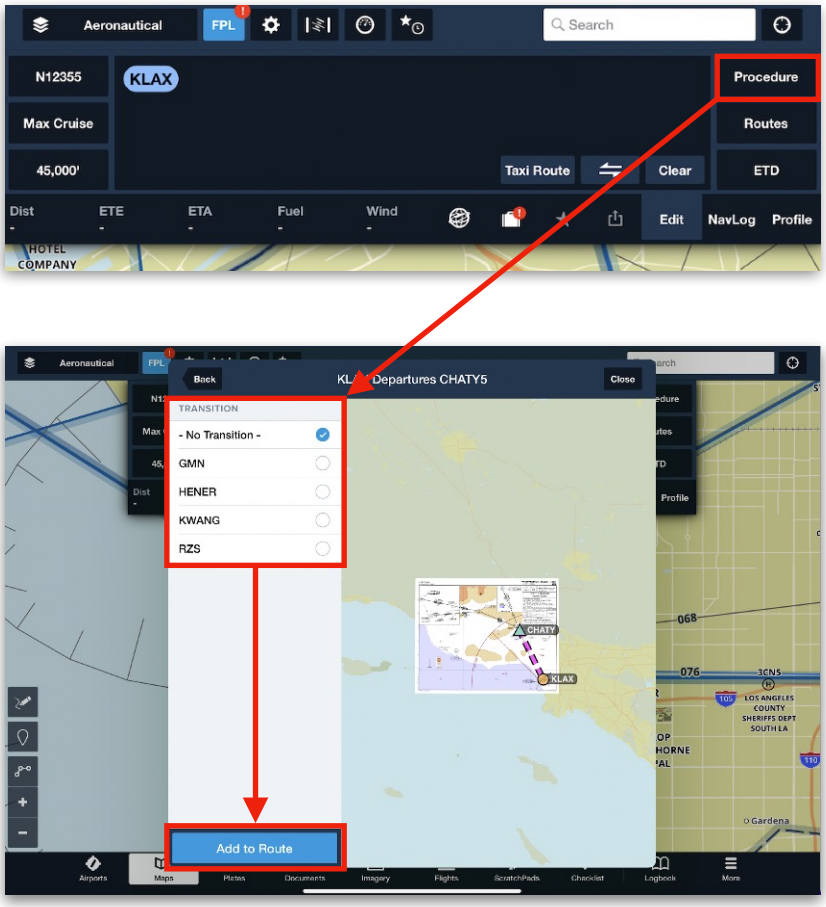
Method #3 - From the FPL Editor

On the Maps view FPL Editor, tap the colored bubble of an airport or procedure and select **Show Plate...** Then, select the appropriate plate.



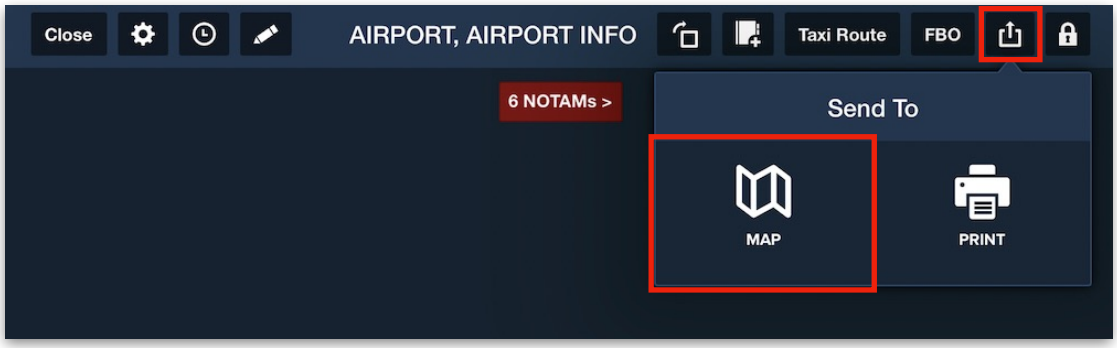
Method #4 - From the Procedure Advisor

On the Maps view FPL Editor, tap **Procedure** to open the **Procedure Advisor**, select the appropriate plate and transition, then tap **Add to Route**.



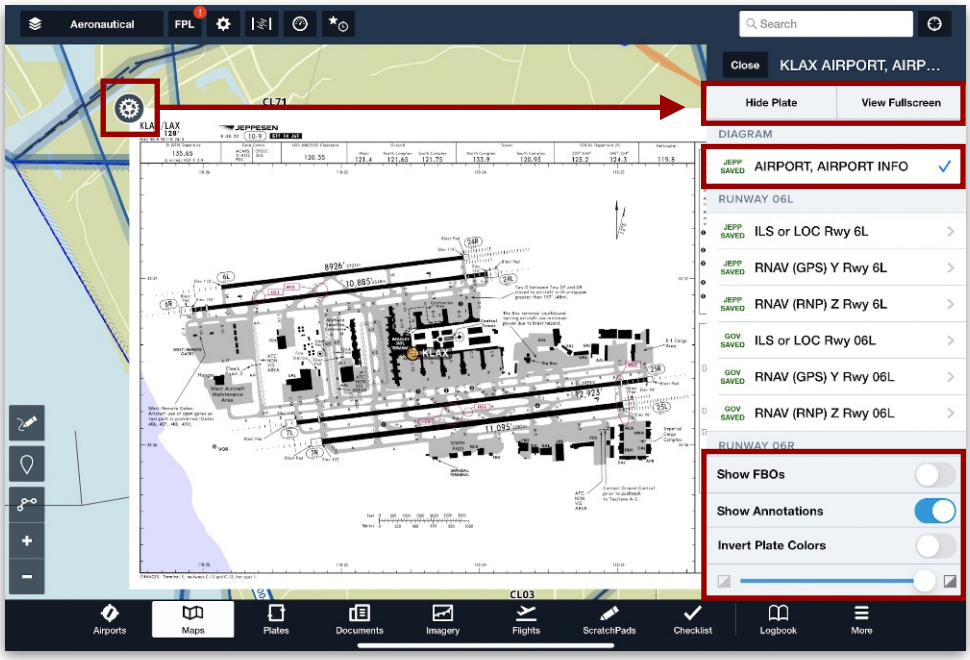
Method #5 - From the Plates View

Display a plate on the Plates view, then tap the **Send To** button and select **MAP**.



12.4.2 Display Settings for Plates on the Map

When a plate is overlaid on the map, its display settings can be adjusted to hide the plate, view it in full-screen mode, swap one plate for another, show annotations and FBO labels, invert plate colors, and adjust the transparency of the plate. These are described below.



Display Settings for Plates on the Map

Removing Plates From the Map

To remove a plate overlay from the map, follow these steps:

1. On the map, tap the plate or the gear icon in its top-left corner.
2. In the popup, tap **Hide Plate** to remove it from the map.

Displaying a Plate in Full-Screen Mode

To cause a plate overlaid on the map to display in full-screen mode, follow these steps:

1. On the map, tap the plate or the gear icon in its top-left corner.
2. Tap **View Fullscreen** to open the plate in the Plates view.
3. Tap **Close** to return to the previous location on the Maps view.

Swapping Plates on the Map

To change the plate currently overlayed on the map at a given airport, follow these steps:

1. On the map, tap the plate or the gear icon in its top-left corner.
2. In the popup, the displayed plate will have a blue checkmark next to it. Tap any other plate listed to display it instead.

NOTE: If a non-graphical procedure (such as takeoff minimums or advisory) is selected, it does not replace the current plate on the map. Instead, it opens in the Plates view.

Showing Annotations/FBO Labels

To show annotations and FBO labels on the plate overlayed on the map, follow these steps:

1. On the map, tap the plate or the gear icon in its top-left corner.
2. Toggle the **Show FBOs** button on to display or hide interactive FBO labels.
3. Toggle the **Show Annotations** button to show or hide annotations previously added to the plate.

Inverting Plate Colors

To invert the colors of any plate displayed on the map, follow these steps:

1. On the map, tap the plate or the gear icon in its top-left corner.
2. Toggle the **Invert Plate Colors** button on or off as necessary.

NOTE: This change affects all place where plates can be viewed in ForeFlight, not just on the map.

Adjusting Transparency

To adjust the transparency of a plate on the map (in order to view or hide map features behind the plate), follow these steps:

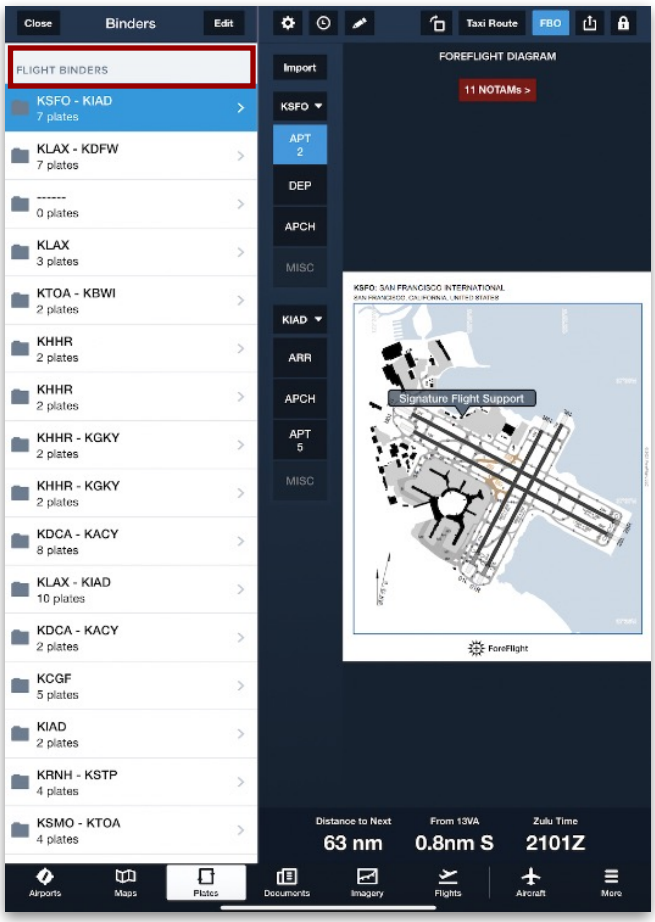
1. On the map, tap the plate or the gear icon in its top-left corner.
2. At the bottom of the plate details, move the transparency slider left (transparent) or right (opaque) as necessary.

12.5 Binders Drawer

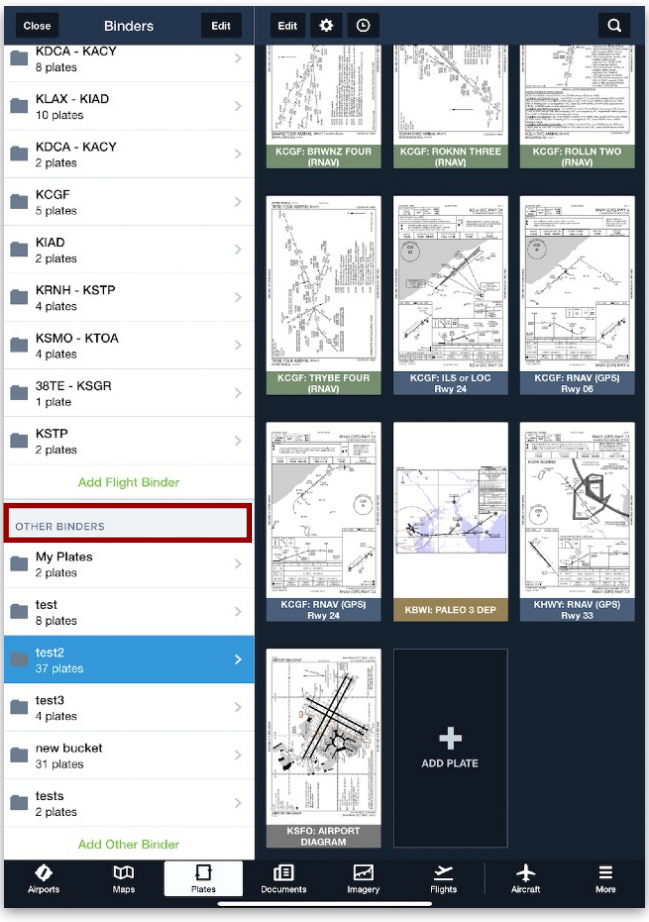
The Binders Drawer is used to manage the two types of binders supported in the Plates view:

- **Flight Binders** are used to organize plates for a specific flight.
- **Other Binders** are used for unstructured collections of plates.

Operations in the Binders Drawer include showing/hiding the drawer from the Plates view, and creating, opening, renaming, reordering, and deleting binders. These operations are described below.



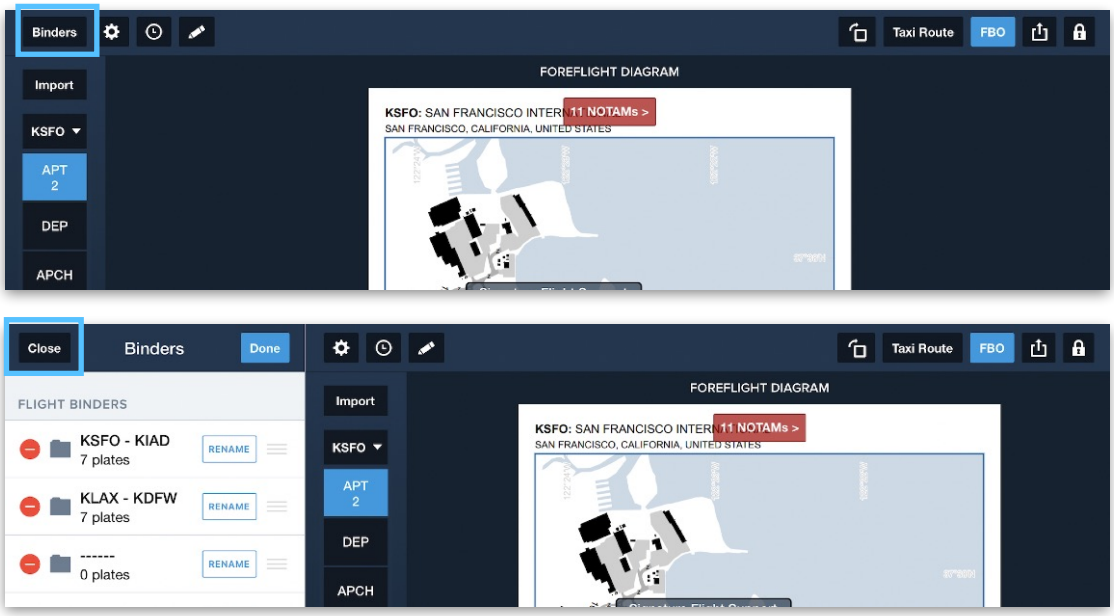
Flights Binder



Other Binder

12.5.1 Show/Hide Binders

The Binders Drawer can be opened or closed while working directly in the Plates view. To display the Binders drawer if it is not visible, tap **Binders**. The drawer will open as a sidebar on the left. To hide it, tap **Close**.

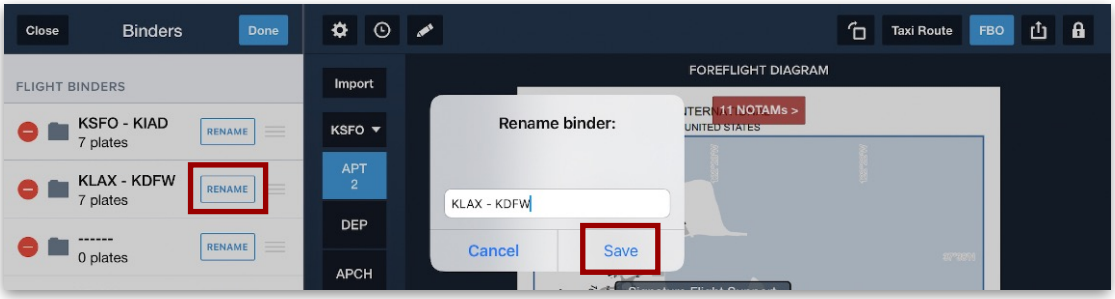


Opening and Closing the Binders Drawer

12.5.2 Renaming Binders

Flight Binders are named automatically based on their departure and destination airports. Empty Flight Binders have no name. Other Binders are named manually at creation. All binders can be renamed.

To rename a Flight Binder or Other Binder, tap the **Edit** button at the top of the Binders Drawer, then tap **RENAME** next to a binder to enter a new name. Tap **Save** to finish naming that binder, and tap **Done** to finish editing binders.

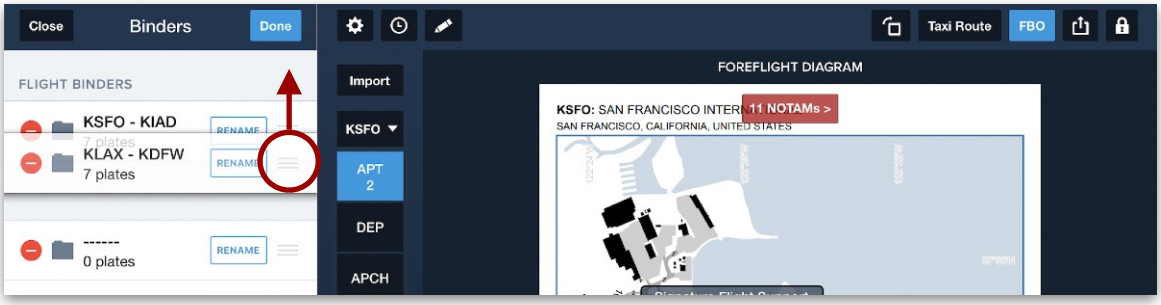


Renaming Binders

12.5.3 Reordering Binders

Flight Binders are listed from newest to oldest, while Other Binders are listed from oldest to newest. Either list can be reordered by manually dragging each individual binder up and down within its own list.

To reorder a Flight Binder or Other Binder, tap the **Edit** button at the top of the Binders Drawer, then tap and hold the **(≡)** icon next to a binder to drag it to a different position in its list. Tap **Done** when finished.



Reordering Binders

12.5.4 Removing Binders

Flight Binders and Other Binders do not actually contain plates. Instead, they contain references to plates stored on the ForeFlight device. Any binder can be removed without deleting the plates it references.

To remove a binder, tap the **Edit** button at the top of the Binders Drawer, tap the **(-)** icon next to a binder, and tap **Delete** to remove the binder (but not its plates) from the device. Tap **Done** when finished.



Deleting Binders

12.6 Flight Binders

Flight Binders organize plates according to a specific flight for easy reference by pilots. They can be generated automatically from existing flights on the Maps or Flights views, or created using a blank template.

NOTE: Flight Binders do not sync between devices on an account.



Flight Binder

12.6.1 Flight Binder Structure

Flight Binders group plates into departure airport and destination airport sections. Each section contains four folders where plates can be added.

- The **departure airport section** has folders for airport diagrams, departure procedures, return-to-base approaches, and miscellaneous procedures.
- The **destination airport section** has folders for arrival procedures, approach procedures, airport diagrams, and miscellaneous procedures.
- The **alternate airport section** has folders for arrival procedures, approach procedures, airport diagrams, and miscellaneous procedures. One departure alternate and two destination alternate airports may be added.

An **airport selector** at the top of each group determines which plates that group can hold. A number under each folder indicates how many plates it contains. Folders without any plates have no number.

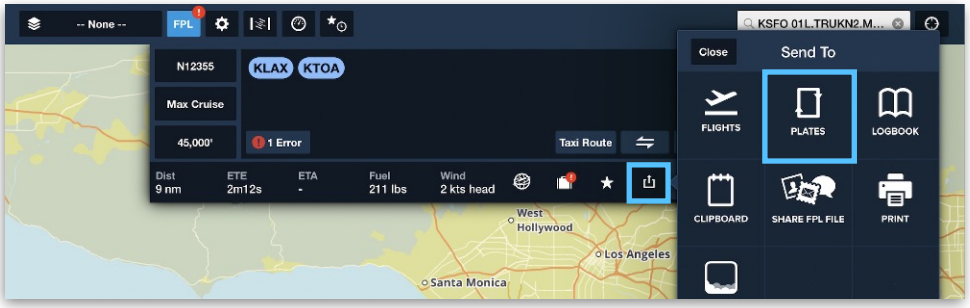
12.6.2 Creating Flight Binders

Flight Binders can be created in three ways. Click one of the following options to learn more:

- **Generate using the Maps view**.
- **Generate using an existing Flight**.
- **Use a blank template**.

Generating a Flight Binder From the Maps View

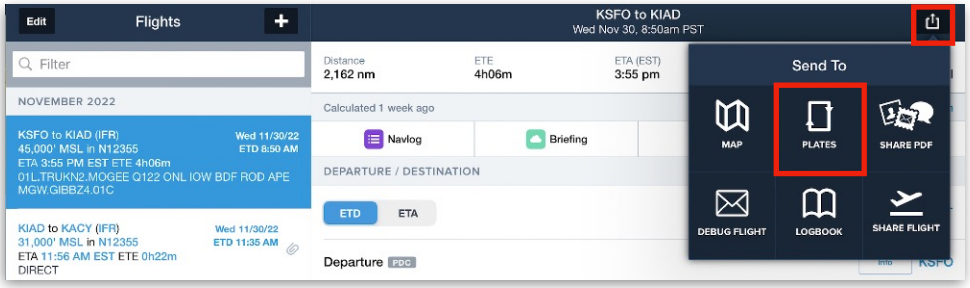
To generate a Flight Binder from the Maps view, use the FPL Editor to build a route with departure and destination airports. Use the **Procedure Advisor** to add departure, arrival, approach, or other procedures to the route. At the bottom of the FPL Editor, tap the **Send To** button and choose **PLATES** to send the route to the Plates view as a new Flight Binder.



Create Flight Binder from the Maps View

Generating a Flight Binder From the Flights View

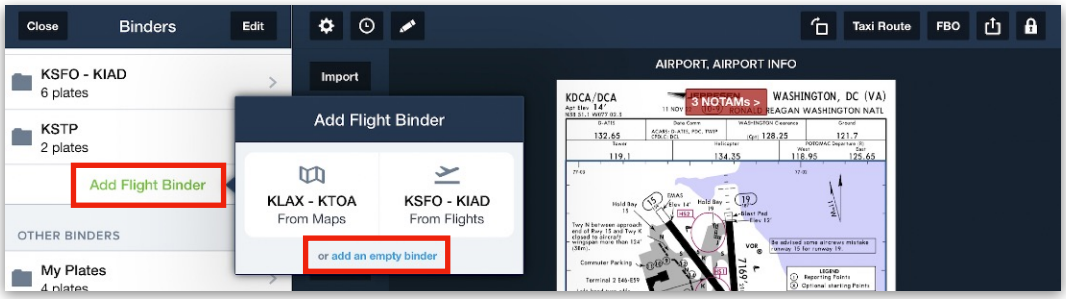
To generate a Flight Binder from an existing Flight, navigate to the Flights view and tap any Flight to display its **Flight Planning Form**. At the top right corner, tap the **Send To** button and choose **PLATES**.



Create Flight Binder from the Flights View

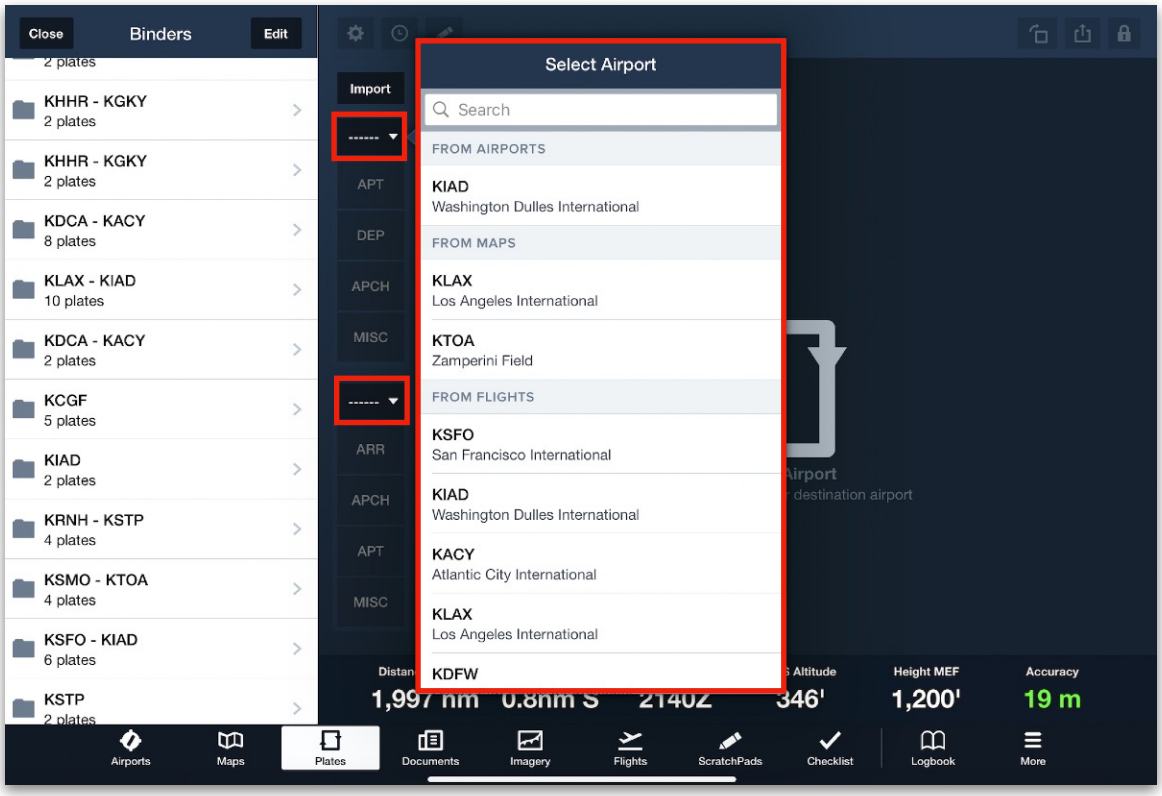
Creating a Flight Binder from a Blank Template

If no suitable map route or flight exists, an empty Flight Binder can be created. In the Plates view, expand the Binders Drawer and tap **Add Flight Binder**. In the Add Flight Binder window, tap a suggestion (from Maps and Flights) to create a full Flight Binder, or tap **add an empty binder** to generate a blank binder.



Creating an Empty Flight Binder

The new blank Flight Binder template can be used to manually **add airports and plates**.



Adding to an Empty Flight Binder

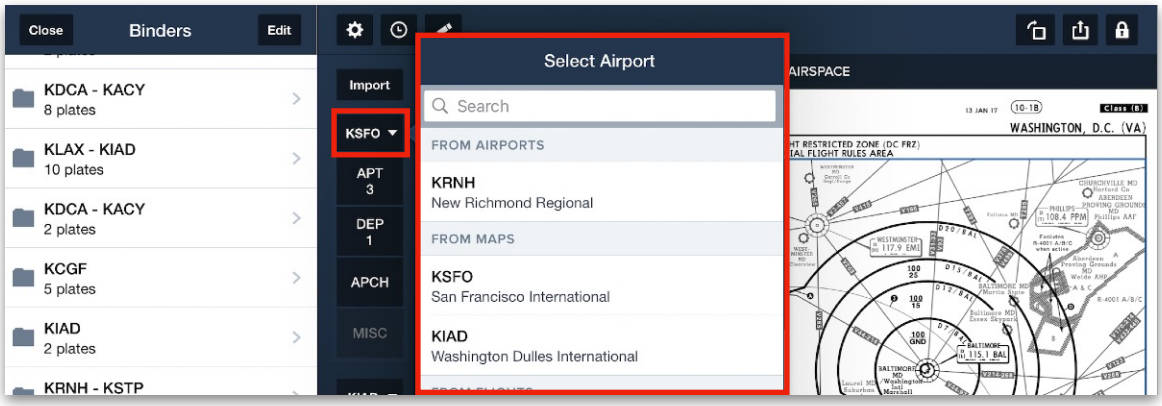
12.6.3 Adding, Removing, Viewing Plates

Whether a new Flight Binder is empty or populated with data from the Maps or Flights views, its contents can be managed in the following ways.

Selecting Airports

The Flight Binder includes two airport selection buttons. Each one is labeled with the currently selected airport's identifier (e.g. KSFO) or blank (------) if no airport is selected.

While these two buttons are intended for the departure and destination airports, any pair can be selected. To add or replace the current airport, tap its button and use the Select Airport menu to choose a different airport. This configures the folders beneath it to display or download plates for that airport.



Selecting Airport

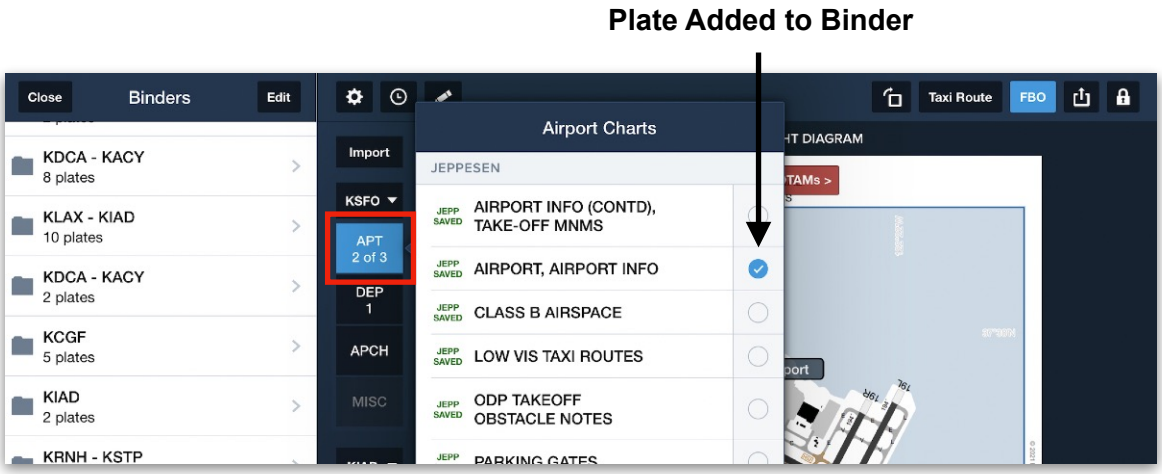
Opening a Plates Folder

If an airport has been selected as described above, the four plates folders beneath each airport selection button can display or download that airport's plates. Folders display a number if they currently contain plates.

To see a list of added and optional plates for a given folder, tap an empty folder or long-tap (tap, hold, and release) a non-empty folder. In the list, Plates already added to the binder display blue checkmarks by their names.

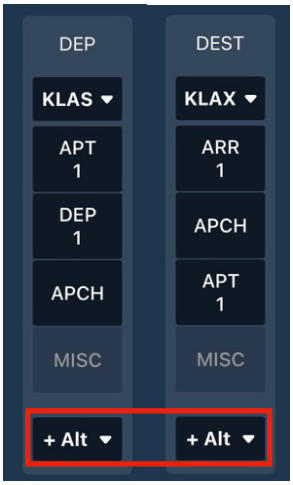
Adding, Removing, and Viewing Plates

To add a plate to the folder, tap the circle next to its name. Tap the blue checkmark next to a plate to remove it from the folder. To view a plate without adding it to a folder, tap the plate name.



Viewing/Adding Plates

12.6.4 Adding Alternate Airports



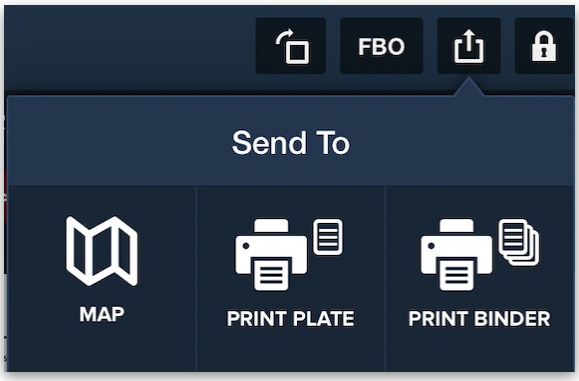
It is possible to add one alternate departure airport and up to two alternate destination airports.

To add alternate airports tap the **+Alt** button to open the **Add Alternate Airport** pop-over. Tap a pre-loaded airport from the list or use the search bar to enter an airport alphanumerically.

To remove an alternate airport, tap the alternate airport selector, then tap **Remove Alternate** at the bottom of the **Alternate Airport** pop-over.

12.6.5 Printing Flight Binders

It is possible to print one or more plates from a Flight Binder, or the entire Flight Binder, in one operation.



Printing a Single Plate

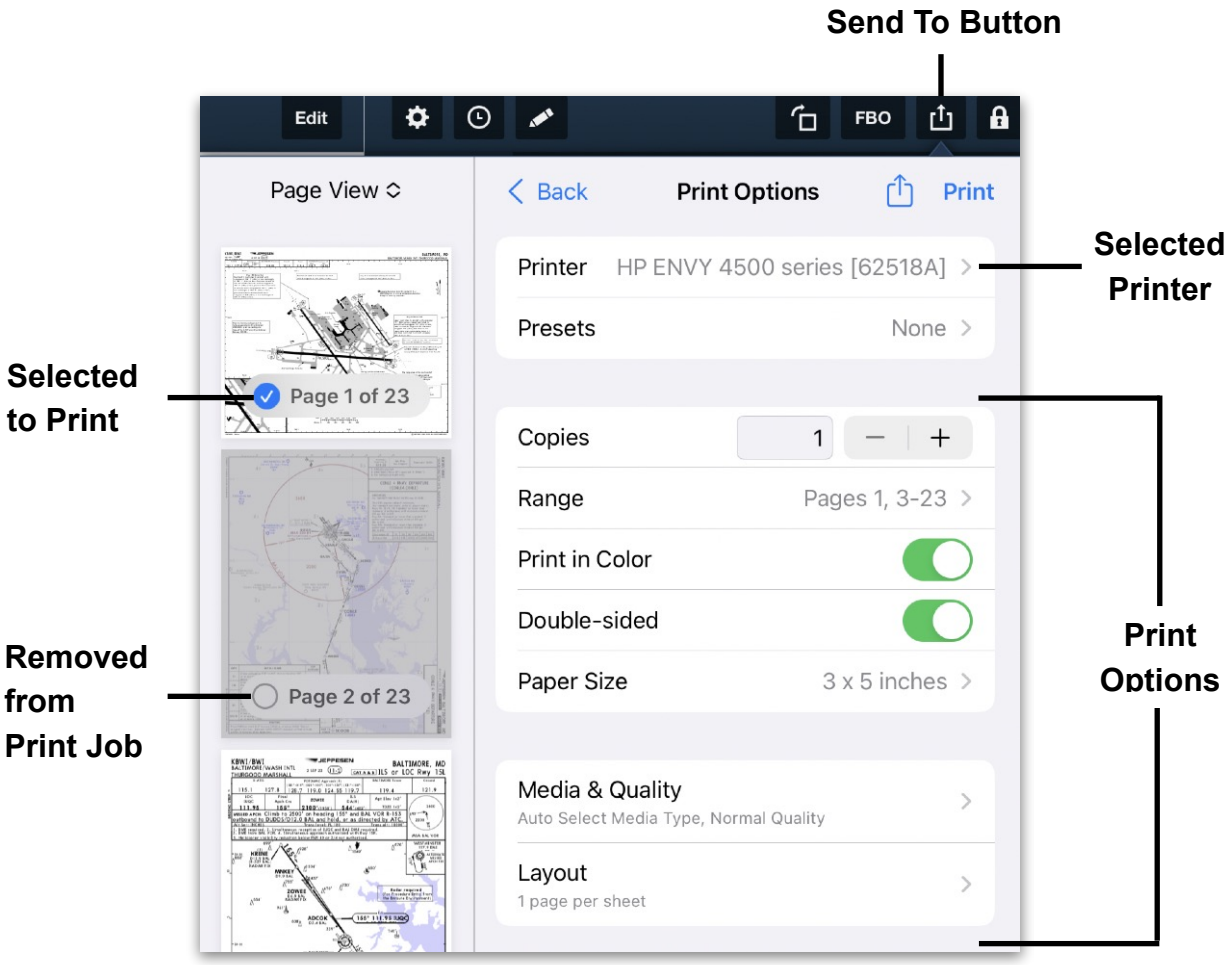
To print the currently displayed plate, tap the **Send To** button in the Toolbar, select **PRINT**

PLATE, and follow the prompts to choose print settings. Available settings vary based on the connected printer.

Printing Several Plates or an Entire Flight Binder

To print an entire Flight Binder or several of its plates at once, follow these steps:

1. Open a Flight Binder, tap the **Send To** icon and select **PRINT BINDER**.
2. In the Print Options window, swipe through the print preview and remove any unwanted plates from the print job by tapping their blue checkmark.
3. Depending on the capabilities of the connected printer, change the layout as needed (e.g. print multiple plates on one page, or print on both sides of the page).
4. When print options are selected, tap **Print**.



Printing a Flight Binder

12.7 Other Binders

While **Flight Binders** are restricted to a particular airport pair and structured according to the phase of flight, Other Binders are unstructured and can contain plates from a variety of unrelated airports.

NOTE: Content Packs are not visible in ForeFlight Web.

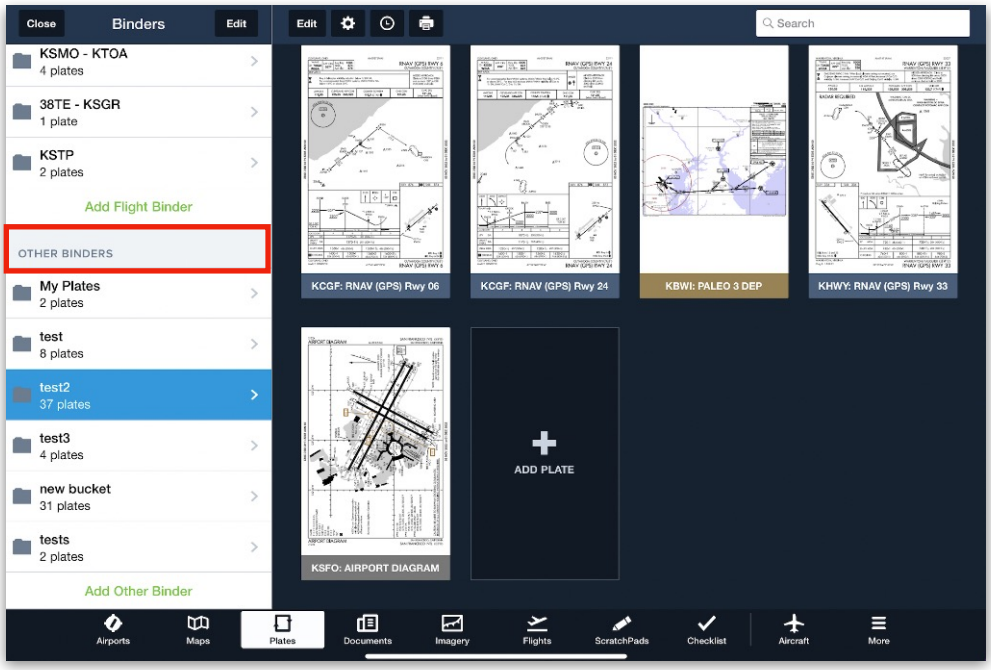
NOTE: Other Binders do not sync between devices on an account.

12.7.1 Other Binder Structure

The Other Binders structure displays a toolbar with a **Print** button, Search bar, a list of existing plates, and a button to **add plates**. When a plate is opened, **swipe with three fingers** left and right to switch between plates.

NOTE: The Search bar above the Other Binder is not specific to the Plates view. It displays airports, places, procedures, documents, and recent search results in the applicable ForeFlight view.

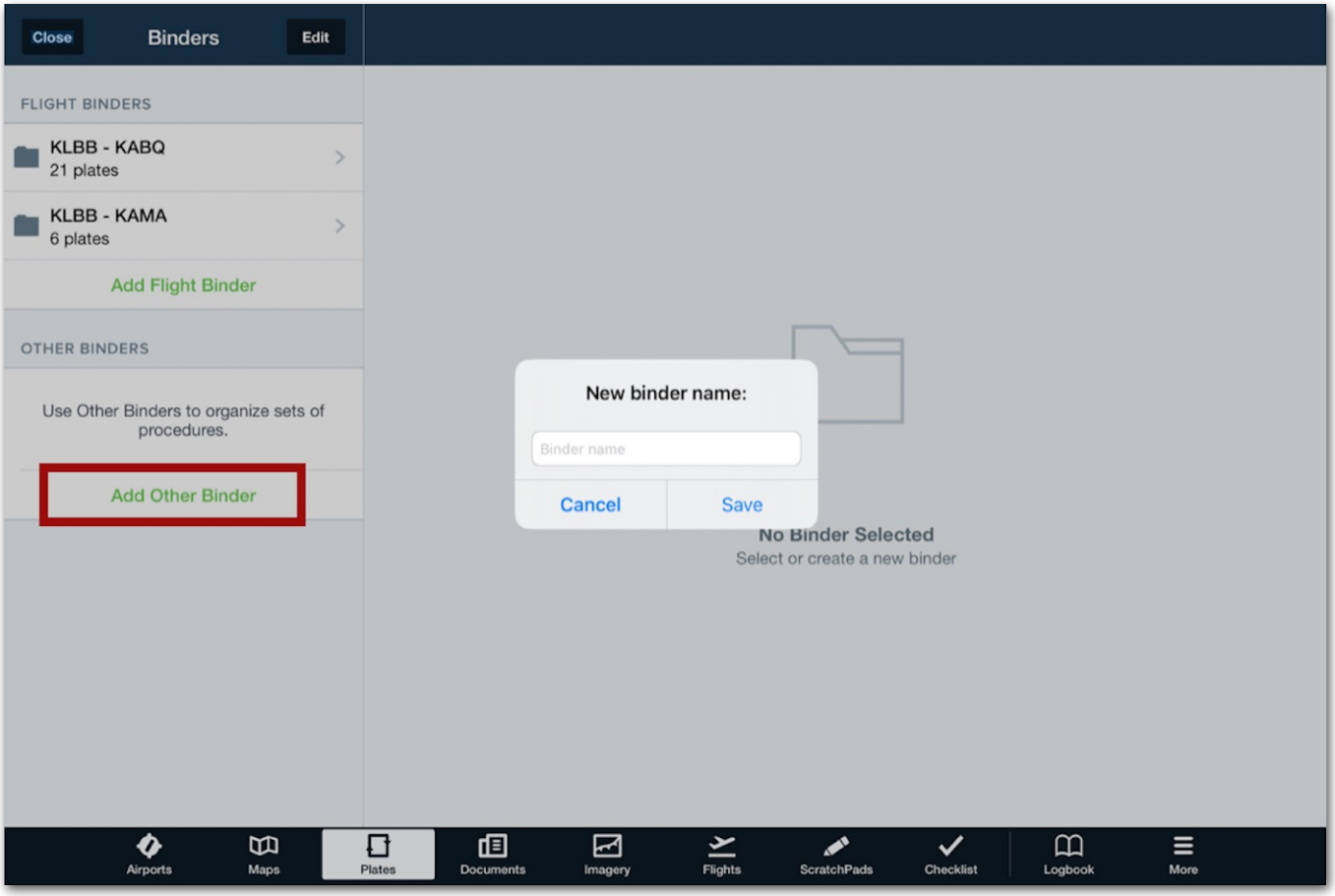
Plates inside Other Binders appear as large icons with filenames displayed in labels along their bottom edges. These labels are color-coded according to type: **Airport**, **Departure**, **Arrival**, **Approach**, and **Minimums**.



Other Binder Elements

12.7.2 Creating Other Binders

To create an Other Binder in the Plates view, expand the **Binders Drawer**, tap **Add Other Binder**, and enter a name for the binder. The new Other Binder opens with a button to add plates.

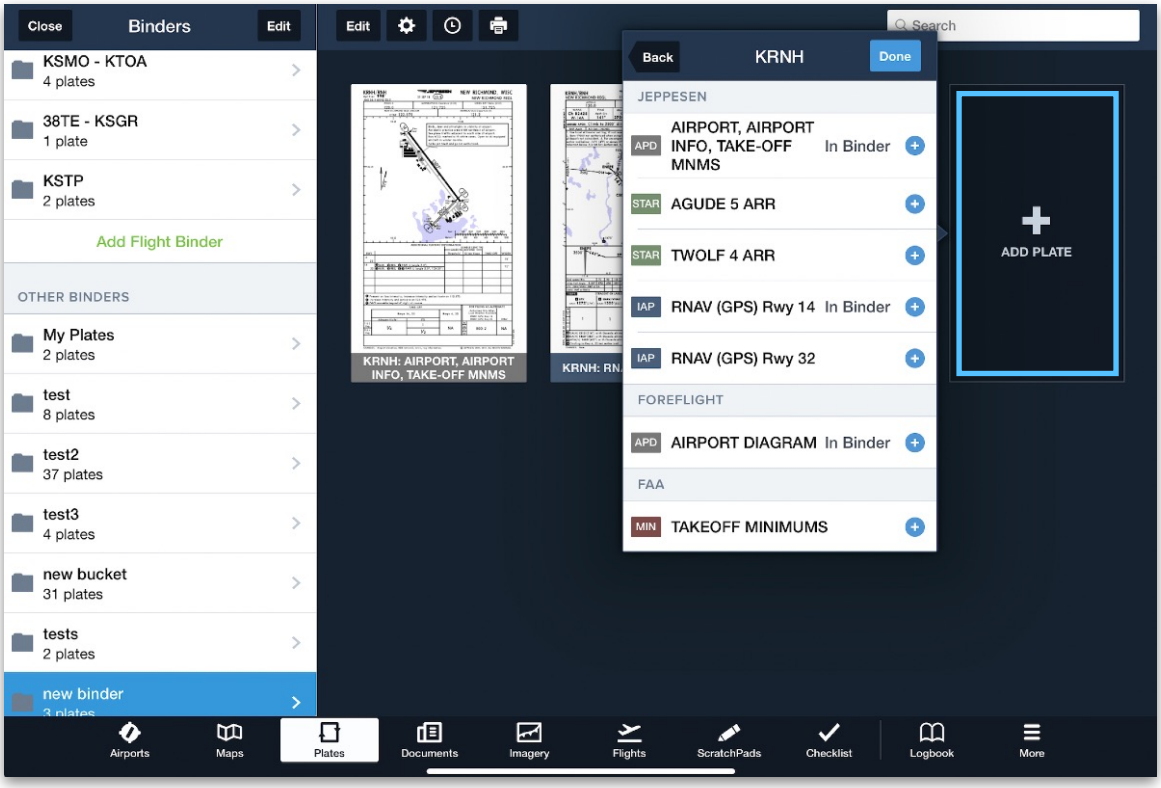


Creating a new Other Binder

12.7.3 Adding Plates

To add plates to an Other Binder, follow these steps:

1. In the Plates view, expand the Binders Drawer and tap an Other Binder to display its contents.
2. In the Plates Viewer, tap **ADD PLATE**.
3. In the Select Airport window, use the search bar or ForeFlight-generated suggestions to select the airport, and then scroll through the list of that airport's plates.
4. Tap a plate name to display it without adding, or tap the plus (+) button next to its name to add it to the binder.
5. If a plate is already in the binder, the words "In Binder" are displayed next to the name. Adding it again creates a duplicate.



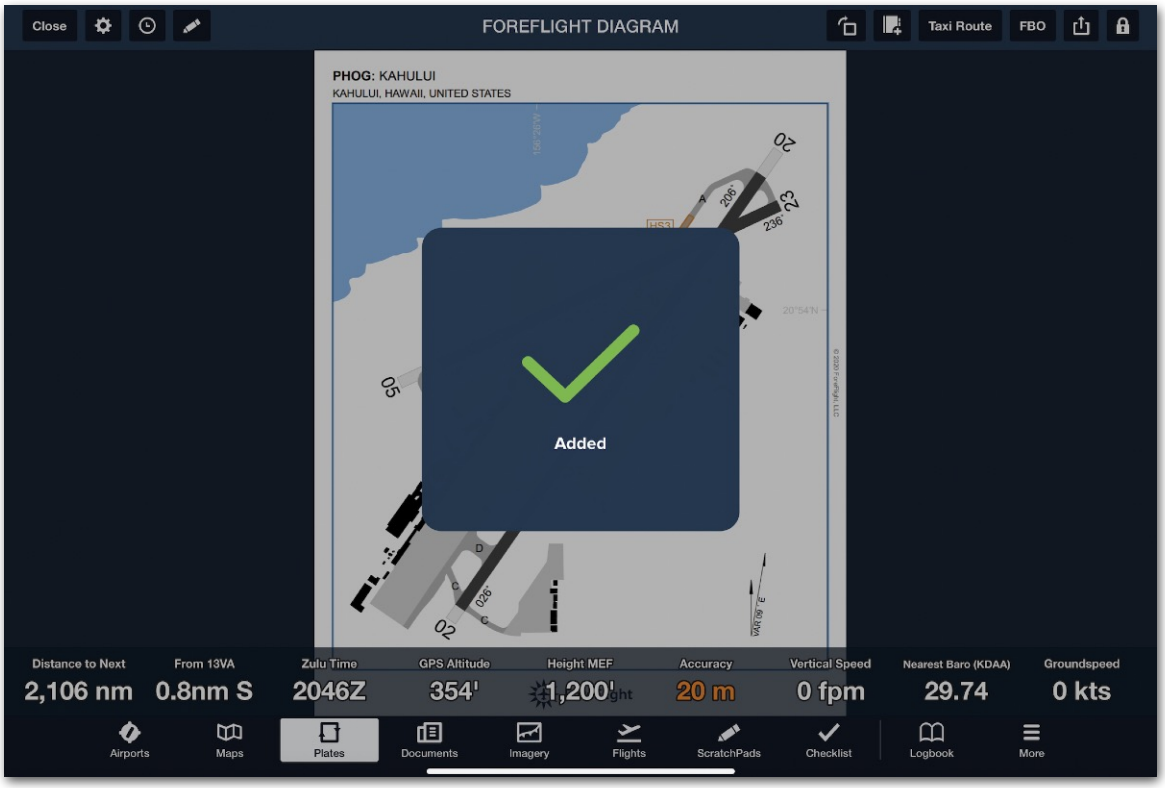
Adding Plates to Other Binder

NOTE: Plates can also be added to a binder while working on unrelated tasks in ForeFlight. The next section describes how to do so by leaving an Other Binder "open" while working.

12.7.4 Leaving a Binder Open

Plates can also be added to a binder while working outside the Plates view. To leave an Other Binder “open” and add plates to it while working in other parts of ForeFlight, follow these steps:

1. In the Plates view, expand the Binders Drawer and tap an Other Binder to display its contents.
2. With the binder *still open*, navigate away from the Plates view to complete other tasks in ForeFlight.
3. If a plate is opened while working in the Maps view, Airports view, or Flights view, tap the **Add to Binder** button (shaped like a folder). This button only appears if the Other Binder is still selected on the Plates view.
4. If the plate has already been added to the binder, confirm the prompt to add a duplicate. Since a binder only contains references to a plate stored on the device, each duplicate opens the same plate, and annotations applied to one plate affects its duplicate.



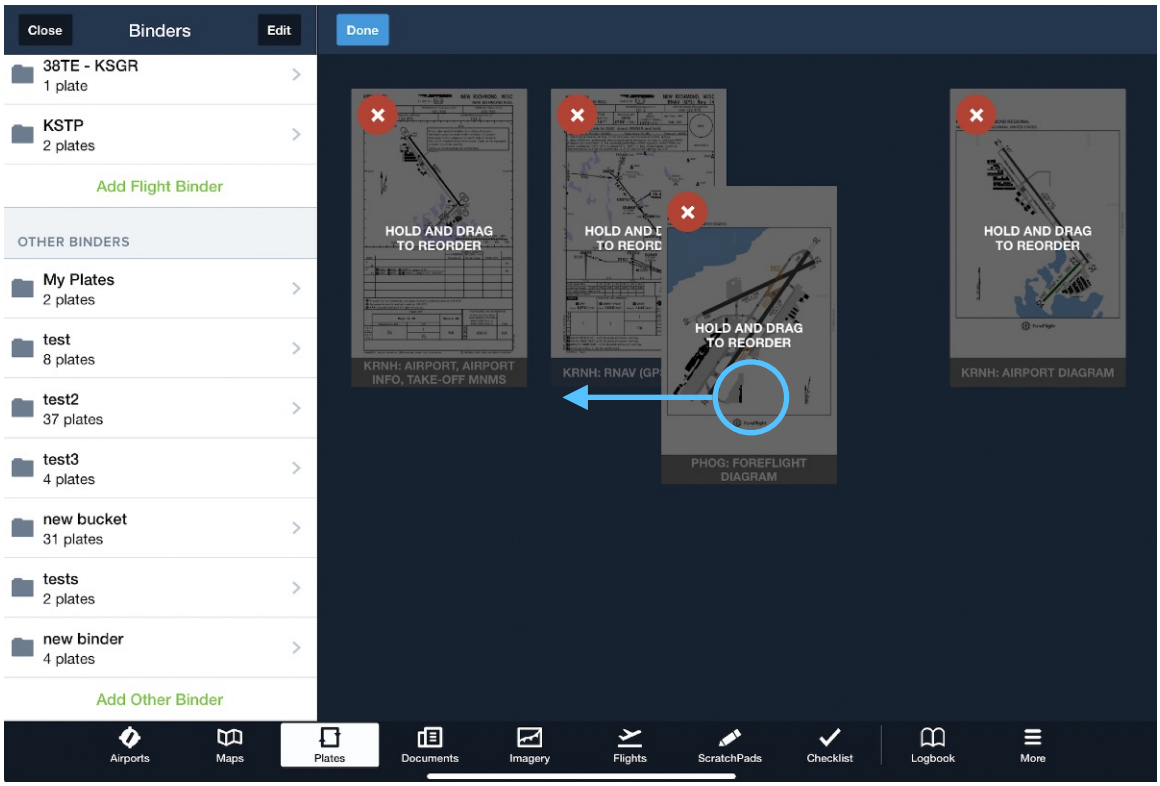
Adding Plates to an “Open” Binder

12.7.5 Reorder Plates

To reorder the plates in an Other Binder, tap the **Edit** button in the Toolbar, and then hold and drag individual plates to their new positions. Tap **Done** when finished reordering.

12.7.6 Remove Plates

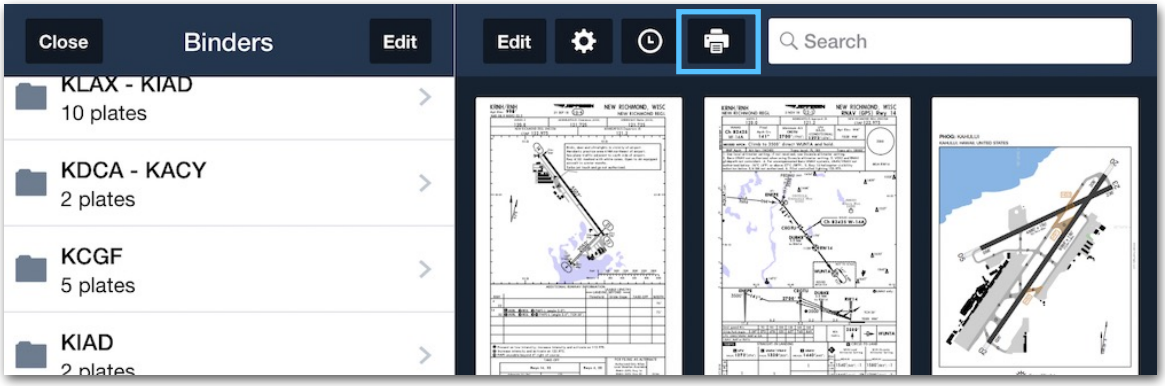
To remove plates from an Other Binder, tap the **Edit** button in the Toolbar, and then tap the red **X** on a plate to remove it from the binder. (There is no chance to confirm or cancel.) Tap **Done** when finished removing plates.



Reordering and Removing Plates

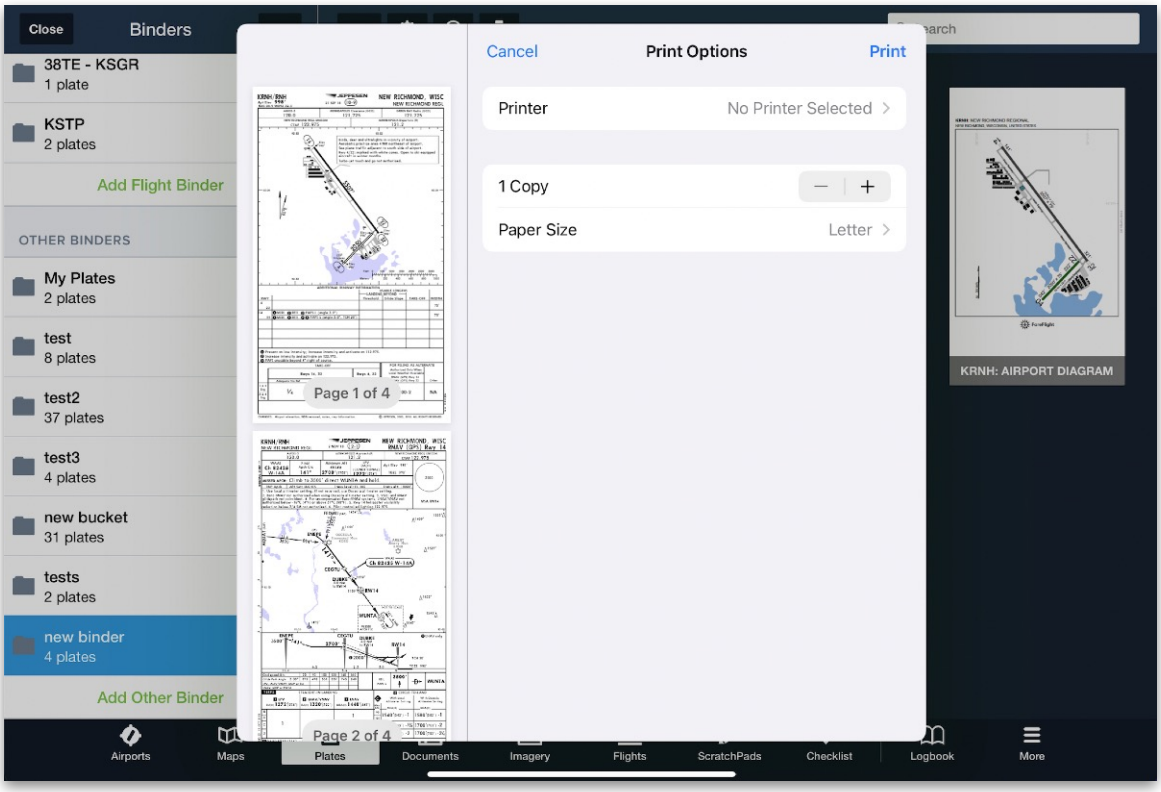
12.7.7 Printing Other Binders

Instead of **printing individual plates**, it is possible to print all of the plates in an Other Binder together. To do so, tap the **Printer** button in the Toolbar and follow the prompts to choose print settings.



Printing an Other Binder

Note that ForeFlight does not control printer settings or page sizes. This must be done using the iOS Printer Options.

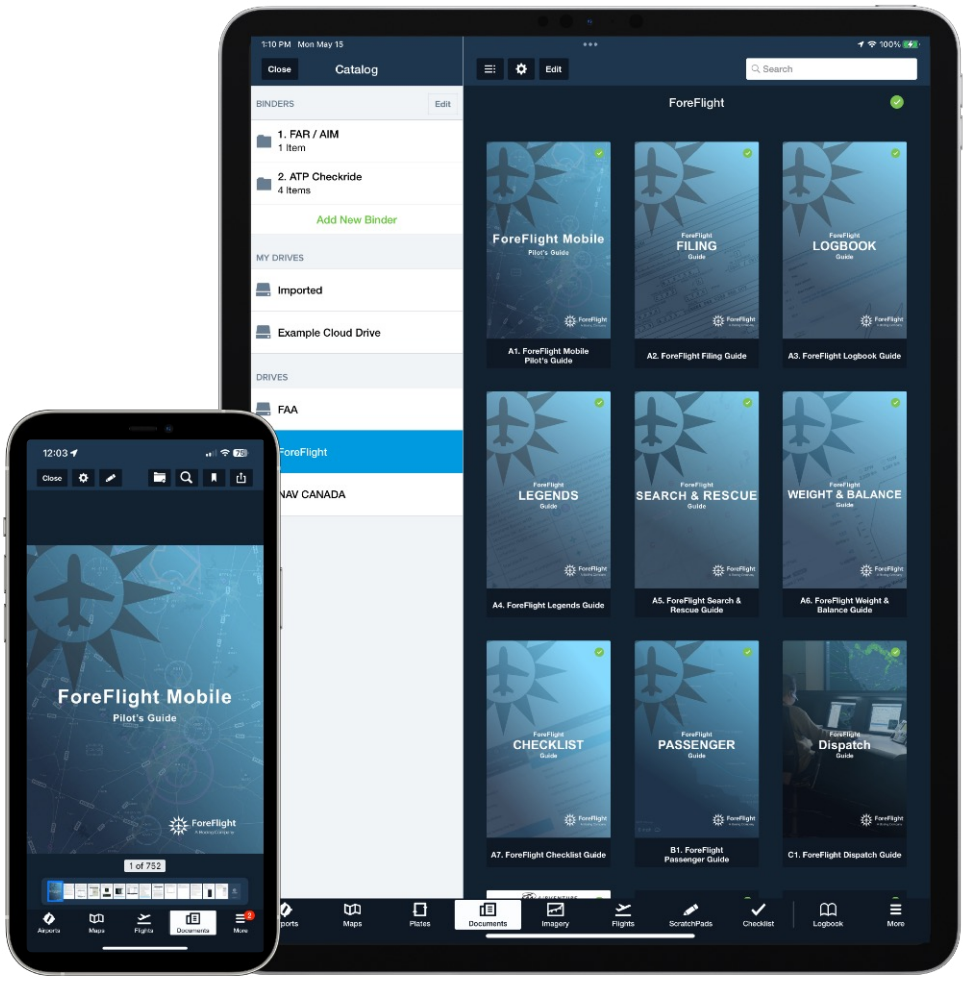


Selecting Printer Options

DOCUMENTS

ForeFlight Documents allows pilots to access and manage important aviation documents such as manuals, handbooks, guides, and supplements. This feature eliminates the need for paper copies, making it easier for pilots to keep their cockpit organized and up-to-date.

ForeFlight Documents offers several benefits, including automatic document syncing, intelligent document organization, powerful search functionality, and advanced annotation tools. With this feature, pilots can easily find the information they need, make annotations, and share documents with other members of their flight crew.

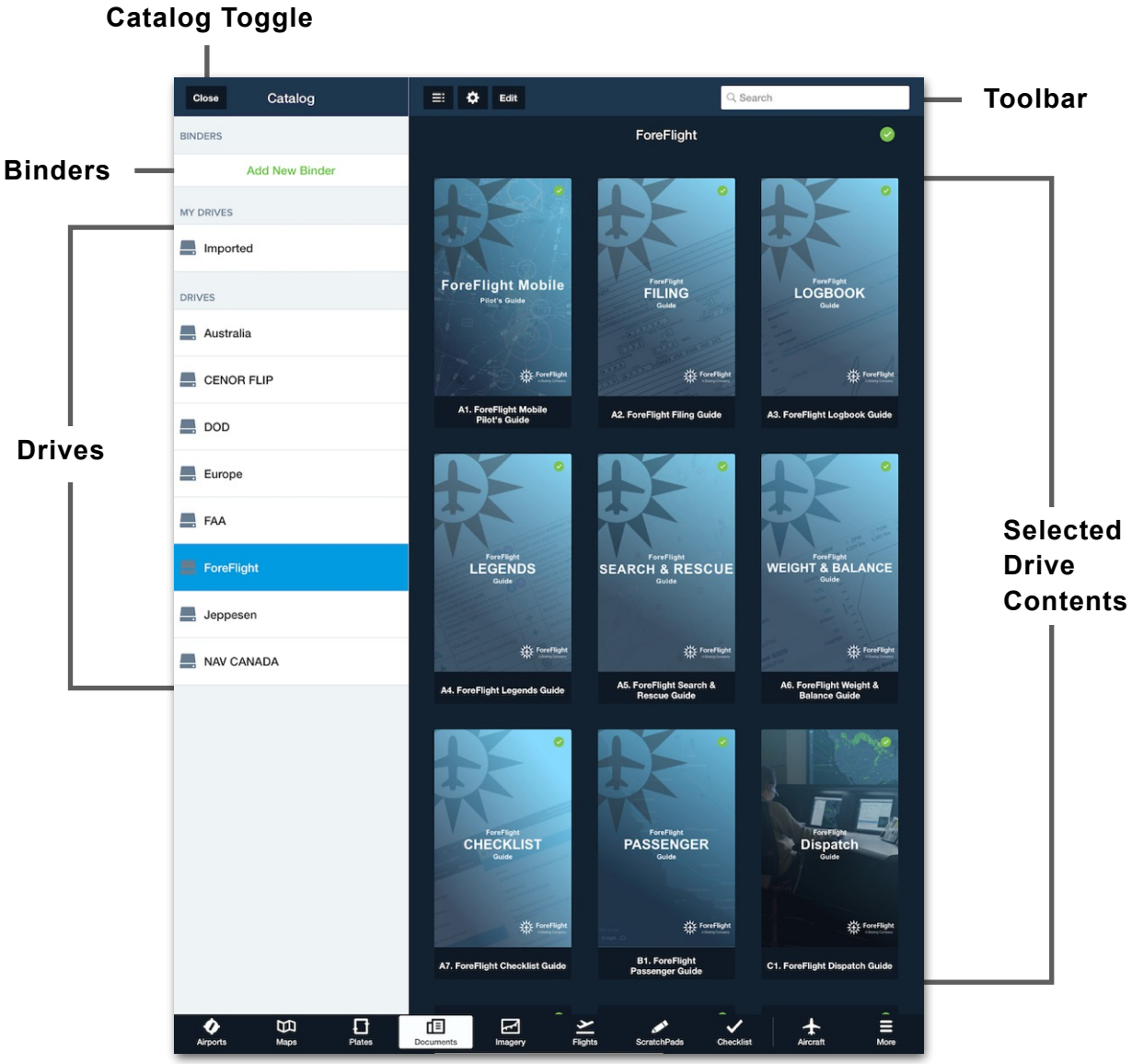


NOTE: For the purpose of this guide, when referencing “document” or “documents” any **supported file type** can be interchanged.

13.1 Documents Design

The Documents view consists of the following elements:

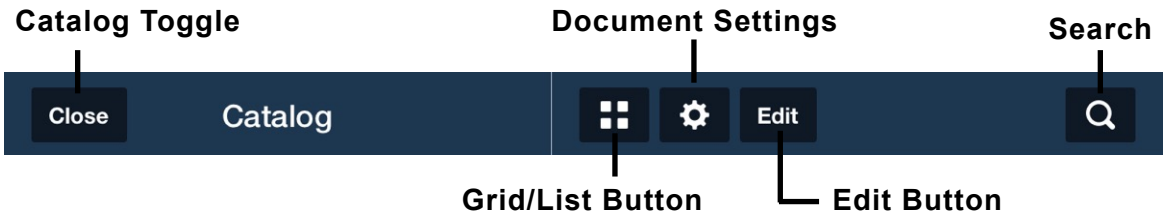
- An upper **toolbar** for managing the Documents view.
- A collapsible **Catalog** that contains all documents. The Catalog is organized into three sections: **My Drives**, **Drives**, and **Binders**.
- Binder or Drive contents, organized in a thumbnail view.
- A **full-screen viewer** for viewing documents (not shown here).



Documents View

13.2 Toolbar

The toolbar includes buttons for showing and hiding the Documents Catalog, changing the document thumbnail type, adjusting document settings, editing drives and binders, and searching ForeFlight Mobile for aeronautical and document data.



13.2.1 Documents Catalog

The Documents Catalog can be displayed or hidden by tapping the **Catalog** toggle button in the upper-left toolbar. When the catalog is displayed, the **Close** button hides it. When hidden, the **Catalog** button displays the document catalog.

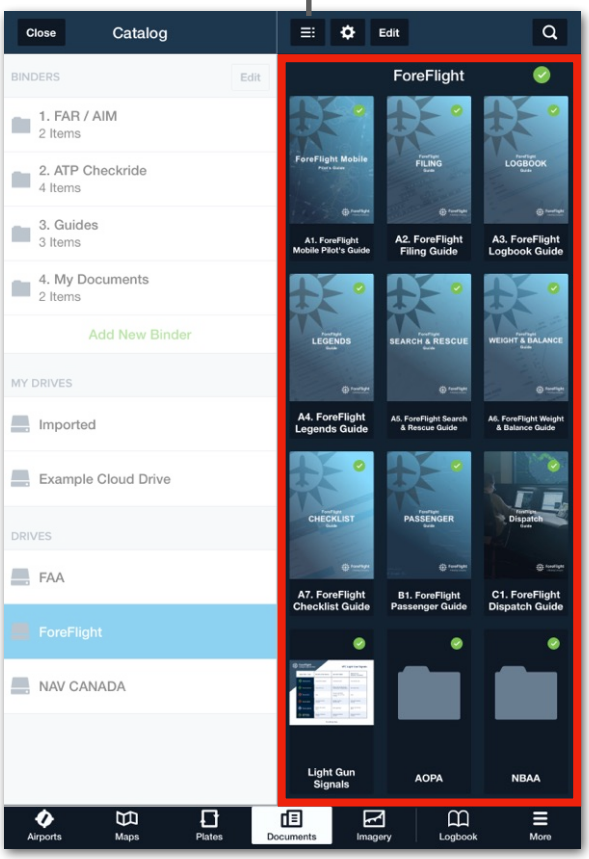


Documents Catalog Toggle

13.2.2 Grid and List Thumbnail Viewing Options

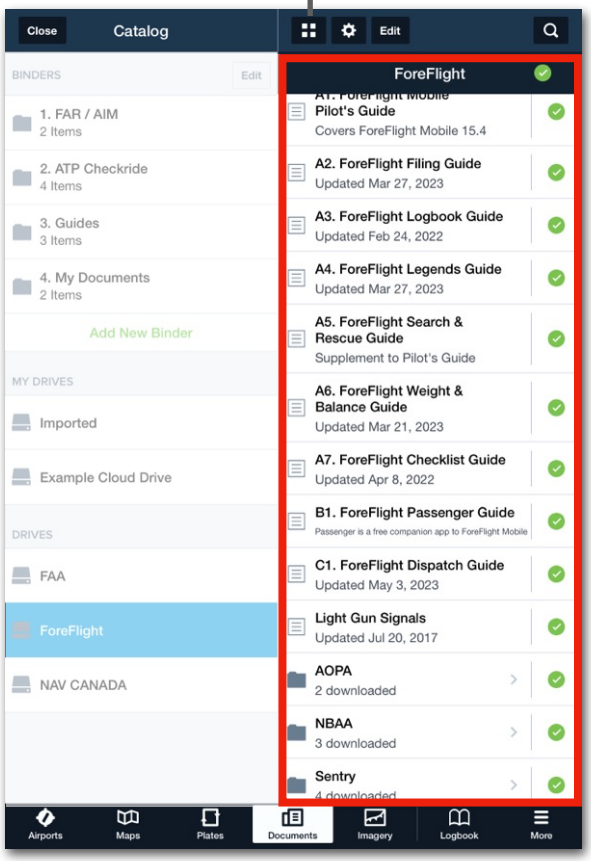
When a binder or drive is tapped, its contents are displayed as thumbnails in a grid or list view. The **Grid/List** button in the upper toolbar switches between the two views.

List Button



Grid View

Grid Button



List View

13.2.3 Document Settings

The settings button provides a menu with two settings.

- The **Brightness Slider** adjusts the iPad or iPhone's screen brightness.
- **Invert Document Colors** inverts all colors within all documents.

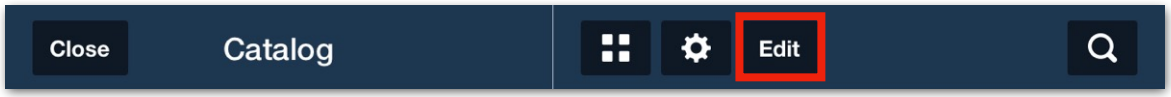


Documents Settings Button

13.2.4 Edit Button

The **Edit** button provides the following functionality.

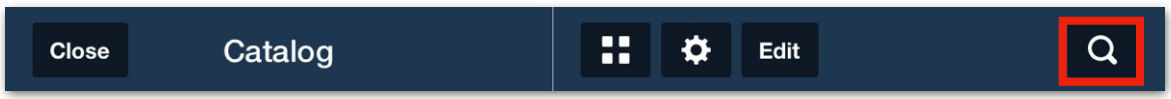
- When viewing the contents of a binder, the Edit button can be used to **rearrange** or **remove** documents from that binder.
- When viewing the Imported drive, the Edit button allows users to **rename** or **remove** imported documents.
- When viewing a drive other than the Imported drive, the Edit button allows users to **remove** a document from the device.



Documents Edit Button

13.2.5 Document Search

The search bar at the top of the Documents view searches all of ForeFlight. This search bar is similar to the one found in the **Airports view** upper toolbar. When toolbar space is limited, the search bar is replaced by the magnifying glass.



Documents Search Button

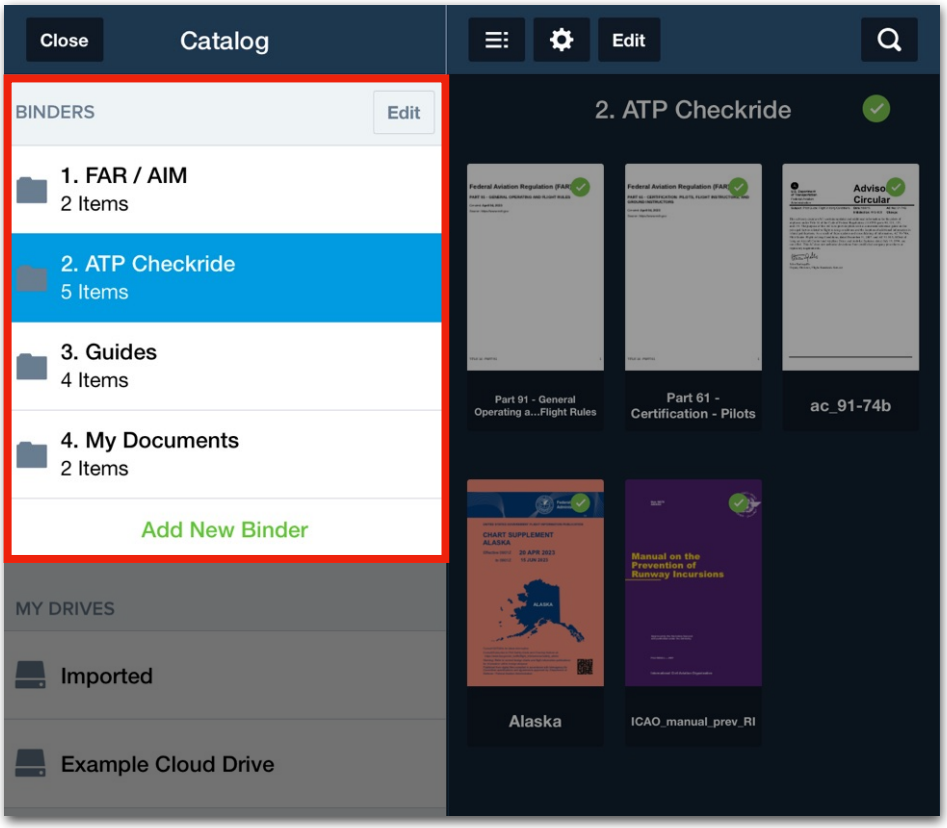
13.3 Binders

Binders provide a convenient method for users to organize and store their chosen documents within folders, making them easily accessible for future reference. Documents from any drive can be added to a binder. For instance, a user could create a binder that includes documents from both the Imported drive and a subscription-based drive, like the FAA drive.

Binders are sorted alphabetically. It is not possible to reorder binders. However, a naming convention, such as using a numerical prefix as in the example below, allows users to customize how binders are sorted.

Files added to a binder are not duplicates of the original. Rather, a file opened from a binder is the same file that's opened from its original location. Annotations and bookmarks that have been added to a document appear regardless if the document is opened from a binder or its original location.

Binders are synced and can be accessed through ForeFlight Web as well as any devices that are logged into the account.

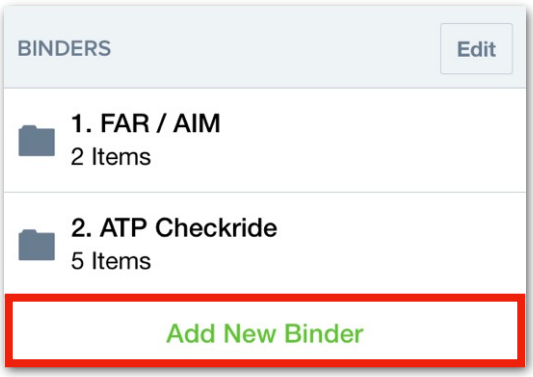


Document Binders

13.3.1 Creating Document Binders

There are two methods for creating a binder, each of which is described below. Once created, binders are listed alphabetically and can be **renamed**, **deleted**, and contents within the binder can be **added**, **removed**, and **rearranged**.

Adding binders using the standard method



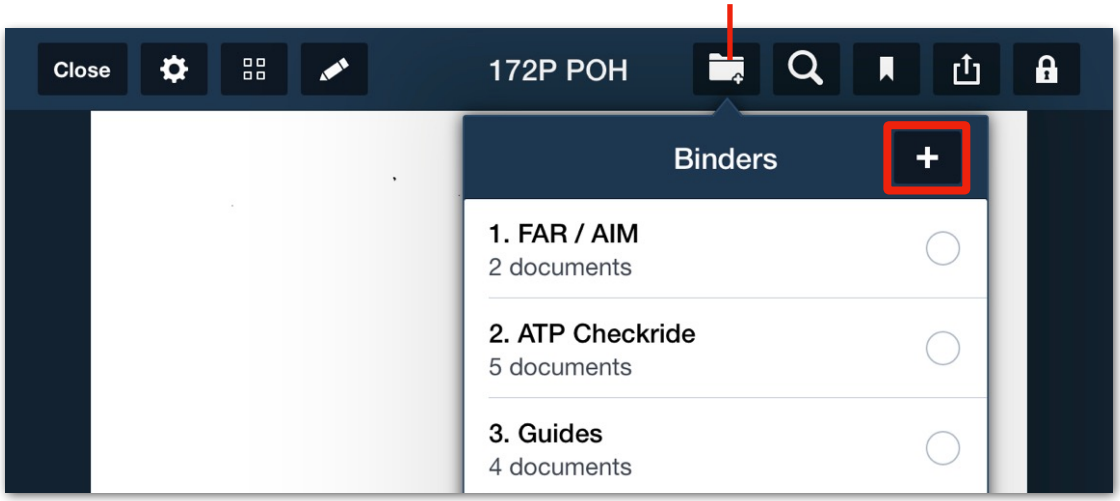
Add New Binder Button

The standard method for adding a binder is to tap the **Add New Binder** button near the bottom of the Binders section. After tapping the button, a pop-up appears prompting the user for a binder name.

Adding binders using the document viewer method

A binder can also be added while viewing a document. To do so, open any document and tap the **Add Document to Binder** button. Then, tap the **[+]** button to create a new binder.

Add Document to Binder



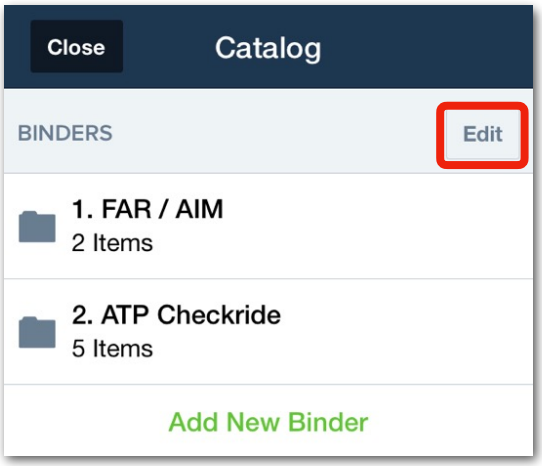
Naming Binders

Enter a binder name that is intuitive and will describe the contents of the binder. If having the binder near the top of the list is desired, use a naming convention with that in mind. For example, as depicted throughout this chapter, Binders are named with a numerical prefix.

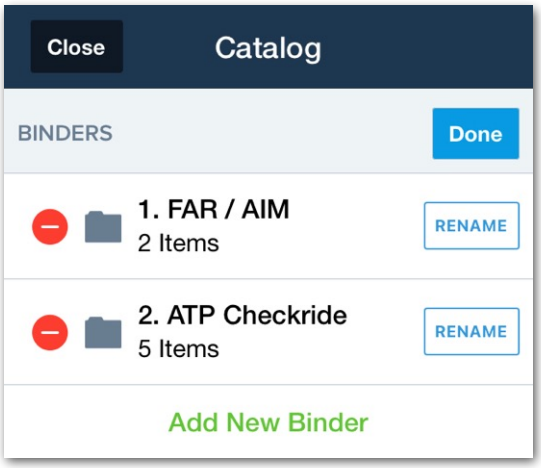
13.3.2 Renaming Binders

Editing a binder's name does not affect its contents. Binders and their names are synced between devices. To rename a binder:

1. Tap the **Edit** button near the top of the Binders section.
2. Tap **RENAME** next to the binder to be renamed.
3. Edit the binder's name.
4. Tap **Save**.
5. Once all binders are appropriately renamed, tap **Done**.



Edit Button

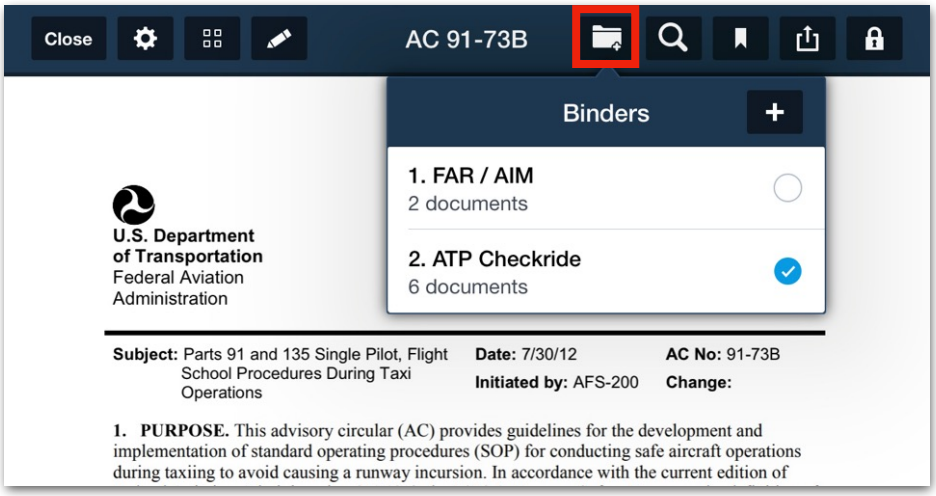


Rename and Done Buttons

13.3.3 Adding Documents to Binders

To add a document to a binder, follow the steps below:

1. Open the document from its original drive (e.g. Imported > AC 91-73B).
2. Tap the **Add Document to Binder** button in the upper toolbar.
3. In the pop-up menu, tap the binder or binders that the document should be added to. When a document is added to a binder, the binder's count (e.g., "6 documents") increases by one and the checkbox is highlighted.
4. Once the document has been added to the appropriate binders, tap outside the pop-up menu.



Adding a binder using the full-screen document viewer

13.3.4 Arranging Binder Documents

The documents within a binder are sorted according to when they were added. To rearrange binder documents, follow the steps below:

1. Tap and hold a document until it appears to lift off the screen.
2. Without lifting the finger, drag the document to its new location.
3. Release the finger from the screen.

13.3.5 Removing Documents from Binders

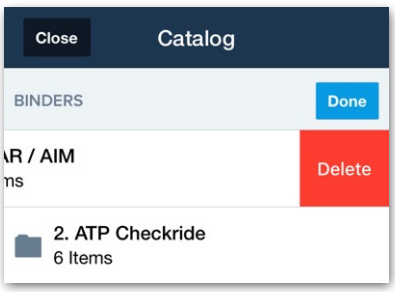
Removing a document from a binder removes it from the binder on all account devices. Removing a document from a binder does not delete it from the device, rather the document is still available in its original drive. There are three methods for removing documents from a binder:

- When viewing a binder, tap **Edit** > **Remove** button > **Remove**.
- When viewing a binder in list view, swipe right to left across a document.
- When viewing a document that is included in a binder, tap the **Add to Binder** button and deselect the binder it is included in.

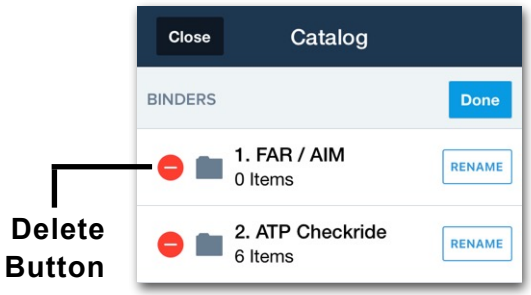
13.3.6 Deleting Binders

Deleting a binder from one device will remove it from all devices signed into the account. Deleting a binder does not remove documents from the device. The documents that were in a deleted binder can still be accessed from their original drive. There are two methods for deleting a binder:

- Swipe right to left across a binder.
- Tap **Edit** > **Delete** button > **Delete**. Tap **Done**.



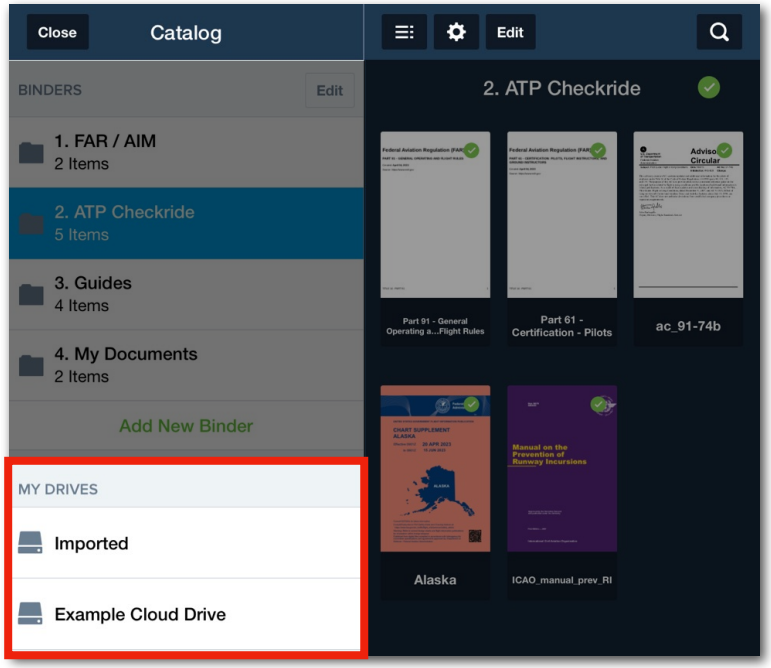
Swipe Left Delete



Edit > Delete Method

13.4 My Drives

The My Drives section contains the **Imported drive**. This drive consists of documents that have been manually imported to ForeFlight. Pilots with an Essential or higher subscription also have the ability to add a **Cloud Drive**.



My Drives

13.4.1 Supported File Types and Size Limits

My Drive documents are read-only. For example, an Excel spreadsheet can be added to Documents but Documents cannot be used to edit the spreadsheet.

Documents supports files with a maximum size of 500 MB. The following file types are supported in ForeFlight Documents:

- PDF
- TIFF
- TIF
- JPG
- JPEG
- GIF
- PNG
- BMP
- BMPF
- TXT
- DOC
- DOCX
- XLSX
- XLS
- PPTX
- PPT
- CSV
- PAGES
- KEY
- NUMBERS

NOTE: Maximum file size for importing documents via ForeFlight Web is 115 MB.

13.4.2 Imported Drive

All files that have been added to ForeFlight Documents by the user are stored in the Imported drive. Imported documents are synced to the account and become available on all devices and ForeFlight Web with an active internet connection. Imported documents are sorted alphabetically and cannot be reordered.

13.4.3 Importing Documents

There are various methods for importing documents.

Importing Documents using ForeFlight

To import a document using ForeFlight Mobile, follow the steps below:

1. Open the Documents view and tap the **Imported** drive to display its contents.
2. Tap the **[+]** button in the upper toolbar.
3. Select where to import documents from (Camera, Photo Library, Files).
4. Locate and tap the file to be imported.

Importing from third-party apps

Many apps can share files with other apps. If the shared file type is supported by Documents, ForeFlight Mobile will appear as an app that can receive the shared file. To import files using third-party apps, follow the steps below:

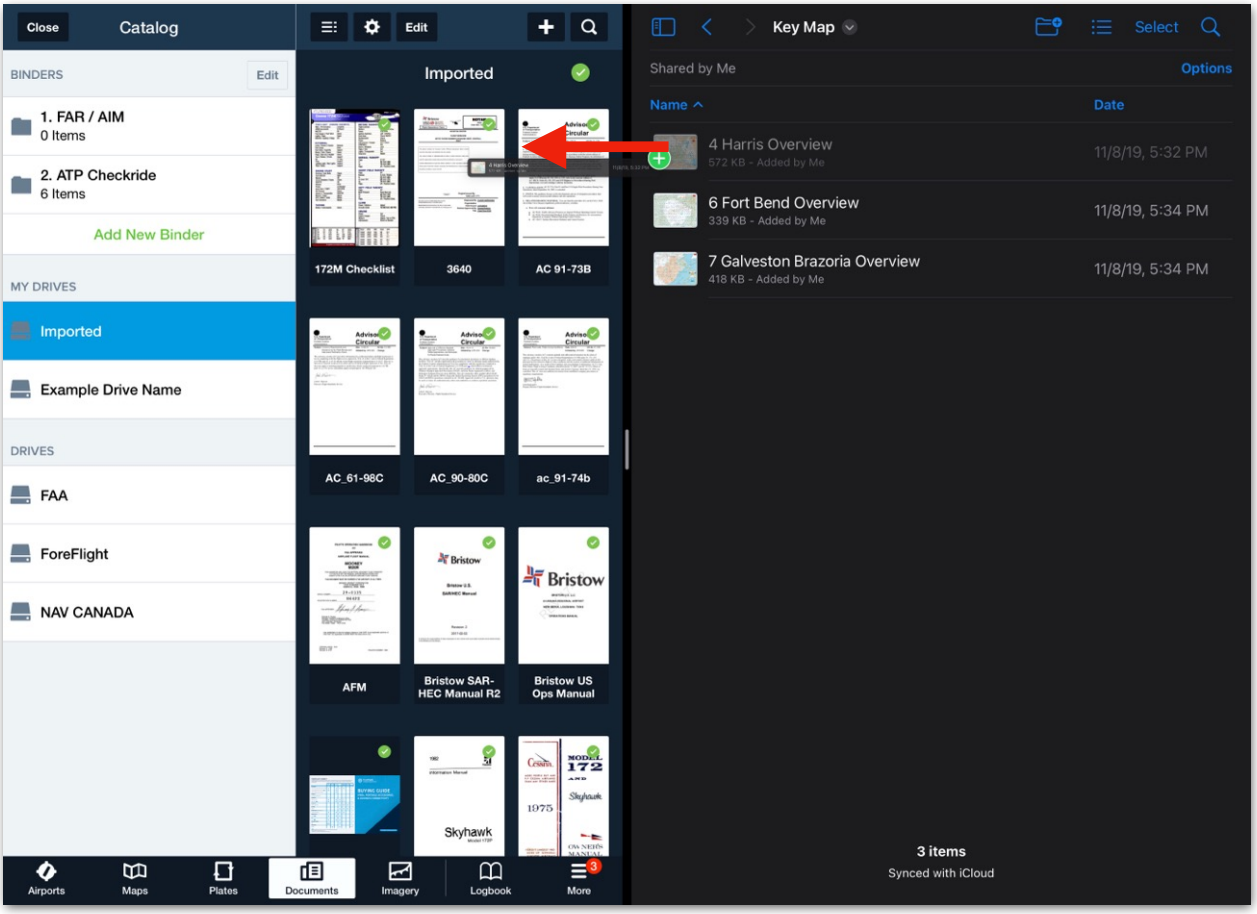
NOTE: These steps may vary slightly depending on which apps are used.

1. Open the app that has the file to be imported (e.g., Mail, Files, Safari, etc).
2. Open the file to be shared.
3. Tap the **Send To** button.
4. Choose ForeFlight from the list of apps that can accept the file. ForeFlight Mobile will automatically open.
5. If using a Performance-tier account, select whether the file should be saved to a flight or to the Imported drive.
6. After selecting **Documents**, the Documents view is opened, and the imported file is displayed in the **full-screen document viewer**.

Importing via drag-and-drop

When using ForeFlight in **split view or slide over mode**, files can be imported to Documents using the iOS drag-and-drop feature. To do so, follow the steps below:

1. Open ForeFlight Mobile and tap **Documents**.
2. Select the **Imported** drive.
3. Open another app in split view or slide over mode. Files and Photos are two apps that work well with this feature.
4. Tap and hold the file to be imported until it appears to lift off the screen. Without releasing the finger, drag the file to the Imported drive.
5. Release the finger from the screen. A confirmation pop-up is displayed after the file has been imported.

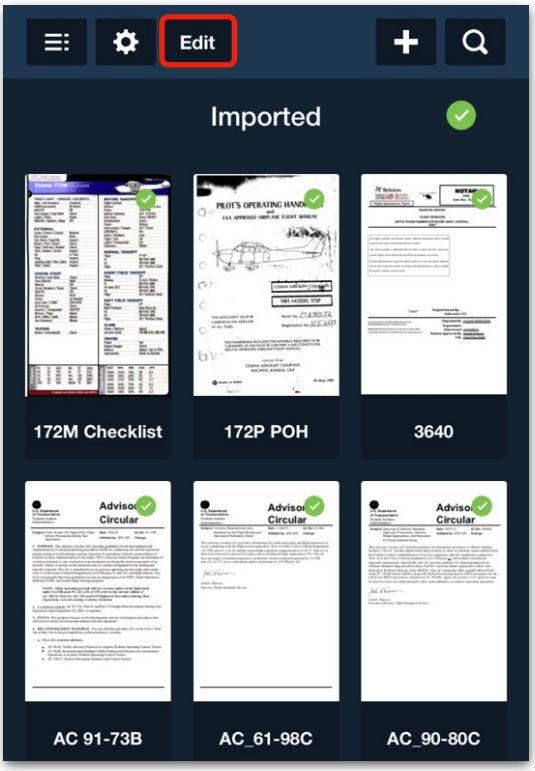


Split View Drag-and-Drop Document Import

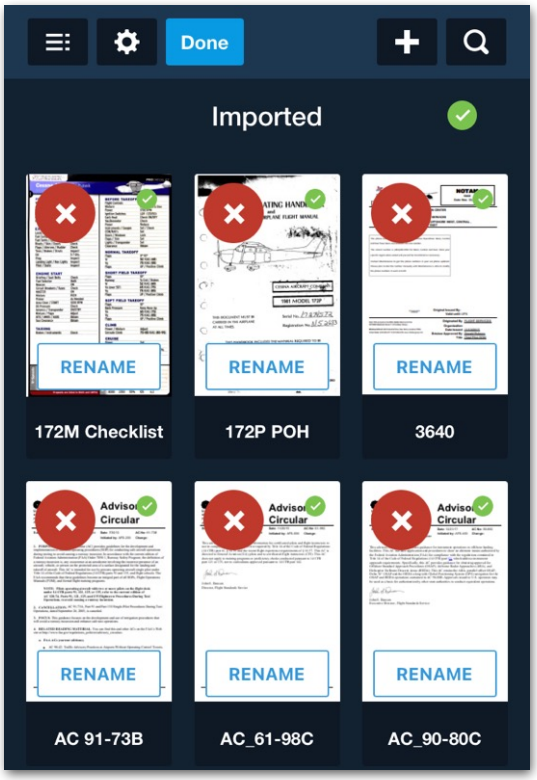
13.4.4 Renaming Imported Documents

Documents can be renamed after they've been imported. Imported document names are synced between devices. Renaming an imported document may result in it being moved as the Imported Drive is sorted in alphabetical order. To rename an imported document:

1. Tap the **Imported** drive to view its contents.
2. Tap the **Edit** button in the upper toolbar.
3. Tap **RENAME** next to the document to be renamed.
4. Using the keyboard, edit the document's name.
5. Tap **Save**.
6. Once all documents are appropriately renamed, tap **Done**.



Edit Button

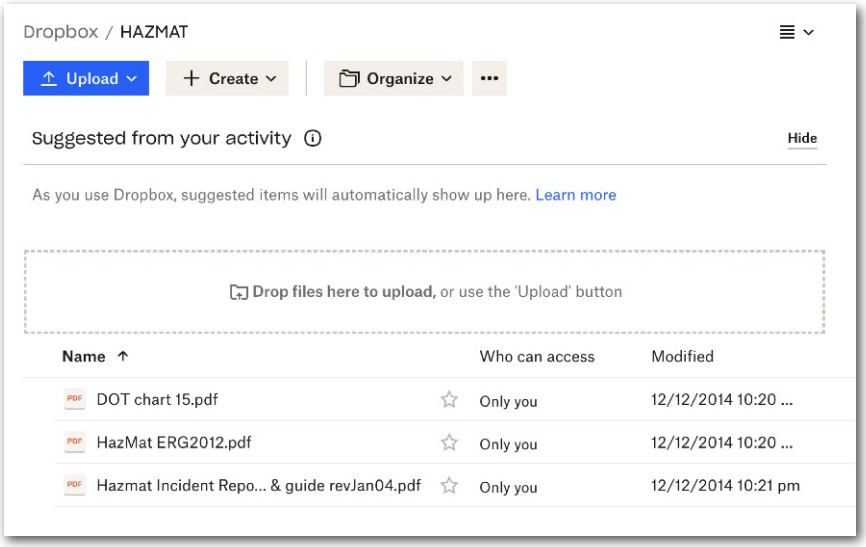


Rename and Done Buttons

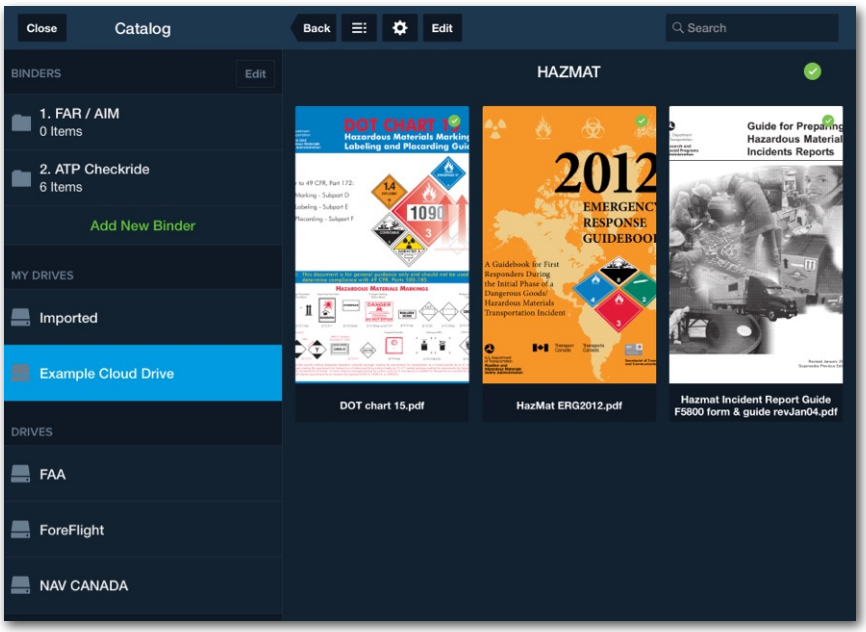
13.5 Cloud Drives

A cloud drive is a type of storage service that allows users to store files on the internet. ForeFlight can sync with supported (free or paid) cloud drives enabling users to access their files from anywhere with or without an internet connection.

ForeFlight supports a *single* DropBox, Microsoft OneDrive, Box, or Amazon S3 cloud drive integration per account. Cloud drives require an Essential or higher subscription.



Sample Dropbox Account



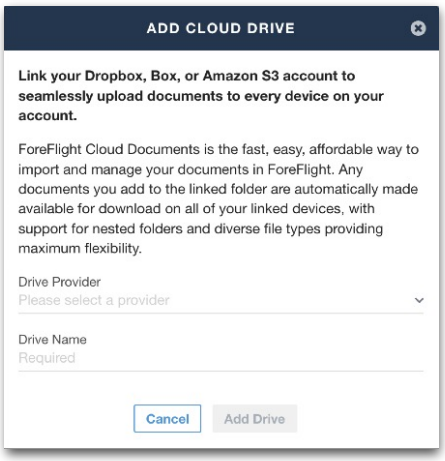
DropBox Documents Synced to ForeFlight

13.5.1 Adding a Cloud Drive

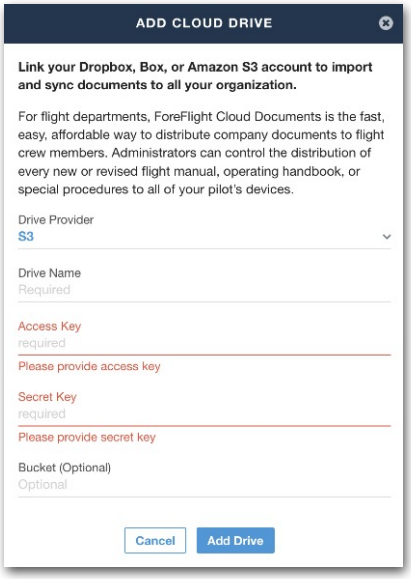
The process for adding a cloud drive is similar for all supported cloud drive providers. However, as discussed in this section, additional fields are required for **Amazon S3** and **OneDrive** cloud drives.

To add a cloud drive, begin by following the steps below:

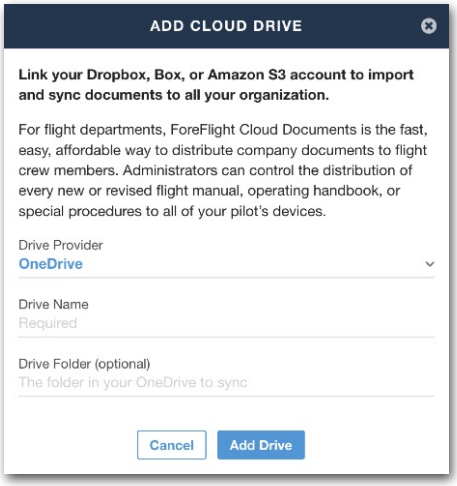
1. Using a web browser, sign into **plan.foreflight.com** using the ForeFlight username and password.
2. Click **Documents** in the left sidebar.
3. In the My Drives section, click **Add a Cloud Drive**.
4. In the pop-up that appears, select the Drive Provider (Box, DropBox, S3, OneDrive). As depicted in the images below, the menu dynamically adjusts to allow the required information to be entered.
5. Enter a **Drive Name** and click **Add Drive**.



DropBox and Box



Amazon S3



OneDrive

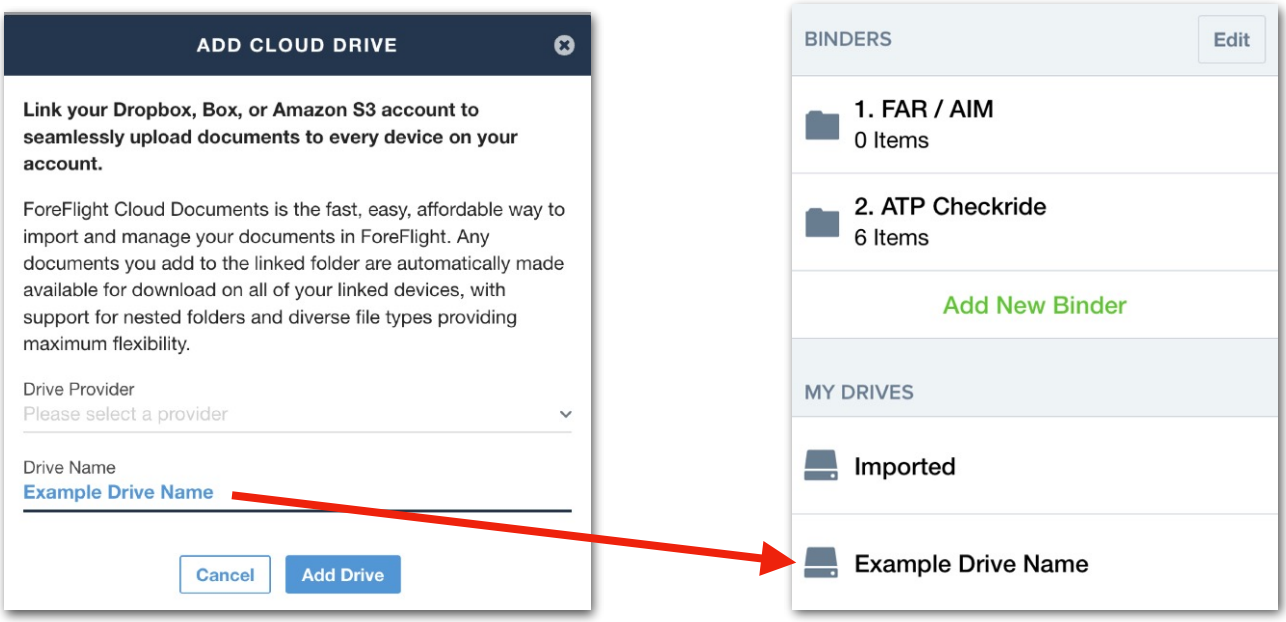
NOTE: Individual pilot accounts cannot link to a cloud drive that is already linked to another ForeFlight account.

13.5.2 Cloud Drive Names

All cloud drives require a name. The drive name is what appears in the My Drives section of ForeFlight Documents. The drive name should be intuitive and reflect the contents of the drive. Examples include: “Flight Department Manuals", “EFB Digital Documents”, “Our Flight Department’s DropBox Account”, etc.

The drive name can be edited after initial setup using the cloud **drive’s settings** menu in **ForeFlight Web** > **Documents**.

IMPORTANT: When naming a cloud drive, do not use a drive or subfolder name that already exists. For example, don’t use Jeppesen, FAA, Handbooks, Legends, etc.



Drive Name as it appears in ForeFlight Mobile

13.5.3 Adding OneDrive and S3 Cloud Drives

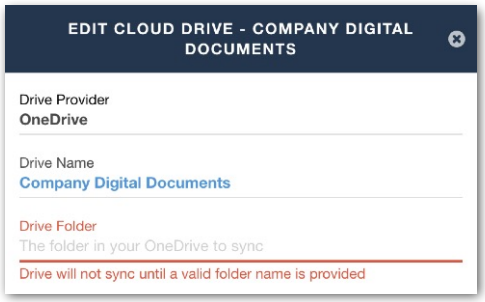
As described below, the following additional information is required to add a OneDrive or Amazon S3 cloud drive.

OneDrive

A OneDrive integration requires the user to specify the name of the synced OneDrive folder. This is done with the Drive Folder field.

If the name of the synced OneDrive folder is known, enter it in the Drive Folder field. If the folder doesn't exist yet or the name is not known, leave it blank and enter it later in the cloud drive **settings**.

A Drive Folder is required to sync documents.



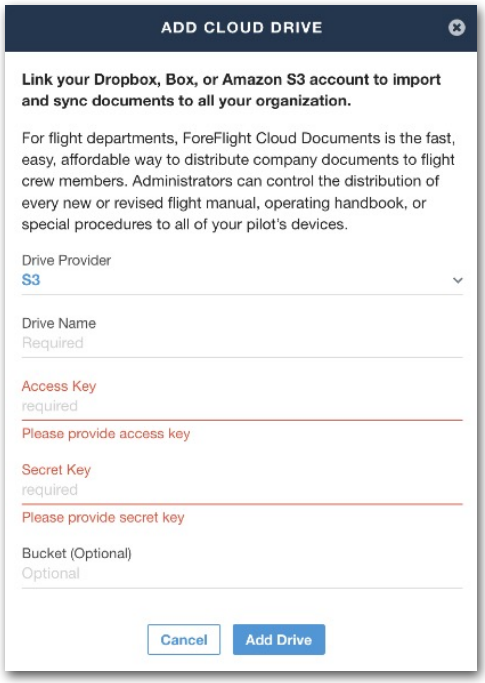
OneDrive Account Setup

Amazon S3

When integrating with an Amazon S3 folder, the user will need to provide an **access key** and a corresponding secret access key to authenticate and authorize access. Instructions for obtaining this information can be found on the next page.

The bucket that will sync with ForeFlight needs to be specified.

If the name of the S3 bucket is known, enter it in the bucket field. If the name is unknown or a bucket does not exist, leave it blank and enter it later in the cloud drive **settings**. A bucket is required to sync documents.



Amazon S3 Account Setup

Obtaining an Amazon S3 Access Key

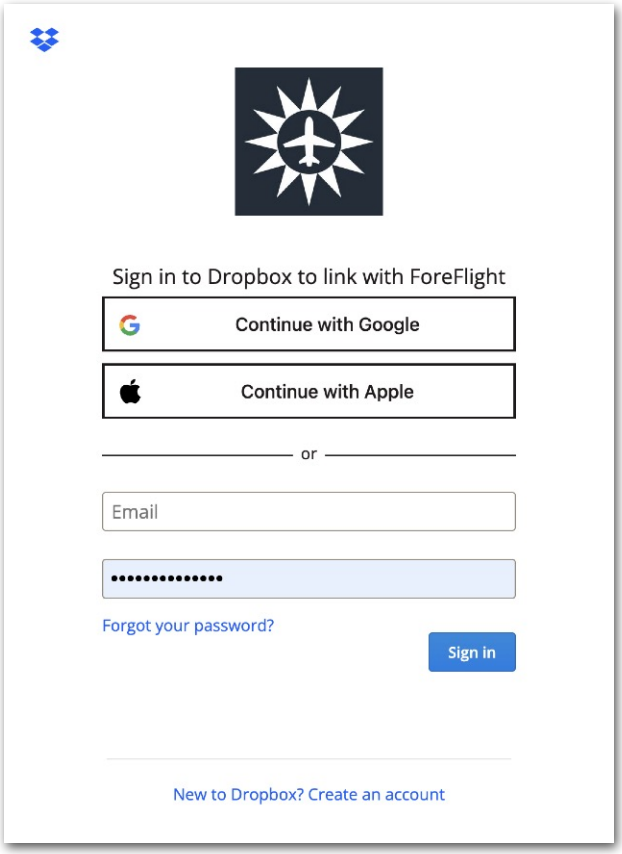
To obtain an access key:

1. Sign in to the AWS Management Console.
2. Open the IAM (Identity and Access Management) service.
3. In the navigation pane on the left, click on "Users" or "IAM Users" to manage users.
4. Create a new user or select an existing user to generate an access key for.
5. Open the user's details by clicking on the username.
6. In the "Security credentials" tab, locate the "Access keys" section.
7. Click on "Create access key" or "Manage access keys."
8. When creating a new access key, it will be generated and displayed. Make sure to download the key file or copy the access key ID and secret access key to a secure location, as the secret access key will not be shown again. The secret access key is only displayed once during the creation process. If lost, a new access key will need to be generated.

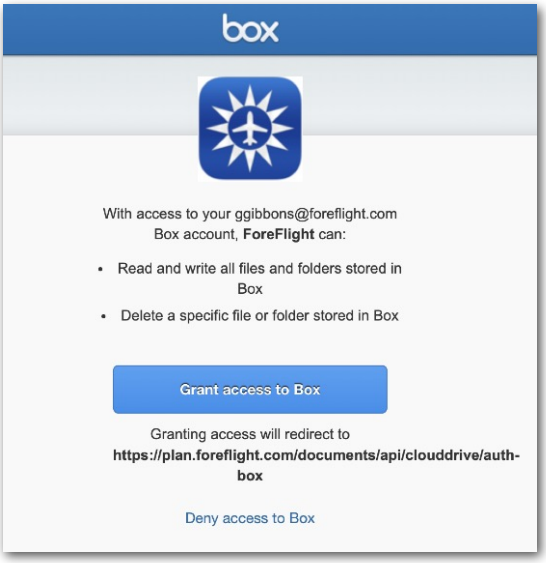
13.5.4 Providing Access to the Cloud Drive

When adding a Box, DropBox, or OneDrive account, ForeFlight redirects to a login page for the appropriate cloud drive. Enter the cloud drive account credentials and sign in. Depending on the cloud drive used, a confirmation email may be sent to the cloud drive's email address. Check the account for applicable emails.

After entering account credentials, and verifying via email (if applicable), a pop-up appears. Click **Grant Access** to allow ForeFlight to access the cloud drive.



DropBox login screen



Grant Access Confirmation

NOTE: If unable to sign into the cloud drive or the wrong account is synced to ForeFlight, add the cloud drive using an incognito or private browser session as the browser may be automatically populating cloud drive account credentials.

13.5.5 Cloud Drive Synced Folder

Each integrated cloud drive syncs with a single folder. That folder can contain subfolders (including the **Content Pack** subfolder) and individual documents. As described below, the synced folder is automatically generated when integrating DropBox and Box accounts and manually specified when integrating OneDrive and Amazon S3 drives.

DropBox Synced Folder

When adding a DropBox drive, an “apps” folder is automatically added to the DropBox root directory. Do not rename or move the folder. Within the apps folder, a “ForeFlight” subfolder is also added. All files and subfolders should be added to the ForeFlight folder. The file path below provides an example of the correct file structure.

DropBox / Apps / ForeFlight / Company Docs / Aircraft Manuals.

IMPORTANT: DropBox drives do not support duplicate documents. If duplicate documents are added to the synced folder, the documents will not download.

Box Synced Folder

When adding a Box drive, a “ForeFlight” folder is automatically added to the Box root directory. Do not rename or move the folder. All files and subfolders should be added to the ForeFlight folder. The file path below provides an example of the correct Box file structure.

All Files / ForeFlight / Company Docs / Aircraft Manuals.

OneDrive Synced Folder

The OneDrive synced folder is specified by the user either during setup or after setup using the **cloud drive settings**. The folder cannot be a subfolder and needs to be at the root level of the **My files** or **Shared with you** directories. The synced folder name is not restricted to “ForeFlight” but should be intuitive and must contain all files and documents that are to sync with ForeFlight. The file path below provides an example of the correct OneDrive file structure.

My Files / ForeFlight / Company Docs / Aircraft Manuals.

Amazon S3 Synced Bucket

The Amazon S3 synced bucket is specified by the user either during setup or after setup using the **cloud drive settings**. The bucket cannot be a subfolder and needs to be at the root level of the Amazon S3 directory.

The synced bucket name is not restricted to “ForeFlight” but should be intuitive and must contain all files and documents that are to sync with ForeFlight. The file path below provides an example of the correct Amazon S3 file structure.

Amazon S3 / Buckets / ForeFlight / Company Docs / Aircraft Manuals.

S3 Bucket Permissions

In addition to providing an access and secret key, ForeFlight needs to be granted access to the S3 bucket. By default, all Amazon S3 buckets are private. Access to the bucket can be granted in one of two ways:

- Grant ForeFlight access to the synced bucket by explicitly listing it. See the **List Bucket Method** on the next page for more information.
- Grant ForeFlight access to all S3 buckets. See the **List All Buckets Method** for more information.

To edit bucket permissions, follow the steps below:

1. Sign in to the AWS console at **https://console.aws.amazon.com/s3/**.
2. Select the bucket that to be edited.
3. Select **Permissions**.
4. In the Bucket policy text field, enter the JSON permissions described in the **List Bucket Method** or **List All Buckets Method** examples.

List Bucket Method

The following permissions show an example list bucket policy. Replace “foreflight_bucket_name” with the actual name of the synced S3 bucket.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "BucketLevelPermissions",
      "Effect": "Allow",
      "Action": "s3:ListBucket",
      "Resource": "arn:aws:s3:::<foreflight_bucket_name>"
    },
    {
      "Sid": "ObjectLevelPermissions",
      "Effect": "Allow",
      "Action": [
        "s3:ListBucket",
        "s3:GetBucketLocation",
        "s3:GetObject",
        "s3:GetObjectVersion",
        "s3:GetBucketAcl"
      ],
      "Resource": [
        "arn:aws:s3:::<foreflight_bucket_name>",
        "arn:aws:s3:::<foreflight_bucket_name>/*"
      ]
    }
  ]
}
```

List All Buckets Method

The following permissions show an example list all buckets policy.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "BucketLevelPermissions",
      "Effect": "Allow",
      "Action": [
        "s3:ListAllMyBuckets"
      ],
      "Resource": "*"
    },
    {
       "Sid": "ObjectLevelPermissions",
       "Effect": "Allow",
       "Action": [
         "s3:ListBucket",
         "s3:GetBucketLocation",
         "s3:GetObject",
         "s3:GetObjectVersion",
         "s3:GetBucketAcl"
      ],
      "Resource": [
        "arn:aws:s3:::<foreflight_bucket_name>",
        "arn:aws:s3:::foreflight_bucket_name>/*"
      ]
    }
  ]
}
```

13.5.6 Cloud Drive Supported File Types and Size Limits

Cloud drive documents are read-only. For example, an Excel spreadsheet can be added to a supported cloud drive but ForeFlight Documents cannot be used to add data to the spreadsheet.

Documents supports various cloud drive file types. The following file types are supported in ForeFlight Documents:

- PDF
- TIFF
- TIF
- JPG
- JPEG
- GIF
- PNG
- BMP
- BMPF
- TXT
- DOC
- DOCX
- XLSX
- XLS
- PPTX
- PPT
- CSV
- PAGES
- KEY
- NUMBERS

NOTE: Refer to the cloud service provider for file size limitations.

13.5.7 Cloud Drive Settings

After adding a cloud drive, the settings can be accessed from ForeFlight Web. Click the settings (gear) button next to the cloud drive name to access the settings.

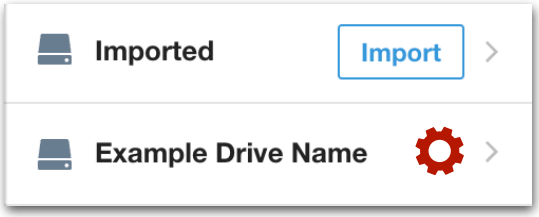
With the exceptions of OneDrive and Amazon S3 account setup options, all cloud drives offer the following settings.

Sharing Options

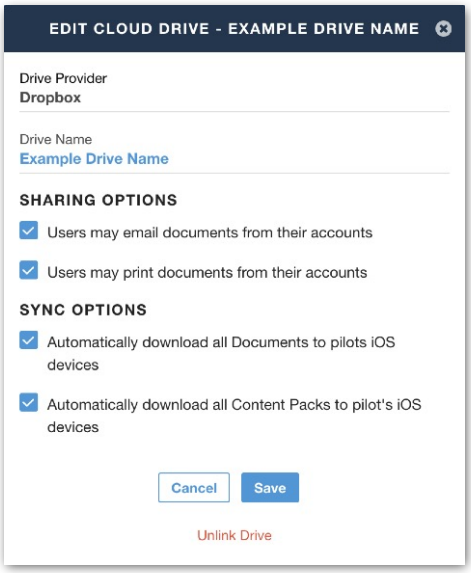
- **Users may email documents from their accounts** allows users to email cloud drive files from ForeFlight. When disabled, the email button in ForeFlight is grayed out and cannot be selected.
- **Users may print documents from their accounts** allows users to print cloud drive files from within ForeFlight. When disabled, the print button is grayed out and cannot be selected.

Sync Options

- **Automatically download all Documents to pilots iOS devices** downloads the files in the cloud drive to the iPad or iPhone when an active internet connection is available. This setting is not affected by the **Automatic Download** settings.
- **Automatically download all Content Packs to pilots iOS devices** downloads the **Content Packs** in the cloud drive to the iPad or iPhone when an active internet connection is available. This setting is not affected by the **Automatic Download** settings.



Settings (gear) Button



Cloud Drive Settings

13.5.8 Unlinking a Cloud Drive

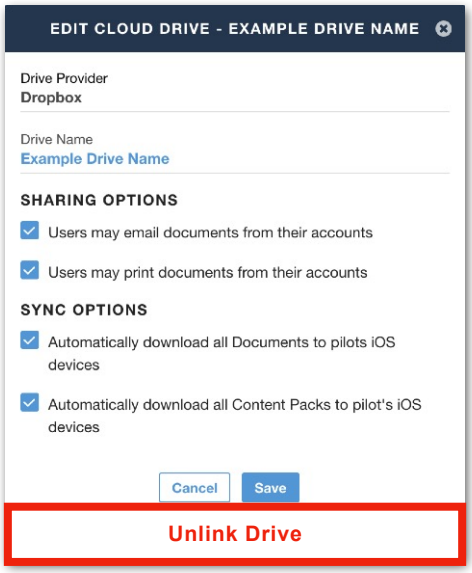
Unlinking a cloud drive disables syncing between ForeFlight and the cloud drive. New files added to the cloud drive after it has been unlinked will not be available in ForeFlight.

To unlink a cloud drive, click **Unlink Drive** at the bottom of the **cloud drive settings** menu.

When a cloud drive is unlinked, an email notification is sent to account administrators. To protect against accidental cloud drive unlinking, the contents of the linked cloud drive are saved to the **Missing Drive**.

If a cloud drive is added to ForeFlight after it has been unlinked, pilots will have access to both the Missing Drive and cloud drive in the My Drive section of the document catalog.

IMPORTANT: The Missing Drive is not synced. In the event a cloud drive is accidentally unlinked and then relinked, administrator should advise pilots to delete the contents of the Missing Drive, thus removing it from the device. If not, pilots will have duplicate documents and only the cloud drive documents will update.

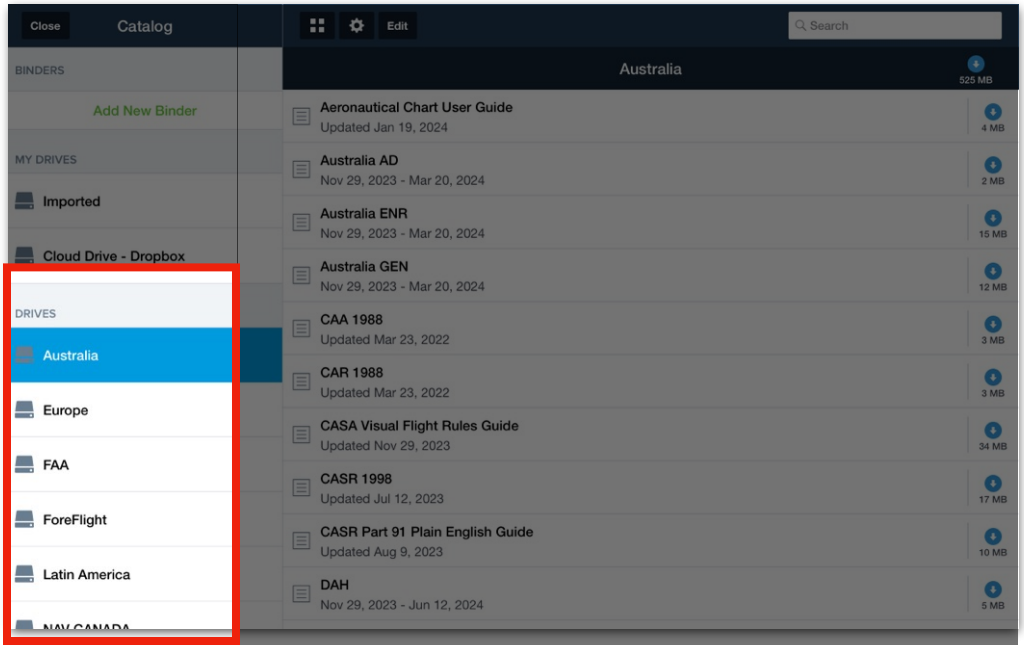


Cloud Drive Unlink

13.6 Drives

The Drives section contains the default drives, subscription-based drives, and potentially the **Missing Drive**. Drives are sorted alphabetically and cannot be edited.

Drives supports nested folders, allowing documents to be downloaded individually. The entire folder may be selected for download by tapping the blue download button to the right of the folder name or the corner of its thumbnail.



Document Drives

13.6.1 Default Drives

The FAA, ForeFlight, and NAV CANADA drives are displayed by default. These default drives cannot be removed. Nav Canada and United States subscriptions are required to view the contents of the Nav Canada and FAA drives, respectively.

13.6.2 Subscription-Based Drives

Additional drives are available with a Europe, Australia, or Jeppesen subscription.

Military Flight Bag customers have access to additional DOD-related documentation. Refer to the ForeFlight Military Flight Bag Guide in **Documents** > **DOD** for additional information.

13. DOCUMENTS

The list below describes the types of documents that are stored in each drive.

- **Australia** requires a ForeFlight Australian subscription. This drive includes aeronautical chart users guides, civil aviation regulations, airport information publications, civil aviation safety regulations, general operating procedures, and more.
- **Europe** requires a ForeFlight European subscription. This drive includes various aviation-related documents organized by country.
- **FAA** requires a ForeFlight United States subscription. This drive provides chart supplements, federal aviation regulations, FAA handbooks, legends, and more.
- **ForeFlight** is included with all subscriptions. This drive contains user guides for all ForeFlight products.
- **Jeppesen** is included with a linked Jeppesen account or Jeppesen coverage purchased through ForeFlight. This drive contains Jeppesen Airway Manuals and Jeppesen user guides appropriate to the Jeppesen coverage installed on the device.
- **Latin America** requires a ForeFlight Latin America subscription. This drive includes various aviation-related documents.
- **Nav Canada** requires a ForeFlight Canada subscription. This drive includes Aeronautical Information Manuals, Chart Legends, Canada Water Aerodrome Supplements, Canada Air Pilot General Pages, AIPs, and more.

13.6.3 Missing Drive

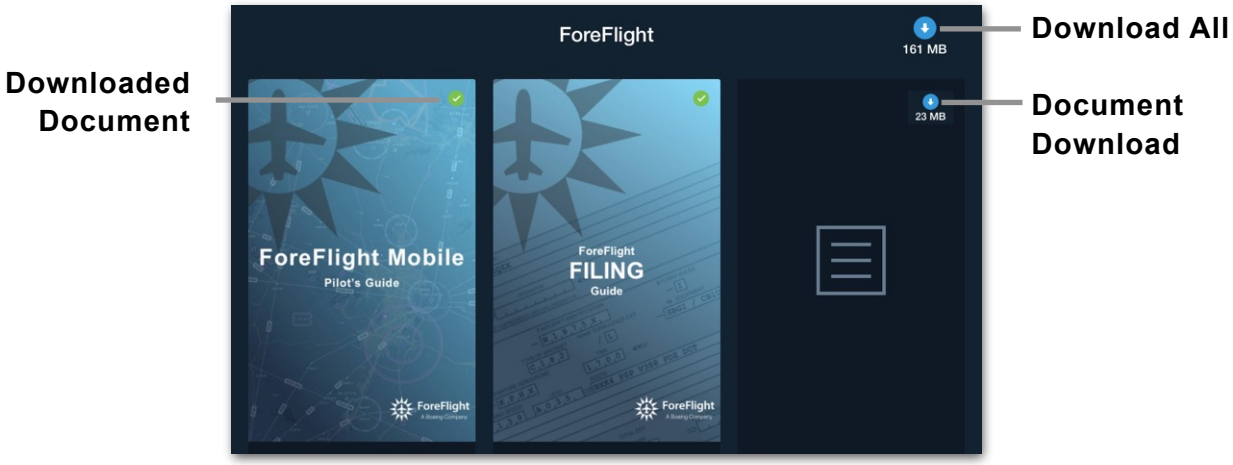
The Missing Drive is added to the Drives section when a **Cloud Drive** is **unlinked**. This drive contains all cloud drive documents that were downloaded to the device when the cloud drive was unlinked. The purpose of this drive is to prevent a situation where digital documents get removed if a cloud drive gets accidentally disconnected, which could pose a risk to aircraft operation if airworthiness relies on those documents.

Missing Drive documents are not synced and remain on the device until they are either deleted by the pilot, or the pilot signs out of their ForeFlight account. When the Missing Drive is empty, it is removed from the Drives section.

13.7 Downloading Documents and Drives

To view a document, it must first be downloaded to the device. To download a document, tap the document thumbnail. Tapping the thumbnail **subscribes** the device to the document, begins the download and once complete, the document is automatically opened in the full-screen viewer.

Downloaded documents have a green checkmark and can be viewed without an internet connection. Documents that have not been downloaded display a download button (above the size of the download) and cannot be viewed offline.



Document Thumbnails

13.7.1 Document and Drive Subscriptions

For the purpose of this guide, downloading a document (or an entire drive) is similar to a subscription.

Document Subscriptions

Downloading a document subscribes the device to the document. In other words, when subscribed, updates to the document are automatically downloaded.

Folder and Drive Subscriptions

Tap the **Download All** button associated with a folder or drive to subscribe to it. When subscribed, the contents of the drive, including future documents and updates, are automatically downloaded. When subscribed to a folder or drive, a green checkmark is displayed and all documents within the drive can be viewed offline.

NOTE: Downloading the contents of a folder or drive without using the folder or drive Download button does not subscribe the device to the folder or drive.

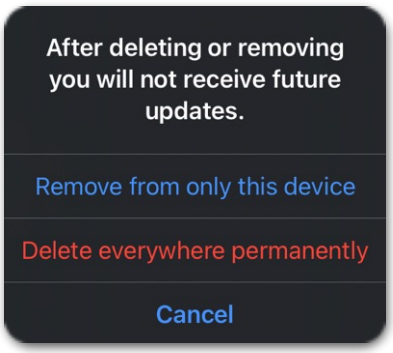
13.7.2 Removing Documents

Documents downloaded to a device remain on the device until manually removed. There are various ways to remove a document. To remove a document in grid view, tap the **Edit** button followed by the red X. If viewing drive contents in list view, swipe right to left across the document to remove it.

Removing Imported Documents

Imported documents can be removed locally from the device or from everywhere permanently. When removing an imported document, the pop-up below is displayed.

- **Remove from only this device** removes the document from the device. The document will no longer be available while offline. The document is able to be redownloaded with an active internet connection. If the Imported drive was subscribed to, removing the device will disable the Imported drive subscription.
- **Delete everywhere permanently** removes the document from all devices and cannot be undone. If this option is selected, the imported document cannot be redownloaded.



Imported Document - Remove Document Pop-up

IMPORTANT: If subscribed to a folder or drive, removing a document from within the folder or drive cancels the **subscription**.

If a document is removed from its original drive and is also included in a **Binder**, it will be removed from both the device and the binder.

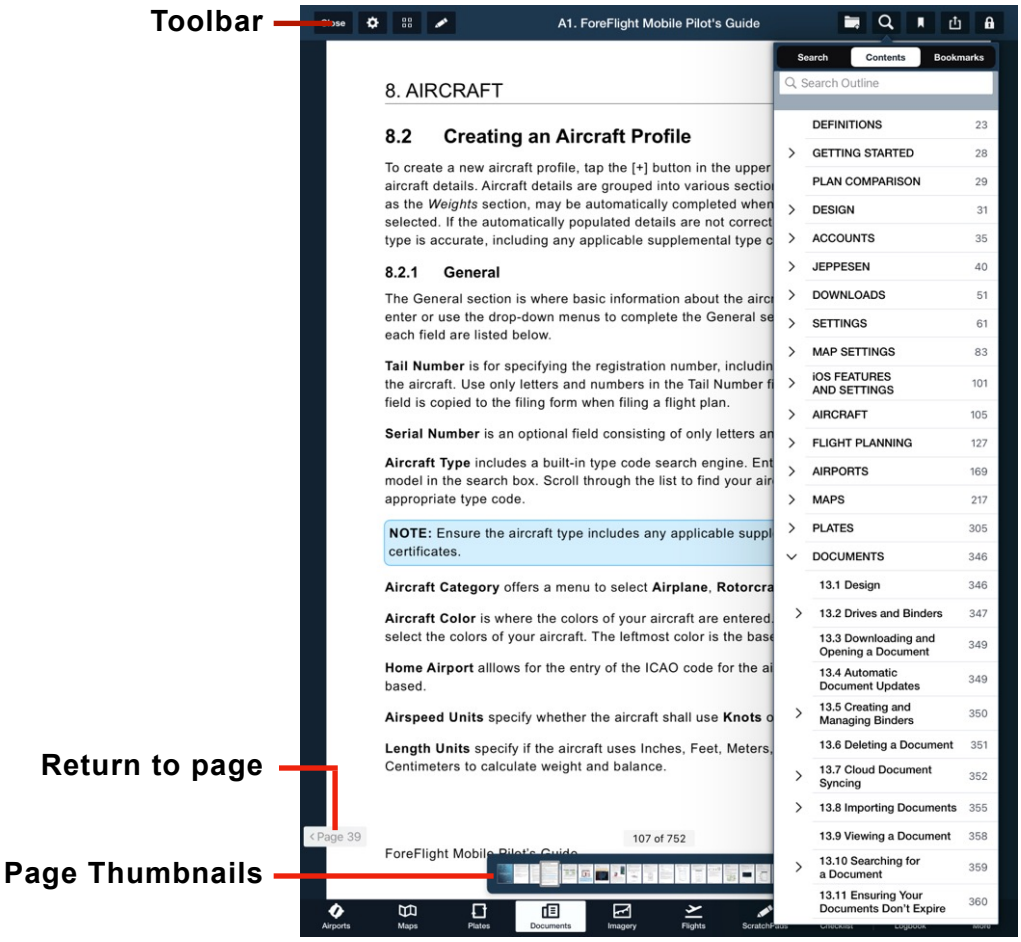
13.8 Viewing Documents

To view a document, tap the **document thumbnail**. If the document has not yet been **downloaded** to the device, it will begin downloading automatically. Once the download is complete, the document is opened in the full-screen document viewer.

Flip through document pages by swiping across the screen. Tap the document to reveal and hide the **Document Toolbar**.

Jump to a page by using the supported **search options** or by tapping a page thumbnail near the bottom of the screen. Return to the previous page after using search by tapping the return-to-page option.

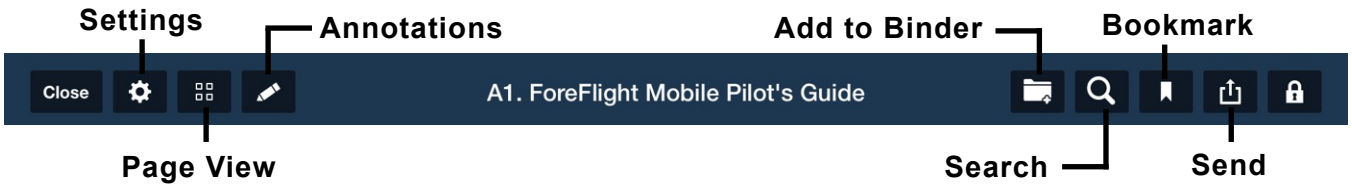
Zoom the page by double-tapping with a single finger. Double-tap again to return to the original size. Alternatively, use standard iOS gestures to zoom.



Full Screen Document Viewer

13.8.1 Document Viewer Toolbar

At the top of the document viewer is a toolbar. The toolbar can be hidden or displayed by tapping the document. The toolbar contains the following tools:



- **Close** button closes the viewer and returns the user to the Documents view.
- **Settings** contains the following options:
  - **Brightness Slider** adjusts the iPad or iPhone's screen brightness.
  - **Invert Document Colors** inverts all colors within all documents.
- **Page View** toggles between a single and multi-page viewer.
- **Annotation** reveals the toolbar for **annotating the document**.
- **Add to Binder** adds the current document to the selected Binders.
- For **Search**, see **Searching Documents**.
- For **Bookmark** see **Document Bookmarks**.
- For **Send To** see **Sharing Documents**.
- **Lock** disables certain touch gestures. When enabled, zooming and scrolling are disabled. When the **Lock Disables Buttons** settings is enabled, the lock button also disables the toolbar buttons.

13.8.2 Searching Documents

The search bar in the upper toolbar provides three search methods. Tap a search result from any of the methods listed below to jump to the applicable page in the document:

- **Search** highlights results for document text that matches the search term.
- **Contents** displays the document's table of contents. The search bar at the top of the window allows users to search the document's table of contents.
- **Bookmarks** displays all user-created document bookmarks.

13.8.3 Document Bookmarks

Bookmarks are user-generated and allow pilots to mark a specific location within a document for quick reference. It serves as a reference point within a document, to allow pilots to return to that position without having to scroll the entire document.

To add a bookmark, navigate to the appropriate page and tap the Bookmark button in the upper toolbar. Enter a name for the bookmark and tap **Add Bookmark**. Bookmarks can be searched with the search bar in the upper toolbar.

Deleting Bookmarks

Bookmarks can be deleted in two ways:

- Tap Search in the upper toolbar and select **Bookmarks**. Swipe right to left across the bookmark.
- Navigate to a bookmarked page and tap the Bookmark button to remove the bookmark.

13.8.4 Sharing Documents

Documents can be shared in various methods:

- **Flights** attaches the document to the selected flight (Performance-tier plan required).
- **Mail** can be used to email the document. Maximum file size varies by email provider, but is generally limited to 25 MB or less.
- **Print** enables the document, or specific pages within the document, to be printed using a compatible AirPrinter.

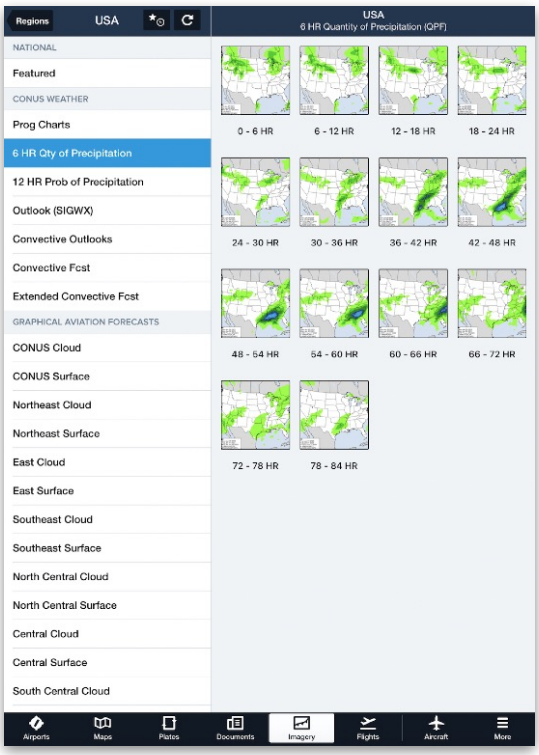
IMAGERY

The Imagery view displays regularly updated graphical weather reports and forecasts that pilots can use to supplement their flight planning. It is available to all ForeFlight plan holders and requires an active internet connection. Imagery cannot be packed, nor can it be received over ADS-B.

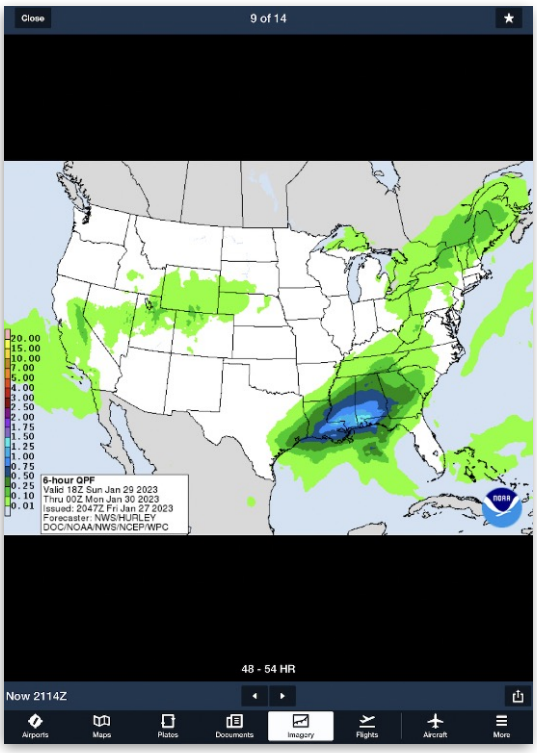
14.1 Design

The Imagery view can display in one of two modes: Navigation (with a sidebar and a thumbnail image pane) or Full-Screen Image. Each mode is summarized below and described later in this chapter:

- **Navigation** mode is for choosing a global region and sorting through its list of image sets, managing favorite and recent images, and refreshing image data.
- **Full-Screen Image** mode displays when a thumbnail is tapped. Images respond to swiping and other standard touch-screen gestures, allow printing and sharing, and can be marked as favorites.



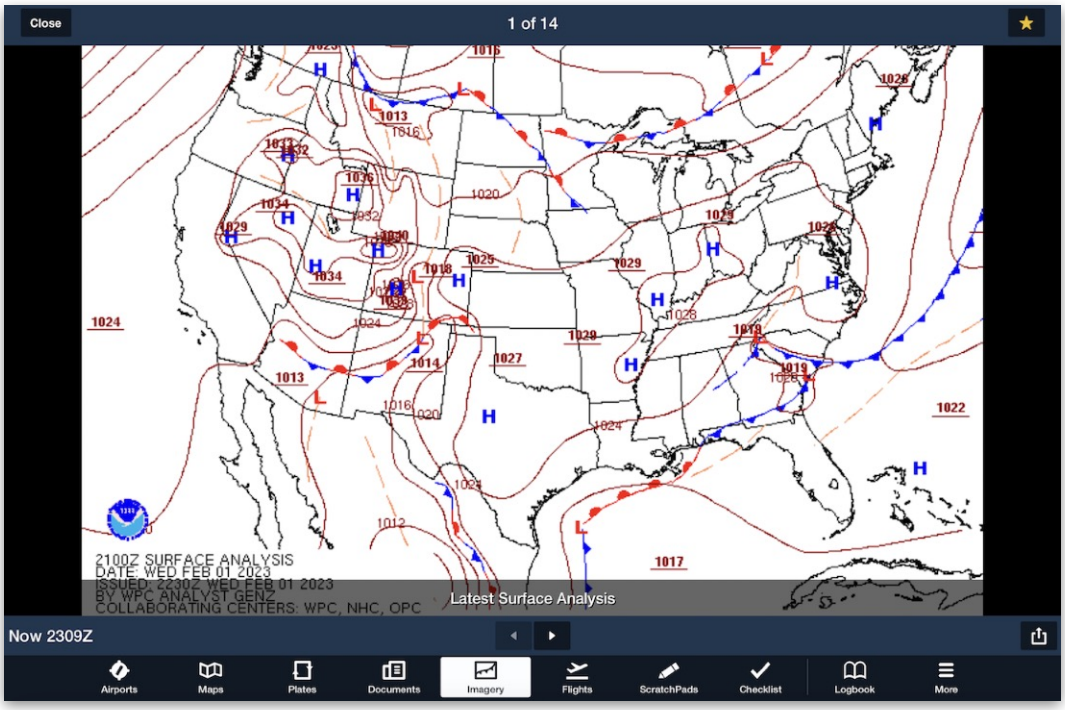
Navigation



Full-Screen Image

14.1.1 Images

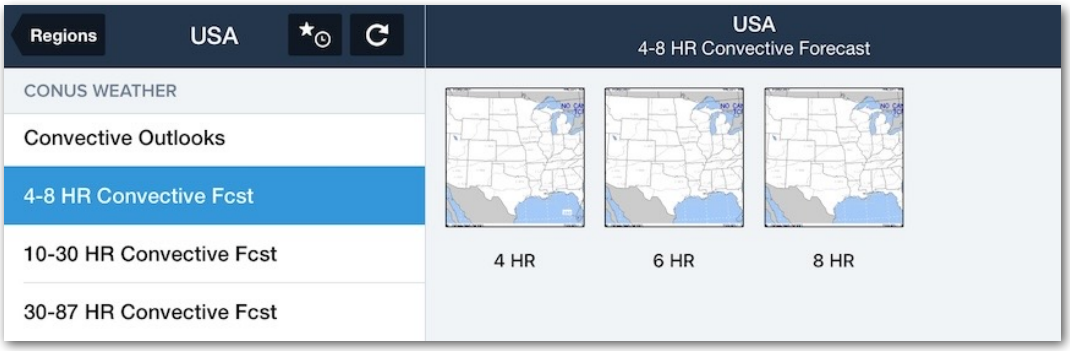
Images may be generated internally with data from an official weather provider (e.g., NOAA), or is retrieved from an official weather provider and displayed without modification to its annotations or symbology.



Surface Analysis Chart

14.1.2 Image Sets

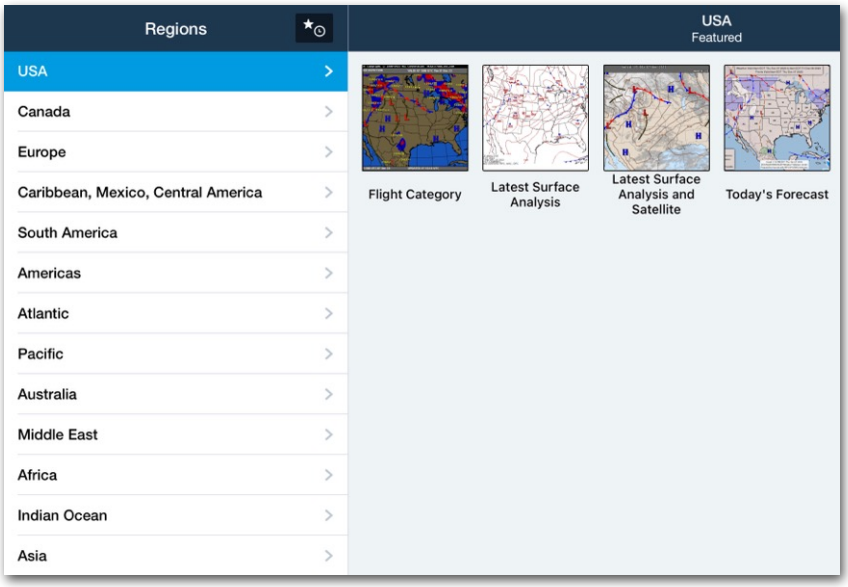
Weather data with more than one valid time, forecast period, or coverage area is represented as a set of images. For example, the 4-8 HR Convective Forecast image set below contains three images, with one for the 4 HR, 6 HR, and 8 HR forecast periods, respectively.



4-8 HR Convective Forecast Image Set

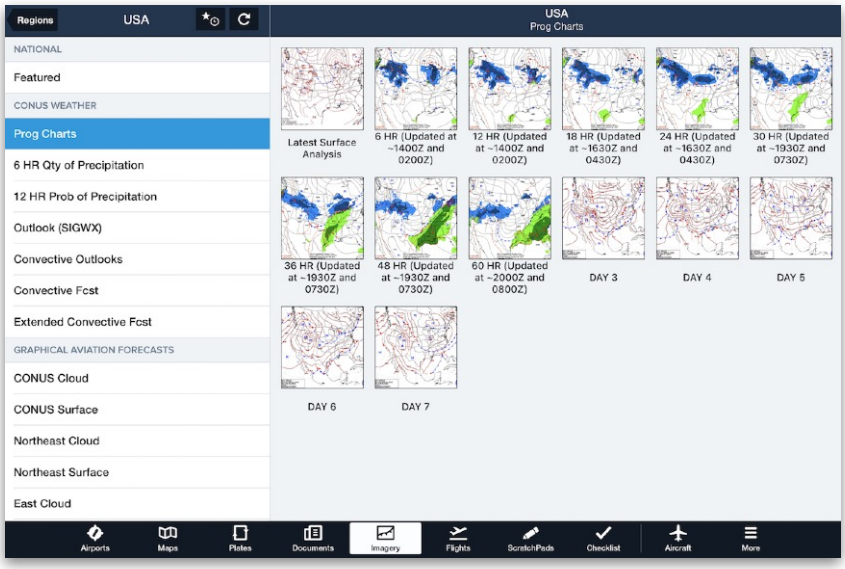
14.2 Navigation

The Navigation view sidebar lists the following geographic regions: **USA**; **Canada**; **Europe**; **Caribbean, Mexico, Central America**; **South America**; **Americas**; **Atlantic** (ocean); **Pacific** (ocean), **Australia**, **Middle East**, **Africa**, **Indian Ocean**, and **Asia**.



Available Imagery Regions

Each region is divided into categories (e.g., CONUS Weather) containing one or more image sets (e.g., Prog Charts). When an image set is selected, thumbnails of each image are displayed in sequential order, such as chronologically by the forecast period.



Prog Chart Image Set with Thumbnails

14.2.1 Displaying Images

To display a weather image, tap a region in the sidebar, scroll through its categories to find an image set, tap the image set, and tap one of the thumbnails to open its **Full-Screen Image**. To display an image from a different region, **tap** Close to exit the Full-Screen Image, tap the **Regions** back button at the top of the sidebar, and then select a new region and image set as before.

NOTE: Full-Screen Images might not display without an internet connection. When an image thumbnail is tapped, the most current weather data from the internet or from the temporary device cache is retrieved. If unavailable, an error message is returned. This applies to images in all regions, and in the **Favorites/Recents** list.

14.2.2 Favorite/Recent Images

At the top of the Navigation view, tap the **Favorites/Recents** button (depicting a star and clock) to see a menu with two tabs:

- Tap the **Favorites** tab to see a list of thumbnails for images that were marked as **Favorites**.
- Tap the **Recents** tab to see a list of thumbnails for images that were recently opened as Full-Screen Images (starting with the most-recently viewed image).

NOTE: Both the Favorites and Recents lists are synced between devices on an account. Adding, deleting, reordering, or clearing out images on one device is reflected on other devices.

Adding Favorites

Images can be added as Favorites when **viewing a Full-Screen Image**.

To add a Favorite, display that image in full-screen mode and tap the star-shaped button at the top right corner of the screen. When an image is set as a favorite, the star-shaped button is yellow. To remove the image from the favorites list, tap the (yellow) star button again.



Favorite

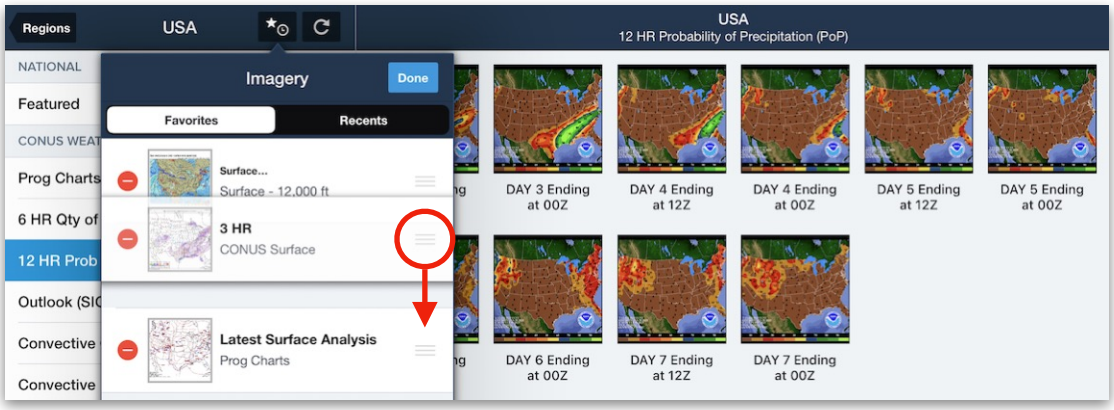


Non-Favorite

NOTE: Favorite images may not display without an internet connection. To save an image file to the device for offline viewing, use the **iOS sharing** feature.

Reordering Favorites

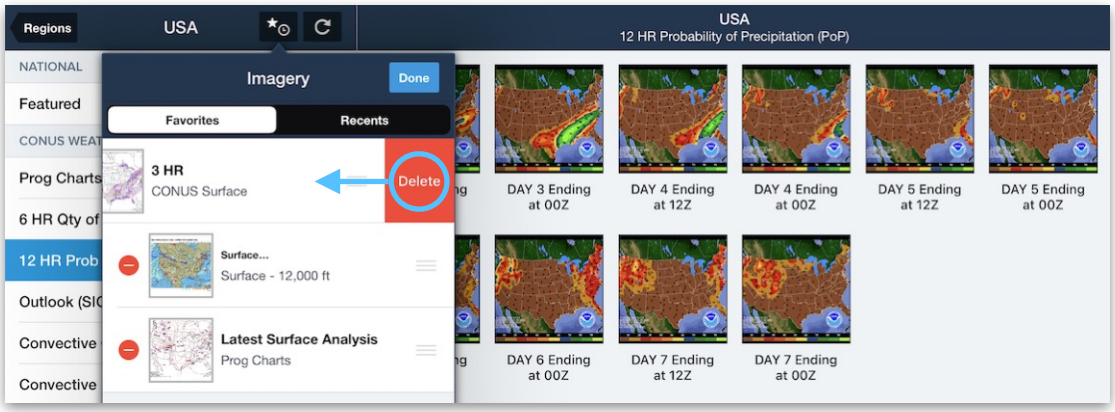
Favorite images are listed by default according to when they were added (with the newest addition at the bottom). To change this order, tap the **Edit** button at the top right corner, then tap and hold the **(≡)** icon next to an image to drag it to a different position in its list. Tap **Done** when finished.



Reordering Favorites

Deleting Favorites

To delete an image from the Favorites list, swipe left on the image in the list and tap **Delete**. Alternatively, tap the **Edit** button, tap the **(-)** icon followed by **Delete** for one or more images being deleted, and tap **Done** when finished.



Removing Favorites

Deleting Recent Images

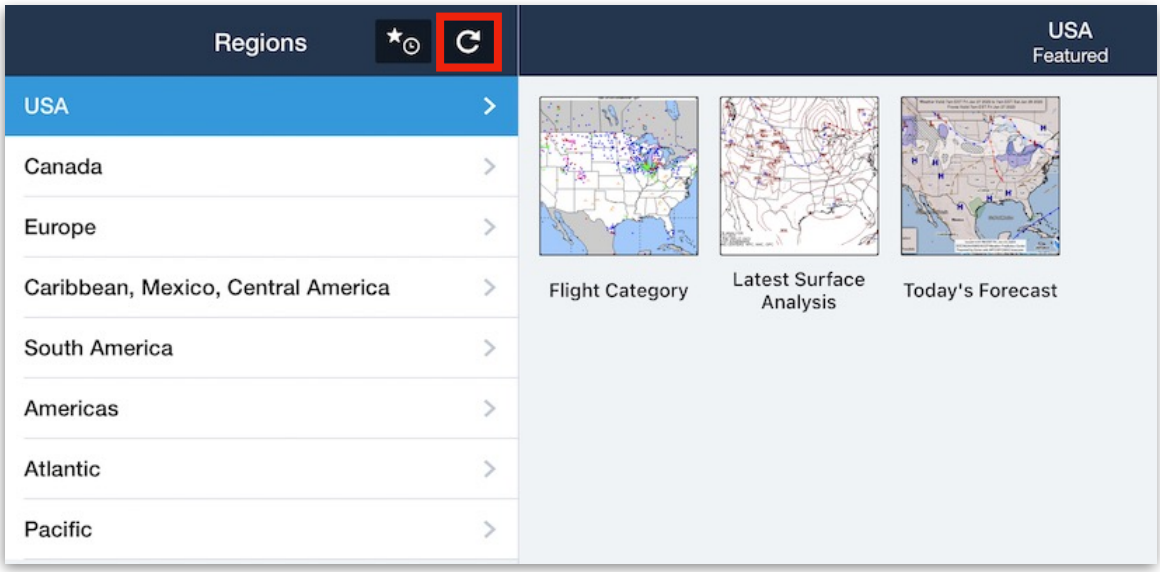
Images cannot be removed individually from the Recents list. However, the entire list can be cleared out at once. To do so, tap the **Clear** button in the top right corner and then tap **Clear Recent Imagery on All Devices**.



Clearing Recent Images

14.2.3 Refreshing Image Sets

Tapping the **Refresh** button updates the list of imagery available for each image set.

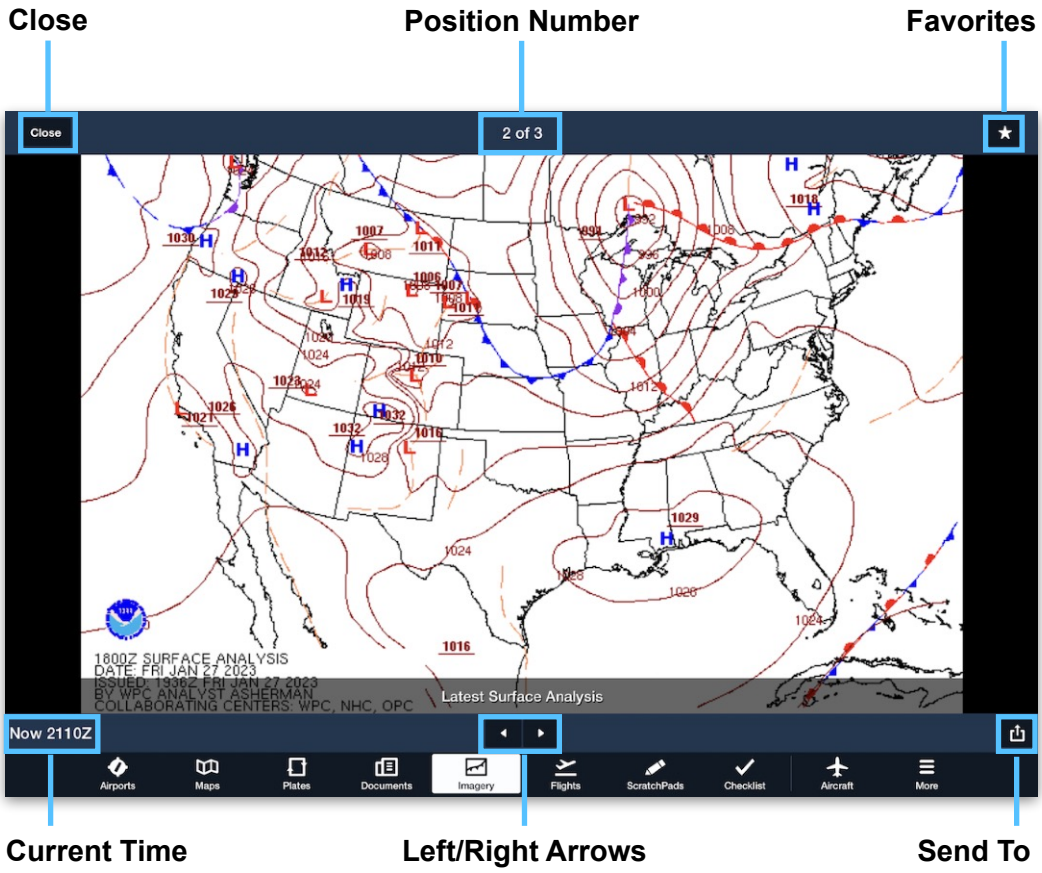


Refreshing Image Data

14.3 Full-Screen Image

When a thumbnail is tapped, the most recent weather image is retrieved from the internet or the temporary device cache and displayed over the full screen. Each Full-Screen Image displays with the following features:

- The **Close** button exits the Full-Screen Image and returns to the Navigation view.
- The **Position Number** above each image indicates its position in the currently selected image set.
- The **Favorites** button on the top right can be tapped to add an image to the Favorites list or to remove it if it is already a favorite.
- The **Current Time** in UTC is displayed on the lower left.
- The **Left/Right** arrows beneath the image can be used to switch to the previous or next image in the set. (This can also be done with **finger swiping**.)
- The **Send To** button on the lower right can be tapped to copy, print, or share the image using iOS device options.



14.3.1 Onscreen Finger Gestures

The following gestures can be used to zoom in and out of an image, pan across sections of the image, or swipe between images.

- **Panning and Zooming:** When an image is zoomed in, drag one finger across the screen to pan in all directions across the image. To zoom in on an image, touch the screen with two fingers and draw them apart. Use the opposite gesture to zoom out.
- **Swiping to Previous/Next Image:** Swipe with one finger left or right to display the previous or next image in the image set.

14.3.2 Adding to Favorites

Images can be added to the **Favorites** list for future reference. To add a Favorite, display that image in full-screen mode and tap the star-shaped button at the top right corner of the screen. When an image is set as a favorite, the star-shaped button is yellow. To remove the image from the favorites list, tap the (yellow) star button again.



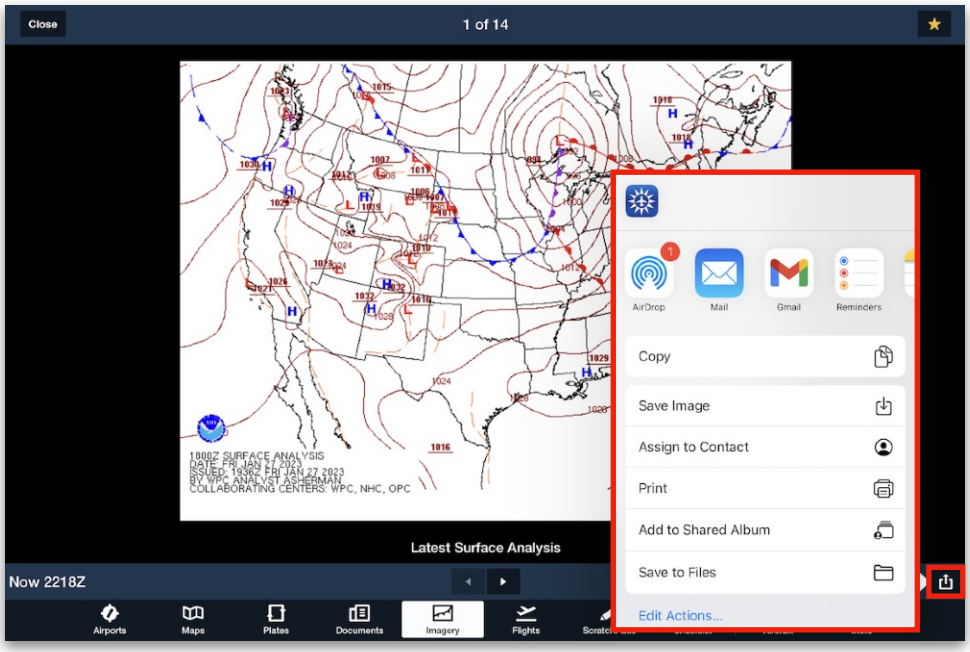
Favorite **Non-Favorite**

NOTE: Favorite images may not display without an internet connection. To save an image file to the device for offline viewing, use the **iOS sharing** feature.

14.3.3 iOS Sharing

Images can be copied, saved, printed, or shared with external apps on the iOS device (such as Gmail, AirDrop, or DropBox). To do so, display the image in full-screen mode and tap the Send To button at the bottom right corner of the screen. Select from the iOS options available on the device.

IMPORTANT: Do not rely on images shared outside ForeFlight (by copying, printing, emailing, or saving offline) for flight planning. iOS sharing creates a static snapshot that cannot be updated with current weather data.

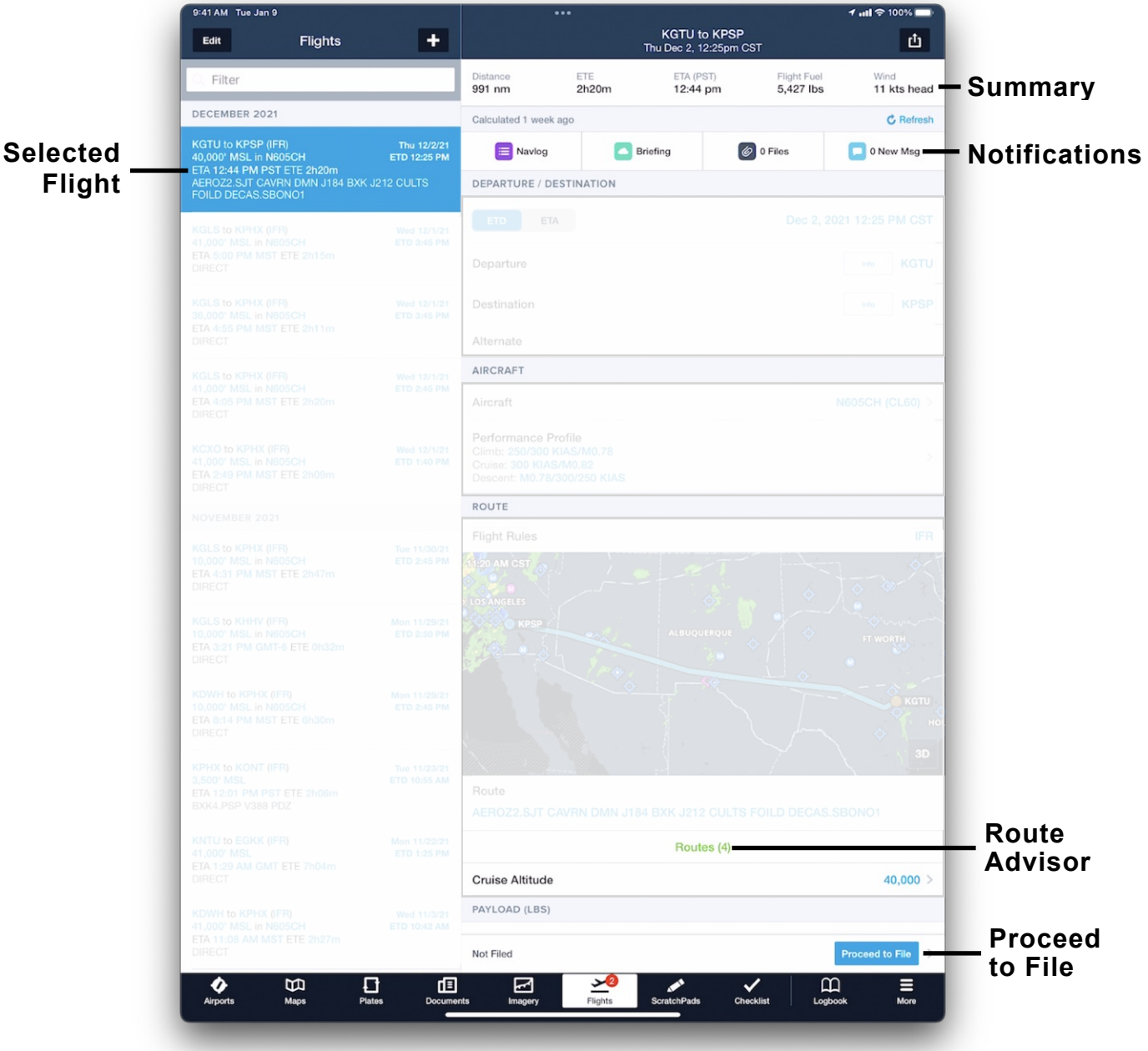


iOS Device Sharing

FLIGHTS

The Flights view is a form-based flight planning and flight plan filing tool. The Flights view can also be used to obtain weather briefings and generate Navlogs.

Flights are synced to an account and can be created and edited with an iPad, iPhone, or ForeFlight Web. Some features available on the Flights view may require a subscription upgrade.



Flights View

15.1 Design

The Flights view is divided into two columns. The left column displays the **Flights List** which provides a summary of all flights associated with the account. The flight summary highlighted in blue is the selected flight and its details are presented in the right column. Tap a flight in the list to select it.

The right column contains the flight planning form. The form is organized with a top-to-bottom workflow from inputting airports, calculating **Takeoff & Landing Performance**, performing a **Runway Analysis**, selecting an aircraft, defining a route, entering payload and fuel details, and filing a flight plan.

The top of the view summarizes the flight and provides buttons for generating a Navlog, obtaining a Briefing, attaching files, and viewing flight notifications.

Only ForeFlight customers with a Performance tier plan can access the Files, Takeoff & Landing Performance, Payload, Fuel, Weights, and Fuel Order features.

15.2 Creating New Flights

There are seven methods for creating a new flight. These are described in detail later in this section. Those seven methods are:

- Tap the new flight **[+]** button in the upper toolbar
- A route is sent to Flights from the Maps page
- Tap **Add Next Flight** at the bottom of the Flights form
- Tap **Copy Flight** at the bottom of the Flights form
- A flight is created with ForeFlight Web
- A shared flight is accepted
- A flight is assigned by a flight planner using ForeFlight Dispatch.

When a new flight is created, it is added to the flight list and synced to an account, even if no planning details have been entered. A flight planned on one device is available on all other devices signed into the same account (internet connection required).

NOTE: Some methods result in portions of the flight planning form being automatically completed.

15.2.1 Creating a New Flight

The new flight **[+]** button in the upper toolbar creates a blank flight, with some exceptions. If an account has a default aircraft, performance profile, and cruise altitude, those items are automatically populated. If defaults are not specified, the fields are left blank.

15.2.2 Sending a Route to Flights

Send a route to the Flights page from Maps using the Send To button in the lower-right corner of the Maps Flight Plan Editor. Sending a route to Flights auto-fills all fields with the information entered on the Maps view.

15.2.3 Adding the Next Flight

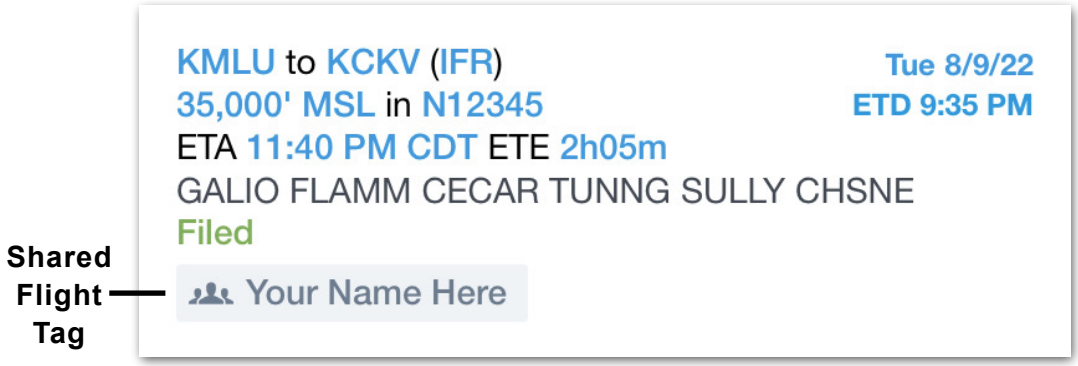
Add Next Flight creates a new flight using the previous flight's destination, aircraft, and performance profile. For more information, see **Add Next Flight**.

15.2.4 Copying a Flight

Copy Flight is a button at the bottom of the flight planning form. Tapping this button copies all flight details except for the ETD. This button is useful for copying a shared flight since shared flights cannot be edited. For more information, see **Copy Flight**.

15.2.5 Shared Flights

Flights can be shared between accounts. When a flight is shared, either from another individual ForeFlight account or ForeFlight Dispatch, a tag is displayed at the bottom of the summary in the flight list. The tag depicts the name of the account that shared the flight. Flights shared from individual accounts are read-only and cannot be edited.



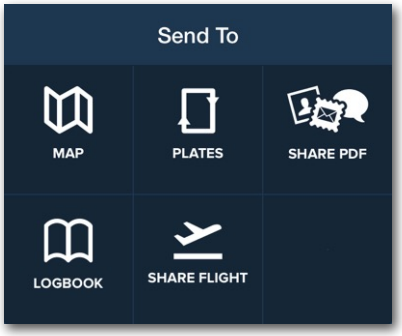
For flights shared from Dispatch, refer to the ForeFlight Dispatch Guide at **foreflight.com/dispatch-guide**.

As updates are made to shared flights by the flight owner, the changes are reflected on the recipient's device. Shared flights can be copied and edited however, edits to copied flights are not reflected on the original flight.

15.3 Flight Sharing

Once a flight has been created, it can be shared to the Maps, Plates, and Logbook views. Flights can also be shared with other pilots.

To share a flight, tap the Send To button in the upper-right corner of the Flights view. The Send To menu opens, offering a choice of how to share the flight.



Flight Sharing Options

15.3.1 Sending a Flight to Maps

When the **Map** button is tapped, the Maps view opens with aircraft, performance profile, cruise altitude, ETD, and route details copied from Flights.

15.3.2 Sending a Flight to Plates

When **Plates** is tapped, a new Plates Flight Binder with the airport diagrams for the departure, destination, and alternate airports airports is automatically selected.

15.3.3 Sharing a PDF

When **Share PDF** is tapped, a PDF copy of the flight's Navlog and filing form is generated. Flight PDFs can be shared via email, text message, AirDrop, and third-party apps.

15.3.4 Sending a Flight to Logbook

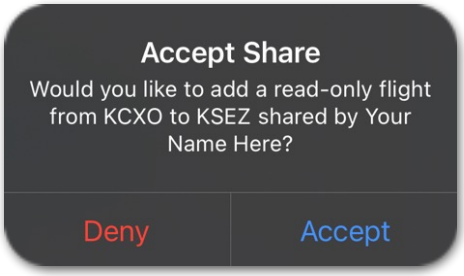
When **Logbook** is tapped, a new logbook entry with the aircraft, departure and destination, route, and flight times is created.

15.3.5 Sharing a Flight

The **Share Flight** option allows a flight to be sent to another ForeFlight account. Flights can be shared via email, text message, AirDrop, and third-party app.

When the recipient receives the shared flight, they must tap the share link to accept or deny the flight.

When a shared flight is accepted, it is displayed in the flight list as a read-only flight. Any changes made to the flight by the owner are updated on the recipient device.



Accept Share Menu

The recipient of a shared flight cannot make changes to the shared flight or share that flight with someone else. The recipient can copy and edit the copied flight. The copied flight preserves all of the shared flight details except for the original aircraft and performance profile, which uses default aircraft and performance profile of the the recipient.

The recipient of a shared flight can delete a shared flight by swiping from right to left on the flight in the Flights list or by tapping **Delete Flight** at the bottom of the flight planning form. Once deleted by the recipient, the shared flight cannot be restored. However, the flight can be shared by the owner to the recipient again.

If the pilot who shared a flight tries to delete it, a warning advises that deleting the shared flight will also delete it from all recipients of that shared flight.

NOTE: If a flight is shared from a Performance tiered subscription to a recipient without a Performance plan, they will not be able to view the Navlog since the Navlog is dependent upon the plan type.

15.4 Deleting Flights

There are two methods for deleting flights.

- Swipe right to left on a flight in the Flights List and select **Delete**.
- Tap **Delete Flight** > **Delete** from the bottom of the flight planning form.

Deleted flights are removed from all devices signed into the account. If a flight is shared with another user, the flight is deleted from the recipient's device when the person sharing the flight deletes it.

Deleted flights cannot be restored. There isn't a requirement to delete a flight, however some users may elect to delete flights to reduce the amount of flights in the Flights list.

CAUTION: Do not delete a VFR flight plan that has been activated without first closing it. Deleting a *Filed* or *Activated* flight plan does *not* cancel or close the flight plan.

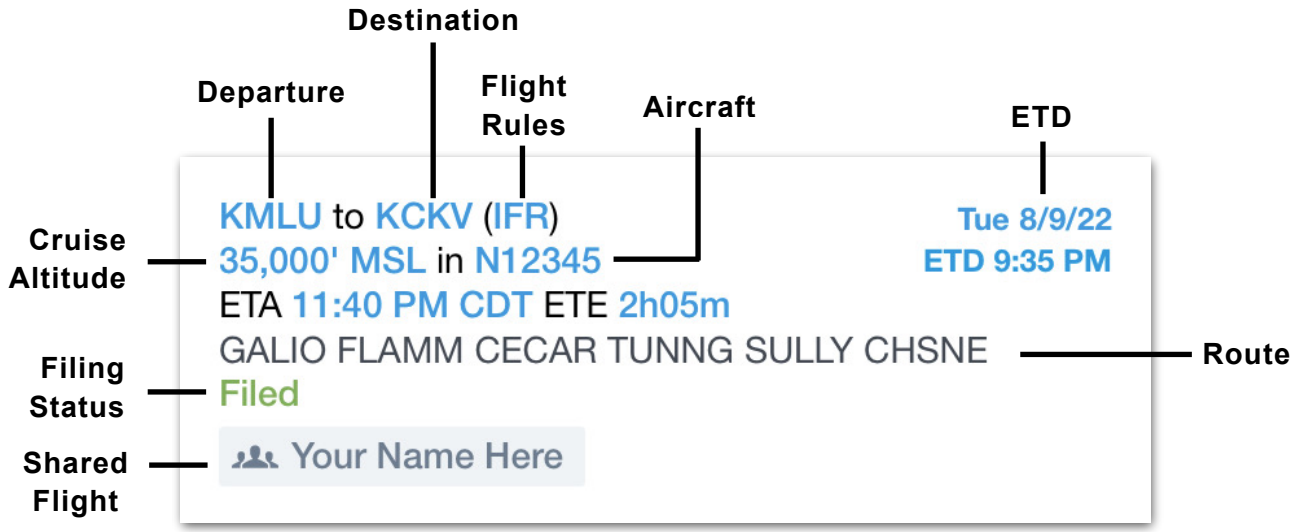
15.5 Flight List

The Flights list contains summaries for each flight. Flight summaries are sorted by departure time and grouped by month. It is not possible to change how flight summaries are ordered. Tapping a flight in the list makes it the active flight and displays its details in the flight planning form.

15.5.1 Flight Summary

Each flight summary has a minimum of three rows. The summary is dynamic and updates as the flight is planned. If a summary item does not apply to the flight, it is omitted from the summary.

For example, a flight that is not shared does not include a shared flight tag. Similarly, a flight that has not been filed does not include filing status. For more information on filing status, refer to the ForeFlight Filing Guide available in **Documents** > **ForeFlight**.

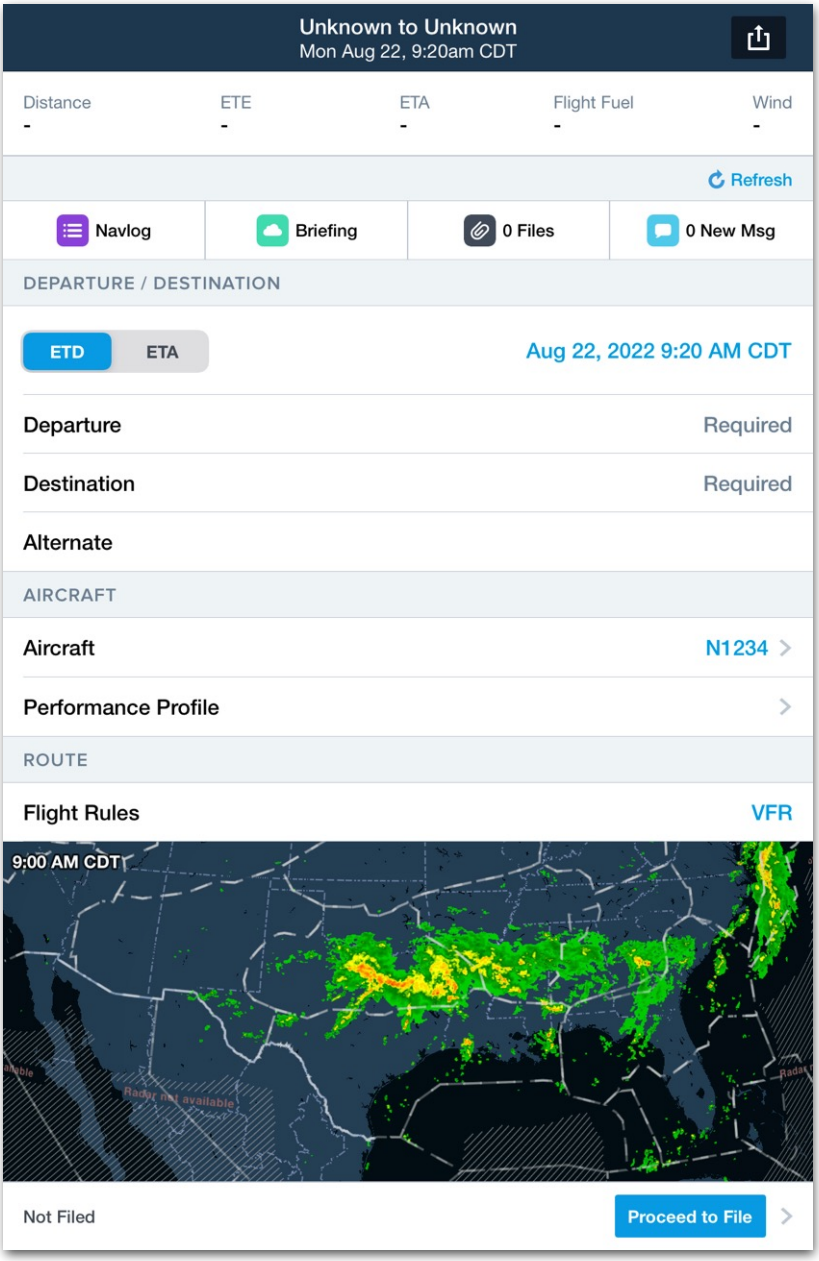


Flight Summary Layout

15.6 Flight Planning Form

Flight details are displayed in the flight planning form. Details are automatically saved as edits are made. Some details, like the default aircraft, are automatically populated when a new flight is created. However, all flight details are editable at any time.

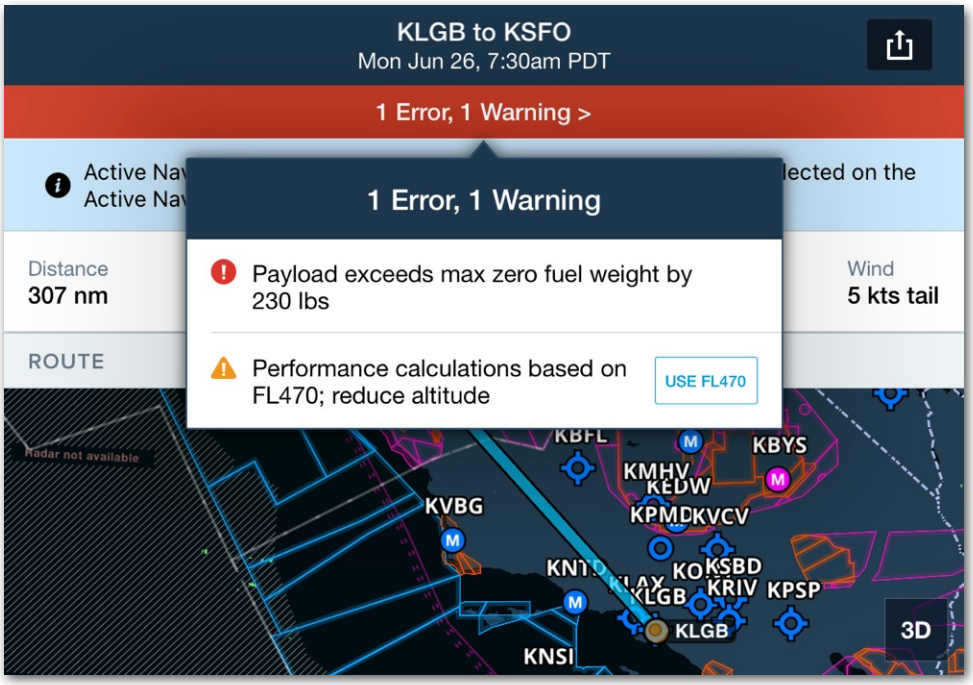
The following sections describe each component of the flight planning form, starting from the top down.



Blank Flight Planning Form

15.6.1 Banner Messages

As described below, persistent banners may be displayed to alert the pilot of items needing attention. The banner is either red (warning), yellow (caution), or blue (informative). If multiple error and caution banners exist, tap the banner to display additional details. Informative banners are displayed below errors and cautions.



Banner Messages

Warning Messages

Warning messages are displayed when weight or capacity limits are exceeded.

Caution Messages

Caution messages are displayed for problems that prevent ForeFlight from calculating flight planning results, e.g., selecting a cruise altitude that is above the service ceiling.

Informative Messages

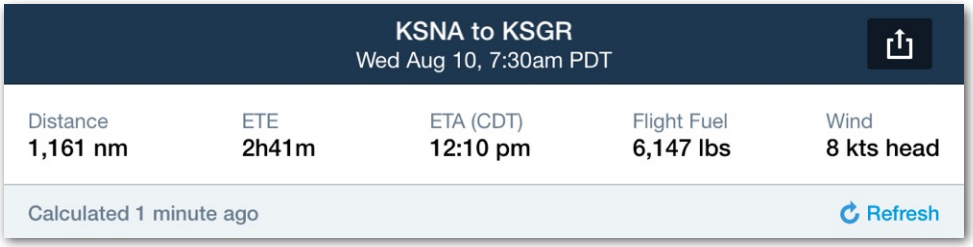
Informative message are displayed to aid the pilot. For example, when an **active navlog** is in progress, a banner is displayed.

CAUTION: Errors and cautions do not prevent flight plans from being filed.

15.6.2 Flight Performance Summary

At the top of the flight planning form is a summary of key planning results that allows quick evaluation of a flight. The summary is always visible and is blank until enough details are entered to calculate results.

The Flight Performance Summary is calculated by evaluating the route between the departure and destination airports using the selected performance profile and forecast wind. Flight time and fuel required to the alternate airport is not included in the summary.



Flight Performance Summary

Flight Fuel

The Flight Fuel Summary includes the fuel required to start, taxi, take off, and fly to the destination. Start, taxi, and takeoff fuel is specified in the aircraft profile and can be manually edited on the Flights page with a Premium account. Flight Fuel does not include fuel required for an alternate, or any reserve, extra, or contingency fuel.

Wind

The wind component in the flight summary is an average of the wind across the duration of the flight.

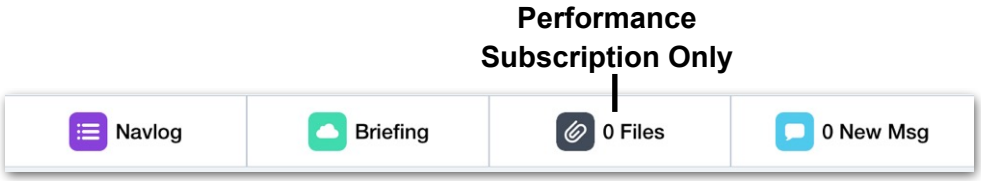
Refreshing the Summary

The Flight Performance Summary is automatically updated each time the flight is edited. The summary does *not* automatically update as new weather forecasts are issued.

To manually update the performance results with the latest forecast conditions, tap the **Refresh** button near the bottom right corner. The time the calculations were completed is displayed at the bottom of the summary.

15.7 Navlog, Briefing, Files, and Notifications

Navlog, Briefing, Files, and Notification buttons are available at the top of the flight planning form. Files is a Performance-tier feature and will be hidden from view unless signed into a Premium, Business Performance, or MFB Performance account.



Navlog - Briefing - Files - Notification Buttons

15.7.1 Navlog

The Navlog button opens a full-screen detailed Navlog view. Internet connectivity is required to generate a Navlog.

The exact type of Navlog generated depends on ForeFlight account type and user preference. However, all Navlogs include a summary, flight planning results by leg, winds aloft, and departure/destination airport information.

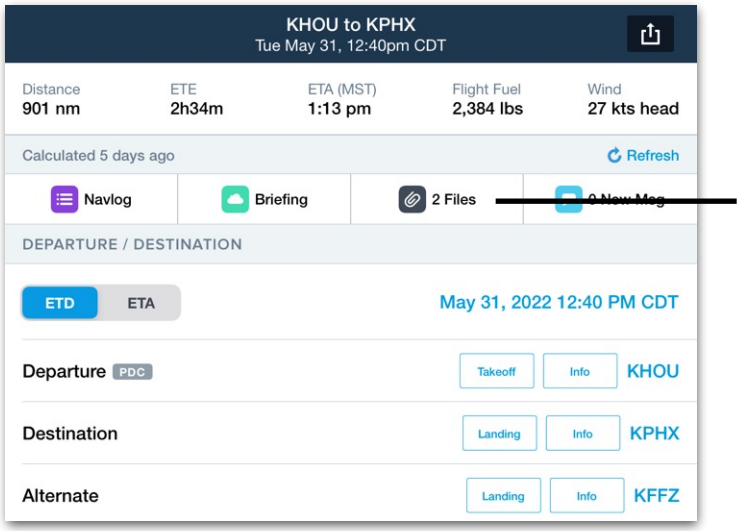
The Navlog can be shared and printed by tapping the share button in the upper-right corner of the Navlog view. Navlogs are also available on ForeFlight Web. Navlogs generated on the web will automatically become available on ForeFlight Mobile and vice versa. See the **Navlog** chapter for additional information.

15.7.2 Briefing

Briefings can only be obtained from the Flights page. There are two briefing formats, HTML and PDF. The classic text briefing is no longer supported. See the **Briefings** chapter for additional information.

15.7.3 Files

ForeFlight Performance-tier subscribers can add files to flights. Files sync between the devices signed into the same account. Files added to a flight are sorted alphabetically and are available offline. Files are associated with flights indefinitely provided the flight is not deleted.



Flights View

Supported File Types and Size Limits

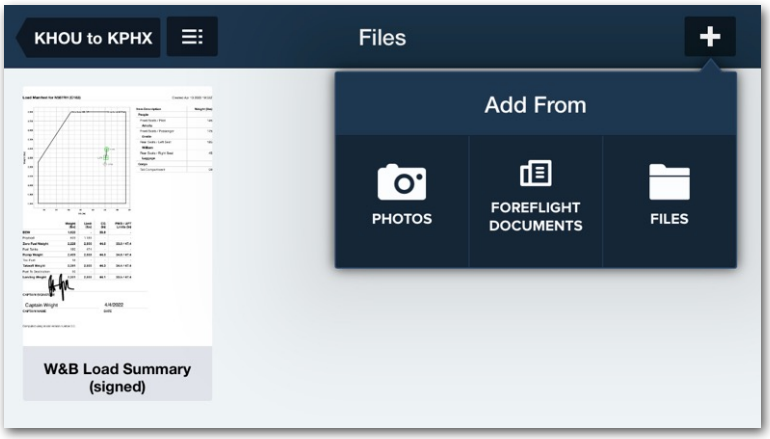
Flight files support the formats listed below. Individual file attachments are limited to 25 MB or less.

- PDF
- TIFF
- TIF
- JPG
- JPEG
- GIF
- PNG
- BMP
- BMPF
- TXT
- DOC
- DOCX
- XLSX
- XLS
- PPTX
- PPT
- CSV
- Pages
- Key
- Numbers

Adding Files to a Flight

To add a file to a flight, tap the **Files** button at the top of the flight planning form. Then, tap the **[+]** button in the upper toolbar to add files. Files can be added from Photos, ForeFlight Documents, or the device's iOS Files app. Select where the file will be imported from and then choose the file to attach to the flight.

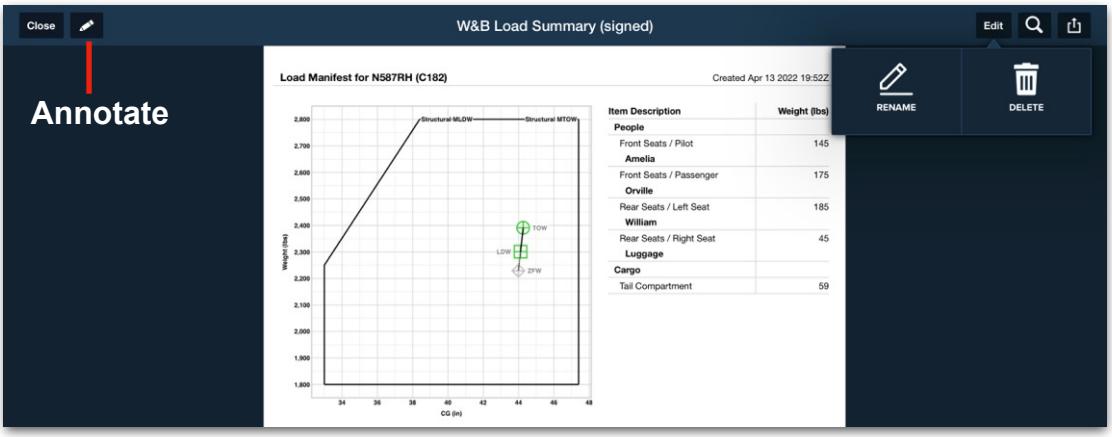
Files can also be imported with AirDrop. To import via AirDrop, select **ForeFlight** > **Flights** from the AirDrop "Open with…" menu. Once a file has been added, the **Files** button depicts the number of files currently attached to the flight.



Adding a file to a flight

Editing Files

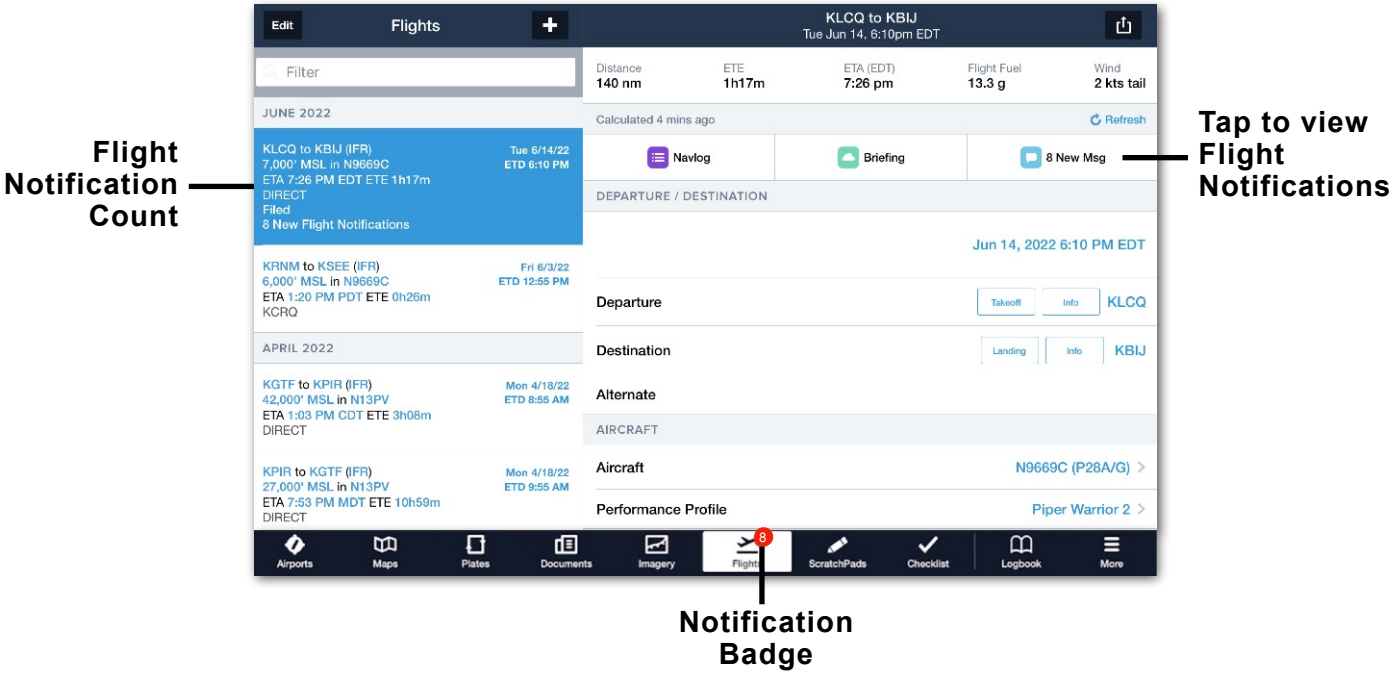
To edit a file, tap the file thumbnail to open the file viewer. Tap **Edit** to annotate, rename, or delete the file. Not all file types are able to be annotated.



File Viewer

15.7.4 Flight Notifications

Flight notifications provide hazardous condition details for the route of flight. Flight notifications are only available after filing a flight plan. When unread flight notifications are available, the number of notifications are depicted as a badge on the Flights button, in the flights list, and at the top of the planning form.



Flight Notification Types

Flight notifications are issued for the following hazardous conditions:

- Temporary Flight Restriction (TFR)
- Runway or Airport Closure
- Unsafe NOTAMs
- Urgent PIREP
- SIGMETs
- Convective SIGMETs
- AIRMETs
- Center Weather Advisories
- Severe Weather Watches/Warnings

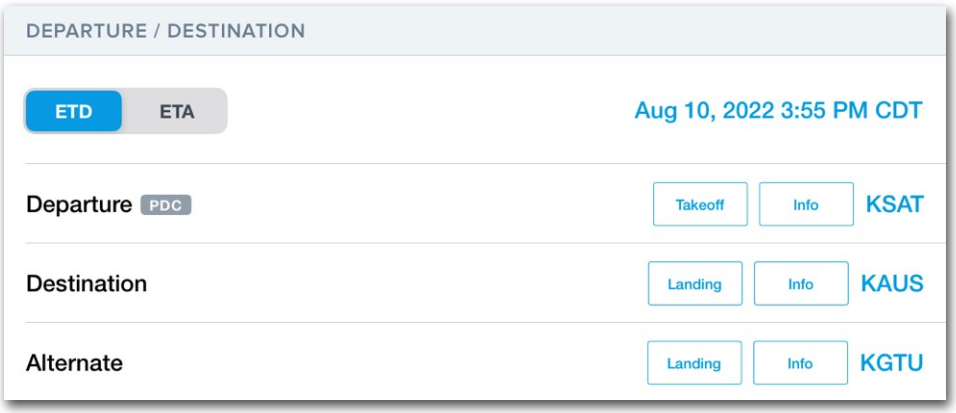
Flight notifications are obtained from multiple sources, including Lockheed Martin's Adverse Conditions Alerting Service (ACAS). Flight notifications do not include flight plan messages (e.g., expected routes, expected departure clearance times). The flight notification count decreases as notifications are viewed. When viewing notifications, tap the checkmark in the upper toolbar to mark all notifications as read.

NOTE: Flight notifications are only sent to the person who filed the flight plan.

15.8 Departure and Destination

The Departure / Destination section specifies the departure time, departure location, destination, and alternate airport.

Pilots planning with a Performance-tier account and a supported piston-engine aircraft can also calculate **Takeoff & Landing Performance** from this section. Customers with a Runway Analysis license for a supported turbo-prop or jet aircraft can access **Runway Analysis** performance data from this section.



Departure / Destination Section - Premium Account

15.8.1 Departure Time

The Departure Time field specifies the estimated departure time for planning and filing purposes. When creating a new flight, the ETD is set to approximately ten minutes from the current time (rounded to the nearest five-minute interval).

The date field uses the format (e.g., month/day/year) based on the iPad or iPhone region setting. Region settings can be located in the iPad or iPhone **Settings** app > **General** > **Language & Region**.

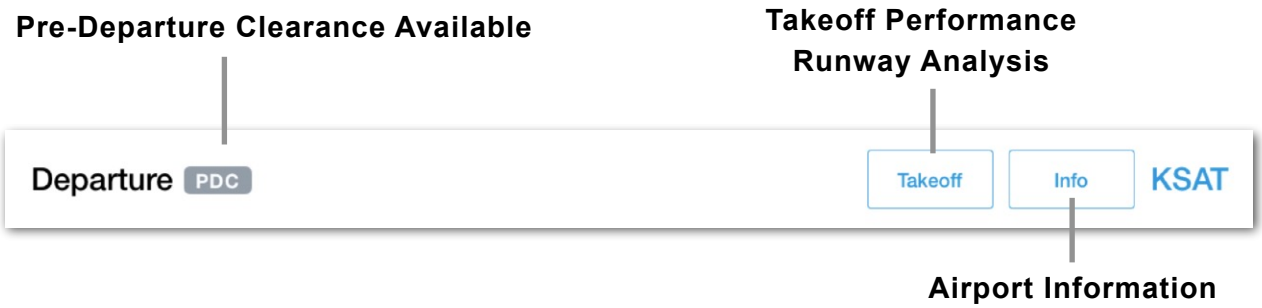
ETD/ETA

The ETD/ETA buttons are a Performance-tier features that determine whether the selected date/time represents the beginning or end of the flight. Select ETD to set the date/time as the departure time, and ForeFlight will calculate the flight's arrival time. Select ETA to set the date/time as the arrival time, and ForeFlight will calculate the departure time required to arrive at the selected time.

15.8.2 Departure

The Departure field specifies the departure location for the flight. The departure field supports ICAO identifiers, airport names (if the airport lacks an identifier), user waypoints, coordinates, and place/bearing/distance entries. If the departure location is something other than a published ICAO identifier or airport name, ForeFlight will convert the location to coordinates when filing.

NOTE: While the Departure field can include the name of an airport without an identifier (if the flight was sent from the Maps view), airports without identifiers cannot be manually entered in this field.



PDC

When planning to depart from an airport that supports pre-departure clearances (PDC), a PDC tag is displayed to the right of the Departure label. PDC is a Performance-tier feature and is not displayed on Starter or Essential accounts.

Takeoff Performance and Runway Analysis

When planning a flight with a Performance-tier account and a supported piston engine aircraft (or a jet or turbo-prop with a Runway Analysis license), a **Takeoff** button appears if runway data is available. The Takeoff button opens a split-screen **Takeoff Performance** or **Runway Analysis** view.

Airport Info

Once an airport is selected, an **Info** button appears to the left of the airport identifier. Click **Info** to display the airport pop-up menu to find detailed information about the airport.

15.8.3 Destination

The Destination field specifies the flight's destination. The field supports ICAO identifiers, airport names (if the airport lacks an identifier), user waypoints, coordinates, and place/bearing/distance entries. If the location is something other than a published ICAO identifier, ForeFlight will convert the location to coordinates when filing.

NOTE: While the Destination field can include the name of an airport without an identifier (if the flight was sent from the Maps view), airports without identifiers cannot be manually entered in this field.



Landing Performance and Runway Analysis

When planning a flight with a Performance-tier account and a supported piston engine aircraft (or a jet or turbo-prop with a Runway Analysis license), a **Landing** button appears if runway data is available. The Landing button opens a split-screen **Takeoff Performance** or **Runway Analysis** view.

Airport Info

Once a destination airport is selected, an **Info** button appears to the left of the airport identifier. Click **Info** to display the airport pop-up menu to find detailed information about the airport.

15.8.4 Alternate

The Alternate field specifies the alternate airport for flight planning and filing purposes. Tapping the **Alternate** field opens the Alternate Advisor in a pop-up window.

Alternate Advisor

The Alternate Advisor suggests alternate airports based on several variables such as time and fuel requirements, forecast weather conditions, available approach procedures, and if an airport was previously selected as an alternate on flights with the same destination. To enter an alternate airport not in the suggested list, tap **Airport Code** and type the desired alternate airport. Airports without identifiers cannot be entered as an alternate.

The Alternate Advisor map shows each alternate with a gray line between it and the destination airport. Tap an alternate airport to highlight the route from the destination to the alternate. Tap the **Add Airport** button at the bottom of the Alternate Advisor to select it as the alternate.



Alternate Advisor

Alternate Advisor Performance Calculations

Time and fuel calculations to the alternate airport are based on a direct route from the destination airport to the alternate using the same performance profile as the rest of the flight and a cruise altitude appropriate to the distance to the alternate. To account for missed approach, holding, and another instrument approach, a fuel buffer is added. See the **Fuel** section of this chapter for additional information.

Alternate Airports with a Dispatch license

When planning with an aircraft that has a ForeFlight Dispatch license, multiple alternate airports and a distinct performance profile, route, and cruise altitude for each alternate may be specified.

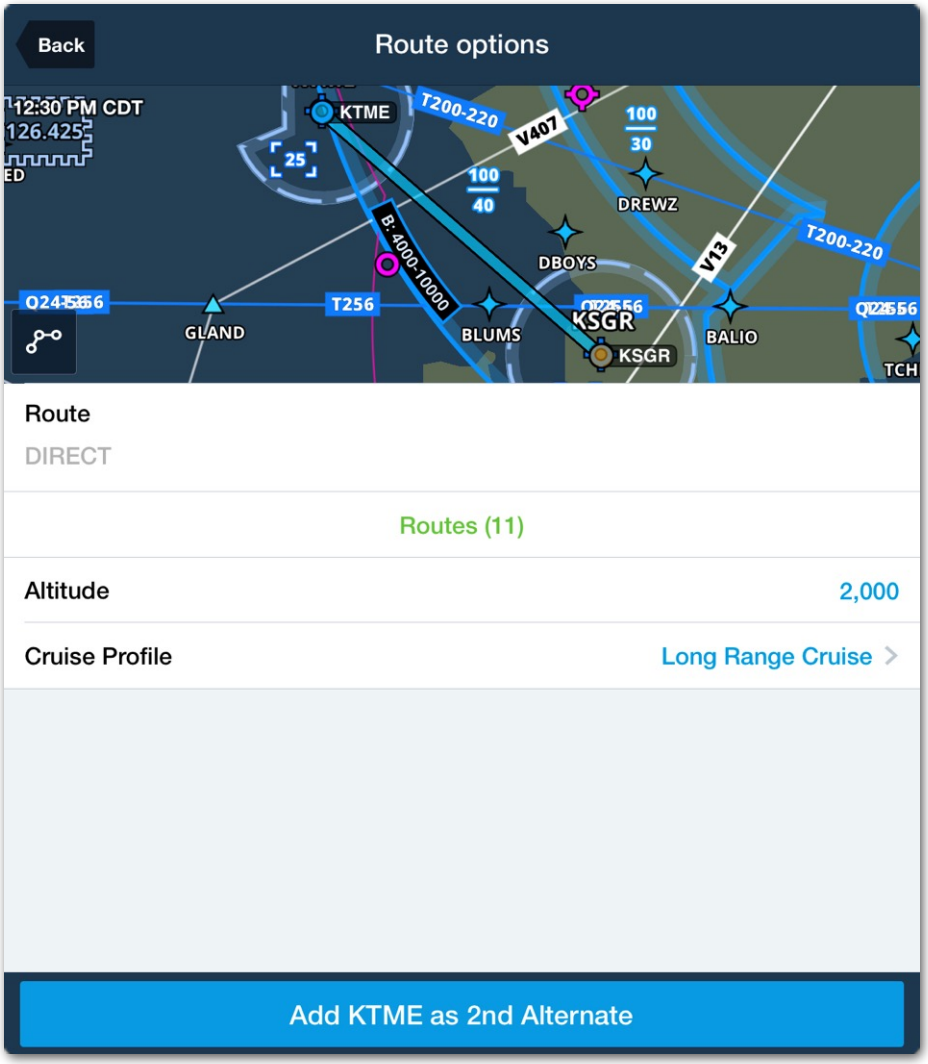


ForeFlight Mobile Alternate Airports (Dispatch)

Specifying Alternate Routes and Performance Profiles

To specify a unique route or cruise profile to the alternate airport:

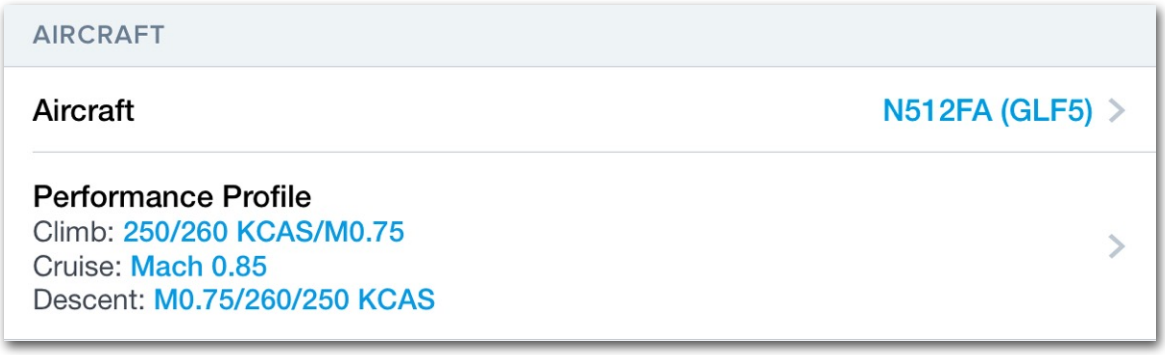
1. Tap one of the alternate fields.
2. Select an alternate airport and tap **Select Options**.
3. Specify a route manually or use the Route Advisor.
4. Specify an altitude to the alternate airport.
5. Select a cruise profile.
6. Tap **Add as Alternate**.



Alternate Route options with ForeFlight Dispatch

15.9 Aircraft

The Aircraft section specifies the aircraft and performance profile for the flight.



Selected Aircraft and Performance Profiles

15.9.1 Aircraft Profile

When creating a new flight, the aircraft field is automatically populated with the default aircraft. If no default aircraft is specified, the aircraft from the last flight is automatically populated. If no prior flights exist, the aircraft field is blank.

To select an aircraft profile, tap the aircraft field and choose an aircraft from the list. Aircraft profiles can be edited from the Flights page by tapping **Edit** when viewing the list of aircraft profiles. For more information on aircraft profiles, see the **Aircraft** chapter.

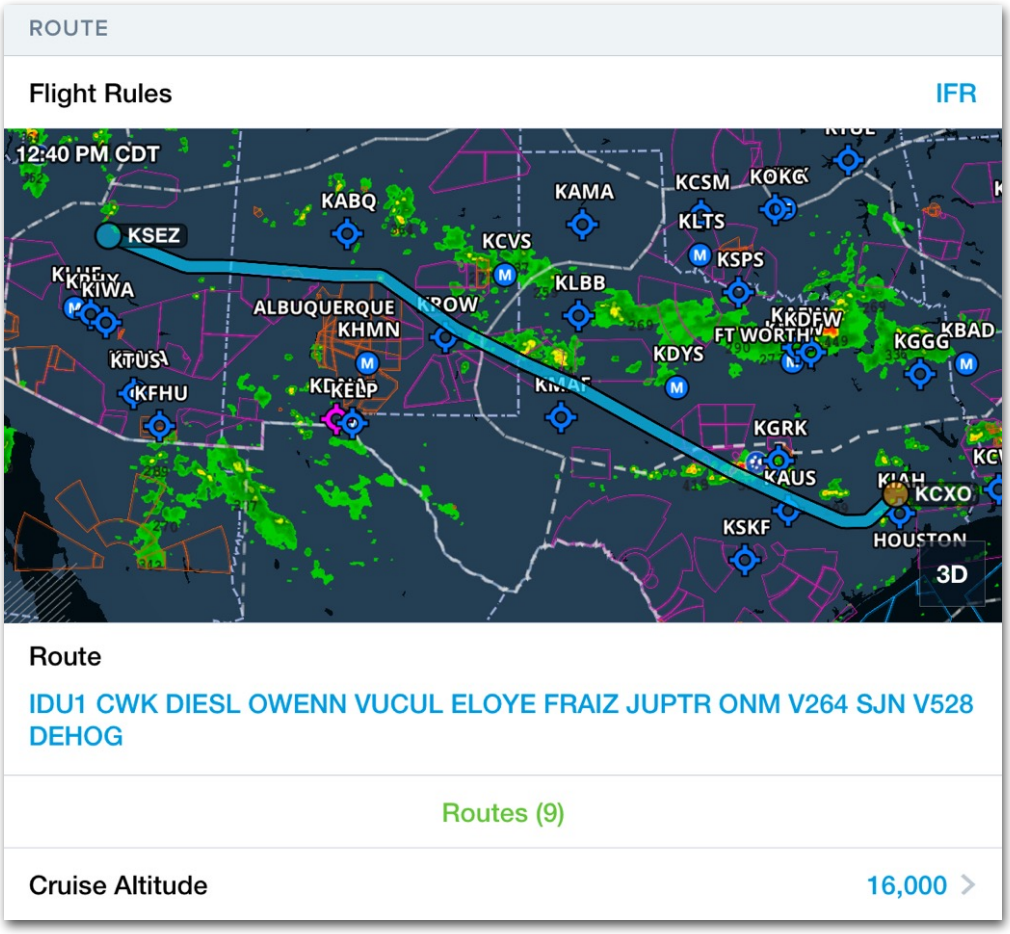
15.9.2 Performance Profile

When creating a new flight, the performance profile is automatically populated with the default profile for the selected aircraft. To select a different performance profile, tap the selected profile and choose a different one from the list (if applicable).

Performance profiles can be edited from the Flights page by tapping **Details** when viewing the list of performance profiles. For more information on performance profiles, see the Performance section of the **Aircraft** chapter.

15.10 Route

The Route section displays flight rules, an interactive map, the elements of the route, and the cruise altitude.



Flight Rules, Route, and Cruise Altitude

15.10.1 Flight Rules

The Flight Rules field is automatically populated when a flight is created by evaluating the route and cruise altitude. When creating a new flight, the default cruise altitude (specified in the aircraft profile) determines the flight rules. For example, if the default cruise altitude is 5,500 ft, new flights will automatically populate with VFR flight rules.

Cruise altitudes that are divisible by 1,000 result in the IFR flight rule automatically being selected. Planning with a VFR altitude (altitude which is divisible by 500) results in the VFR flight rule automatically being selected.

Routes that contain a flight rule change will automatically result in the appropriate composite flight rule (Y or Z).

Once a flight rule has been assigned, it will only update automatically if selecting a new route from the Route Advisor. Manually editing the route or changing the cruise altitude does not update the flight rule.

Flight rules can be manually changed at any time regardless of the planned route or cruise altitude. To change the flight rule, tap the current one and select a new one from the pop-up menu.

NOTE: DVFR and VFR (DC SFRA) flight rule types are not automatically selected.

15.10.2 Interactive Map

The Route section contains an interactive map. Tap the map to expand it. Once expanded, the map can be panned and zoomed. Tap the button in the lower-left corner of the map to recenter the map on the route.

The map color is determined by the **Aeronautical Map Theme** setting (Classic, Light, or Dark).

The map displays the route, aeronautical map, and composite radar layer. The aeronautical map elements cannot be filtered and additional map layers cannot be added.

3D Preview

The planned route can be previewed in 3D with a Performance tiered account. To preview the route, tap the 3D button on the map before expanding it.

15.10.3 Route

The Route field displays the planned route. There are two methods for planning a route. Using the Route Advisor or manually editing a route.

Route Advisor (Recommended)

To plan a route using **Route Advisor**, tap **Routes (x)** whereas “x” represents the number of available routes for the airport pair. Route Advisor opens in a pop-up window with a list of potential routes that may be selected for the pair of departure and destination airports.

Manual Editing

To manually edit a route, tap the Route field and use the keyboard to customize the route. Route elements are separated by a space.



Route Section

Certain route legs will be labeled with non-standard conventions as described below.

Lat/Long Coordinates

Airports without ICAO, IATA, FAA, or other short-code identifiers will be labeled on the route as decimal degrees (DD.dd°) coordinates. For example, a leg leading to Garbenheimer Weisen is listed as “50.575/8.532”.

ForeFlight Identifiers

VFR waypoints without ICAO-standard identifiers will use the ForeFlight Identifier (FF Identifier). The FF Identifier is an ICAO formatted code, generated by ForeFlight, that consists of portions of the waypoint name and its associated airport.

For example, the VFR waypoint “November 2” that is associated with Cologne-Bonne (EDDK) airport would be labeled on the route as “DKNOV2”. This convention is also followed in the Navlog, Briefing, and Logbook. However, when filing, ForeFlight automatically converts these waypoints to coordinates in the Degree Minute format.

15.10.4 Cruise Altitude

The cruise altitude field opens the Altitude Advisor which displays the forecast winds aloft at various altitudes. To select a cruise altitude, tap the current altitude then select a new one from the **Altitude Advisor** pop-up menu.

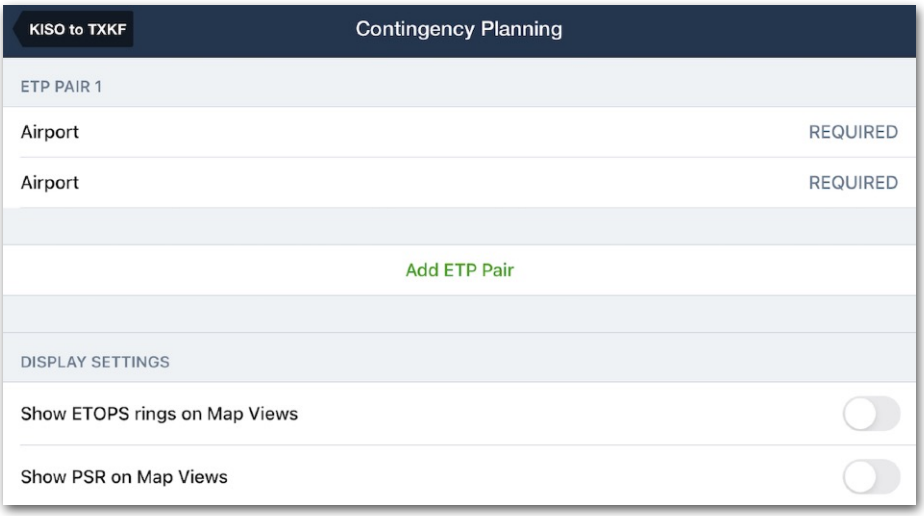
15.10.5 Contingency Planning

When a flight is planned with a Dispatch account, a Contingency Planning section is added to the Flights view.



Contingency Planning Section

This section can be tapped to let pilots view, add, or edit the **ETP pairs**, and to configure whether **ETOPS rings** and **PSR waypoints** are visible in the **Active Navlog Route Preview Map**.



Contingency Planning Fields

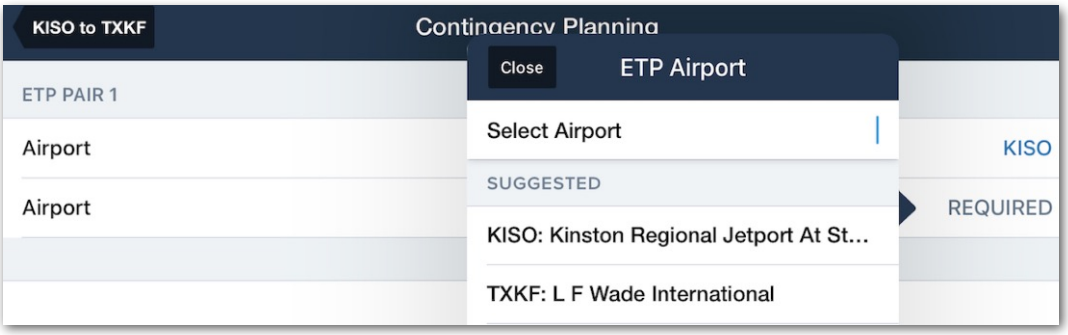
ETP Pairs

Equal Time Point (ETP) pairs are used to inform pilot decision-making during the following in-flight emergency scenarios: loss of one engine, loss of cabin pressure, and medical emergencies. For each scenario, an ETP is placed at the point along the route where the time to continue to the second airport is the same as the time to turn around and return to the first airport given each scenario's emergency procedure.

Coast-to-coast transoceanic flights may only have one ETP pair representing the departure and destination airports. However, if the aircraft passes close enough to additional airports along the route, these airports can be designated as additional ETP pairs to give pilots more emergency landing options.

To modify a Flight's existing ETP pair or add an ETP pair, follow these steps:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, tap **Add ETP Pair**.
3. In the newly created ETP PAIR [1,2,3, etc…] section, tap the first **Airport** row and select the first ETP airport.
4. Tap the second **Airport** row and select the second ETP airport.



Adding ETP Pairs

To delete an ETP pair from the flight, swipe left on the ETP Pair header or one of its Airport rows, and tap **Delete**.

NOTE: ETP Pairs are only visible on the Active Navlog Route Preview Map. They are not visible on the Flights page Route Preview Map.

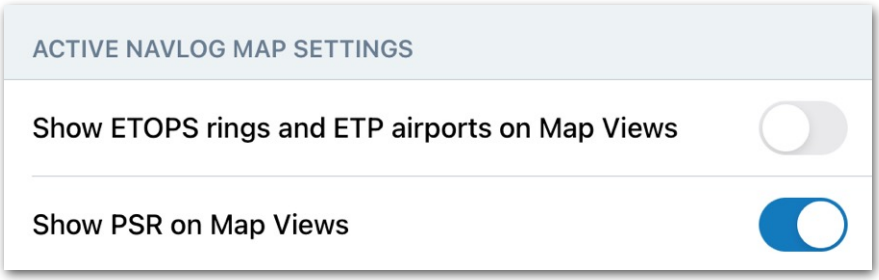
Active Navlog Map Settings

When a transoceanic flight is planned with a Performance-tier account, the Active Navlog Route Preview Map shows a route preview. Additionally, it can optionally show or hide the route's ETP pairs, **PSR waypoint** and **ETOPS rings**. Use the toggle buttons to activate one or both views shown below.

PSR Waypoint

The Point of Safe Return (PSR) waypoint is a point along the route where an aircraft can turn around and safely return to the departure airport, given planned fuel, weather, and other factors. To display or hide the PSR waypoint on the Active Navlog Route Preview Map, follow these steps:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, toggle the **Show PSR on Map Views** switch on or off as desired.



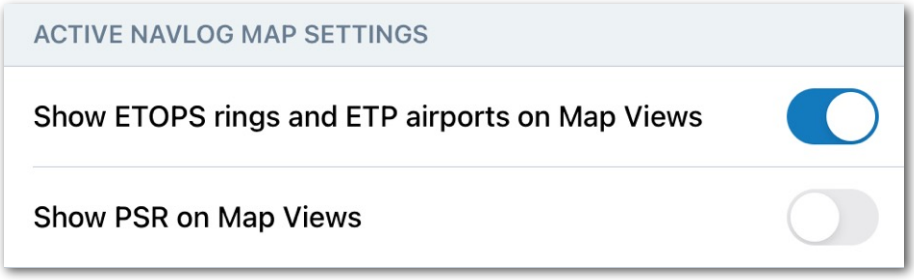
PSR Toggled On

NOTE: The PSR Waypoint is only visible on the Active Navlog Route Preview Map. It is not visible on the Flights page Route Preview Map.

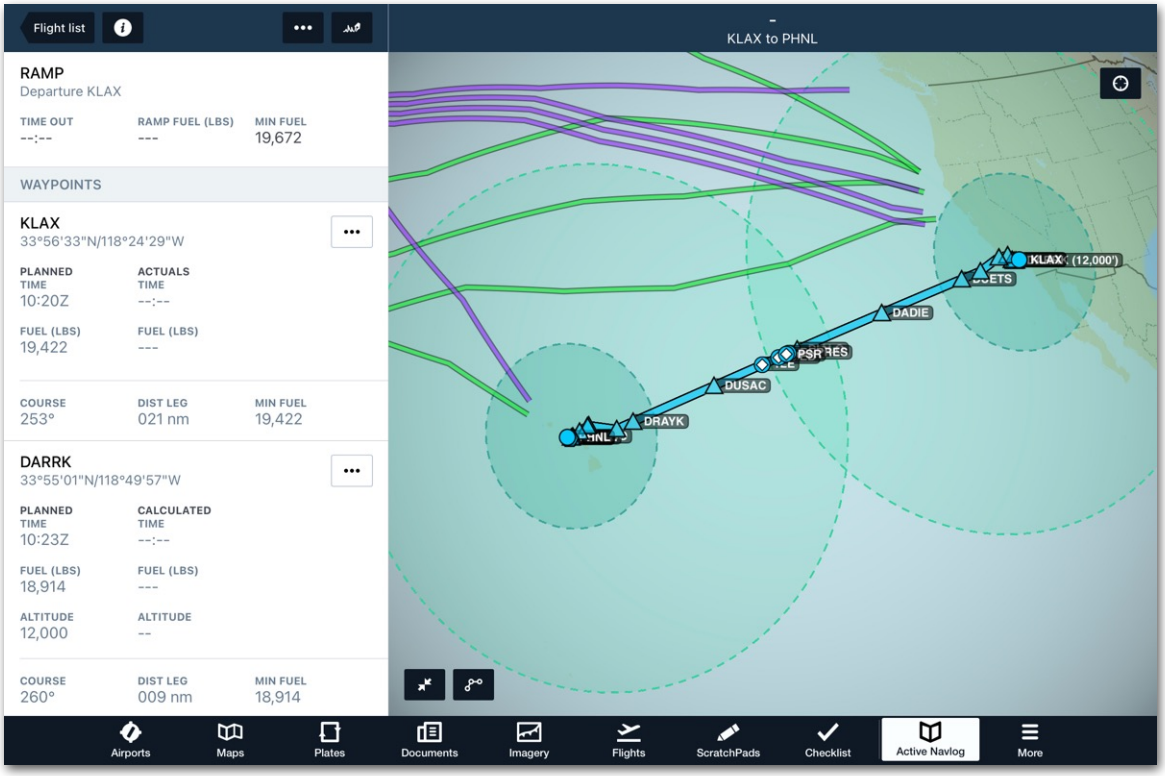
ETOPS Rings

Extended-range Twin-engine Operations Performance Standards (ETOPS) rings are drawn around the ETP airports along a route of flight. To display or hide the ETOPS rings on the Active Navlog Route Preview Map, follow these steps:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, toggle the **Show ETOPS rings on Map Views** switch on or off as desired.



ETOPS and ETP Toggled On



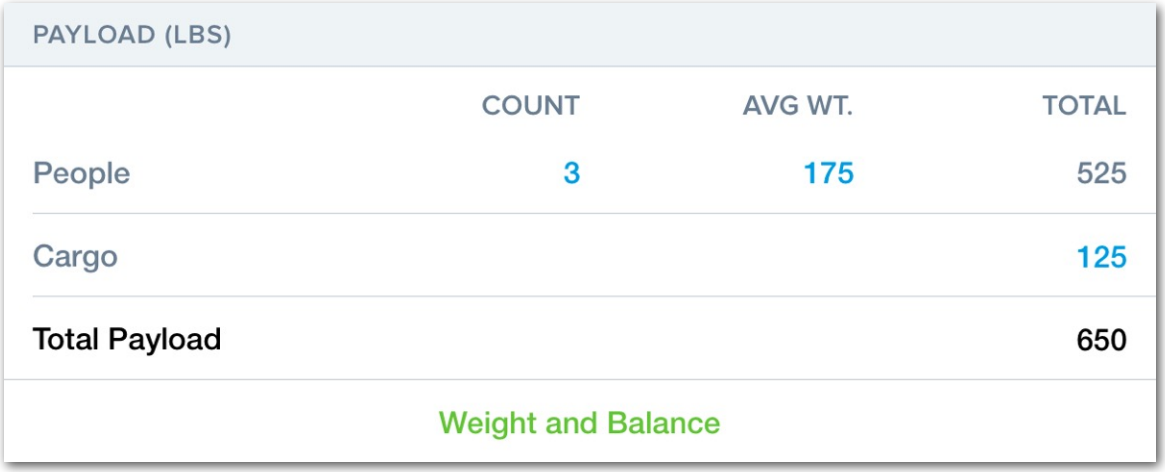
Active Navlog Map with PSR, ETP, and ETOPS Rings

NOTE: The ETP waypoints, PSR waypoints, and ETOPS rings will only be displayed on the the **Active Navlog** Route Preview Map. Only ETOPS rings are visible on the Flights page Route Preview map

15.11 Payload

Payload is a Performance-tier feature that is used for planning weight and balance. This section permits two planning methods. The first method allows weight and balance to be quickly calculated using average weights. The second method integrates the weight and balance profile for more detailed planning.

When a new flight is created, the payload section only contains three editable fields (cargo, people count, and average weight). These fields provide basic weight planning functionality. Detailed weight and balance planning can be done from the Flights view by tapping **Weight and Balance** at the bottom of the Payload section. The weight and balance button opens the weight and balance view and integrates the information into the flight.



Payload Section - Basic Planning

15.11.1 People

When a new flight is created, the People field initially contains two editable values (count and average weight). The default value for the number of people is either 1 or 2, based on the minimum crew requirement for the aircraft.

The starting default value for the average weight is 200 pounds. The average weight is editable. If the average weight is adjusted, the adjusted amount is carried forward to subsequent flights. Total people weight is calculated by multiplying the people count by the average weight.

15.11.2 Cargo

When a new flight is created, a single editable field exists for entering cargo weight. The default cargo weight is zero. Tap the total cargo weight to edit it manually.

15.11.3 Weight and Balance

The **Weight and Balance** button is displayed at the bottom of the Payload section with a Performance-tier account. When the button is tapped, the Weight & Balance view is opened. This view is used to enter detailed payload and fuel information. After entering payload information, tap **Back** in the upper toolbar to return to the Flights view.

After returning to the Flights view, the weight and balance is integrated into the flight (e.g., fuel entered in Weight & Balance is copied to the Fuel section of Flights). For more information, refer to the ForeFlight Weight & Balance guide in **Documents** > **ForeFlight**.



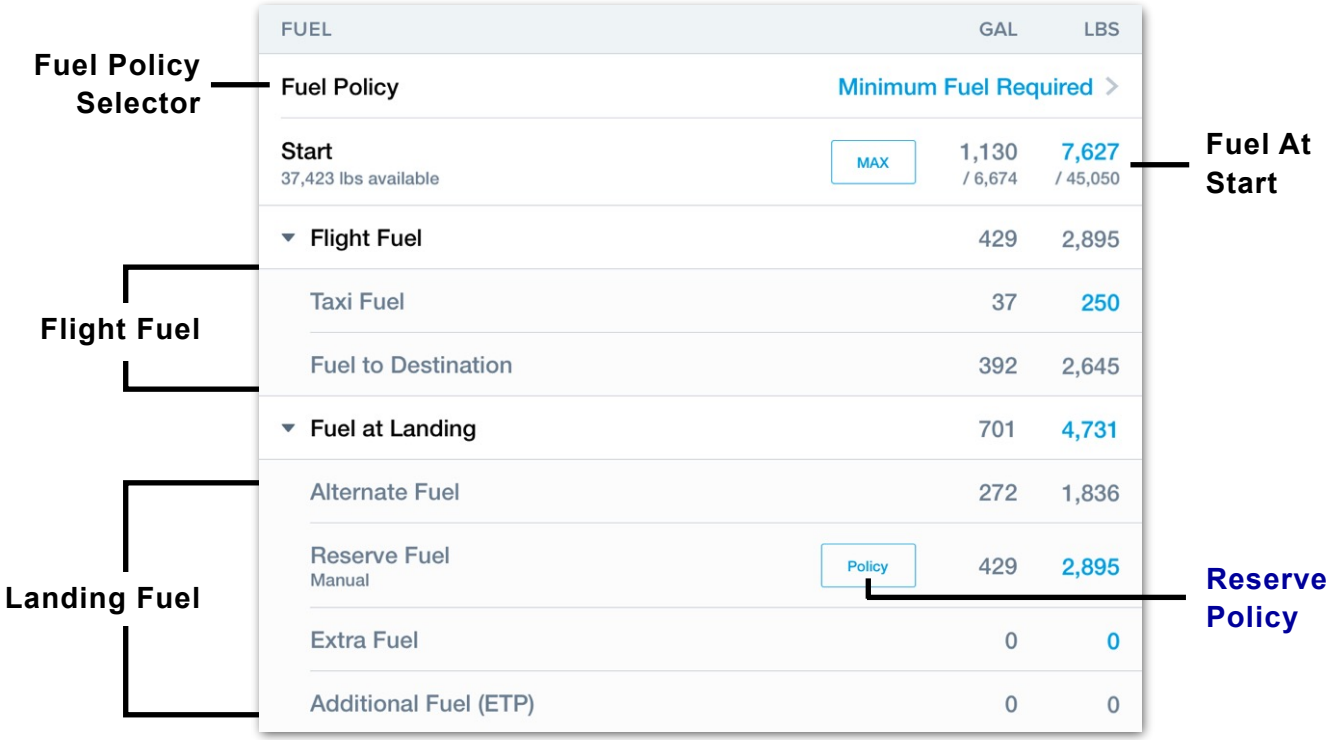
Integrated Weight and Balance

15.12 Fuel

The Fuel section is only available with a Performance-tier account and contains a **Fuel Policy** selector and a **Fuel Table**. The Fuel Policy determines how much fuel is required for the flight at start.

When planning with a **Dispatch**, European Business, or Australian Business account, a **Reserve Fuel Policy** selector is available. The Reserve Rule Policy determines how much reserve fuel is required based on a selected regulatory requirement.

The Fuel Table is dynamic and adjusts based on the aircraft type, ForeFlight subscription, and fuel policy.



Flights Fuel Section

15.12.1 Fuel Policy

The Fuel Policy lists different options for calculating fuel at start. When planning a new flight, the Minimum Fuel Required policy is selected by default. There are five fuel policies to choose from:

- **Minimum Fuel Required** is a calculated value that determines the minimum amount of fuel required for taxi, flight, flight to an alternate airport (if specified), reserve, extra, and additional fuel. The default amount of reserve fuel is determined by the aircraft profile.
- **Extra Fuel** is a user-defined amount of fuel over the minimum fuel. Extra fuel is listed at the bottom of the Fuel section and can be added anytime. If extra fuel is manually added by tapping the **Extra Fuel** field, the Extra Fuel policy is automatically selected.
- **Maximum Fuel** is a calculated value based on the maximum amount of fuel the aircraft can hold without exceeding airframe weight or fuel tank capacity limits. When maximum fuel is selected, fuel over what is minimally required for the flight is added to the extra fuel field.
- **Landing Fuel** is a user-defined amount of fuel that calculates how much fuel is needed at the start to land with the user-defined amount. If the Fuel at Landing field is manually edited, the Landing Fuel policy is automatically selected. Entering a landing fuel that is less than the default reserve fuel plus the amount needed to fly to the alternate results in error.
- **Manual Fuel** is a user-defined amount of fuel at start. Editing Start Fuel results in the manual fuel policy being automatically selected.

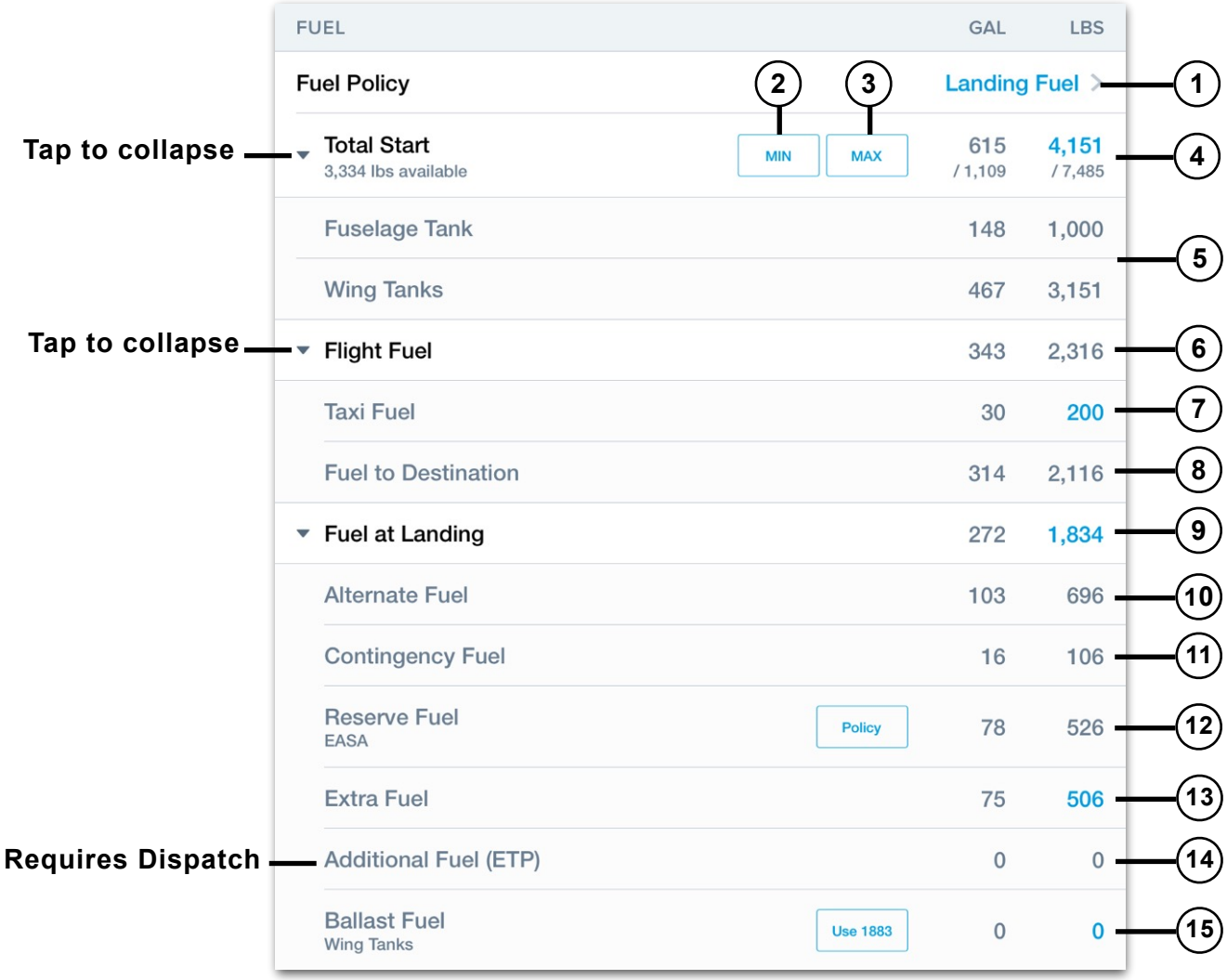
Manually Editing Fuel

Manually editing the fuel at start, fuel at landing, or extra fuel will change the fuel policy automatically. For example, when manually editing Fuel at Landing, the Landing Fuel policy is automatically selected.

NOTE: When selecting a fuel policy, ForeFlight does not check to ensure the aircraft will remain within forward and aft CG limits.

15.12.2 Fuel Table

The Fuel Table provides a dynamic breakdown of the flight's fuel. Some fields are only displayed for certain aircraft types, accounts, or selected fuel policies. Editable fields are highlighted blue. Fuel weight and volume are given in separate columns. See the numbered list below for a description of each field.



1. Tap to select a **Fuel Policy**.
2. Quick access button for selecting the **Minimum Fuel** policy.
3. Quick access button for selecting the **Maximum Fuel** policy.
4. **Total Start Fuel**: This value is equivalent to the sum of the Flight Fuel and Fuel at Landing. This value can be automatically calculated by the selected fuel policy (recommended) or manually specified by the user.

5. If the aircraft has multiple **Fuel Tanks**, fuel allocation per tank is displayed.
6. **Flight Fuel** is the sum of the taxi fuel and fuel to the destination.
7. **Taxi Fuel** is the fuel required for start, taxi, and takeoff. The default amount is specified in **aircraft profile** and can be overwritten on a per-flight basis for unique circumstances, such as operating out of an airport that will require an extensive ground taxi.
8. **Fuel to Destination** is the fuel required for flight from departure to destination airport. This amount is calculated using the selected performance profile, planned cruise altitude, and forecast weather.
9. **Fuel at Landing** is the sum of alternate, contingency, reserve, extra, additional, and ballast fuel. It is also equal to the starting fuel minus the flight fuel (taxi + fuel to destination).
10. **Alternate Fuel** refers to the fuel required to fly to the alternate airport. There are two methods for calculating alternate fuel requirements. The second method discussed below automatically adds a fuel buffer.
    (i) **Alternate routing** (Dispatch license required): This method applies the user-specified route, altitude, and performance profile to determine the fuel required to reach the alternate airport. No buffer fuel is added with this method.
    (ii) If no user-specified alternate routing is provided, fuel to the alternate is calculated using a direct route and the same performance profile as the route to the destination airport. To account for a missed approach procedure, instrument approach procedure, and holding, a fuel buffer is added (in addition) to the fuel required to fly direct to the alternate airport.
    - Jet and Turboprop aircraft add 5 minutes of buffer fuel for holding and enough fuel to fly an additional 30 NM.
    - Piston aircraft add 5 minutes of buffer fuel for holding and enough fuel to fly an additional 15 NM.
    - There is no fuel buffer added when planning with a helicopter.

NOTE: Holding fuel is calculated at the standard holding speed, 1,500 feet above destination airport elevation, in standard atmospheric conditions.

NOTE: The altitude to the alternate airport is automatically determined by evaluating the flight's cruise altitude, aircraft performance, and distance to the alternate.

11. **Contingency Fuel** is carried by an aircraft to account for unforeseen circumstances that may require the aircraft to fly longer than anticipated and may be required by regulation. When a **Reserve Fuel** policy requiring contingency fuel is selected, this amount of fuel is automatically calculated.

NOTE: Contingency fuel is calculated at the standard holding speed of the aircraft, 1,500 feet above destination airport elevation, in standard atmospheric conditions.

12. **Reserve Fuel** is assigned in the **aircraft profile** and can be edited on a per-flight basis. Business Performance accounts with European, Australian, or Dispatch licenses also have access to a **Reserve Fuel Policy** selector for specifying an amount of reserve fuel based on regulatory requirements.
13. **Extra Fuel** is a user-defined amount of fuel in excess of what is minimally required. Extra fuel is automatically calculated when a **Fuel Policy** is selected that required more than the minimum amount of fuel.
14. **Additional Fuel (ETP)** is only displayed when planning with a Dispatch account. Additional ETP (Equal Time Point) fuel is automatically added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing. If the aircraft does not require additional fuel to reach the alternate ETP airports with the necessary minimums, additional ETP fuel is zero.
15. **Ballast Fuel** is *unusable*, extra fuel that is added to the zero fuel weight to move the center of gravity within limits. This feature requires a performance-tier account and can only be displayed when planning with one of the following aircraft:

    - Cessna 650 Citation III
    - Cessna 650 Citation VI
    - Cessna 650 Citation VII
    - Cessna 700 Citation Longitude
    - Cessna 750 Citation X
    - Cessna 750 Citation X+

Adding Ballast Fuel

Ballast Fuel is added with Weight and Balance. If the center of gravity exceeds the limits and Ballast Fuel can correct the error, a **USE** button is displayed next to the Ballast Fuel row with an amount of fuel to resolve the error. Ballast fuel can be manually edited as necessary.

When Integrated Weight & Balance is complete, Ballast Fuel is included at the bottom of the Flight's Fuel section, the Navlog, and the Weight and Balance Summary Document.

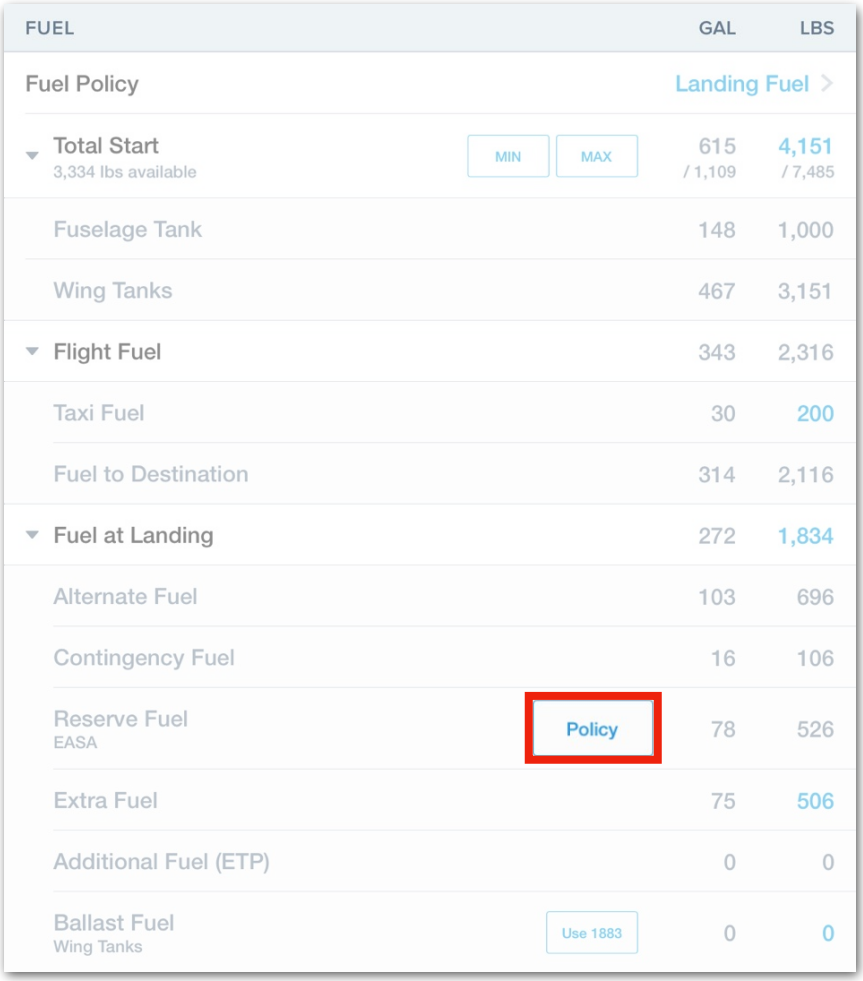
15.12.3 Reserve Fuel

The default reserve fuel is defined in the **Fuel section** of the Aircraft Profile and can be edited on a per-flight basis.

Reserve Fuel Policy Tool

Performance-tier accounts have access to a Reserve Fuel Policy tool for calculating an amount of reserve fuel based on regulatory requirements. The default *reserve* fuel *policy* is specified in the **Fuel section** of the aircraft profile and can be edited on a per-flight basis. To select an amount of reserve fuel based on regulatory requirements:

1. Tap the Reserve Fuel **Policy** button.
2. Select the reserve fuel policy applicable to the flight.



Fuel Table - Reserve Policy Button

Reserve Fuel Policies

When using the Reserve Fuel Policy tool, the flight's reserve fuel, including any additional or contingency fuel, is automatically calculated based on the selected reserve fuel policy.

Depending on the ForeFlight subscription region, there are up to twelve reserve policies. The table below describes which policies are available per region. An explanation of how reserve fuel amounts are calculated is discussed on the next page.

Reserve Policy	USA	Europe	Canada	Australia
Manual	✓	✓	✓	✓
Manual (Minutes)	✓	✓	✓	✓
FAA Part 91/135	✓			
FAA Part 121	✓			
FAA Part 121 International	✓			
EASA NCC		✓		
EASA Part NCO		✓		
EASA CAT		✓		
ICAO		✓		
CASA Part 91				✓
CASA Part 121				✓
CASA Part 135				✓

Reserve Fuel Policies per Subscription Region

NOTE: Reserve Policy availability is based on the subscription's region, not the region of the planned flight. Dispatch customers have access to *all* Reserve Policies.

How Reserve Fuel is Calculated

Reserve fuel is calculated using guidance from the applicable regulation and is described below.

- **Manual** - is a user-specified amount of reserve fuel. Manual reserve fuel is not explicitly based on a regulatory environment or calculated value. When this option is selected, two additional fields are displayed for specifying the fixed amount of reserve fuel and an amount of fuel that is contingent on the length of the flight (see note below).
- **Manual (minutes)** - is a user-specified reserve fuel amount expressed in flight time. When this option is selected, two additional fields are displayed for specifying a fixed amount of reserve fuel in minutes and an additional amount of fuel that is contingent on the length of the flight (see note below). Manual (minute) fuel is calculated at the top-of-descent (TOD) fuel consumption rate.

  NOTE: Contingency fuel is calculated as a percentage of flight time using the fuel consumption rate at the TOD waypoint.

- **FAA Part 91/135** - adds a quantity of reserve fuel equivalent to 45 minutes of flight time using the TOD fuel consumption rate.
- **FAA Part 121** - adds a quantity of reserve fuel equivalent to 45 minutes of flight time using the TOD fuel consumption rate.
- **FAA Part 121 I - International** adds 10% contingency fuel (10% of the time to destination converted to a fuel quantity using the TOD fuel consumption rate) *plus* an amount of fuel equivalent to 30 minutes of flight time using the holding pattern fuel consumption rate (see note below).
- **EASA NCC** - adds the following quantity to reserve fuel planning:

  Piston IFR - 45 minutes of reserve fuel at 1,500 ft above destination or alternate.

  Piston VFR - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.

  Turboprop or Jet - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.

- **EASA Part NCO** adds the following quantity to reserve fuel planning:

  IFR - 45 minutes of reserve fuel at 1,500 ft above destination or alternate.

  VFR - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.

- **EASA CAT** - adds the following quantity to reserve fuel planning:

  30 minutes of reserve fuel at 1,500 ft above the alternate airport. 45 minutes above the destination if there is no alternate.

  Adds 5% contingency fuel or 5 minutes (whichever is higher) at the holding pattern fuel consumption rate (see note below).

- **ICAO** - adds the following quantity to reserve fuel planning:

  45 minutes of reserve fuel at 1,500 ft above the destination or alternate airport. 30 minutes for turboprop or jet.

NOTE: The holding pattern fuel consumption rate is determined using standard holding speed, 1,500 ft above the destination airport in standard conditions.

NOTE: *Discretionary fuel* is an optional user-specified amount of fuel that complies with EASA's **amendment to Fuel Schema** and can be entered on the Fuel Table.

NOTE: Contingency fuel is calculated as a percentage of flight time using the fuel consumption rate at the TOD waypoint.

- **CASA Part 91** - varies by aircraft type and weight:

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
VFR (MTOW 5,700 kg or less)	0%	30
VFR (MTOW 5,700 kg or less)	0%	45
Piston (MTOW greater than 5,700 kg)	0%	45
Jet/TurboProp (MTOW greater than 5,700 kg)	5%	45
Rotorcraft VFR	0%	20
Rotorcraft IFR	0%	30

- **CASA Part 121 -** fuel varies by aircraft type:

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
Piston	10%	45
Jet/TurboProp	5%	30

- **CASA Part 135** - varies by aircraft type.

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
Piston	10%	45
Jet/TurboProp	5%	30

NOTE: CASA Part 121 contingency fuel is either a percentage of flight time (as indicated above) or 5 minutes (whichever is higher).

NOTE: CASA Part 121, Part 135, and Part 91 reserve fuel is calculated using the holding pattern fuel consumption rate at the standard holding speed, 1,500’ above the destination airport in standard conditions. Contingency fuel is calculated using the fuel consumption rate at the top of descent waypoint, 1,500’ above the destination airport in standard conditions.

15.13 Weights

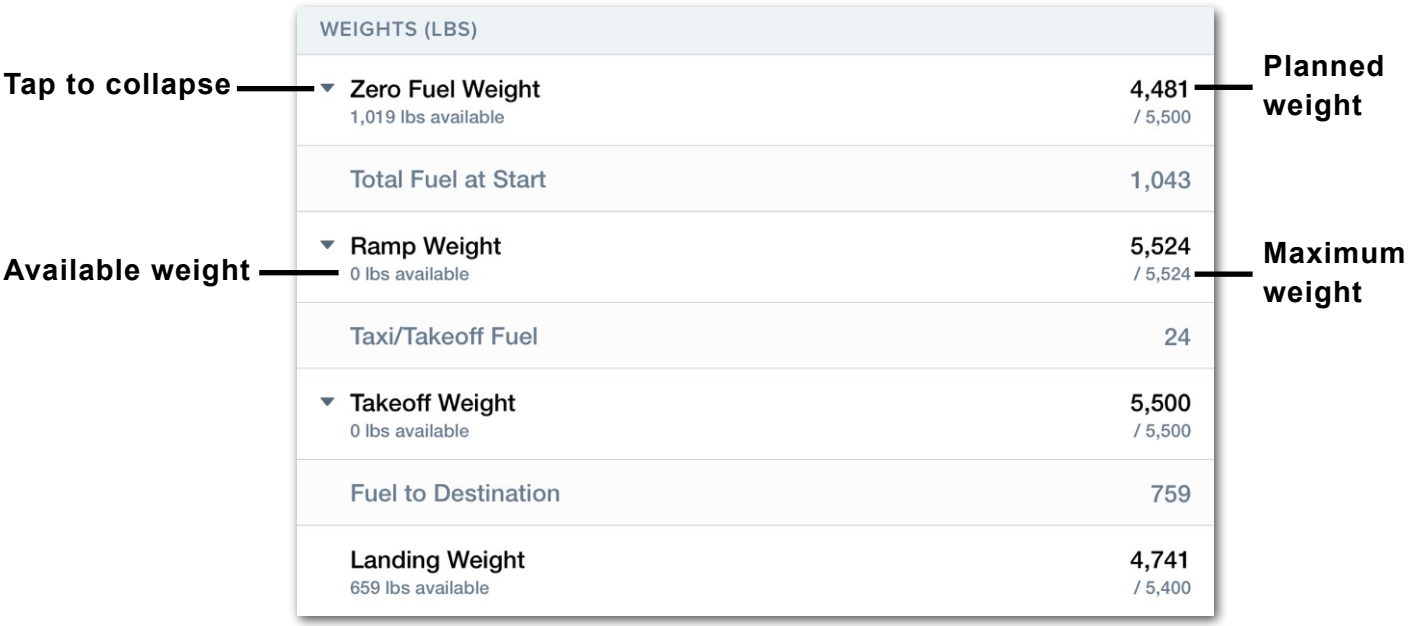
The weights section provides a detailed breakdown of weights during four phases of flight.

- **Zero Fuel Weight -** equals the basic empty weight plus its payload.
- **Ramp Weight -** equals the zero fuel weight plus total fuel at start.
- **Takeoff Weight -** equals ramp weight minus taxi/takeoff fuel.
- **Landing Weight -** equals takeoff weight minus the fuel to destination.

Each phase of flight includes three weights: the planned weight, maximum weight, and the available weight for the phase of flight. Planned and maximum weights are displayed on the right side of the table (e.g., 4,481 / 5,500). Available weight is displayed on the left side of the table and calculated by subtracting the maximum weight by the planned weight.

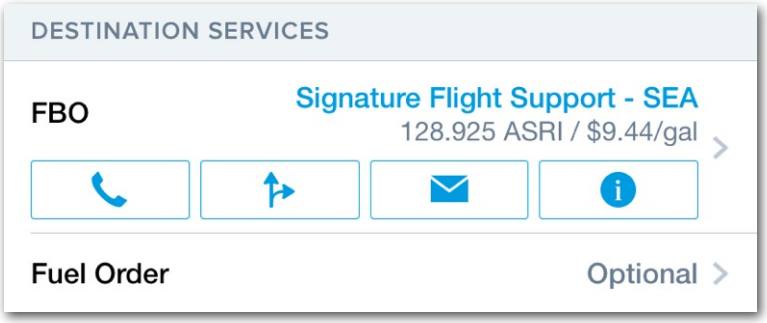
If a weight limit is exceeded, the text is changed to red and an error message is displayed at the top of the flight planning form.

Collapse the zero fuel, ramp, or takeoff weight section by tapping the arrow on the left side of the table.



15.14 Destination Services

The Destination Services section is an optional section and can be used to display FBO information. As described below, customers with a Performance tiered account can order fuel from this section when Fuel Orders are enabled in **More** > **Settings**.



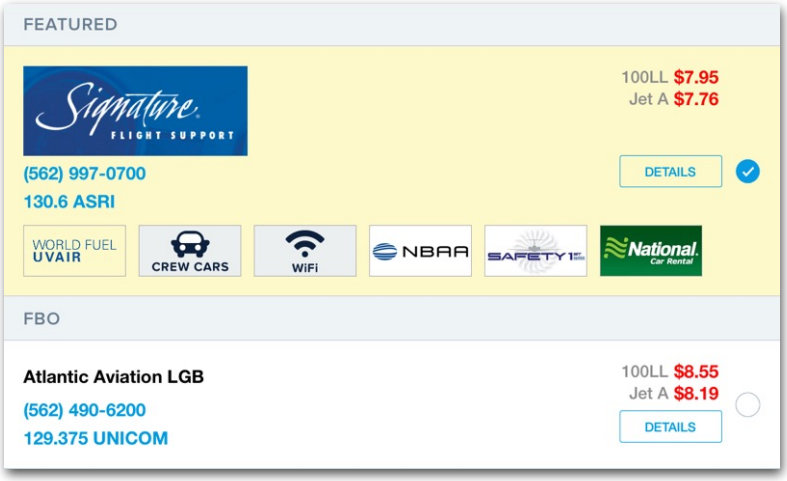
Destination Services

15.14.1 FBO Information

When planning with Flights, an FBO may be selected. Selecting an FBO adds quick-reference information to the flight planning form and Navlog.

To select an FBO:

1. Tap the top row of the Destination Services section.
2. Review the available businesses.
3. Tap an FBO to select it.



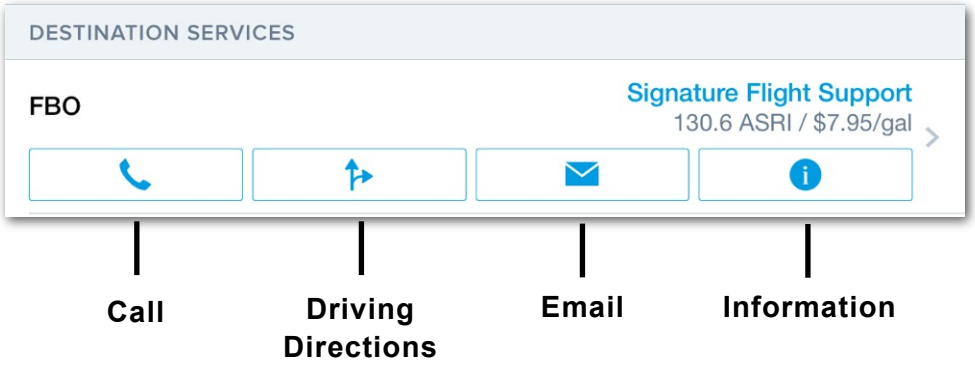
List of available FBOs

The FBO list displays frequencies, phone numbers, services, and the latest fuel prices. To see additional FBO information, including photos, user-submitted comments, and contract prices (through the JetFuelX feature), tap **Details**. To select that FBO for the flight, tap **Select FBO** at the bottom of the screen. FBOs may be selected and deselected by tapping them in the list.

Selecting an FBO adds its details to the Flights form and Navlog. When an FBO is selected, ForeFlight will automatically select the same FBO for subsequent flights to the same airport.

FBO Quick Action Buttons

Once an FBO has been selected, its frequency and lowest available fuel prices are displayed on the Flights form along with four buttons. The phone button initiates a phone call to the FBOs primary phone number (requires iPhone). The mail button opens a new email to the FBOs primary email address. To view additional FBO information, tap the information button to the right of the email button.



15.14.2 Fuel Orders

The Fuel Order option allows Premium customers to order Full-Service fuel via email (internet connection required) from within the app. To enable this feature, tap **More** > **Settings** and toggle **Enable Fuel Orders.**

To create a fuel order, from the Flights page under **Destination Service**s > **Fuel Order**, tap **Fuel Provider** and select an FBO at the destination airport. If contract fuel accounts have been linked in through the JetFuelX feature, tap **Fuel Card** to select an available fuel card and receive contract prices at that FBO. Each fuel card includes the contract price, the fuel card provider, a link to view any notes for the fuel card, and price tiers if they are available with that card. The retail price of fuel at that FBO is shown at the top of the page for reference.

If the fuel card selected supports fuel releases at that FBO, a new option appears to request a fuel release as part of the fuel order. The fuel card provider will be notified. If a fuel release is not chosen, or the fuel card doesn't support release, a fuel order can still be sent to the FBO without it.

ForeFlight automatically populates the Quantity field with the amount of fuel that needs to be added after the flight to reach max capacity, based on the Fuel at Landing value in the Fuel section of the Flights Planning form.

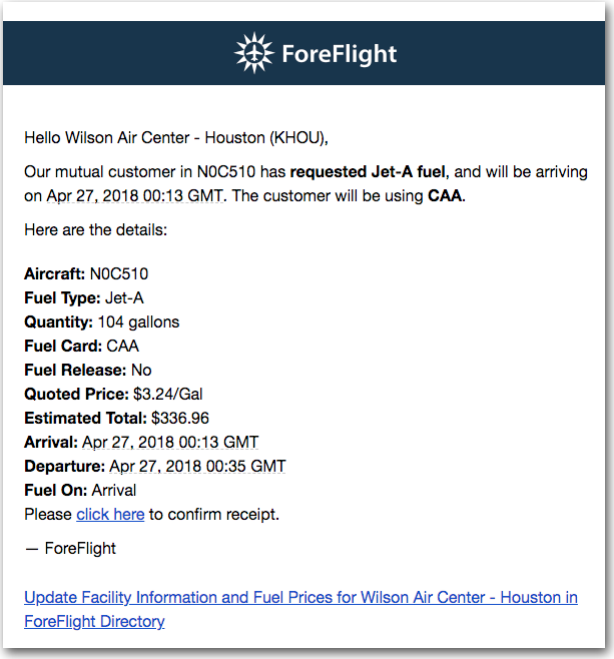
Tap on the numbers for LBS or GAL to change this value as desired. Changing one number automatically updates the other. Alternatively, enter **zero** in the GAL field for "captain's discretion", and the decision on fuel quantity can be made after arrival.

The Price field indicates the price per gallon of fuel, using either the retail price or the contract fuel price if a fuel card is selected. Set FBO Arrival and Departure times in their respective fields and select if fuel should be loaded on Arrival or Departure. Use the bottom field if any special comments or requests need to be added to the fuel order.

Fuel Order Email

The emailed fuel order sent to the FBO includes information about the order and a button for them to confirm receipt of the fuel order. If the FBO accepts the fuel order, the Order status in ForeFlight changes from **Sent** to **Confirmed**.

After sending a fuel order, the **Send** button changes to **Cancel**. Click **Cancel** to send another email to the FBO informing them that the order is canceled. If the fuel order


ForeFlight

Hello Wilson Air Center - Houston (KHOU),

Our mutual customer in N0C510 has **requested Jet-A fuel**, and will be arriving on Apr 27, 2018 00:13 GMT. The customer will be using **CAA**.

Here are the details:

Aircraft: N0C510
Fuel Type: Jet-A
Quantity: 104 gallons
Fuel Card: CAA
Fuel Release: No
Quoted Price: $3.24/Gal
Estimated Total: $336.96
Arrival: Apr 27, 2018 00:13 GMT
Departure: Apr 27, 2018 00:35 GMT
Fuel On: Arrival
Please click here to confirm receipt.

— ForeFlight

Update Facility Information and Fuel Prices for Wilson Air Center - Houston in ForeFlight Directory

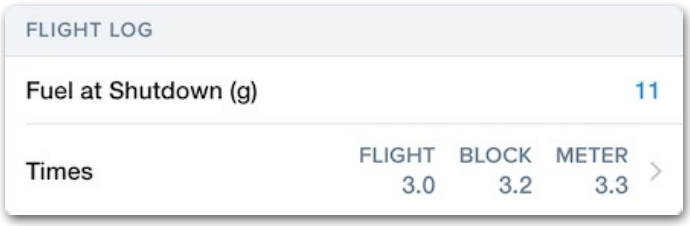
Emailed Fuel Order

email is not successfully delivered to the FBO, such as if the FBO firewall rejects it or the FBO's email account no longer exists, the fuel order status will show **Not Delivered**.

The email may not reach the FBO and instead trigger the Not Delivered message in some circumstances, such as if the email is automatically placed in the FBO's spam folder.

15.15 Flight Log

The Flight Log section allows pilots to record fuel remaining at shutdown and flight-related times. Information in this section can be shared with the ForeFlight Logbook.



Flight Log

15.15.1 Fuel at Shutdown

The remaining fuel at shutdown can be logged in the Flight Log section. Fuel at shutdown is not copied to the next flight or any other ForeFlight features. Fuel at shutdown allows pilots to compare flight planning results with actual results. The fuel at shutdown unit (e.g., gallons, kilograms, etc) is set with the aircraft profile > fuel unit setting.

15.15.2 Times

The Times section allows pilots to record flight meter time (e.g., hobbs and tach meters), flight time, and block time. If the start and end times required to calculate a value have not been entered, the time field will display “Logged”.

Flight Meter Time

The Flight Meter section contains three rows, **Start**, **End**, and **Total**. These rows are intended to log starting and ending hobbs or tach time. Once a start and end time are entered, the total time is automatically calculated. Flight Meter time is *not* currently copied to Logbook.

Flight Time

Flight time is the difference between **Time Off** and **Time On** and is automatically calculated. Log this time by sharing the flight with Logbook.

The Flights view and Logbook do not automatically sync. Adding flight time after a flight has been shared to the Logbook or editing flight time in the Logbook does not update the time in both Flights and Logbook. Flight time is only copied to Logbook when the flight time is entered and then the flight is shared.

Block Time

Block time is the difference between **Time Out** and **Time In** and is automatically calculated. Share the flight with Logbook to log the block time. The Flights view and Logbook do not automatically sync. Manually updating one does not automatically update the other. Adding block time after a flight has been shared to logbook or editing block time in the logbook does not update the time in both Flights and Logbook. Block time is only copied to Logbook when the time is entered and then the flight is shared.

15.15.3 Marked Positions

If created between the estimated departure and arrival time, **Marked Positions** retroactively display on the Interactive Map and at the bottom of the Flight Log section.

For instance, if a flight is planned from 0800 to 0900, any Marked Positions created during that period will be associated with the flight. This allows Marked Positions to be automatically linked to the appropriate flight during planning and flight.

The number of Marked Positions associated with a flight is displayed on the right and can be tapped to view or edit each Marked Position.



Flight Log with Marked Positions

15.16 Pack

Pack provides a method for downloading all charts, weather, NOTAMs, and fuel-price data needed for the planned route. Pack can be accomplished from the Maps or Flights pages. For more information, see the **Pack** section.

15.17 Add Next Flight

The **Add Next Flight** button creates a new flight and copies pertinent details. Add Next Flight sets the destination airport of the previous flight as the departure airport of the new flight, and sets the new flight's ETD to 30 minutes after the ETA of the previous flight, if that time has not already passed. Add Next Flight preserves the first flight's aircraft, performance profile, and payload details. Add Next Flight does not copy the previous flight's landing fuel.

15.18 Copy Flight

The **Copy Flight** button can be used to duplicate a flight that needs to be planned again. Copying a flight is also useful when a flight is shared. Shared flights can not be edited, however they can be copied and then edited.

Copying a flight is the preferred method for planning a flight with the same route and aircraft instead of editing an old flight. Editing a flight that has been previously published or filed can cause unintended consequences.

NOTE: When planning the same flight multiple times, use the **Copy flight** function.

15.19 Delete Flight

The **Delete Flight** button is used to delete the selected flight. When tapped, a confirmation pop-up is displayed. Tap the confirmation pop-up **Delete** button to permanently delete the flight. Deleted flights cannot be recovered.

15.20 Proceed to File

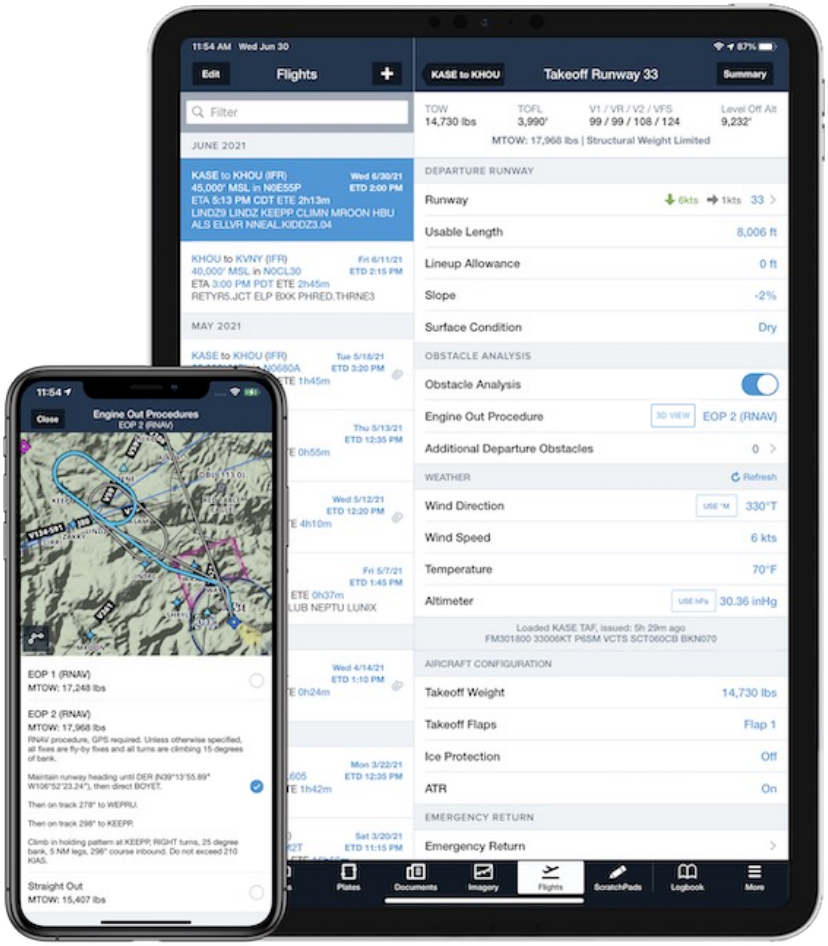
The **Proceed to File** button opens the filing form. The filing form is automatically populated with the fields from the flight planning form and is used to file a flight plan. For information on filing flight plans with ForeFlight, see the ForeFlight Filing Guide in **Documents** > **ForeFlight** or online at **foreflight.com/filing-guide**.

RUNWAY ANALYSIS

Runway Analysis (RWA) is an *optional* Takeoff and Landing Analysis tool for select single and multi-engine jet and turboprop aircraft. RWA utilizes performance data and procedures sourced directly from OEMs to provide maximum takeoff and landing solutions for multiple conditions. When planning with multi-engine aircraft, RWA results (including 1st and 2nd segment climb gradients) are predicated on losing an engine at V1, ensuring that the flight can be safely operated in the event of an engine failure.

Runway Analysis is designed to meet the guidelines and requirements of Advisory Circular 120-91A and CFR14 part 135.379. Runway Analysis is also EASA and CASA compliant when the slightly larger ICAO **Obstacle Corridor** is selected.

Runway Analysis is available to ForeFlight Premium and Business Performance customers.



ForeFlight Mobile - Runway Analysis

16.1 Purchasing Runway Analysis

Runway Analysis requires a Performance tier subscription and paid add-on Runway Analysis license. When purchased, Runway Analysis is integrated into the ForeFlight Mobile Flights view. Runway Analysis is also available on the web when a ForeFlight Dispatch license is purchased.

Runway Analysis can be purchased by signing into **plan.foreflight.com/account/subscription/aircraft**. To add Runway Analysis, select the Runway Analysis **Buy** button for the appropriate aircraft from the bottom of the screen.

Customers with Starter, Essential, Business Pro, or MFB Pro plans must first upgrade to a Performance tier plan before adding Runway Analysis.

16.1.1 Purchasing Runway Analysis for Individuals

Runway Analysis is available to individual customers as a *per-type* add-on. Visit **foreflight.com/products/runway-analysis-individual** for aircraft availability.

16.1.2 Purchasing Runway Analysis for Business

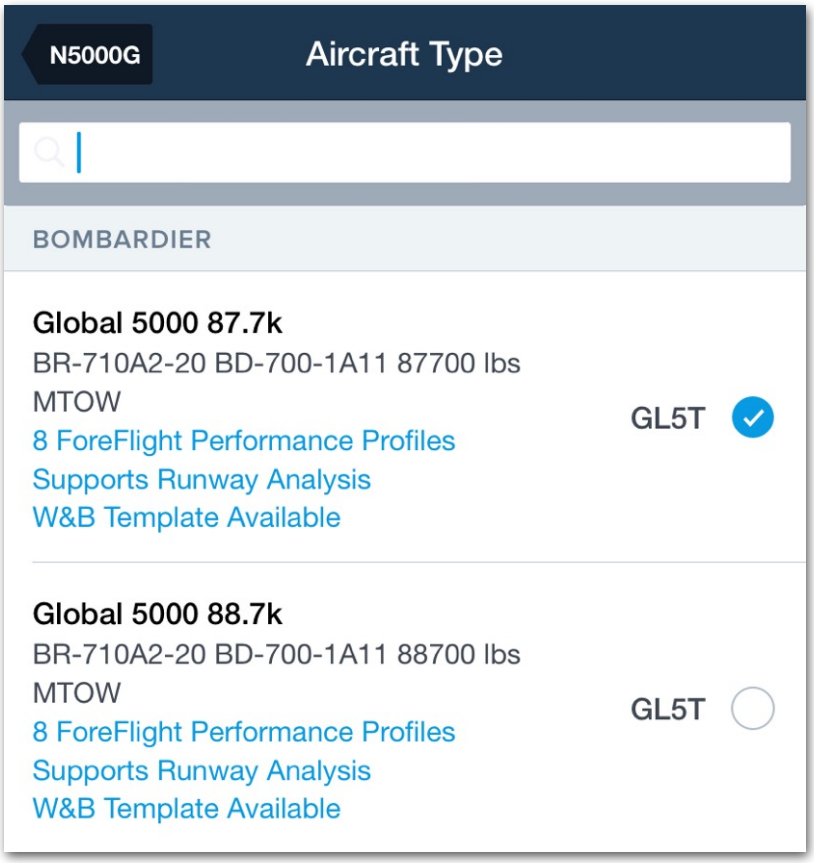
Runway Analysis is available for business customers as a *per-tail* add-on. Visit **foreflight.com/products/runway-analysis-business** for aircraft availability.

16.2 Configuring Runway Analysis

When a Runway Analysis license is purchased for an aircraft type with an individual Premium plan, a **Supports Runway Analysis** label is added to each type variant that supports Runway Analysis.

To verify support, select **More** > **Aircraft** and choose an aircraft profile. Tap the aircraft type field and look for the **Supports Runway Analysis** label. If the label is missing, either the variant is not yet supported or a Runway Analysis license has not been purchased for the aircraft type.

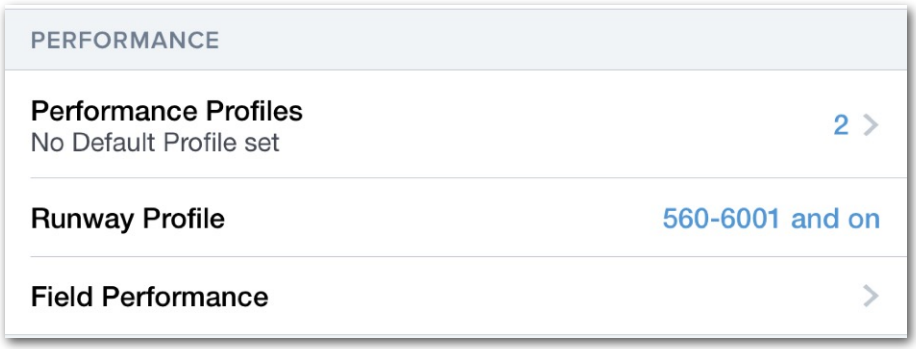
Runway Analysis is licensed to Business and Military Flight Bag (MFB) customers on a per aircraft profile basis. As a result, the **Supports Runway Analysis** label is not displayed when using one of these accounts.



Supports Runway Analysis Label

16.2.1 Runway Analysis Settings

When a Runway Analysis license is purchased, two configurable fields are added to the aircraft profile's Performance section, Runway Profile and Field Performance.



Aircraft Profile - Runway Analysis Settings

16.2.1.1 Runway Profile

The Runway Profile field specifies the serial number, weight limit, or special equipment for which the Runway Analysis data is applicable. If more than one profile exists for the aircraft type, tap the **Runway Profile** setting and choose the correct version.

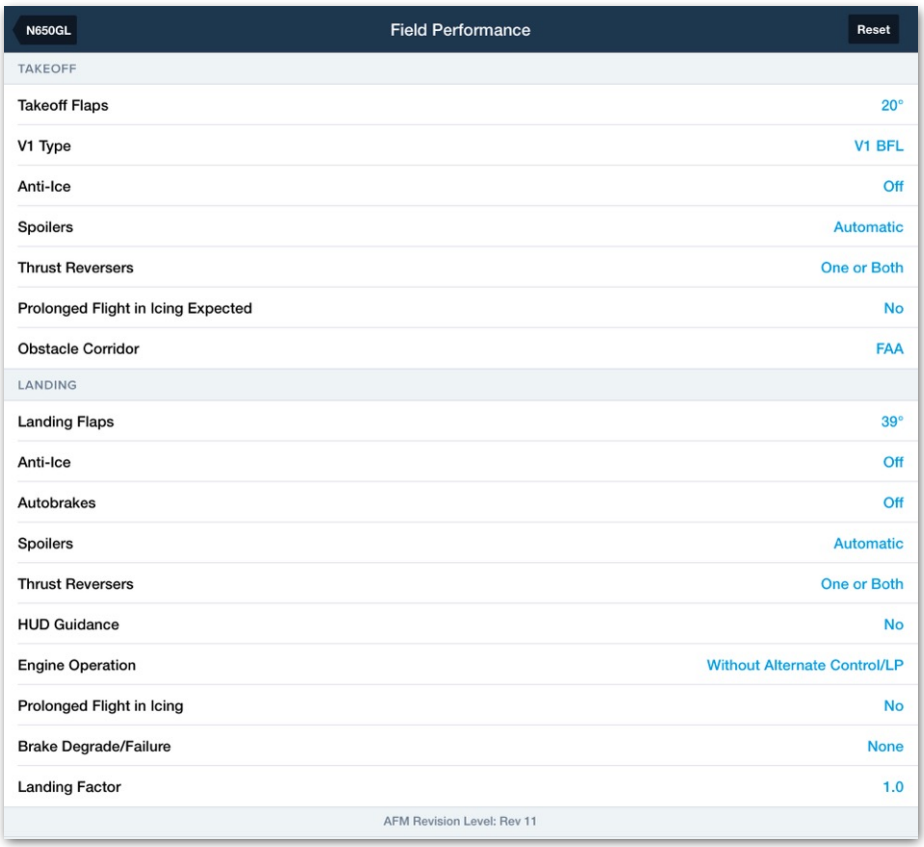
16.2.1.2 Field Performance

The Field Performance settings specify the default takeoff and landing configuration. These settings are unique to the aircraft type and are populated with information from the manufacturer.

The default settings can be adjusted from the aircraft profile. Edits to the aircraft profile default configuration affect *subsequent* flights. Takeoff and landing configuration can also be adjusted on a *per-flight* basis using the Aircraft Configuration section of the Takeoff or Landing Analysis view.

Field Performance settings are broken into two sections (Takeoff and Landing). Settings can be edited by tapping a field and selecting another option from the menu.

The settings (and menus) only contain options that are specified in the Aircraft Flight Manual (AFM) (e.g., Takeoff Flaps may only have options for 10º and 20º). It is impossible to set a value if it is not included in the menu. The flight manual revision used to populate field performance settings is listed at the bottom of the menu (e.g., AFM Revision Level: Rev 11).

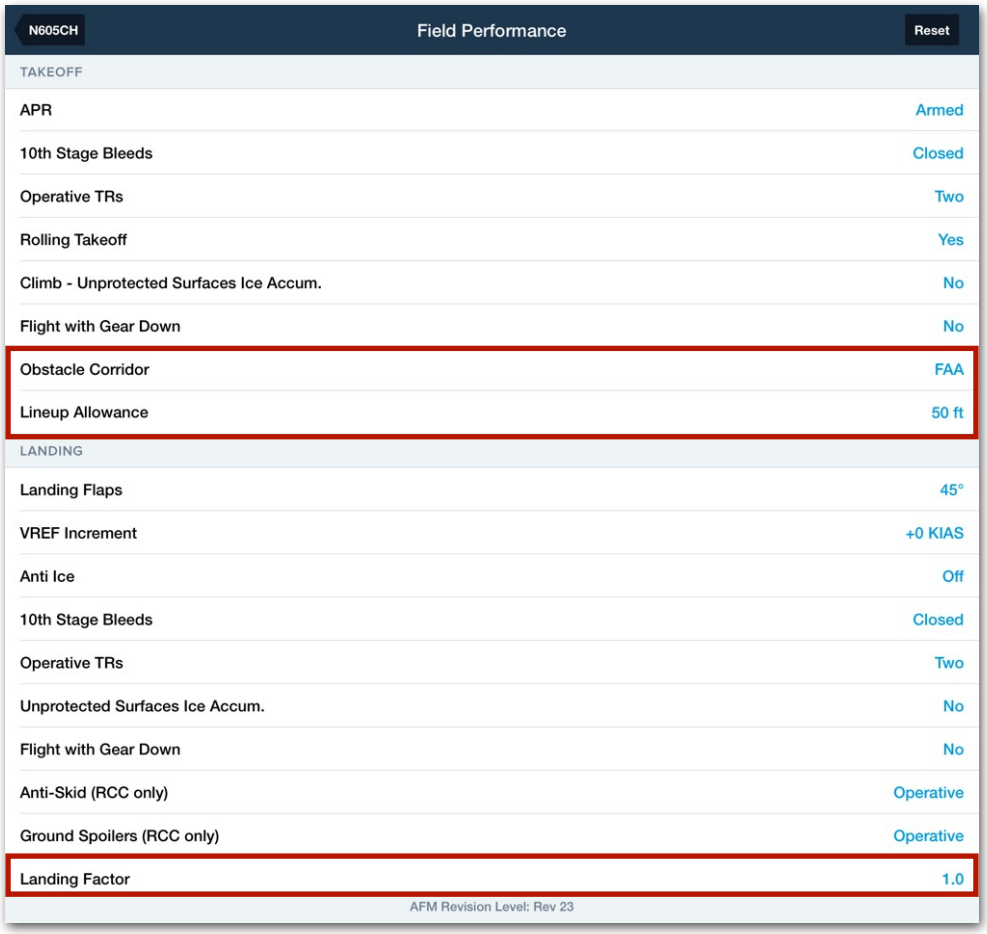


Field Performance Default Settings

16.2.1.4 Standard Field Performance Settings

Aircraft Field Performance settings are unique except for the following:

- The **Obstacle Corridor** setting specifies the flight path obstacle accountability corridor using guidance from the FAA, ICAO, EASA, or CASA. This setting cannot be adjusted per flight.
- The **Lineup Allowance** setting specifies the *default* loss of available runway due to lining the aircraft on centerline and is zero by default. Lineup Allowance is unavailable for piston aircraft and is limited to select turboprop aircraft.
- The **Landing Factor** setting specifies an amount (e.g. 1.25) by which the Calculated Landing Distance is multiplied to produce a Factored Distance. The Landing Factor is similar to a safety buffer that is generally used to account for wet or dry runway conditions. This setting can also be adjusted on a per-flight basis.



Standard Field Performance Settings

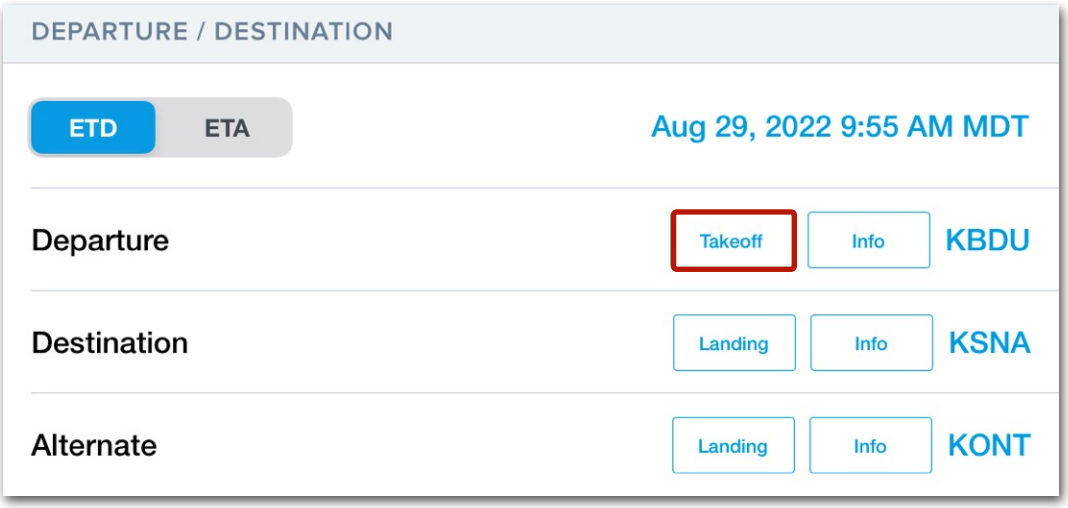
16.3 Conducting Takeoff Analysis

Takeoff Analysis is accessed from the Departure / Destination section of the Flights view. Takeoff Analysis determines the maximum weight an aircraft can depart in the event of an engine failure (multi-engine aircraft) or the total distance required to perform the takeoff (single-engine aircraft).

To conduct an analysis, enter the flight route, payload, and fuel details into the Flights view. After entering details, tap the **Takeoff** button to open the Takeoff Analysis view. Results are calculated when a runway is selected.

The **Takeoff** or **Landing** button may be hidden under the following conditions:

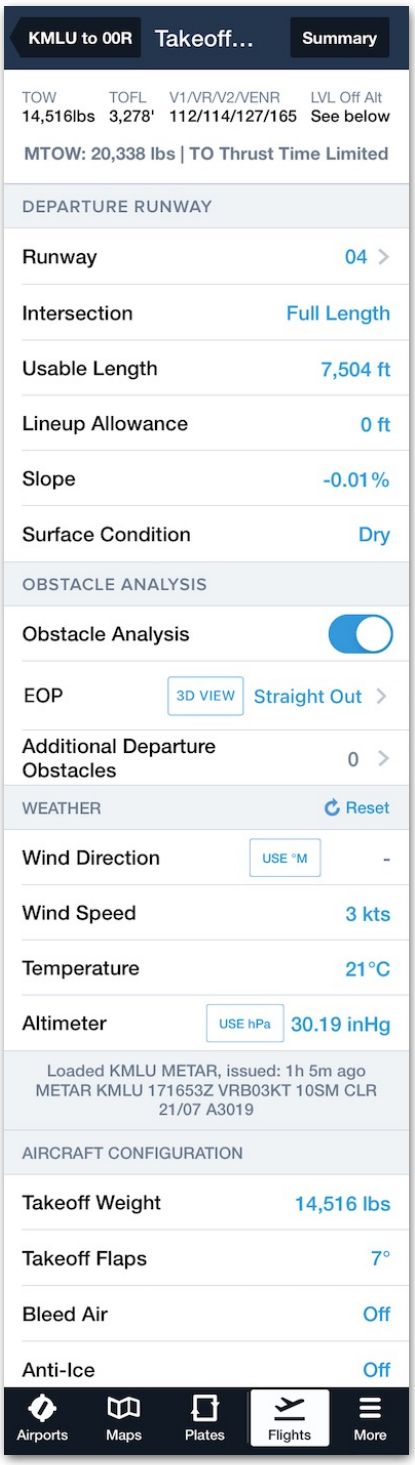
- The selected aircraft does not support Runway Analysis.
- A Runway Analysis license for the aircraft has not been purchased.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.
- The airport specified does not have an ICAO, IATA, FAA, or other short-code identifier. Only airports with identifiers are supported by Runway Analysis.



Takeoff Analysis Button

16.3.1 Takeoff Analysis View

The Takeoff Analysis view is organized into sections. At the top of the Takeoff Analysis view, a Performance Summary displays key performance metrics for quickly evaluating a takeoff.



Each Takeoff Analysis section is described in detail throughout this chapter.

Takeoff Analysis Sections

- Performance Summary
- Departure Runway
- Obstacle Analysis (multi-engine only)
- Weather
- Aircraft Configuration
- Emergency Return
- Performance.

Takeoff Analysis Default Data

When planning a new flight, Takeoff Analysis is automatically populated with the latest runway data, current (or forecast) weather, and default aircraft configuration.

Each field in blue text can be edited from this view to plan hypothetical conditions or circumstances that are unique to the flight.

For example, if the runway usable length has changed due to construction, manually edit the runway length to represent current conditions.

16.3.2 Multi-Engine Takeoff Analysis

When planning with a multi-engine aircraft, Takeoff Analysis determines if the aircraft can perform (or abort) a takeoff in the event of an engine failure. If an aircraft cannot perform (or abort) a takeoff at the maximum gross weight, Runway Analysis will determine the maximum takeoff weight (MTOW) that it can.

Takeoff Analysis does not provide all engine operating results for multi-engine aircraft.

Multi-Engine Takeoff Analysis Constraints

When analyzing a takeoff, multiple aircraft performance and environmental constraints are evaluated to ensure the aircraft takeoff and abort is in compliance with the selected (FAA, ICAO, EASA, or CASA) obstacle corridor standards (specified in the Field Performance settings). Constraints that are evaluated include:

Aircraft Performance Constraints

- Climb Gradient
- Takeoff Distance
- Stopping Distance
- Braking Energy
- Tire Speed Limits.

Environmental Constraints

- Wind
- Temperature
- Available Runway Distance
- Surface Conditions
- Obstacles.

Determining Maximum Takeoff Weight

When an aircraft cannot perform an OEI takeoff at the maximum structural takeoff weight, Takeoff Analysis calculates a unique maximum takeoff weight (MTOW) for the flight by reducing the MTOW until all constraints are satisfied or the takeoff is deemed impossible.

For example, when planning operations from a short runway, the MTOW is reduced so that the distance required to accelerate and stop is less than the accelerate and stop distance available (ASDA). In this example, available runway distance is the constraint that limits the aircraft from departing at its maximum structural weight. If a longer runway were selected, the MTOW would increase if there were no other limiting constraints.

Identifying the Limiting Constraint

Takeoff Analysis displays the MTOW and limiting constraint for the flight at the bottom of the Performance Summary. There are ten potential limiting constraints (see below).



Limiting Constraints

Variables that have the potential to limit the maximum takeoff weight or render the takeoff impossible are listed below. When a constraint limits the maximum takeoff weight (MTOW), the text in bold is displayed at the bottom of the performance summary, followed by the word "**Limited**" (e.g., Runway Limited).

- **Structural Weight** is the maximum weight for the aircraft type defined by the AFM. If an aircraft is not limited by performance or environmental constraints, MTOW is determined by the structural weight limit.
- **Obstacles** along the flight path can limit MTOW or deem a takeoff impossible. An aircraft must be able to clear all obstacles along the flight path by the selected FAA or ICAO lateral and vertical distance. If an aircraft cannot clear all obstacles, MTOW is reduced until takeoff is deemed possible.
- **Runway** length can reduce MTOW and deem a takeoff impossible. The aircraft must be able to takeoff or abort, given the available runway distance. If takeoff or abort distances exceed available runway, MTOW is reduced until takeoff is deemed possible.
- **Climb** gradient can reduce MTOW or deem a takeoff impossible. The aircraft must achieve the minimum climb gradient as required per the aircraft certification rules. The climb constraint does not factor in obstacles.
- **Temperature** can not exceed the AFM published temperature limits.
- **Wind** cannot exceed the AFM published wind limits.

- **Brake Energy** required to stop the aircraft cannot exceed the published limits. This constraint is most common with downslope runways or departures with a tailwind.
- **Tire Speed** cannot exceed the AFM published limits.
- **V_{MC}** is the minimum ground control speed or V_{MCG}. V1 cannot be lower than the published minimum control speed.
- **AFM Data** limits exist when data interpolation is not possible. When an AFM Data limit is applicable, Runway Analysis uses the next available lower value. For example, if the planned takeoff weight is 18,500 lbs, yet performance data only exists for 20,000 lbs and 15,000 lbs, Takeoff Analysis will limit MTOW to 15,000 lbs and the performance summary will indicate AFM Data Limited.

Takeoff Impossible Error

If Takeoff Analysis determines the planned takeoff weight exceeds the maximum takeoff weight for the conditions, the flight is deemed impossible and an error banner is displayed near the top of the Takeoff Analysis view. To clear the Takeoff impossible error, try the following suggestions.

- Select a different runway or a different Engine Out Procedure.
- Reduce Start Fuel or Payload.
- Plan a shorter leg (results in reduced fuel load).
- Select a more fuel efficient en route performance profile.
- Manually edit winds or temperature to determine if departing under different conditions results in a possible takeoff.

NOTE: If the Maximum Fuel Policy is selected on the Flights view and the Takeoff Analysis shows a warning, tapping back will prompt ForeFlight to automatically reduce the planned Start Fuel to the lower limit calculated by Takeoff Analysis. If a Fuel Policy other than Maximum is selected, manually reduce the fuel quantity or payload to the constrained value to remove the warning.

16.3.3 Single-Engine Takeoff Analysis

Takeoff Analysis for single-engine aircraft calculates the total distance required for takeoff given the selected runway, aircraft performance, and environmental conditions.

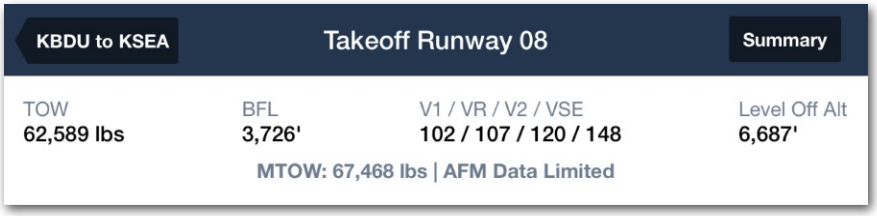
16.3.4 Takeoff Analysis - Performance Summary

Takeoff Analysis key performance results are always visible at the top of the view in the Performance Summary. Additional performance results are available in the Takeoff Analysis Performance section.

The Performance Summary is populated once a runway is selected. Results are initially based on the default takeoff configuration and the current or forecast weather. Results are updated each time a new departure runway is selected or a configurable field is edited. If a takeoff is deemed impossible, the Performance Summary is blank.

Information in the summary varies based on the aircraft type. The information found in the summary is representative of the performance results that can be calculated using the AFM.

Complete performance results for can also be found in the Runway Analysis **Summary Document**.



Multi-Engine Performance Summary



Single-Engine Performance Summary

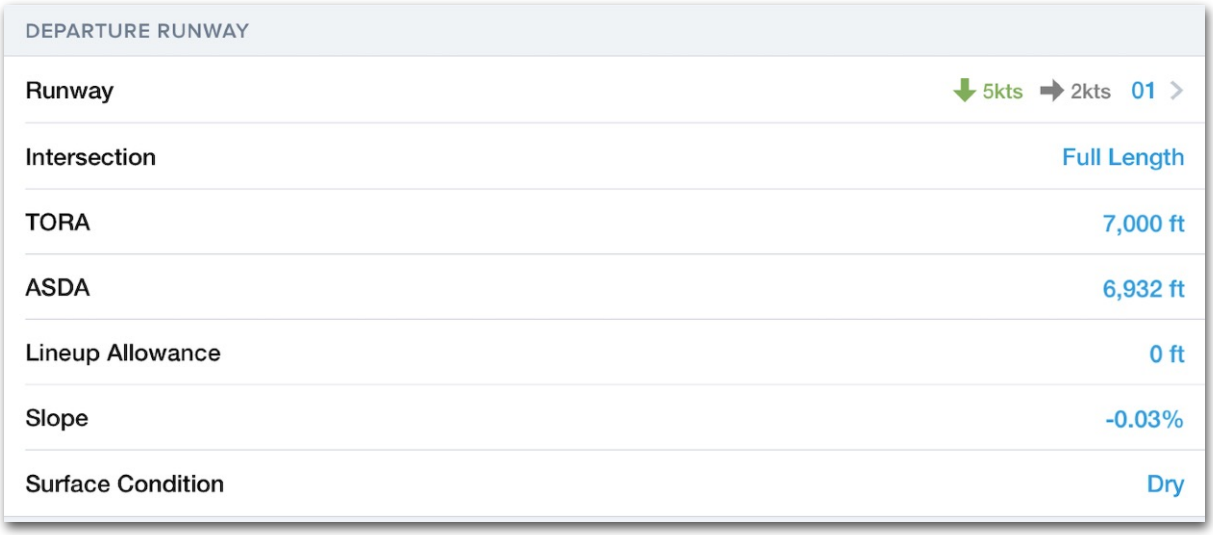
16.3.5 Takeoff Analysis - Departure Runway

The Departure Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent the variables that affect the selected takeoff performance.

A field is only included in the Departure Runway section if it is documented in the AFM as a variable that affects takeoff performance (e.g., Surface Condition).

Individual runway TORA, TODA, and ASDA declared distances will be displayed when available for the selected runway. If the available runway declared distances are all the same, **Usable Length** will be displayed instead of TORA, TODA, or ASDA.

The Departure Runway values can be overwritten to accommodate unique circumstances (e.g., runway NOTAMs). To overwrite a value, tap the applicable field and enter a new value.



Departure Runway Section

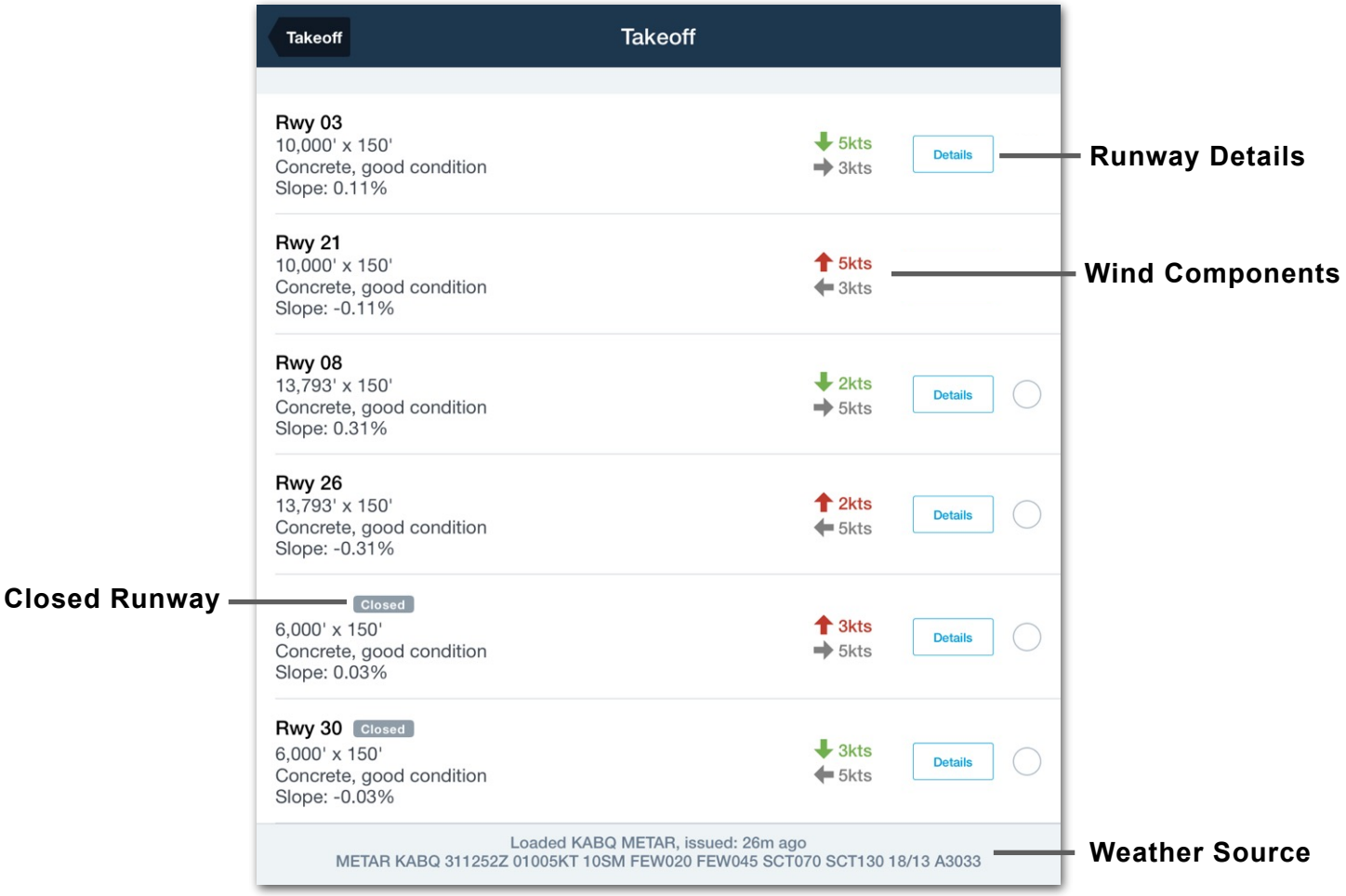
NOTE: When any of the runway lengths are edited, the edits are made to the start of the runway. This may result in calculations that bring the aircraft closer to obstacles along the departure path.

16.3.6 Selecting a Departure Runway

To select a departure runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a *Closed* tag is displayed next to the runway name.

CAUTION: Runway distance reductions via NOTAM are not factored by Runway Analysis.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind component for each runway is displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

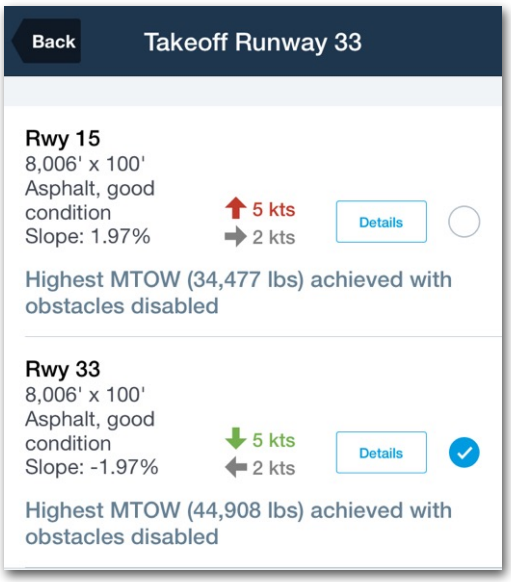


Selecting a Departure Runway

16.3.6.1 Highest MTOW EOP

The EOP that allows the highest MTOW is displayed below the runway details. This facilitates departure runway selection and decision-making if special consideration for the EOP is needed.

If Obstacle Analysis is disabled, a message will be displayed when selecting a runway.

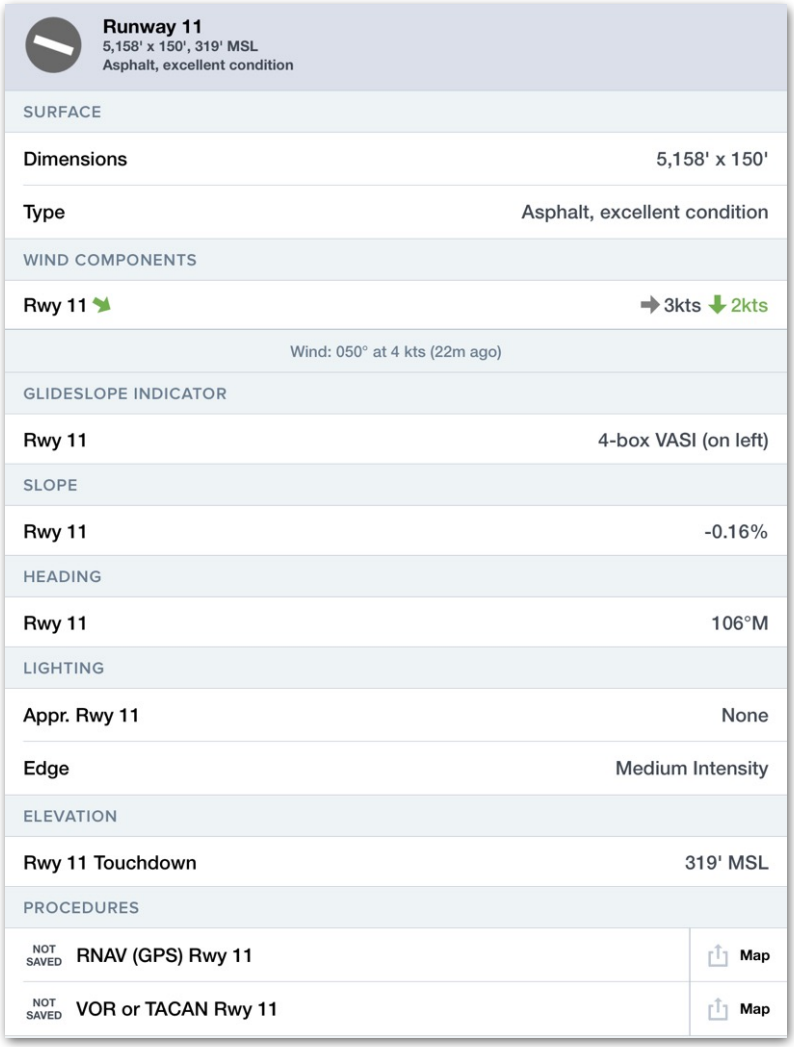


Highest MTOW

16.3.6.2 Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface Dimensions
- Surface Type and Condition
- Wind Components
- Glide Slope Indicators
- Slope
- Magnetic Heading
- Lighting
- Elevation
- Procedures
- Intersection Distance Remaining



Runway Detail View

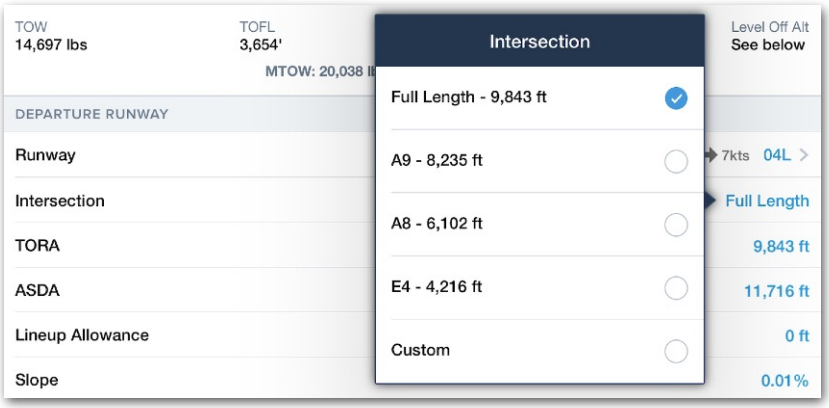
16.3.7 Selecting Intersection Departures

Instead of taking off **at the beginning of a runway**, pilots can elect to start their takeoff at one of the runway intersections or a custom distance down the runway.

When using an initial point other than full length for the departure, the aircraft will start the takeoff roll closer to obstacles in the takeoff path. Therefore, selecting an intersection departure or custom length will result in updates to the takeoff analysis calculations, including TORA, TODA, ASDA, and Usable Length.

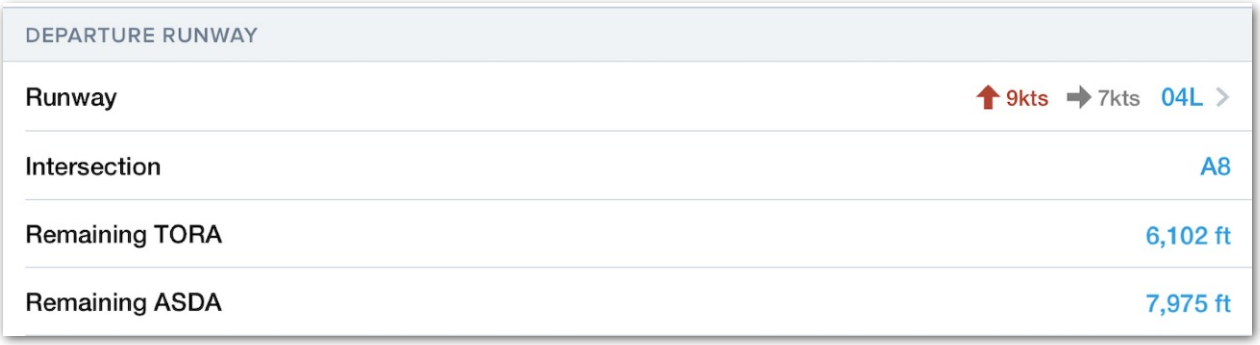
To select an intersection for departure:

1. Tap the Intersection field, which reads "**Full Length**" by default.
2. In the popup, select one of the available intersections or tap **Custom** and enter a custom TORA value.



Selecting Runway Intersection for Takeoff

The Intersection field will be updated with the selection. Additionally, the TORA, TODA, ASDA, and Usable Length fields (if available) will be updated based on the selection, and their labels will be prefixed with “Remaining.”



TORA and ASDA Values Adjusted for Takeoff Intersection

Departure Runway Field Definitions

Definitions for terms and abbreviations found in the Departure Runway section are listed below.

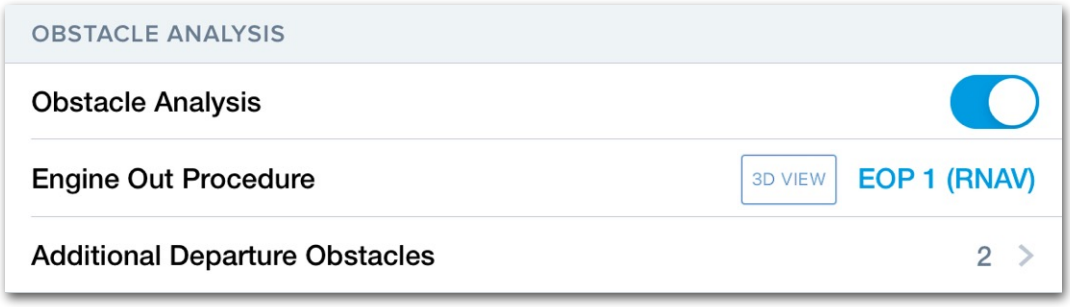
- **Intersection** - A defined point of departure associated with an adjoining taxiway that is located at a point other than at the beginning of the runway.
- **TORA** - The portion of the runway suitable for the takeoff ground roll.
- **TODA** - Takeoff Distance Available (includes stopway and clearway).
- **ASDA** - Accelerate Stop Distance Available (includes stopway).
- **Usable Length** - If the available runway declared distances are all the same, this field will be displayed instead of TORA, TODA, or ASDA.
- **Stopway** - Paved area beyond TORA that can be used for stopping during a rejected takeoff
- **Clearway** - Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb with unbalance field length takeoffs.
- **Lineup Allowance** - Distance loss in takeoff calculations due to lining the aircraft on the centerline. The default value is zero but can be edited in the Aircraft Profile > Field Performance section.

  NOTE: Lineup Allowance is unavailable for piston aircraft and is limited to select turboprop aircraft.

- **Slope** - The difference in elevation from the beginning of the runway to the end, divided by the runway length, and multiple by one hundred.
- **Surface Condition** - The physical condition of the runway according to the options published in the AFM. Dry/Not Contaminated is the default value.

16.3.8 Takeoff Analysis - Obstacle Analysis

Obstacle Analysis is *exclusive* to multi-engine jet aircraft. This section enables and disables the obstacle constraint, selects the engine out procedure, and is used to specify additional obstacles along the departure runway centerline. The Obstacle Analysis section is made available when a runway has been selected.



Obstacle Analysis Section

Obstacle Analysis Toggle Switch

The first row of the Obstacle Analysis section is a toggle switch for enabling or disabling the Obstacle Analysis.

When enabled, Takeoff Analysis evaluates the selected Engine Out Procedure (EOP) and Additional Departure Obstacles to ensure clearance can be maintained. If obstacle clearance cannot be maintained, obstacles become the limiting constraint and the maximum takeoff weight is reduced until the flight is deemed possible. Obstacle Analysis includes banked climb performance degradation.

When Obstacle Analysis is disabled, the Engine Out Procedure field is removed and obstacles are not evaluated for that phase of flight. Departure obstacles manually added are still evaluated when Obstacle Analysis is disabled.

Engine Out Procedure 3D View Button

The Engine Out Procedure row includes a **3D VIEW** button that can be tapped to open a dynamic **3D Preview** of the selected EOP.

16.3.9 Takeoff Analysis - Engine Out Procedure

The EOP specifies the route that will be flown in the event of an engine failure. The selected EOP is used for Obstacle Analysis and is included in the Runway Analysis **Summary Document**.

To select an EOP for the flight, tap the circle on the right side of its row. To see an EOP's procedural steps, tap its name. To open a dynamic **3D Preview** of the EOP, tap the **3D VIEW** button.

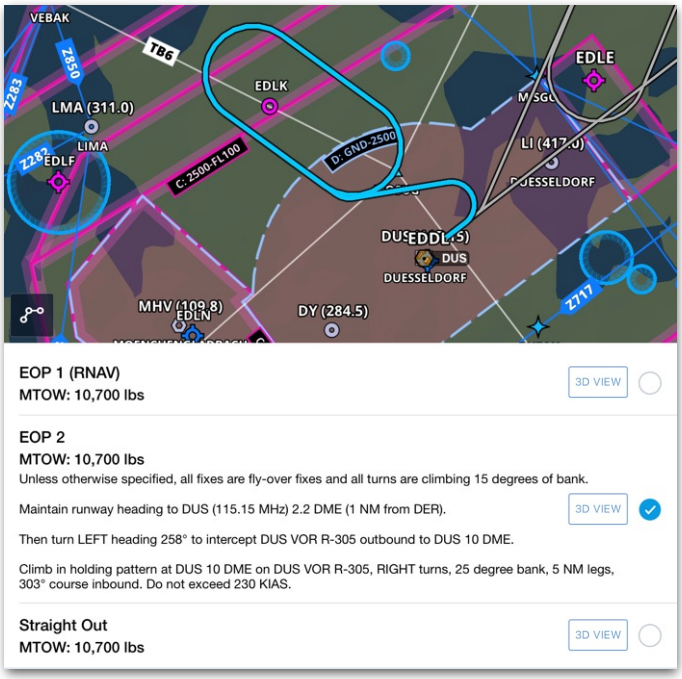
Straight Out Procedure

The *Straight Out* procedure analyzes obstacles along the runway heading and is selected by default. To select a different EOP, tap the field and select an option from the list (if available).

ForeFlight Designed Engine Out Procedures

Engine Out Procedures labeled **EOP** are designed by ForeFlight. There are over 9,000 ForeFlight EOPs to choose from, with more being regularly added.

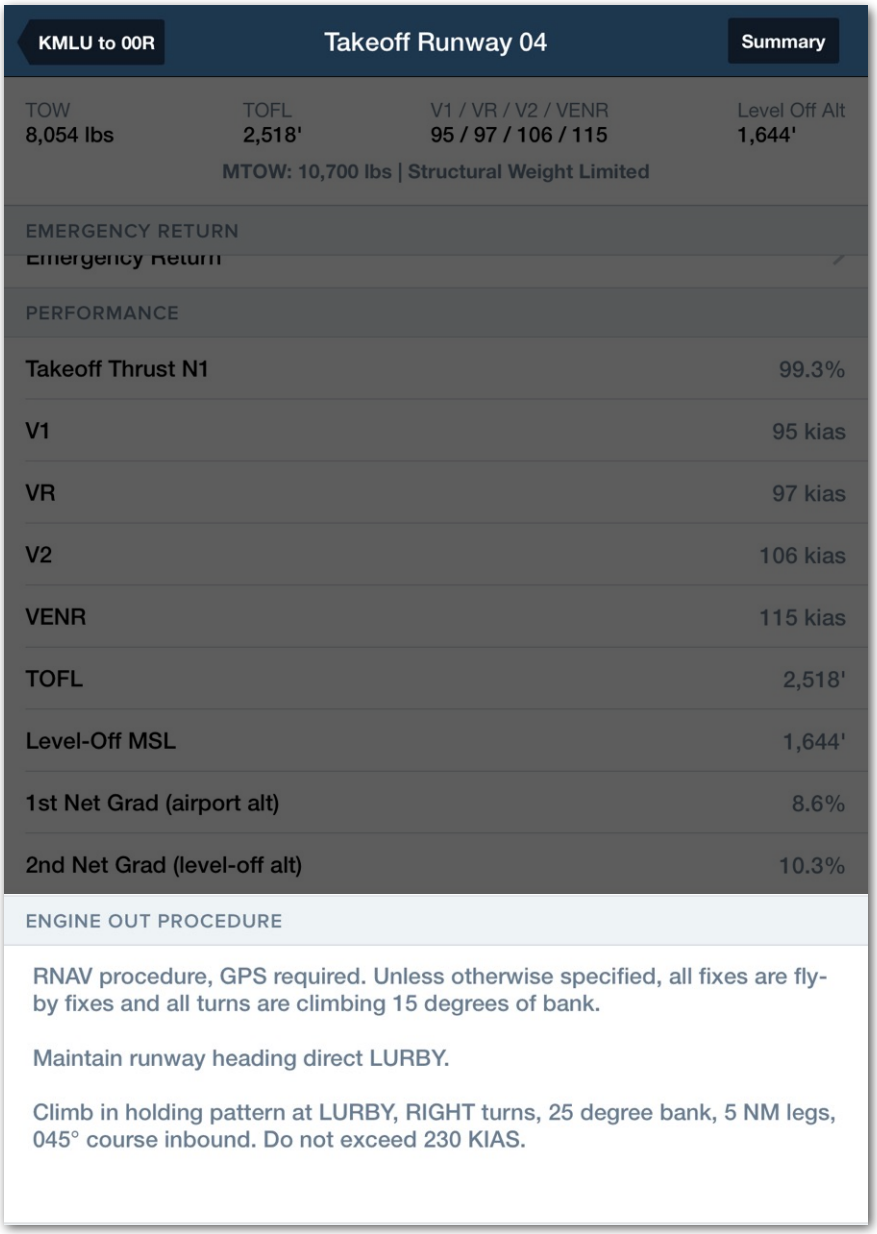
When possible, ForeFlight EOPs are overlayed onto existing Standard Instrument Departure (SID) procedures. All ForeFlight EOPs are designed in accordance with FAA Advisory Circular 120-91A.



Engine Out Procedures - EDDL Düsseldorf

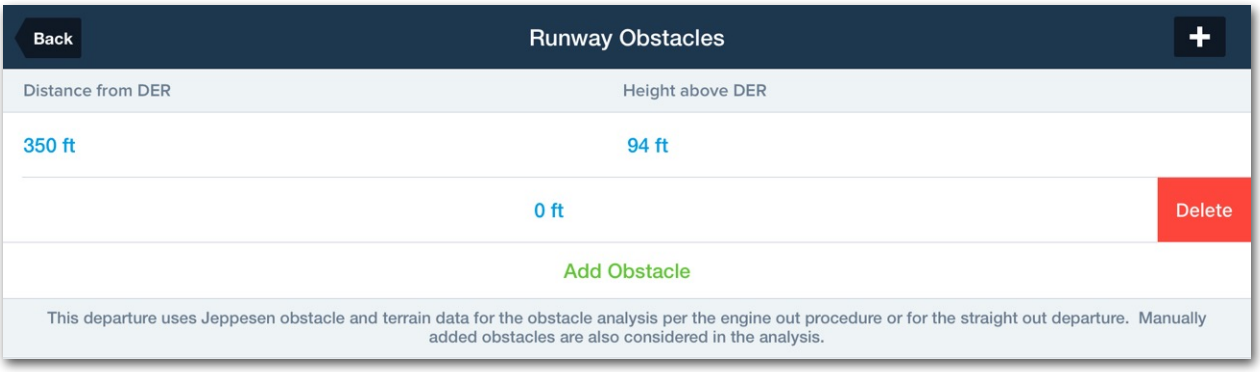
EOP Text Summary

Once an EOP has been selected, its text description and procedural steps are also displayed at the bottom of the Takeoff Analysis view.



Engine Out Procedure Section

16.3.10 Takeoff Analysis - Additional Departure Obstacles



Additional Departure Obstacles

The Additional Departure Obstacle field is used to manually add obstacles along the runway extended centerline. This feature is useful for adding obstacles that are issued via NOTAM and are not yet in the obstacle database.

Adding Obstacles

To add an obstacle, follow the steps below.

1. Tap **Additional Departure Obstacles**.
2. Tap **Add Obstacle** or the **[+]** bottom in the upper right corner.
3. Manually specify a distance from the departure end of the runway (DER).
4. Manually specify a height above the DER.
5. To add additional obstacles, repeat steps 1-3.
6. When complete, tap the **Back** button near the top of the screen.

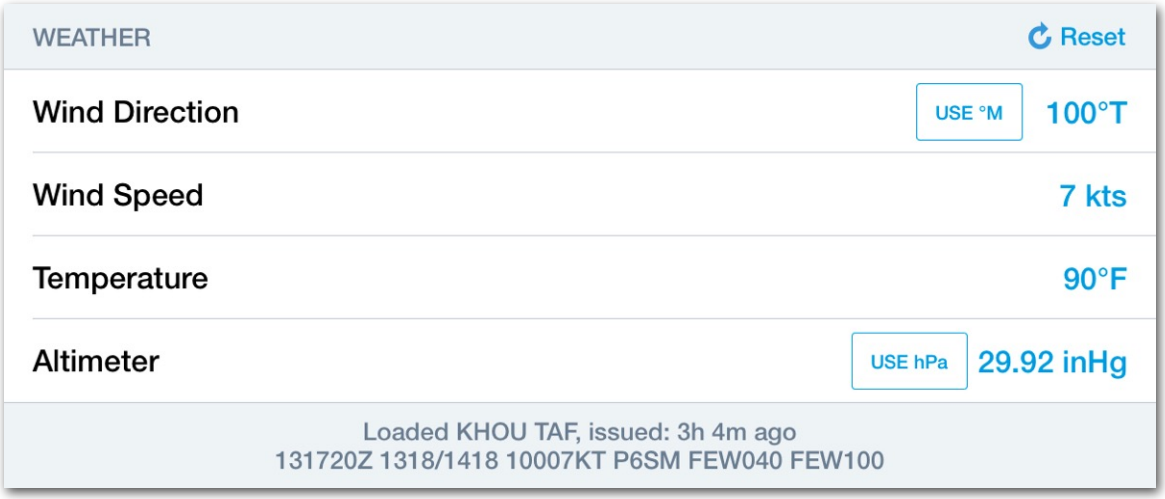
Deleting Obstacles

To delete an obstacle, swipe from right to left and tap **Delete**. When complete, tap the **Back** button near the top of the screen.

NOTE: It is not possible to add obstacles not aligned with the extended centerline.

16.3.11 Takeoff Analysis - Weather

Takeoff Analysis automatically loads the airport's latest METAR, TAF, MOS forecast, or general forecast (using ForeFlight Daily Weather) according to the flight's estimated departure time. If the departure airport does not provide weather information, Runway Analysis uses the appropriate weather from a nearby airport. The weather source and raw text are displayed at the bottom of the Weather section.



Takeoff Analysis Weather Section (KHOU TAF)

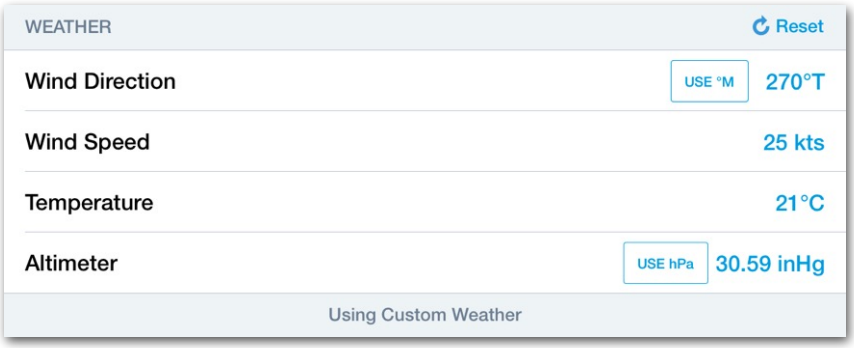
Temperature

The Aerodrome Forecast (TAF) does not include temperature data. If the Weather section indicates data is derived from a TAF, temperature data will be provided by the MOS forecast. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to “Using Custom Weather.”

When custom weather information has been entered, the performance results are updated, and the edited values are used throughout Takeoff Analysis. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.



Takeoff Analysis Custom Weather

Wind Direction

Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use ºM** button. Using magnetic winds changes the weather source to custom.

Altimeter

Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

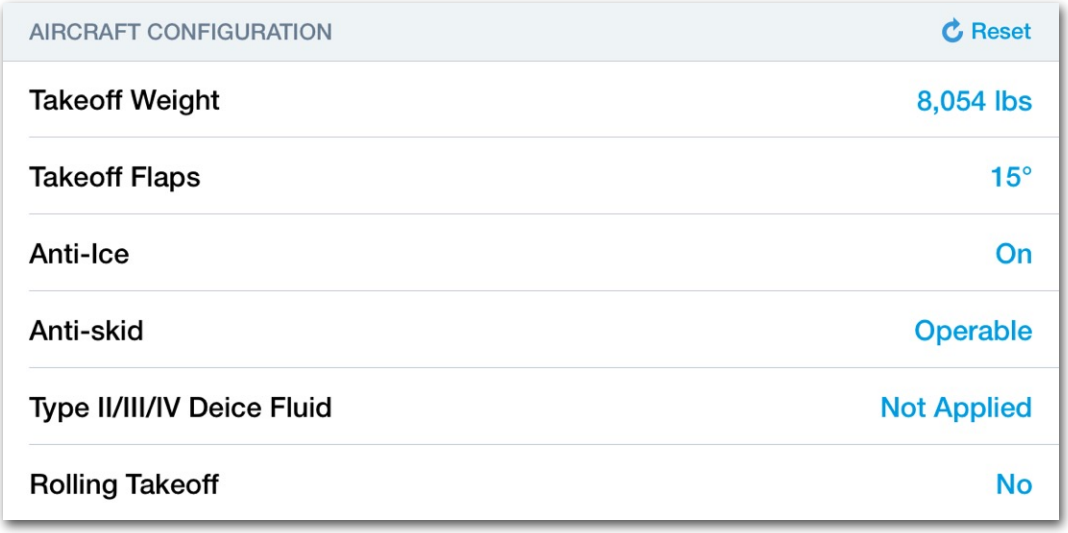
Weather Reset

To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

16.3.12 Takeoff Analysis - Aircraft Configuration

The Aircraft Configuration section is automatically populated with the planned takeoff weight and default values from the aircraft **Field Performance** settings.

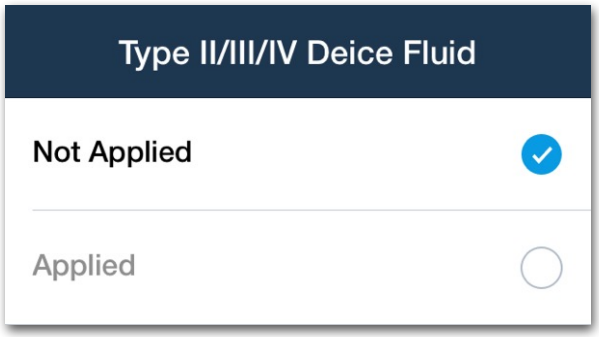
Each field in the section can be edited to accommodate a non-standard takeoff configuration. Adjusting the takeoff configuration updates the planning results.



Takeoff Analysis Aircraft Configuration

Aircraft Configuration Checks

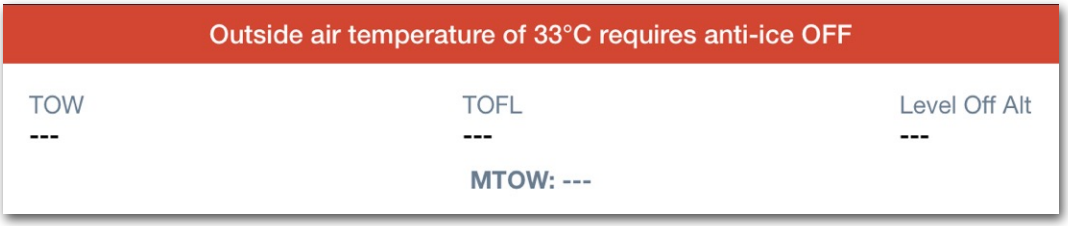
Some aircraft equipment may have limitations that prohibit a configuration from being selected. For example, this aircraft is prohibited from applying deicing fluid with takeoff flaps. When takeoff flaps are selected, the Deice Fluid Applied option is displayed in gray but is not selectable.



Configuration Unavailable

Aircraft Configuration Errors

If a takeoff configuration is selected that exceeds a limit, an error is displayed. In this example, the anti-ice setting was enabled outside of published limits.



Takeoff Configuration Error Message

Aircraft Configuration - V1 Type

Takeoff decision speed (V1) is a calculated value that is affected by multiple variables (takeoff weight, thrust, aircraft configuration, and runway length). Most non-transport category aircraft calculate a single V1 speed using the balanced field length technique.

Some larger aircraft provide performance results for multiple V1 speeds. When planning with one of these types of aircraft, there are options for selecting a V1 speed (V1 Min, V1 BFL, or V1 Max).

Balanced Field Length (BFL)

The balanced field length is a condition where the distance required to stop the aircraft after an abort (at V1) equals the distance required to continue the takeoff and reach 35 ft above the runway surface. With a single V1 speed, the pilot can abort or continue the takeoff at V1 in the event of an engine failure.

Unbalanced Field Length

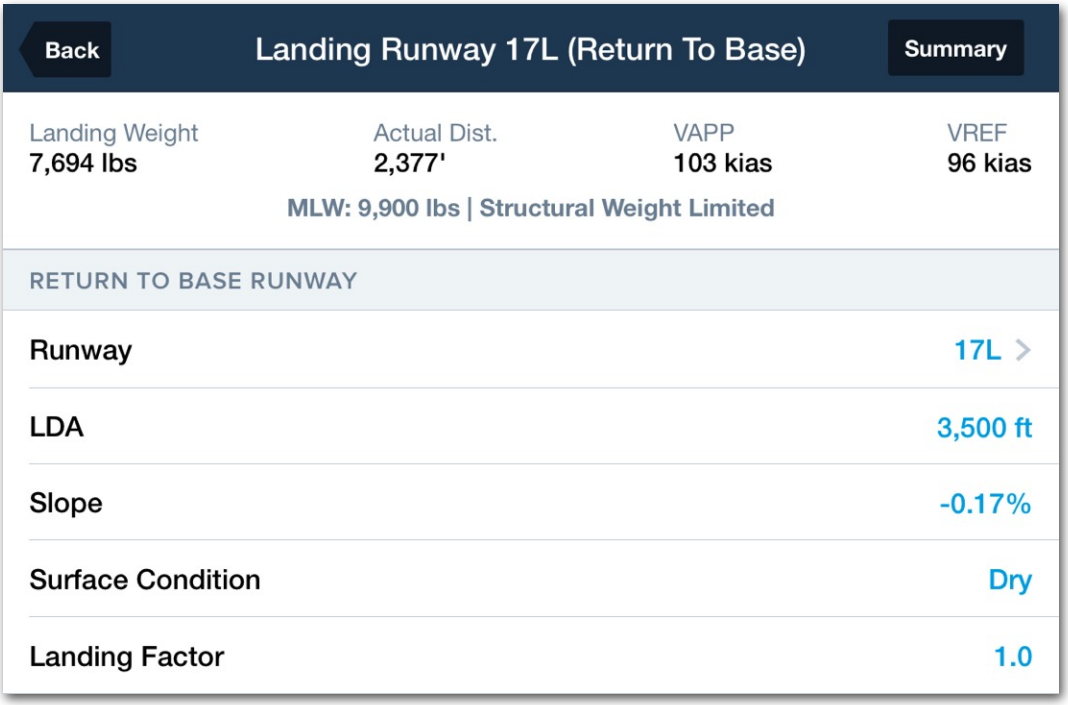
When planning with an aircraft that supports unbalanced V1 speed calculations, Takeoff Analysis provides **V1 Min**, **V1 BFL**, and **V1 Max** options.

- **V1 Min** is the minimum V1 speed published for the flight conditions and results in a shorter accelerate stop distance but a higher accelerate-go distance.
- **V1 BFL** is the speed that results in equal accelerate-stop and accelerate-go distances.
- **V1 Max** is the maximum V1 speed published for the flight conditions and results in a shorter accelerate go distance, but a higher accelerate stop distance.

16.3.13 Takeoff Analysis - Emergency Return

The Emergency Return section is used to perform a Landing Analysis for the departure airport in the event of an emergency after departure. To conduct an Emergency Return analysis, tap the field and select a runway.

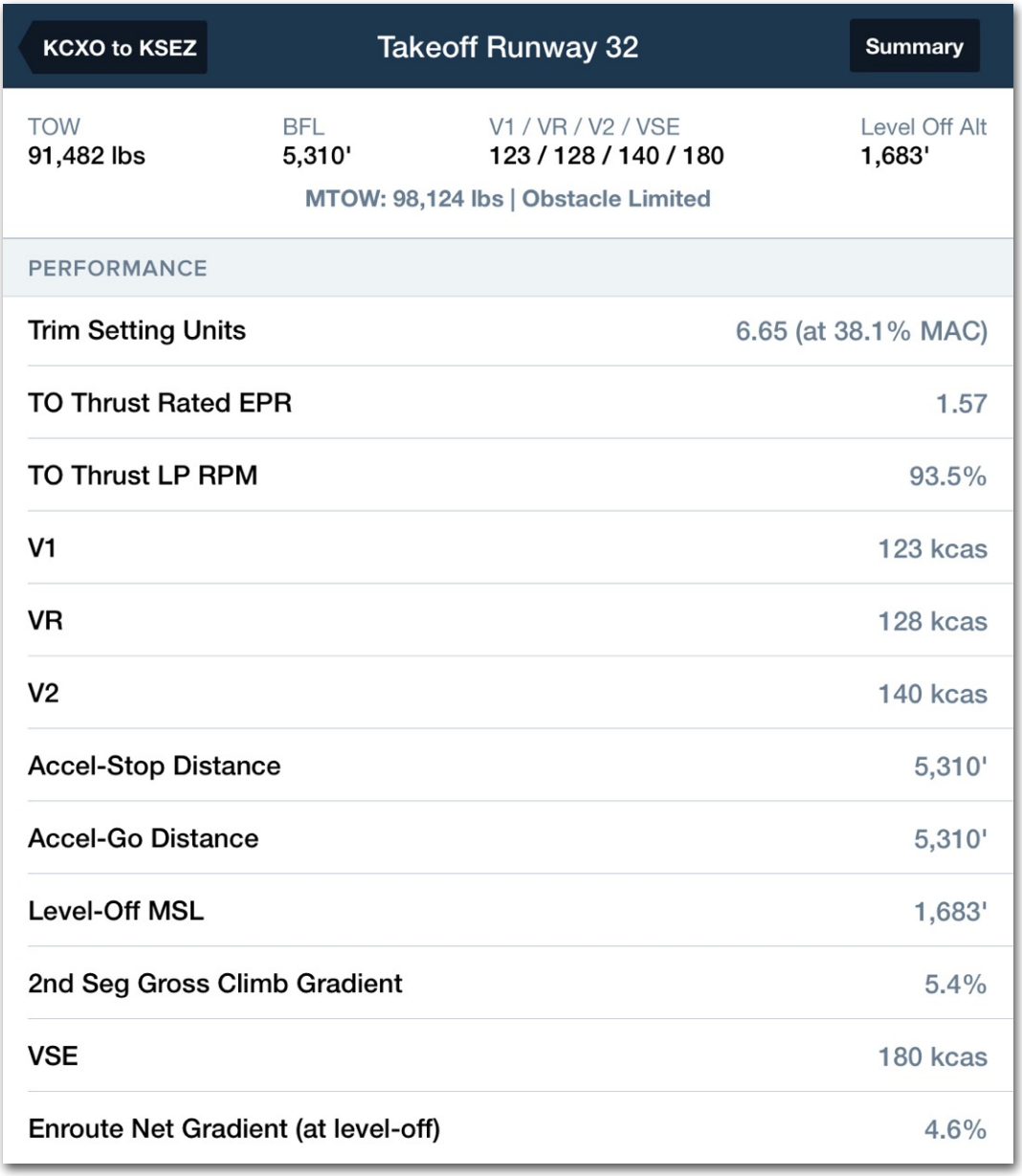
If an Emergency Return results in an overweight condition, a warning message is displayed at the top of the Emergency Return view. However, that warning is not also displayed on the Flights view since an emergency return is often expected to be overweight.



Emergency Return - Landing Analysis

16.3.14 Takeoff Analysis - Performance

The Performance section contains all takeoff performance results for the selected runway. The items in the Performance section vary by aircraft type and represent the information found in the AFM. The results discussed in this section are only included in the results if they are related to the selected aircraft. Performance results cannot be edited directly.



Takeoff Analysis - Performance Section

Performance Results

Performance results include values related to aircraft power, speed, distance, and altitude. These values correlate to individual takeoff, climb, and level-off segments as defined in the AFM.

Some aircraft are certified with two level-off and accelerate segments. The first segment is typically between 400 ft and 1,500 ft AGL and the second is 1,500 ft or higher. Once the aircraft is 1,500 ft or higher and reaches the en-route speed, Takeoff Analysis is complete.

If the aircraft is certified with two level-off and accelerate segments, the performance results are included in the Takeoff Analysis.

Takeoff Trim

Runway Analysis supports Takeoff Trim for select aircraft (listed below). To generate Takeoff Trim results, calculate weight and balance (W&B) using the integrated W&B tool with a profile that has %MAC enabled. If Weight & Balance is not calculated with %MAC enabled, the error message “CG Unavailable” is displayed in place of the trim results.

Takeoff Trim results are displayed near the top of the Takeoff Analysis Performance section and in the **Runway Analysis Summary Document**.

- Challenger 300
- Challenger 604
- Challenger 605
- Challenger 650
- Falcon 900DX/900DX API Winglets
- Falcon 900EX/900EX EASy
- Falcon 900LX
- Global 5000 87.7k
- Global 5000 88.7k
- Global 5000 89.7k
- Global 5000 92.5k
- Global 6000 98k
- Global 6000 99.5k
- Global Express 93.5k
- Global Express 95k
- Global Express 96k
- Global Express 98k
- Global XRS 98k
- Global XRS 99.5k
- Global 7500
- Learjet 35A
- Learjet 40XR
- Learjet 45XR
- Learjet 60
- Learjet 60XR
- Learjet 70
- Learjet 75
- Phenom 300/300E
- Gulfstream IV
- Gulfstream IV/SP
- Gulfstream V
- Gulfstream VII-500
- Gulfstream VII-600
- Gulfstream 150
- Gulfstream 200
- Gulfstream 280
- Gulfstream 300
- Gulfstream 350
- Gulfstream 400
- Gulfstream 450
- Gulfstream 550
- Gulfstream 650
- Gulfstream 650ER
- Pilatus PC-24
- Cessna 680 Citation Sovereign
- Cessna 680 Citation Sovereign+
- Cessna 680A Citation Latitude

Speed-Related Definitions

The following results related to aircraft indicated airspeed may be found in the Performance section.

- **V_1** is the speed by which the pilot must initiate an action to abort the takeoff in the event of an engine failure.
- **V_R** is the speed at which the pilot initiates rotation by pulling back on the yoke or stick to transition to flight.
- **V_2** is the speed that must be attained when the aircraft is 35 ft above the runway surface with one engine inoperative. V2 is also the target climb speed after engine failure to maintain through initial level-off.
- **50' Speed** is the climb speed reached at the end of the total takeoff distance while 50 ft AGL (gear down and takeoff flaps).
- **V_{SE}** is the clean configuration climb speed after all obstacles have been cleared.
- **V_{FTO}** is the takeoff final climb segment speed.
- **V_{ENR}** is the en route climb speed, or the target speed after all obstacle segments have been completed and the aircraft is clear of all obstacles. Once the aircraft reaches this speed, the Takeoff Analysis portion of the flight is complete.

Distance-Related Results

The following aircraft distance-related results may be found in the Performance section.

- **Ground Roll** - Takeoff roll (ground roll) is the portion of the takeoff procedure during which the airplane is accelerated from a standstill to an airspeed that provides sufficient lift to become airborne.
- **BFL** is the balanced field length. This distance is determined by finding the V1 speed that results in an equal distance for accelerate-go and accelerate-stop.
- **Total Dist** is the distance required to complete a takeoff to 35 ft above the runway surface.
- **TOFL** is the takeoff field length, or the length required to complete a takeoff to 35 ft above the runway surface.

16.4 Conducting Landing Analysis

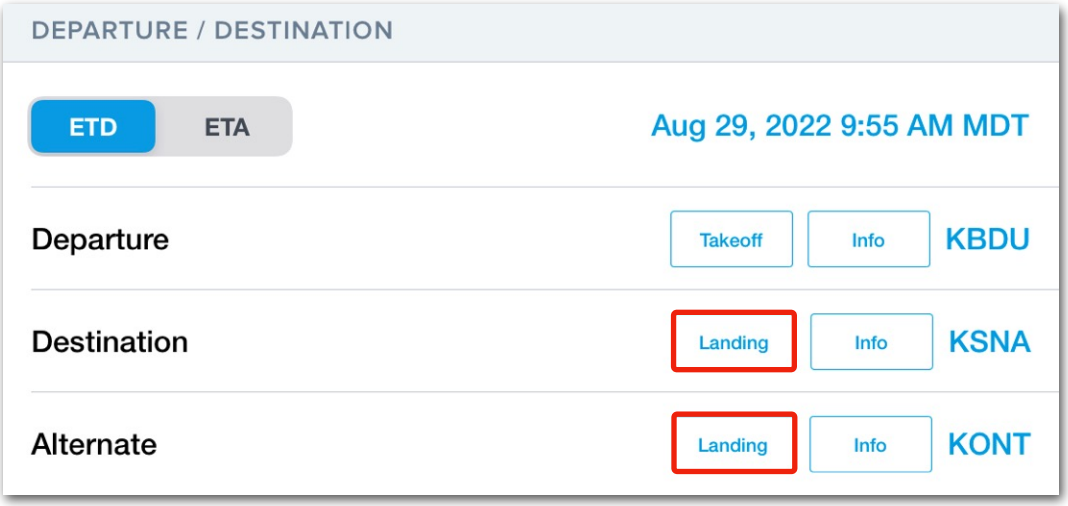
Landing Analysis determines the maximum landing weight, landing distance, and landing reference speed for the selected runway and aircraft configuration.

To conduct a Landing Analysis, enter the flight's route, payload, and fuel details into the Flights view then tap the **Landing** button next to the destination or alternate airport and select a runway.

To conduct a Landing Analysis for the departure airport, select the **Emergency Return** option from the Takeoff Analysis view. Landing Analysis results are calculated once a runway is selected.

The **Takeoff** or **Landing** buttons may be hidden under the following conditions:

- The selected aircraft does not support Runway Analysis.
- A Runway Analysis license for the aircraft has not been purchased.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.



Landing Analysis Buttons

16.4.1 Landing Analysis View

The Landing Analysis view is organized into sections. At the top of the view, a Performance Summary displays key performance metrics for quickly evaluating a landing.

Each Landing Analysis section is described in detail throughout this chapter.

Landing Analysis Sections

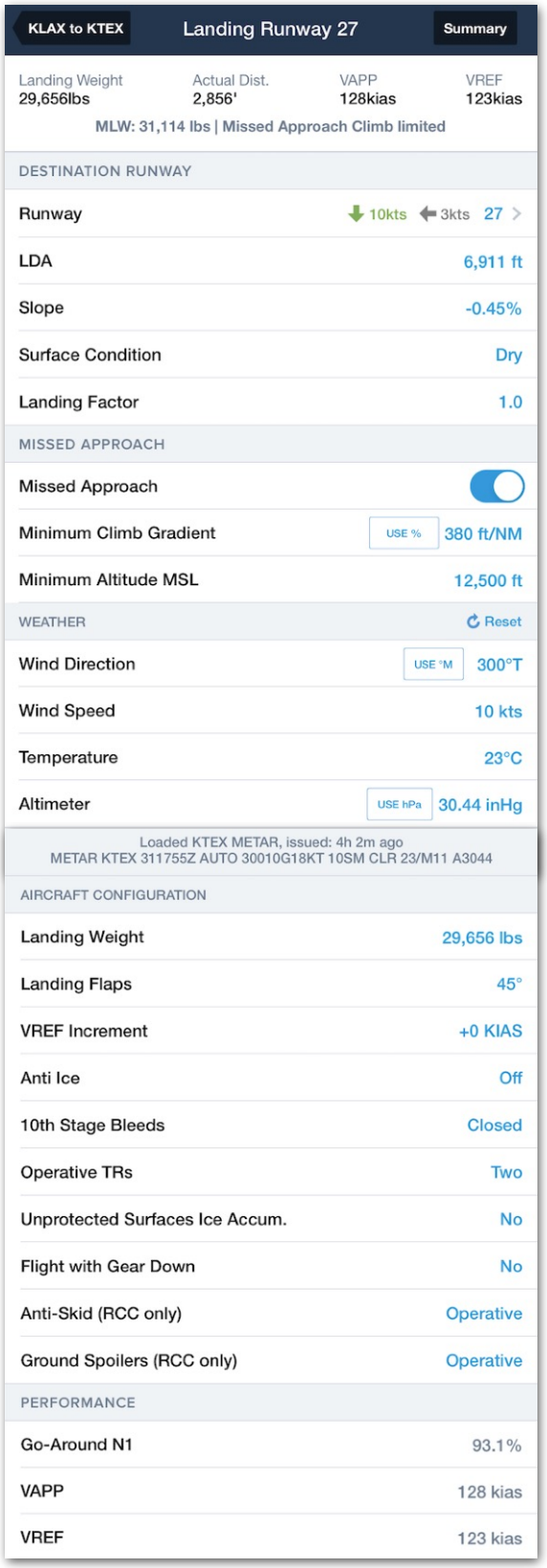
- Performance Summary
- Destination Runway
- Missed Approach
- Weather
- Aircraft Configuration
- Performance.

Takeoff Analysis Default Data

When planning a new flight, Landing Analysis is automatically populated with the latest runway data, current (or forecast) weather, and default aircraft configuration.

Each field in blue text can be edited from this view to plan hypothetical conditions or circumstances that are unique to the flight.

For example, if the runway usable length has changed due to construction, manually edit the runway length to represent current conditions.



Landing Analysis View

16.4.2 Landing Analysis - Performance Summary

Landing Analysis performance results are always visible at the top of the view in the Performance Summary. Additional performance data is available in the Performance section.

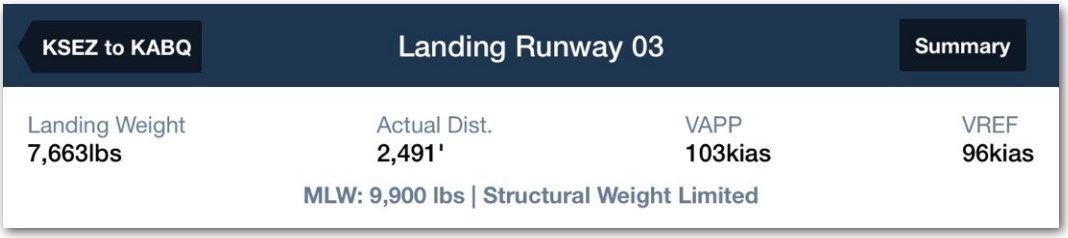
Performance results are displayed once a destination runway is selected. Results are initially based on the default landing configuration and the current or forecast weather. Results are updated each time a new destination runway is selected, or a configurable field is edited.

If a landing is deemed impossible due to a limit being exceeded, the performance summary will be blank.

Information in the summary varies based on the aircraft type. The information found in the summary is representative of the performance results that can be derived from the AFM.



Landing Analysis Performance Summary - Single Engine Aircraft



Landing Analysis Performance Summary - Multi Engine Aircraft

16.4.3 Determining Maximum Landing Weight

Landing Analysis calculates a unique maximum landing weight (MLW) for the flight by reducing the MLW until all constraints are satisfied or the landing is deemed impossible.

For example, when planning operations to a short runway, the maximum landing weight is reduced so that the distance required to land and stop is less than the landing distance available (LDA) of the runway.

Identifying the Limiting Constraint

Landing Analysis displays the MLW and limiting constraint for the flight at the bottom of the performance summary. There are eight **potential constraints** that can limit the MLW.

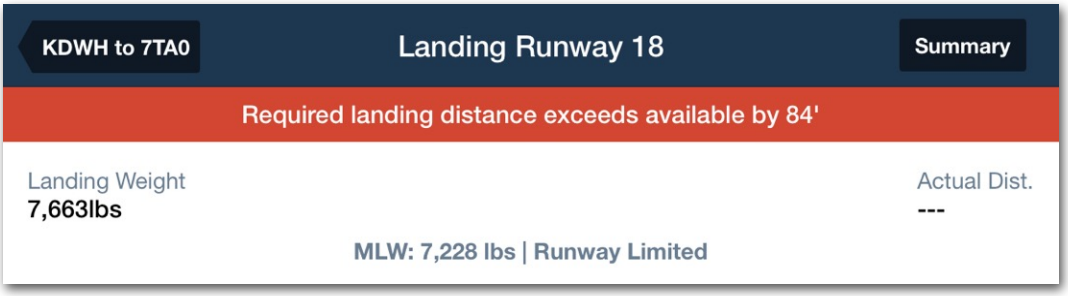


Landing Impossible Error

If Landing Analysis determines the required landing distance exceeds the landing distance available, an error message is displayed at the top of the view.

To clear the error, try the following suggestions:

- Select a different runway.
- Reduce Start Fuel or Payload.
- Manually edit winds to determine if landing under different environmental conditions results in a successful landing.
- Select a different Surface Condition (e.g., Dry).
- Adjust the Landing Factor.
- Adjust the Aircraft Configuration (e.g., enable drag-producing equipment).



Landing Impossible Error

Limiting Constraints

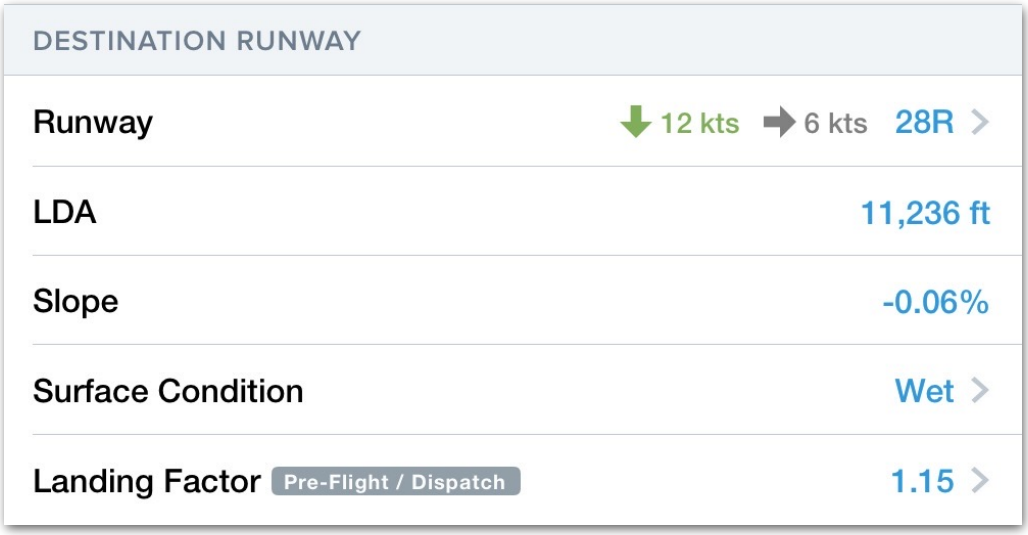
Variables that have the potential to limit the maximum landing weight or render the landing impossible are listed below. When a constraint limits the maximum landing weight (MLW), the bold text in this section is displayed at the bottom of the performance summary, followed by the word **Limited** (e.g., **Runway Limited**).

- **Structural Weight -** is the maximum structural landing weight for the aircraft type as defined by the AFM. If an aircraft is not limited by performance or environmental constraints, MLW is determined by the structural weight limit.
- **Runway -** length and weight capacity can reduce the MLW or deem a landing impossible.
- **Temperature -** can not exceed the AFM published temperature limits.
- **Wind -** components cannot exceed the AFM published wind limits.
- **Brake Energy -** required to stop the aircraft cannot exceed the published limits. This constraint is most common on downslope runways or landings with a tailwind.
- **Tire Speed -** cannot exceed the AFM published tire speed limits.
- **AFM Data -** limits exist when data interpolation is not possible. When an AFM Data limit is applicable, Runway Analysis uses the next available lower value. For example, suppose the planned landing weight is 18,500 lbs, yet performance data only exists for 20,000 lbs and 15,000 lbs. In this case, Landing Analysis will limit MLW to 15,000 lbs and the performance summary will indicate AFM Data Limited.
- **Missed Approach Climb -** limits the maximum landing weight to ensure a climb over obstacles or terrain during a missed approach. This constraint is only included if the user has filled in the Missed Approach section of the Landing Analysis.

16.4.4 Landing Analysis - Destination Runway

The Destination Runway section contains various fields for defining the runway environment. The variables (e.g., landing distance available) are automatically populated with the latest available data and can be overwritten to accommodate unique circumstances (e.g., runway NOTAMs). To overwrite a value, tap the field and enter a new value.

The fields available in the Destination Runway section vary by aircraft type. A field is only included in the Destination Runway section if it is documented as a variable that affects landing performance in the AFM (e.g., Surface Condition).



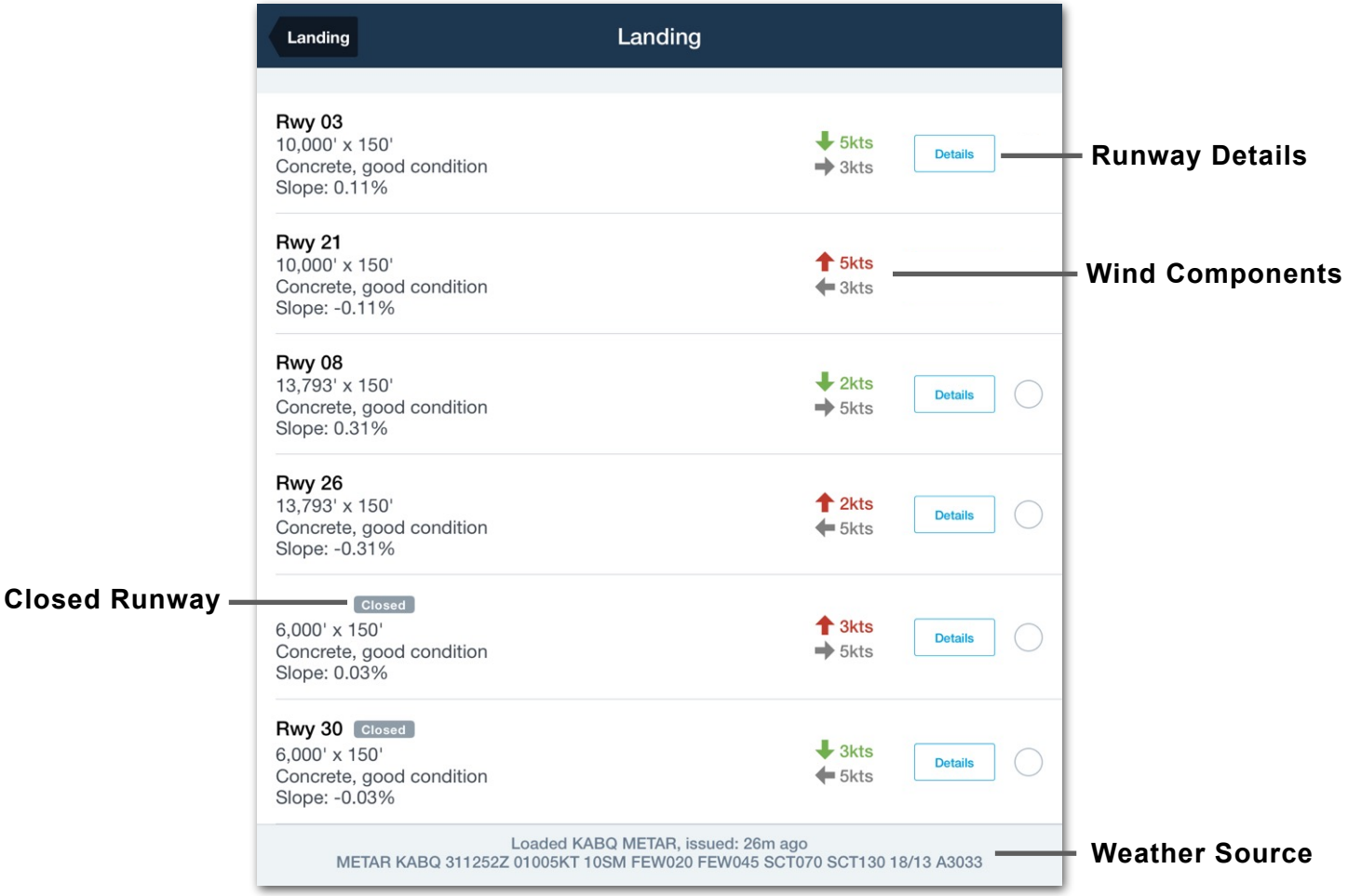
Destination Runway Section

NOTE: Runway distance reductions via NOTAM are not factored by Runway Analysis.

16.4.4.1 Selecting a Destination Runway

To select a destination runway, tap the **Runway** field and choose a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a *Closed* tag is displayed next to the runway name.

When weather data is available, the wind components for each runway are displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

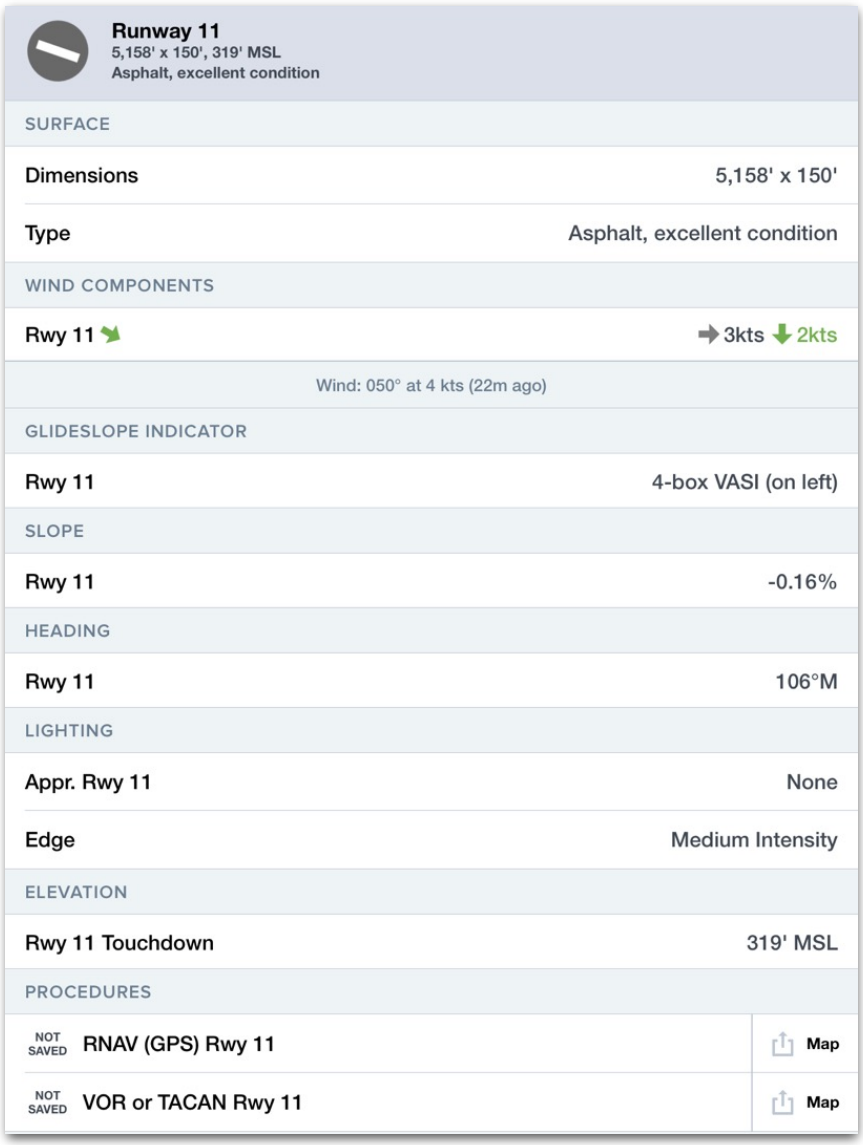


Selecting a Destination Runway

Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information, including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures

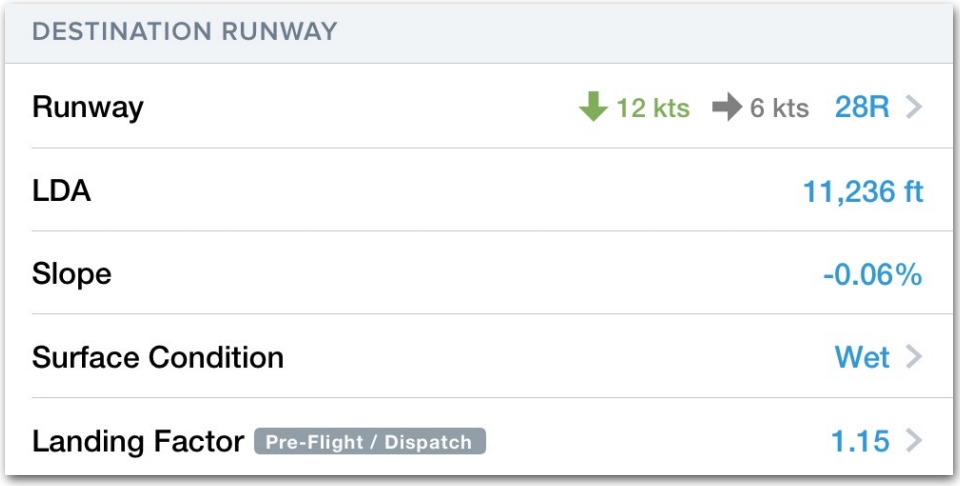


Runway Detail View

Destination Runway Field Definitions

Definitions for most terms and abbreviations used in the Landing Runway section can be found below. Items will vary by aircraft type and represent the data found in the AFM.

- **LDA** - Runway Landing Distance Available. It does not include unusable runway distance as specified by NOTAM.
- **Stopway** - The paved area beyond the portion of the runway suitable for the takeoff ground roll that can be used for stopping during a rejected takeoff.
- **Clearway** - The unpaved area clear of obstacles beyond the takeoff runway that can be used for a portion of the air distance with unbalance field length takeoffs.
- **Slope** - The difference in elevation from the beginning of the runway to the end, divided by the runway length and multiple by one hundred.
- **Surface Condition -** The physical condition of the runway according to the options published in the AFM. Dry/Not Contaminated is the default value. Tap the **Surface Condition** field to open the **Landing Factor Selector** screen.
- **Landing Factor** - The value by which the calculated landing distance is multiplied to produce the Factored Distance. The Landing Factor field will show a gray text field to indicate the phase of flight selected for the displayed landing factor. Tap the **Landing Factor** field to open the **Landing Factor Selector** screen.
- **Factored Distance** - A longer landing distance achieved by multiplying the actual distance (also called unfactored distance) with a multiplier larger than 1.0, called the factor. This is done to provide a safety buffer distance to avoid landing overruns. The landing factor is never less than 1.0.



Destination Runway Section

16.4.4.2 Landing Factor Selector

To select a runway surface condition or landing factor tap either the **Surface Condition** or **Landing Factor** field. The Landing Factor Selector allows for independent phase of flight selections for **Pre-Flight/Dispatch** and **In-Flight/LDTA** runway conditions and landing factors.

Phase of Flight

The Phase of Flight selector has two options:

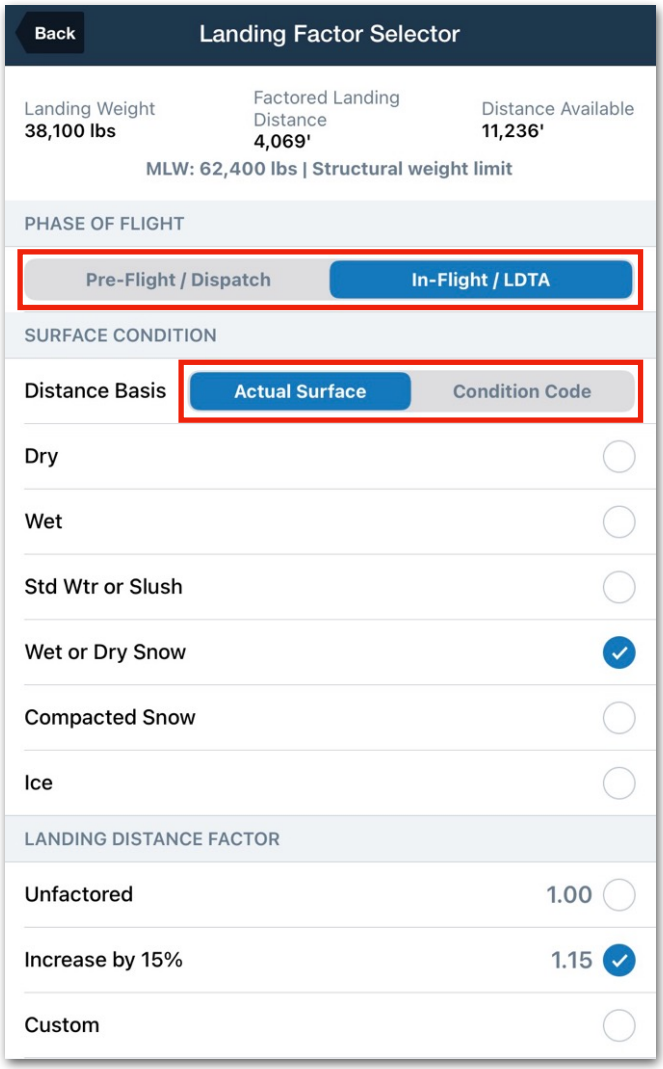
- **Pre-Flight/Dispatch** - is intended for planning and allows for inputs of forecast surface conditions and landing distance factor.
- **In-Flight/LDTA** - is intended for calculating landing distance once the actual runway conditions are known. This phase of flight selection adds **Distance Basis** options.

Distance Basis has two options:

- **Actual Surface** - select the reported surface conditions of the runway.
- **Condition Code** - select the reported Runway Condition Code (RWYCC).

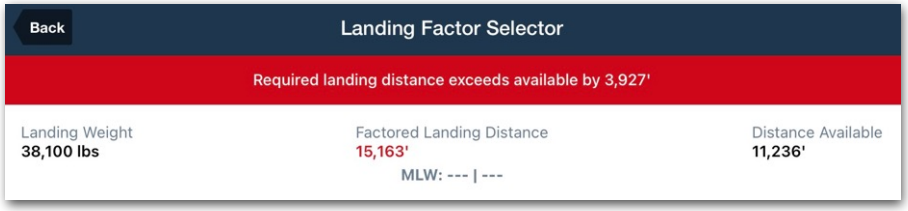
Landing Distance Factor has both preset and custom selections.

To set custom landing factor tap the Custom field and enter the landing factor in the pop-over box. Factors are input by percentage. For example an entry of 1.25 would result in the landing distance being increased by 25%. Factors lower than 1 are not permitted.



Landing Factor Selector

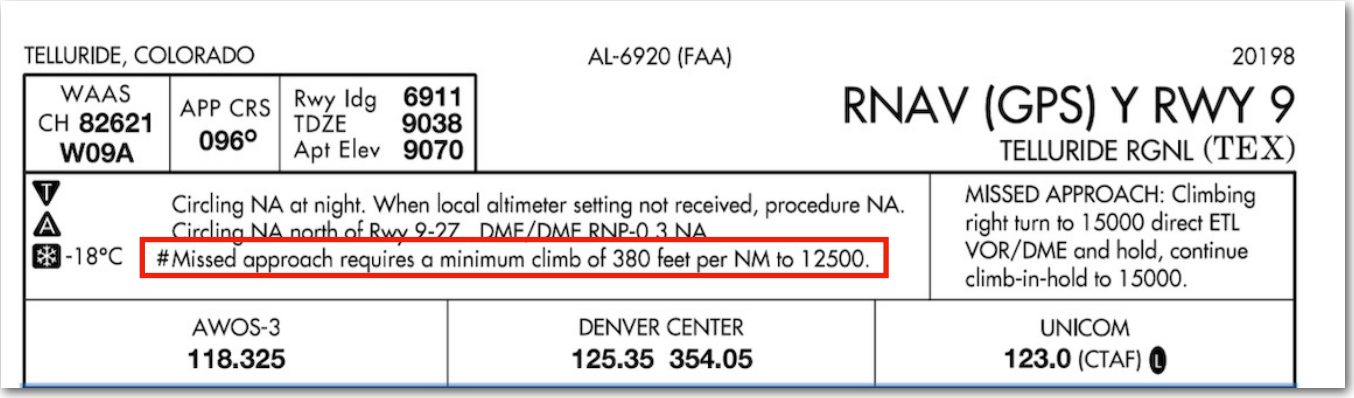
NOTE: If the selected landing factor calculation is more than the available landing distance of the runway, a warning will display.



Landing Distance Warning

16.4.5 Landing Analysis - Missed Approach

The optional Missed Approach section determines if an aircraft can safely climb over terrain and obstacles when executing a missed approach. If an airport requires a non-standard minimum climb gradient and climb-to altitude to execute the missed approach, this information will be listed in the appropriate approach plate and can be entered into ForeFlight to update the landing analysis computation.

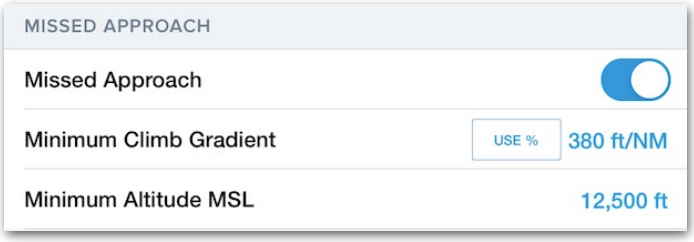


Approach Plate with Missed Approach Requirements

To include missed approach requirements in the landing analysis, follow these steps:

1. On the Landing Analysis view, toggle the **Missed Approach** switch on to reveal the Minimum Climb Gradient and Minimum Altitude MSL fields.
2. Enter the **Minimum Climb Gradient** as specified on the approach plate in ft per NM. The **Use %** button can be tapped to toggle this field between units of ft/NM and gradient.
3. Enter the **Minimum Altitude MSL** as specified on the approach plate.

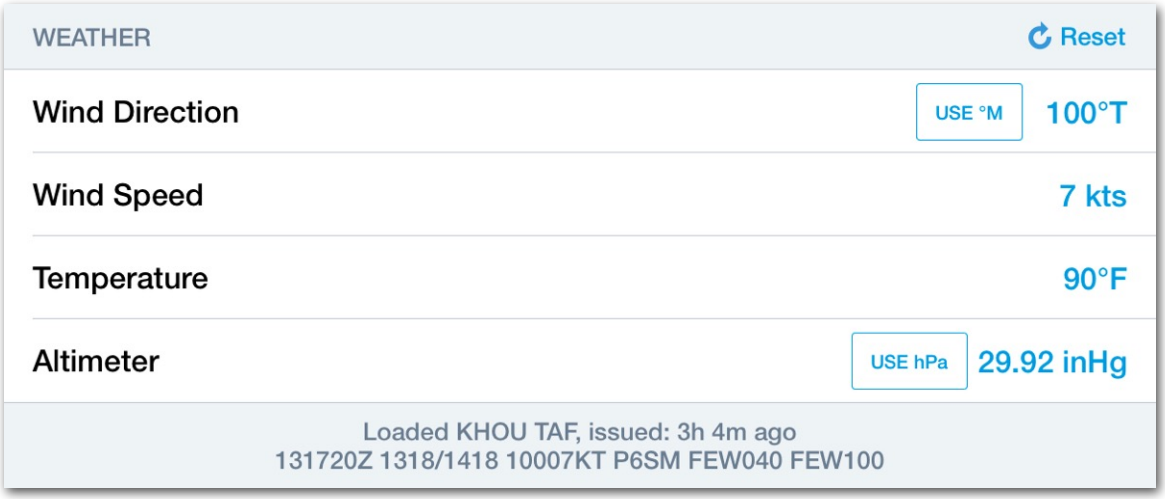
NOTE: The above information is not automatically populated by ForeFlight, and must be manually entered by the pilot.



Missed Approach Section

16.4.6 Landing Analysis - Weather

Landing Analysis automatically loads the airport's latest METAR, TAF, MOS forecast, or general forecast (using ForeFlight Daily Weather) according to the flight's estimated departure time. If the destination airport does not provide weather information, a nearby airport's weather is used. The weather source and the raw METAR or forecast are displayed at the bottom of the weather section.



Landing Analysis Weather Section (KHOU TAF)

Temperature

The Aerodrome Forecast (TAF) does not include temperature data. If the Weather section indicates data is derived from a TAF, temperature data will be provided by the MOS forecast. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

NOTE: ForeFlight Dispatch does not use MOS forecast temperature data. Flights planned with ForeFlight Dispatch use temperature from the METAR when the flight's estimated time of departure is within 3 hours. If the ETD is greater than 3 hours when planning with Dispatch, the temperature field needs to be manually entered.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to “Using Custom Weather.”

When custom weather information has been entered, the performance results are updated, and the edited values are used throughout Landing Analysis. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.



Takeoff Analysis Custom Weather

Wind Direction

Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use ºM** button. Using magnetic winds changes the weather source to custom.

Altimeter

Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

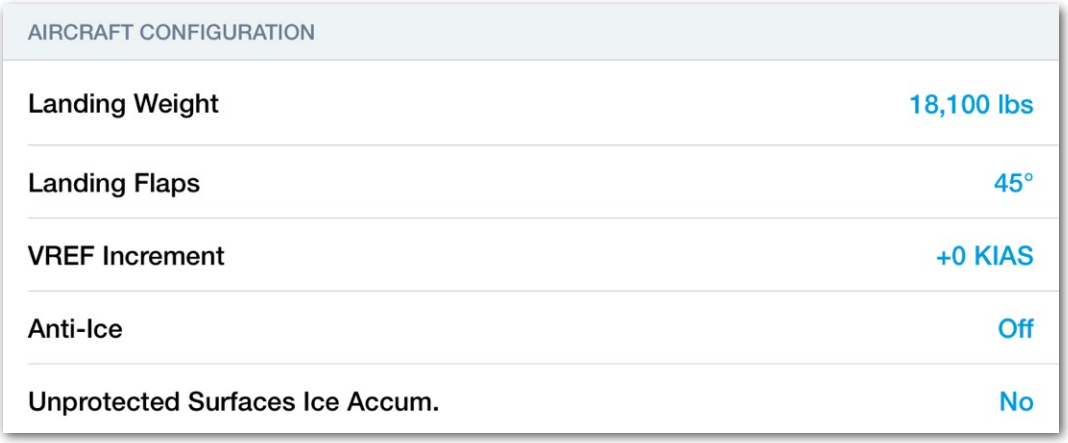
Weather Reset

To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

16.4.7 Landing Analysis - Aircraft Configuration

The Aircraft Configuration section is automatically populated with the planned landing weight and the default values from the aircraft **Field Performance** settings.

Each field in the section can be edited to accommodate a non-standard landing configuration. Adjusting the landing configuration updates the planning results.



Landing Analysis Aircraft Configuration Section

Aircraft Configuration Checks

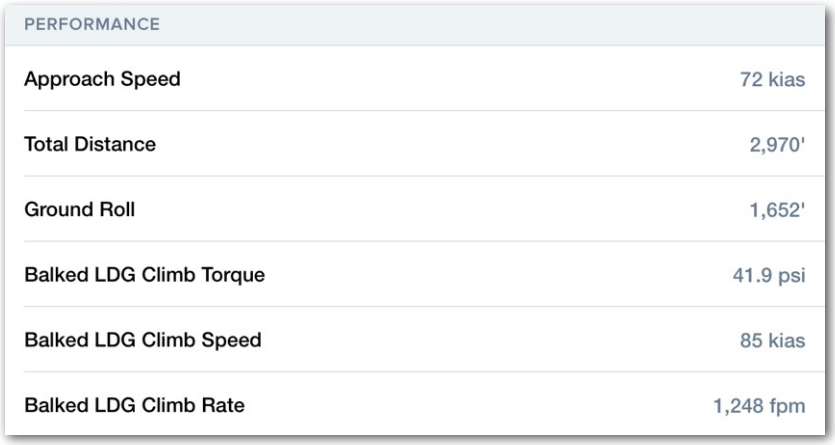
Some aircraft equipment may have limitations that prohibit a configuration from being selected. If a configuration is not possible, the item will be displayed but is not selectable.

Aircraft Configuration Errors

If a landing configuration is selected that exceeds a limit, an error message is displayed at the top of Landing Analysis, and the performance results are blank.

16.4.8 Landing Analysis - Performance

The Landing Analysis Performance section displays landing results for the selected runway (and balked landing results for single-engine aircraft). The items in the Performance section vary by aircraft type and represent the information found in the AFM. Most aircraft provide landing results related to speed and distance.



Landing Analysis Performance Section

Speed-Related Definitions

The following results may be found in the Landing Analysis Performance section.

- **V_{APP}** (Approach Speed) - A target indicated airspeed flown during the approach phase of the landing, typically at approach flap setting and gear up.
- **V_{REF}** (Reference Speed) - A target indicated airspeed slower than V_{APP} flown at landing flap settings and gear down to be achieved by 50 ft height when crossing the landing threshold.

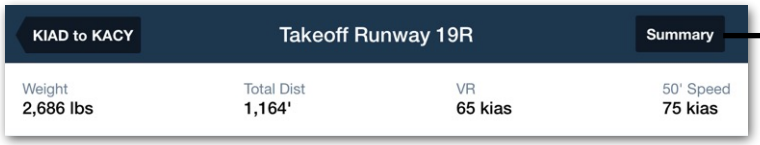
Distance-Related Definitions

- **Ground Roll** - The distance required to decelerate the aircraft to normal taxi speed after touchdown.
- **Actual Landing Distance** - The demonstrated (during flight testing) total landing distance achievable by the aircraft.
- **Factored Distance** - A longer landing distance achieved by multiplying the actual distance (also called unfactored distance) with a multiplier larger than 1.0. This is done to provide a safety buffer and thus avoiding landing overruns.

16.5 Runway Analysis Summary Document

Runway Analysis includes a Summary Document. There are two document formats. One for single-engine aircraft and another for multi-engine.

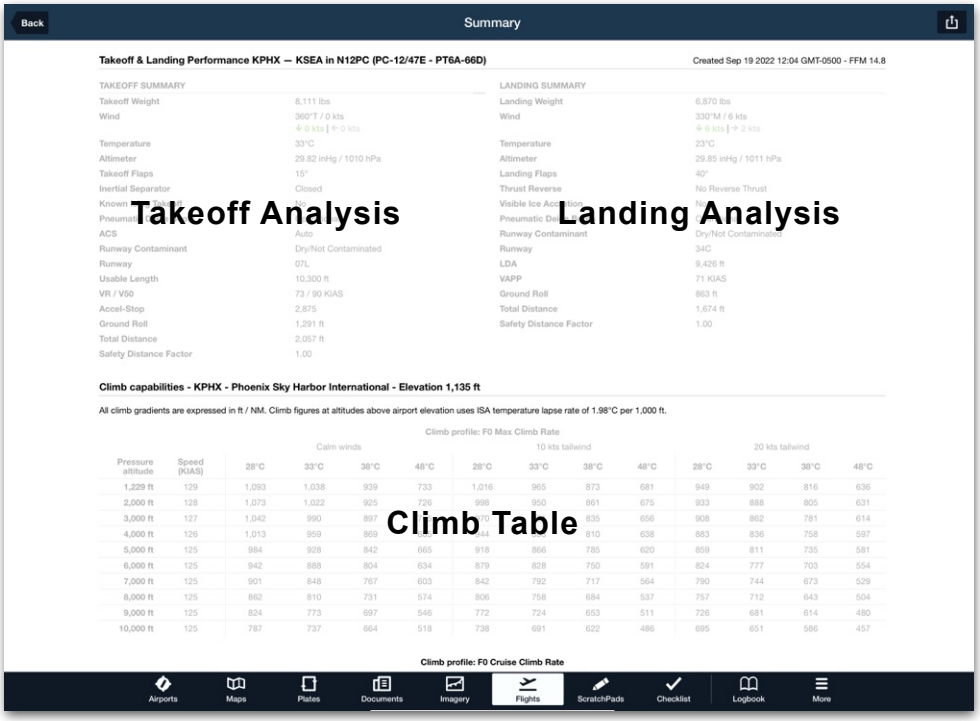
To generate the Summary Document, use Runway Analysis to select runways for the departure, destination, and alternate airport. Tap **Summary** in the upper-right corner of the Takeoff Analysis *or* Landing Analysis view. If an emergency return runway or alternate airport runway is not selected, the summary document omits this information.



Generate Summary Document

16.5.1 Single-Engine Summary Document

The Single-Engine Summary Document is organized into three sections. Takeoff and landing performance results are displayed at the top of the document. Below the takeoff and landing data is a climb performance table (when climb data is available). If an emergency return or alternate airport runway is selected, the performance results for those runways is displayed below the climb table. The climb table includes performance data for the current temperature and -5ºC, +5ºC, and +15ºC deltas.



Single-Engine Runway Analysis Summary Document

16.5.2 Multi-Engine Summary Document

The Multi-Engine Summary Document is organized into four sections.

- Takeoff and Landing Summary for the selected runways.
- Maximum Takeoff Weight Analysis for all runways at the departure airport.
- Maximum Landing Weight Analysis for all runways at the destination airport.
- Landing Summary for the alternate airport and emergency return (if selected).

Takeoff and Landing Summary Section

The Multi-Engine Takeoff and Landing Summary section contains performance, environmental, aircraft configuration, and engine-out procedure data for the selected runways. If a takeoff or landing is deemed impossible, the summary section is blank, and an error message is displayed instead.

Runway Analysis EKCH — ESSA in N12345 (Citation III - TFE 731-3BR-100S (or -3CR-100S)) Created Oct 17 2023 15:21 GMT-0400 - FFM 15.10

TAKEOFF SUMMARY - EKCH - KASTRUP

	Takeoff Weight	14,697 lbs
Runway	Runway / EOP / Intersection	04L / Straight Out / A8
	TORA / TODA / ASDA	6,102 / 6,102 / 7,975 ft
	Slope	0.01%
	Obstacle criteria	FAA 120-91A
	Surface Condition	Dry
Weather	Wind	250°T / 10 kts ↑ 9 kts | → 5 kts
	Temperature	9°C
	Altimeter	30.03 inHg / 1017 hPa
Aircraft configs	Takeoff Flaps	7°
	Bleed Air	Off
	Anti-Ice	Off
	Type II/III/IV Deice Fluid	Not Applied
	APR	Off
	Anti-Skid	On
Performance	Takeoff Thrust N1	92.7%
	V1 / VR / V2	110 / 114 / 128 KIAS
	Takeoff Distance	3,656 ft
	Acceleration / Final Level-Off MSL	1,675 / 1,675 ft
	1st Seg Net Grad (airport alt)	7.1%
	2nd Seg Net Grad (accel level-off alt)	9.8%
	VENR	165 KIAS
	Enr Seg Net Grad (final level-off alt)	7.8%
	Takeoff Trim	CG Unavailable

LANDING SUMMARY - ESSA - ARLANDA

	Landing Weight	13,485 lbs
Runway	Runway	01L
	LDA	10,830 ft
	Slope	0.18%
	Surface Condition	Dry
Weather	Wind	277°T / 7 kts ↑ 1 kts | → 7 kts
	Temperature	6°C
	Altimeter	30.03 inHg / 1017 hPa
Aircraft configs	App/Landing Flaps	20°/Full
	VREF Increment	+0 KIAS
	Bleed Air	Off
	Anti-Ice	Off
	Anti-Skid	On
	Landing Factor	1.00
Performance	Go-Around Thrust N1	92.7%
	VAPP / VREF	114 / 111 KIAS
	Actual Distance	2,147 ft
	Approach Gross Climb Gradient	11.6%
	Landing Gross Climb Gradient	30.3%

TAKEOFF ENGINE OUT PROCEDURE

Continue straight on extended runway centerline.

Takeoff and Landing Summary Section

Max Takeoff Weight Analysis

The Maximum Takeoff Weight (MTOW) Analysis section contains the MTOW for each runway at the departure airport. Performance results for temperatures above and below the planned temperature are displayed on unique rows. Results for all available engine-out procedures and displayed in columns.

The constraint that limits MTOW is displayed below the results for the scenario. If a takeoff is deemed impossible for a runway, the text **Takeoff Impossible** replaces the performance results.

Max Takeoff Weight Analysis - EKCH - Kastrup - Elevation 17 ft

	SELECTED RUNWAY					
Runway	04L		22R		04R	
TORA/TODA/ASDA	6,102 / 6,102 / 7,975 ft		11,791 / 11,791 / 11,791 ft		10,833 / 10,833 / 10,833 ft	
Slope	0.01%		-0.01%		-0.04%	
Winds	↑ 9 kts | → 5 kts		↓ 9 kts | ← 5 kts		↑ 9 kts | → 5 kts	
	EOP 1 (RNAV)	Straight Out	EOP 1 (RNAV)	Straight Out	EOP 1 (RNAV)	Straight Out
Possible Intersections	A8 A9 E4	A8 A9 E4	A2 A3 A4 A5	A2 A3 A4 A5	B2 B3 B4/C	B2 B3 B4/C
OAT						
MTOW (lbs) LIMIT 3°C	19,982 TO Thrust Time	19,982 TO Thrust Time	21,282 TO Thrust Time	21,282 TO Thrust Time	19,991 TO Thrust Time	19,991 TO Thrust Time
5°C	19,984 TO Thrust Time	19,984 TO Thrust Time	21,279 TO Thrust Time	21,279 TO Thrust Time	19,992 TO Thrust Time	19,992 TO Thrust Time
7°C	19,995 TO Thrust Time	19,995 TO Thrust Time	21,273 TO Thrust Time	21,273 TO Thrust Time	20,005 TO Thrust Time	20,005 TO Thrust Time
9°C	20,008 TO Thrust Time	20,008 TO Thrust Time	21,275 TO Thrust Time	21,275 TO Thrust Time	20,020 TO Thrust Time	20,020 TO Thrust Time
11°C	20,020 TO Thrust Time	20,020 TO Thrust Time	21,281 TO Thrust Time	21,281 TO Thrust Time	20,031 TO Thrust Time	20,031 TO Thrust Time
13°C	20,016 TO Thrust Time	20,016 TO Thrust Time	21,277 TO Thrust Time	21,277 TO Thrust Time	20,027 TO Thrust Time	20,027 TO Thrust Time
15°C	19,918 TO Thrust Time	19,918 TO Thrust Time	21,169 TO Thrust Time	21,169 TO Thrust Time	19,928 TO Thrust Time	19,928 TO Thrust Time

Runway	22L		12		30	
TORA/TODA/ASDA	10,833 / 10,833 / 10,833 ft		9,186 / 9,186 / 9,186 ft		7,759 / 7,759 / 8,743 ft	
Slope	0.04%		-0.1%		0.1%	
Winds	↓ 9 kts | ← 5 kts		↑ 7 kts | ← 8 kts		↓ 7 kts | → 8 kts	
	EOP 1 (RNAV)	Straight Out	EOP 1 (RNAV)	Straight Out	EOP 1 (RNAV)	Straight Out
Possible Intersections	V2	V2	D K2 K3	D K2 K3		
OAT						
MTOW (lbs) LIMIT 3°C	21,264 TO Thrust Time	21,264 TO Thrust Time	20,320 TO Thrust Time	20,320 TO Thrust Time	21,156 TO Thrust Time	21,156 TO Thrust Time
5°C	21,261 TO Thrust Time	21,261 TO Thrust Time	20,330 TO Thrust Time	20,330 TO Thrust Time	21,157 TO Thrust Time	21,157 TO Thrust Time
7°C	21,255 TO Thrust Time	21,255 TO Thrust Time	20,342 TO Thrust Time	20,342 TO Thrust Time	21,155 TO Thrust Time	21,155 TO Thrust Time
9°C	21,258 TO Thrust Time	21,258 TO Thrust Time	20,350 TO Thrust Time	20,350 TO Thrust Time	21,154 TO Thrust Time	21,154 TO Thrust Time
11°C	21,264 TO Thrust Time	21,264 TO Thrust Time	20,351 TO Thrust Time	20,351 TO Thrust Time	21,154 TO Thrust Time	21,154 TO Thrust Time
13°C	21,258 TO Thrust Time	21,258 TO Thrust Time	20,340 TO Thrust Time	20,340 TO Thrust Time	21,143 TO Thrust Time	21,143 TO Thrust Time
15°C	21,151 TO Thrust Time	21,151 TO Thrust Time	20,240 TO Thrust Time	20,240 TO Thrust Time	21,034 TO Thrust Time	21,034 TO Thrust Time

Max Takeoff Weight Analysis Section

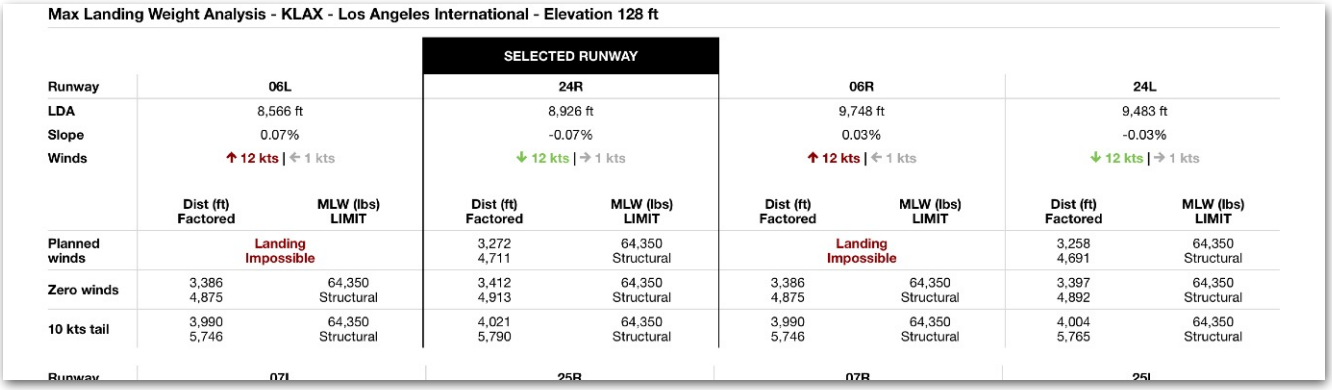
Max Landing Weight Analysis

The Maximum Landing Weight (MLW) Analysis calculates the landing distance at the calculated MLW for all runways at the destination airport. Results are given for three scenarios: zero winds, ten-knot tailwind, and the planned winds.

If a Landing Factor is selected, two distances will be shown for every scenario:

- Dist (ft) - the landing distance at the calculated MLW
- Factored - a distance that equals the calculated MLW distance (Dist (ft)) multiplied by the selected factor additive (e.g., 1.67).

If a landing is deemed impossible, the results are replaced with the text **Landing Impossible**.



Max Landing Weight Analysis - KLAX - Los Angeles International - Elevation 128 ft

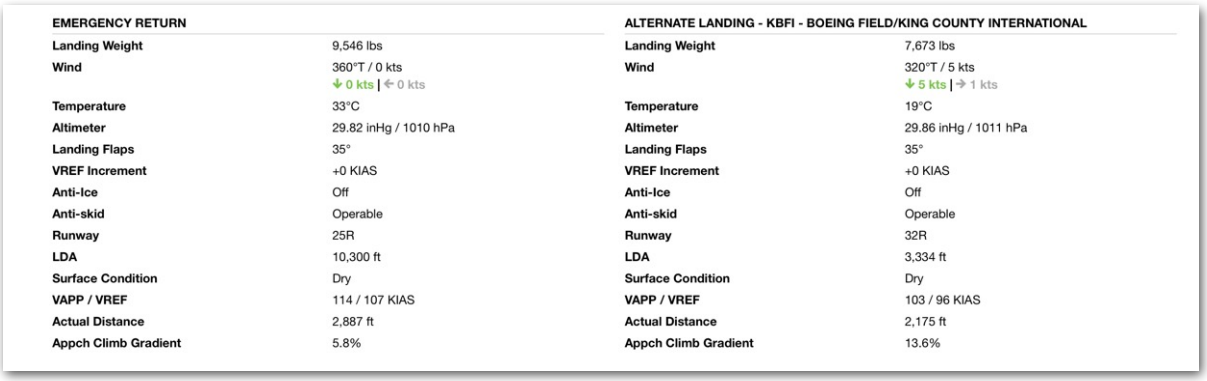
			SELECTED RUNWAY					
Runway	06L		24R		06R		24L	
LDA	8,566 ft		8,926 ft		9,748 ft		9,483 ft	
Slope	0.07%		-0.07%		0.03%		-0.03%	
Winds	↑ 12 kts | ← 1 kts		↓ 12 kts | → 1 kts		↑ 12 kts | ← 1 kts		↓ 12 kts | → 1 kts	
	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT
Planned winds	Landing Impossible		3,272 4,711	64,350 Structural	Landing Impossible		3,258 4,691	64,350 Structural
Zero winds	3,386 4,875	64,350 Structural	3,412 4,913	64,350 Structural	3,386 4,875	64,350 Structural	3,397 4,892	64,350 Structural
10 kts tail	3,990 5,746	64,350 Structural	4,021 5,790	64,350 Structural	3,990 5,746	64,350 Structural	4,004 5,765	64,350 Structural
Runway	07L		25R		07R		25L	

Max Landing Weight Analysis Section

NOTE: The Max Landing Weight Analysis does not consider data from the **Missed Approach** analysis. Use the MLW on the Landing Analysis view if Missed Approach data has been entered.

Emergency Return and Alternate Landing Analysis

When an Emergency Return runway or Alternate Airport runway is selected, a summary of the performance, environmental, and aircraft configuration data is displayed below the Max Landing Weight Analysis section.

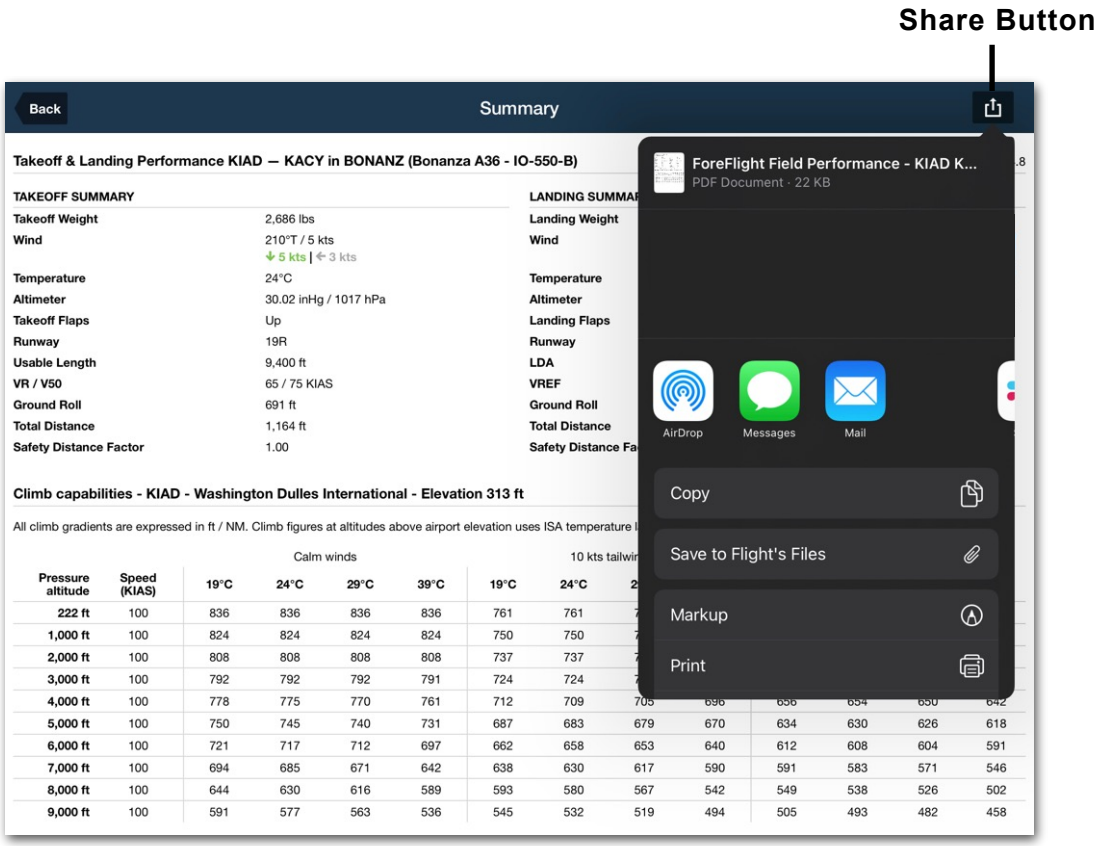


EMERGENCY RETURN		ALTERNATE LANDING - KBFI - BOEING FIELD/KING COUNTY INTERNATIONAL	
Landing Weight	9,546 lbs	Landing Weight	7,673 lbs
Wind	360°T / 0 kts ↓ 0 kts | ← 0 kts	Wind	320°T / 5 kts ↓ 5 kts | → 1 kts
Temperature	33°C	Temperature	19°C
Altimeter	29.82 inHg / 1010 hPa	Altimeter	29.86 inHg / 1011 hPa
Landing Flaps	35°	Landing Flaps	35°
VREF Increment	+0 KIAS	VREF Increment	+0 KIAS
Anti-Ice	Off	Anti-Ice	Off
Anti-skid	Operable	Anti-skid	Operable
Runway	25R	Runway	32R
LDA	10,300 ft	LDA	3,334 ft
Surface Condition	Dry	Surface Condition	Dry
VAPP / VREF	114 / 107 KIAS	VAPP / VREF	103 / 96 KIAS
Actual Distance	2,887 ft	Actual Distance	2,175 ft
Appch Climb Gradient	5.8%	Appch Climb Gradient	13.6%

Emergency Return and Alternate Landing Section

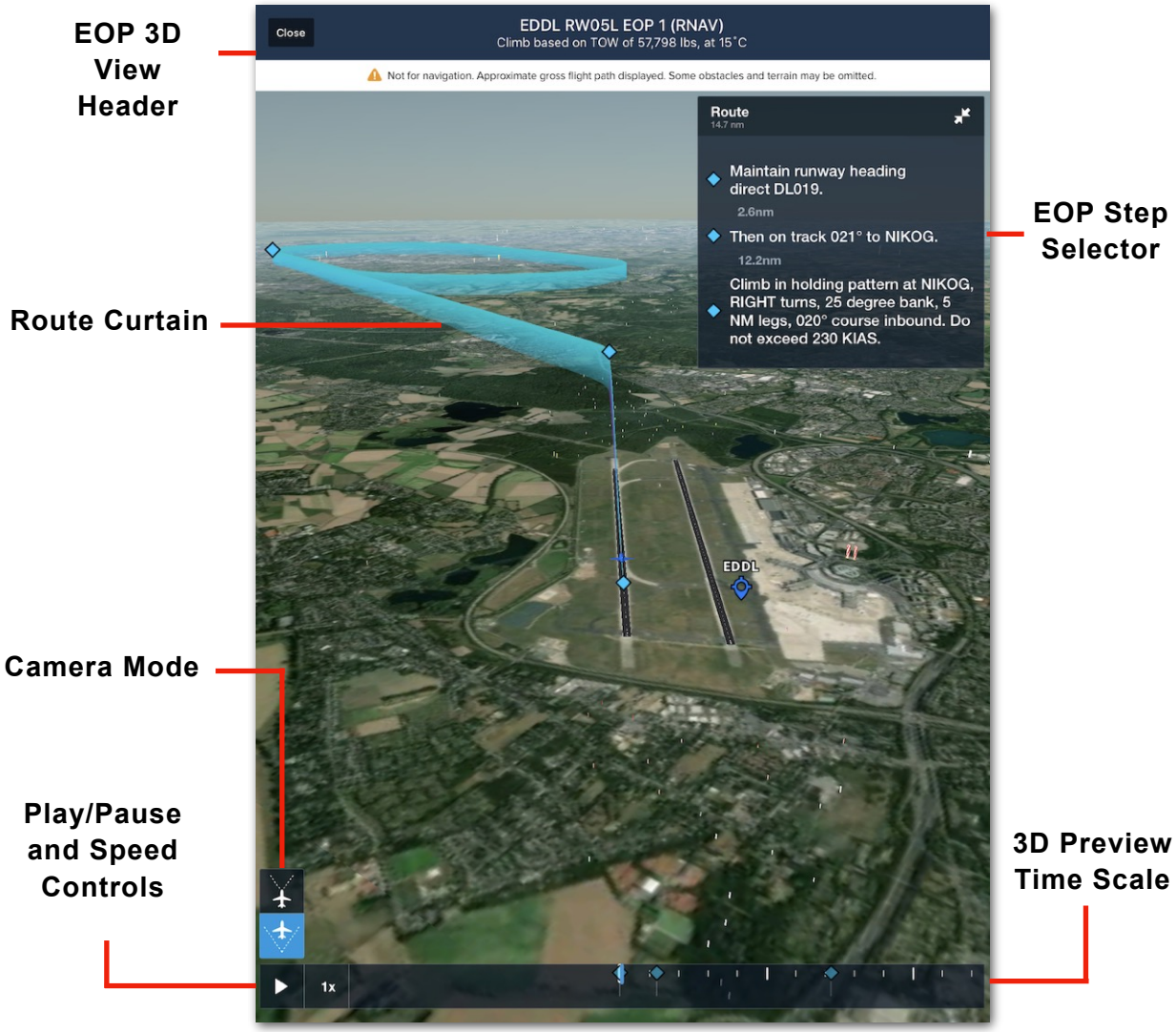
16.5.3 Summary Document Options

The Multi-Engine and Single-Engine Summary Documents can be annotated, shared, printed, or attached to a Flight by tapping the share button in the upper-right corner.



16.6 Engine Out Procedure 3D View

EOP 3D View combines high-resolution terrain data and aerial imagery to help pilots familiarize themselves with an Engine Out Procedure before takeoff. EOPs 3D View requires a Runway Analysis subscription for the aircraft used in the flight. EOPs 3D View is similar in functionality to route **3D Preview**.

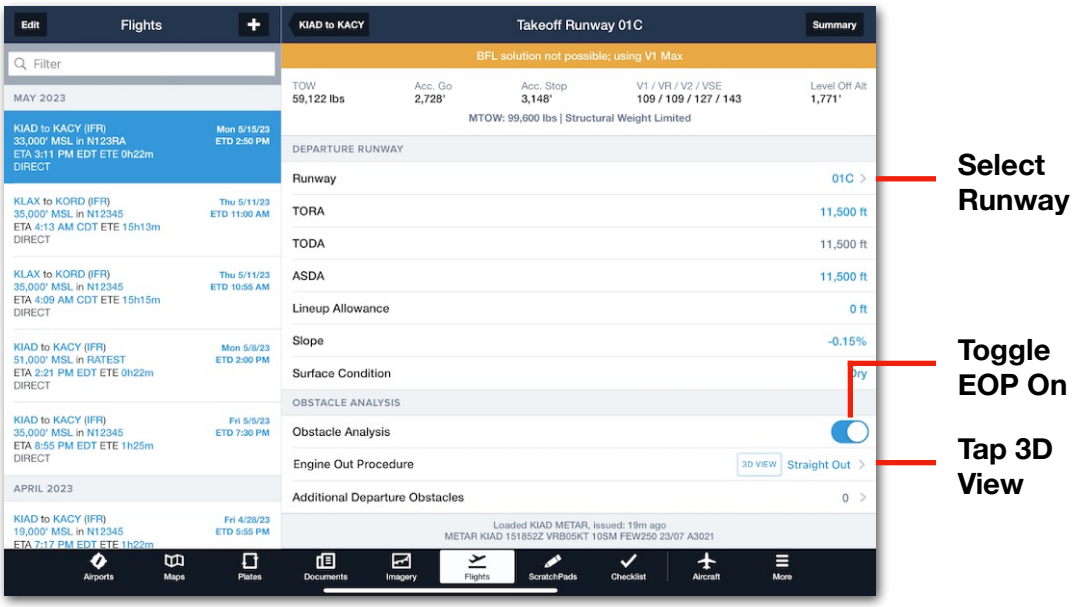


EOPs 3D View

16.6.1 Opening EOP 3D View

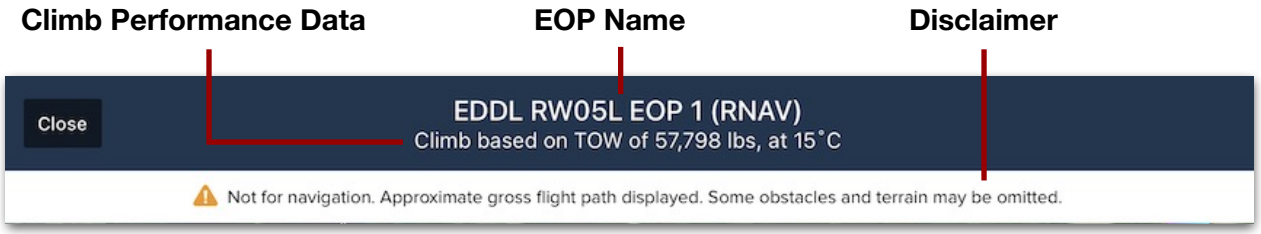
To open the 3D View, tap **Takeoff** next to the Departure airport, verify that a runway is selected, toggle on the Obstacle Analysis switch, then tap **3D VIEW** next to Engine Out Procedure.

Alternately, tap the current Engine Out Procedure (“Straight Out” in the image below) to select from other options or open their 3D View windows.



16.6.2 EOP 3D View Header

The top of the EOP 3D View window displays the EOP name and climb performance details, and a disclaimer indicating that this feature is not meant for navigation due to the use of approximate gross flight path and obstacle data.

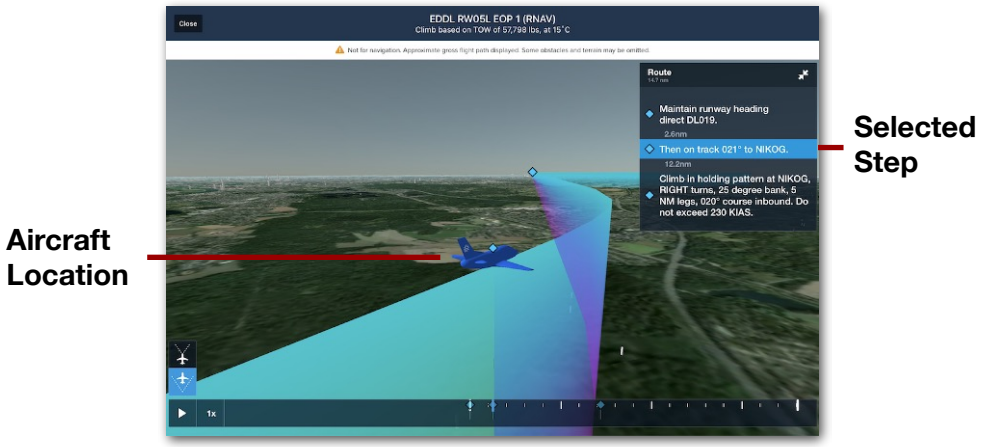


16.6.3 Changing Orientation

The EOPs 3D View is always centered on the aircraft location. At any point, use a single finger to rotate the view around the aircraft and the 2-finger “pinch to zoom” to zoom the view in and out from the aircraft.

16.6.4 EOP Step Selector

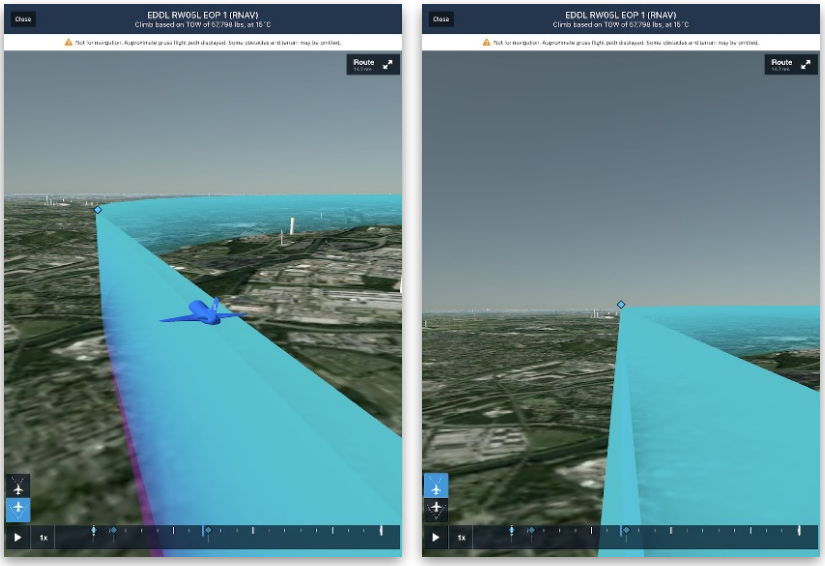
At the top right corner, the **Route** window displays the length of the EOP (14.7 NM in the example below) and a list of steps in the EOP. Tap any of the steps to rewind or fast-forward the preview video to the beginning of that step. Tap **Route** to expand or collapse the list of steps.



EOP Step Selector

16.6.5 Camera Mode

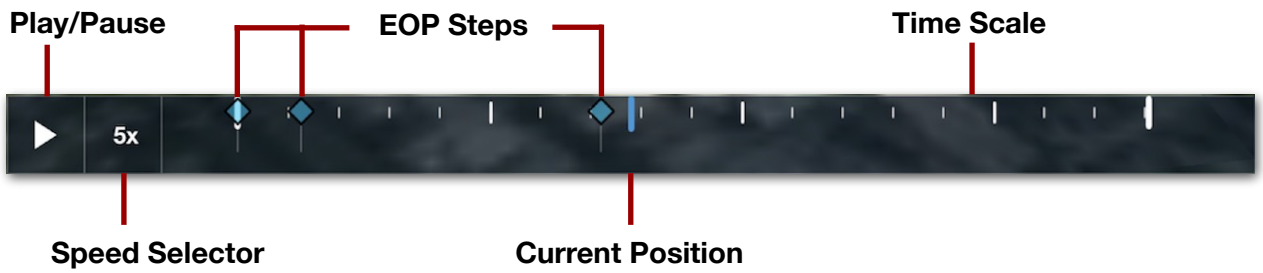
At the bottom left corner of the EOPs 3D View window, two buttons allow the camera perspective to be switched between third-person perspective (top button) and first-person perspective (bottom button).



Waypoint Approach (3rd vs 1st Person)

16.6.6 Video Preview Controls

Along the bottom edge of the EOPs 3D View window is a set of video preview controls that can be used to show specific moments in the EOP. The preview controls include the following elements.



Play/Pause

Tap the Play/Pause button on the left side to start and stop the video animation.

Speed Selector

Tap the Speed Selector button (defaulted to **1x**) to play the video at 1x, 3x, 5x, 10x, or 20x speed.

Current Position

A vertical blue line on the Time Scale indicates the current position of the aircraft in the preview video.

EOP Steps

Icons along the Time Scale indicate when a step in the EOP begins. These icons correspond with items in the EOP Step Selector list, but they cannot be tapped to change aircraft position.

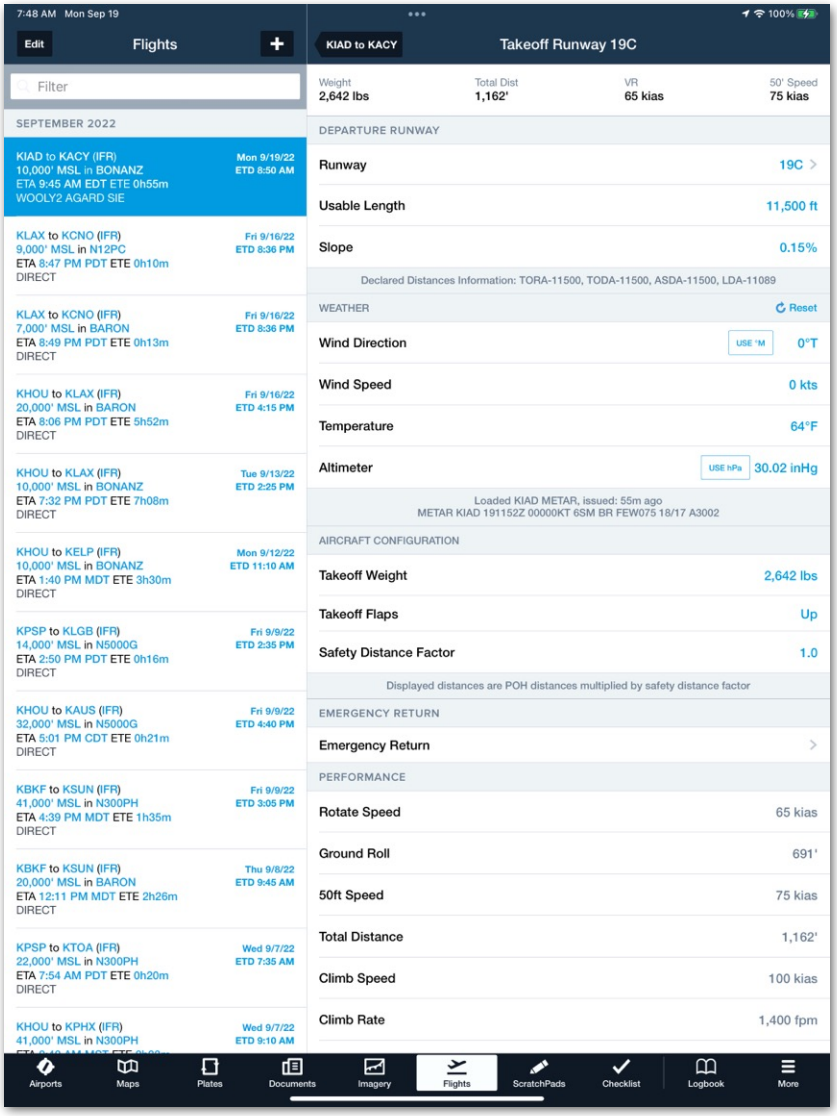
Time Scale

Slide one finger left or right along the Time Scale to scrub the video to a specific moment. The Time Scale extends from the beginning to the end of the EOP, as indicated by large vertical white lines.

TAKEOFF & LANDING PERFORMANCE

Takeoff & Landing Performance provides integrated takeoff and landing distance calculations for over 300 popular *piston* aircraft and is included with all Performance-tier subscriptions. Jet and turboprops can calculate takeoff and landing performance with a **Runway Analysis** license.

Compared to calculating takeoff and landing distances by hand, Takeoff & Landing Performance is a faster, integrated alternative. Takeoff & Landing Performance calculations can also be completed using ForeFlight Web. This chapter discusses how to configure aircraft default Takeoff & Landing Performance settings, and how to calculate results.



ForeFlight Mobile - Takeoff & Landing Performance

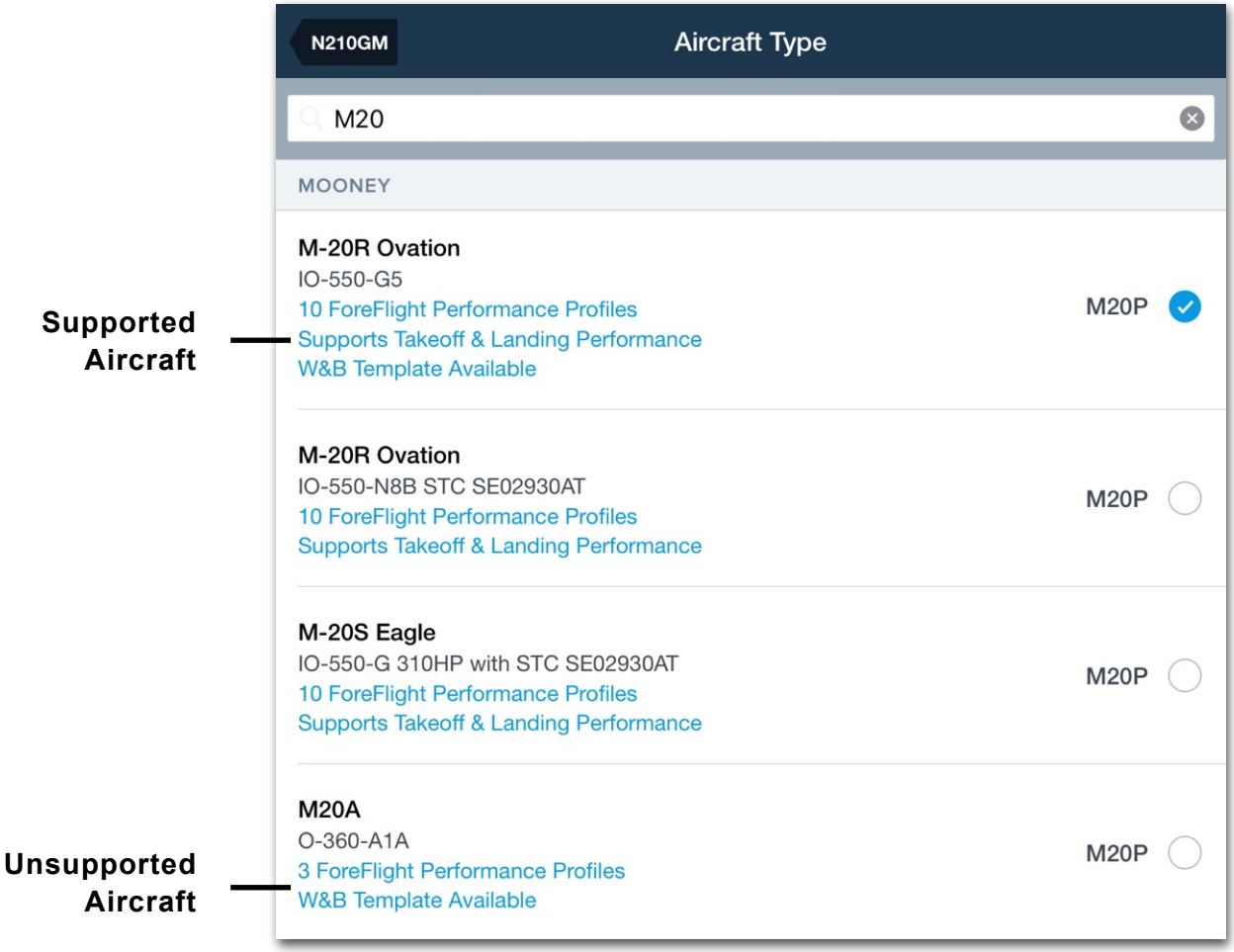
17.1 Configuring Takeoff & Landing Performance

The first step to configuring an aircraft for Takeoff & Landing Performance is determining if the aircraft type is supported. Aircraft that support Takeoff & Landing Performance display a label below the aircraft type and include additional performance settings.

17.1.1 Verifying Takeoff & Landing Performance Support

To check if an aircraft supports Takeoff & Landing Performance, select **More** > **Aircraft** and choose an aircraft profile. Tap the **Aircraft Type** field and ensure the **Supports Takeoff & Landing Performance** label is displayed.

If the label is missing, either the aircraft type is not yet supported or a Performance tier account is not being used.

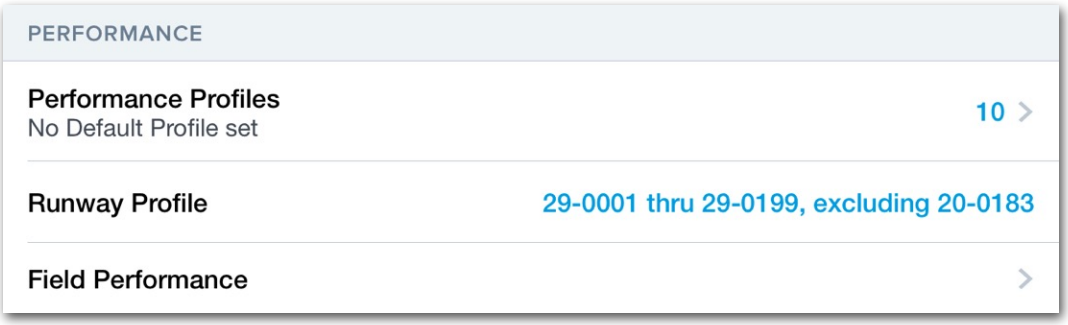


Supports Takeoff & Landing Performance Label

17.1.2 Takeoff & Landing Performance Settings

Another method for determining Takeoff & Landing support is checking the aircraft profile's Performance section. Aircraft that support Takeoff & Landing Performance have settings for selecting a Runway Profile and configuring the default takeoff and landing configuration. If these settings are missing, the aircraft does not support Takeoff & Landing Performance.

To access the settings, select **More** > **Aircraft,** and choose an aircraft profile. Tap **Runway Profile** or **Field Performance** in the Performance section to edit the settings.



Takeoff & Landing Performance Settings

Runway Profile

The Runway Profile setting specifies the serial number, weight limit, or special equipment for which the Takeoff & Landing Performance data is applicable. If more than one profile exists for the aircraft type, tap the **Runway Profile** setting and choose the correct version for the aircraft.



Runway Profile Setting

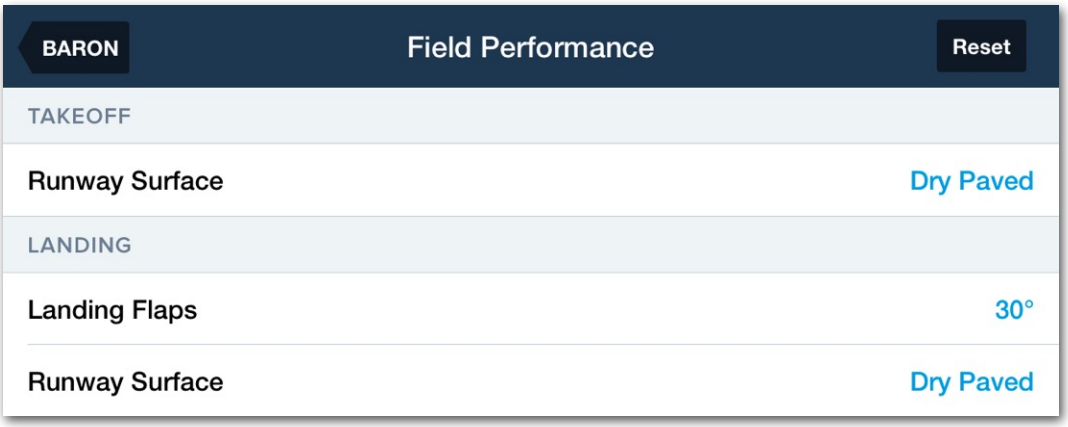
Field Performance

The Field Performance setting specifies the default takeoff and landing configuration for the aircraft (e.g., flap settings). These settings are unique to the aircraft type and reflect the variables in the performance section of the Aircraft Flight Manual (AFM) that affect Takeoff & Landing Performance. Some aircraft do not offer Field Performance settings, while others provide multiple configuration settings. If an aircraft does not provide Field Performance settings, the field is omitted from the menu.

Changes to the Field Performance settings are reflected in *subsequently* planned flights. Takeoff and landing configurations can also be adjusted per flight using the Flights view. Edits to the takeoff or landing configuration using the Flights view do not affect the default aircraft settings.

Field Performance settings are broken into two sections (takeoff and landing). Settings can be edited by tapping the appropriate field and selecting another option from the drop-down menu.

The settings and drop-down menus only contain options that are specified in the AFM (e.g., Takeoff Flaps may only have options for 10º and 20º). It is impossible to set a value if it is not included in the flight manual.



Field Performance Settings

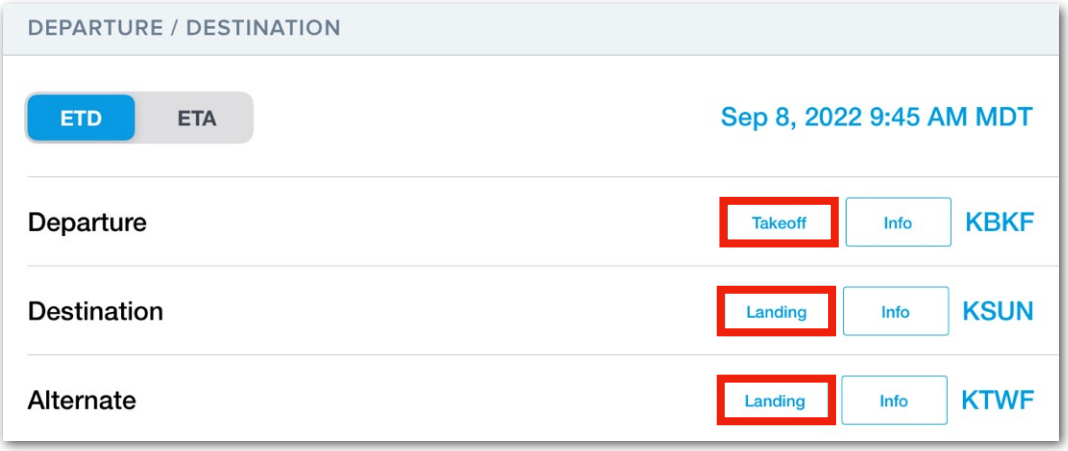
17.2 Calculating Takeoff Performance

Takeoff distances are calculated from the Departure / Destination section of the Flights view. To calculate Takeoff Performance results, begin by entering the flight's route, payload, and fuel details into the Flights view.

After entering flight details, tap the **Takeoff** button to open the Takeoff Performance view.

If the **Takeoff** button is missing, it is impossible to calculate Takeoff Performance. The **Takeoff** or **Landing** buttons can be hidden under the following conditions:

- The selected aircraft does not support Takeoff & Landing Performance.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.
- The airport specified does not have an ICAO, IATA, FAA, or other short-code identifier. Only airports with identifiers are supported by Takeoff & Landing Performance.

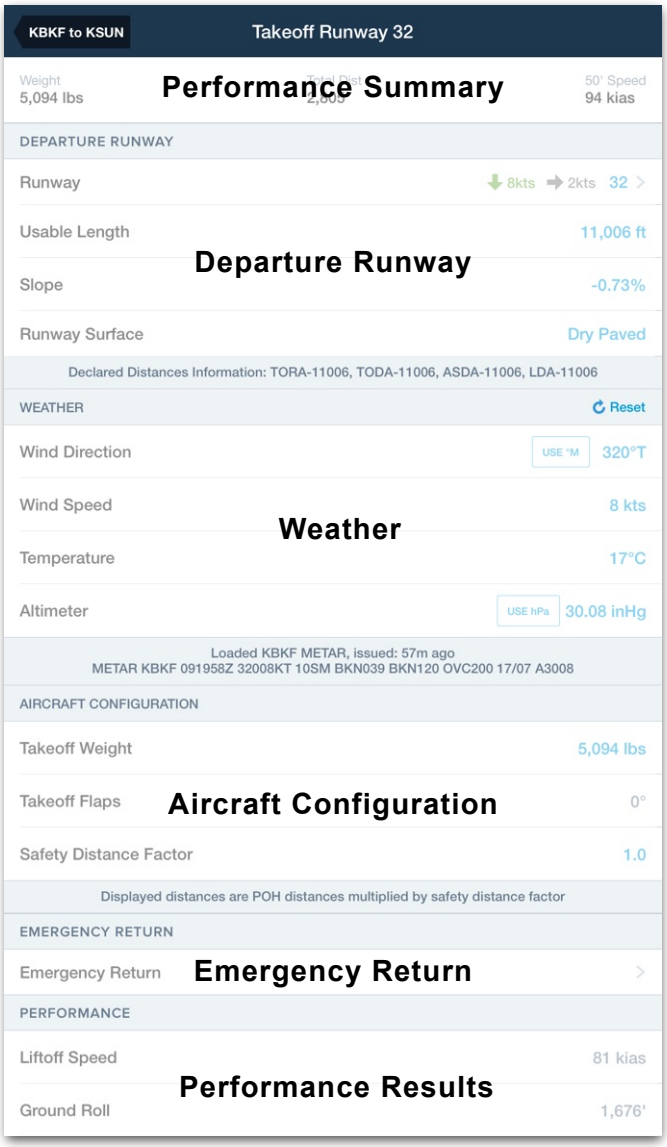


Takeoff & Landing Performance Buttons

17.2.1 Takeoff Performance View

The Takeoff Performance view is organized into six sections. Each section is automatically populated with the latest runway, weather, and default aircraft configuration data.

Blue text in this view can be edited for hypothetical planning purposes or to accommodate circumstances that are unique to the flight. For example, if the runway usable length is reduced due to construction, manually edit the length to represent the available runway. Each section of the Takeoff Performance view is described in detail throughout this chapter.



Takeoff Performance View Sections

17.2.2 Takeoff Performance Summary

The Performance Summary contains key values that allow quick evaluation of the takeoff.



Takeoff Performance Summary

Results are displayed at the top of the view when a runway is selected and are initially based on the default takeoff configuration and the current weather. The summary generally contains the planned takeoff weight, the total distance required to achieve a height of 35’ above the runway surface, and target airspeeds for the takeoff.

The Performance Summary is updated each time a new departure runway is selected or a configurable field is edited.

Compete results are available in the Performance section at the bottom of the Takeoff Performance view.

17.2.3 Takeoff Performance - Departure Runway

The Departure Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent items that affect the selected aircraft takeoff performance.

Some aircraft do not provide performance data for common variables such as the runway's surface condition (rain, snow, etc). As a result, if the AFM does not include this data, the Departure Runway section will not include it either.

A field is only included in the Departure Runway section if it is documented in the AFM as a variable that affects takeoff performance. Departure Runway values can be overwritten to accommodate unique circumstances. To overwrite a value, tap the applicable field, enter a new value, and tap **Close**.



Takeoff Performance Departure Runway Section

Declared Distances

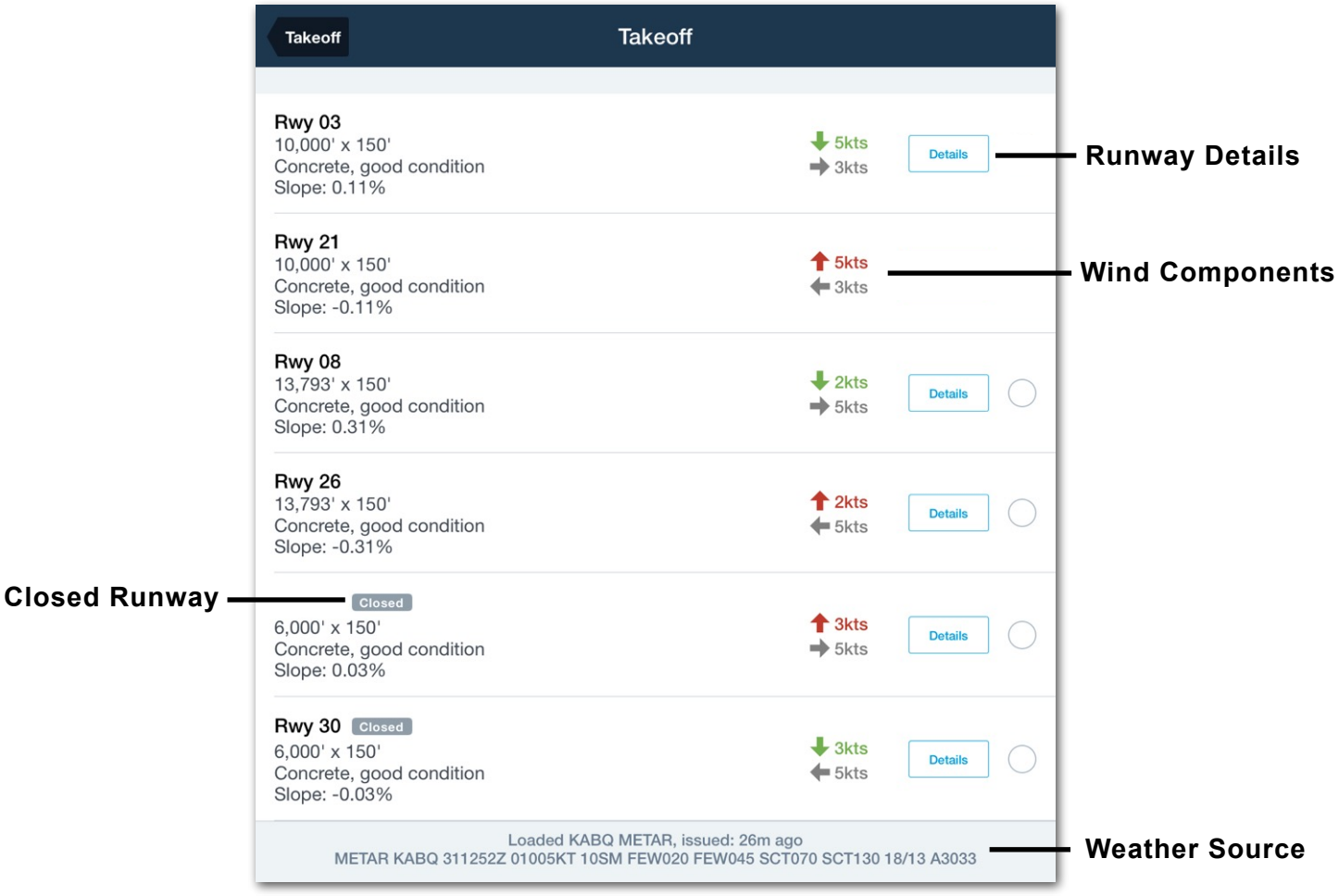
Declared runway distances are displayed at the bottom of the Departure Runway section.

- **TORA** - The portion of the runway suitable for the takeoff ground roll.
- **TODA** - Takeoff Distance Available (includes stopway and clearway).
- **ASDA** - Accelerate Stop Distance Available (includes stopway).
- **Stopway** - Paved area beyond TORA that can be used for stopping during a rejected takeoff.
- **Clearway** - Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb.
- **LDA** - Runway Landing Distance Available.

17.2.4 Selecting a Departure Runway

To select a departure runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a *Closed* tag is displayed next to the runway name. If a runway's usable length is reduced due to a NOTAM, the reduced useable length is not automatically reflected in the Departure Runway section.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind components for each runway are displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

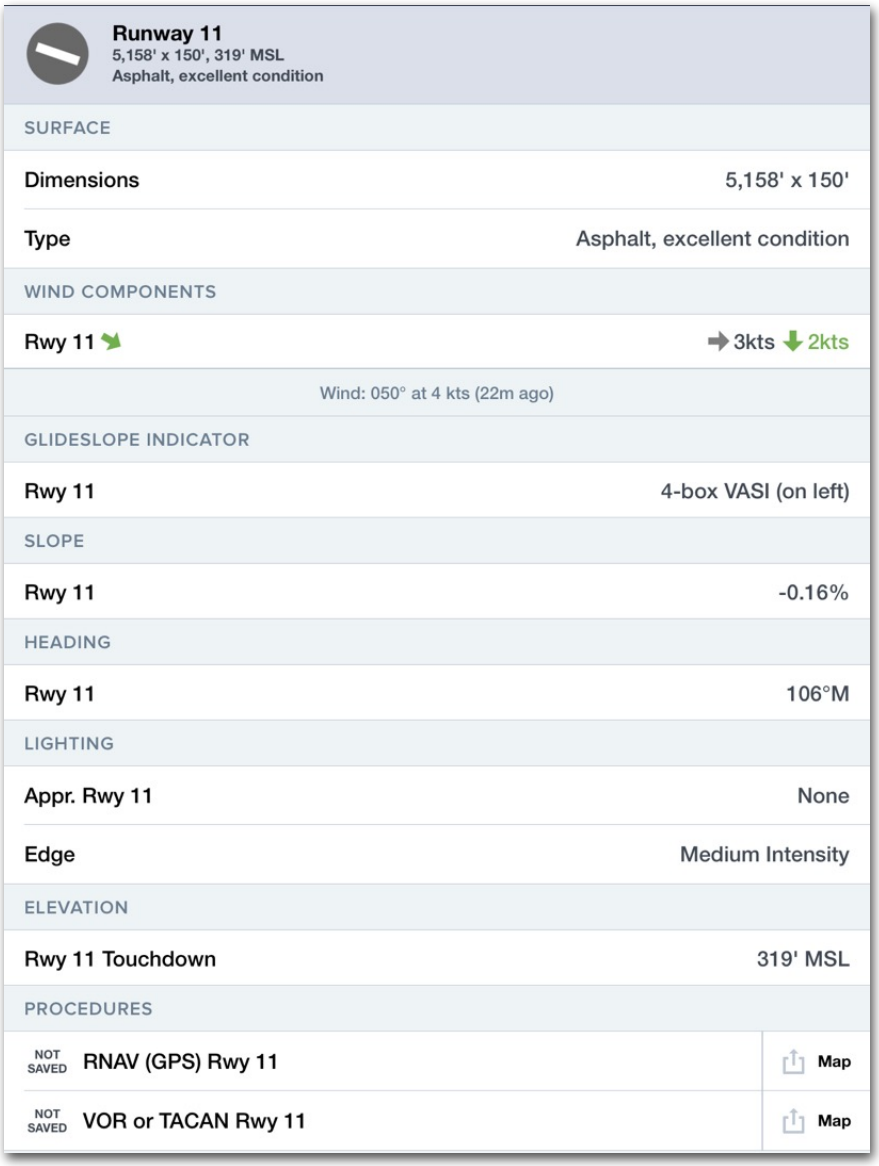


Selecting a Departure Runway

Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures



Runway Detail View

17.2.5 Takeoff Performance - Weather

The Weather section displays the departure airport's latest METAR, TAF, MOS, or general forecast based on weather data availability and the flight's estimated departure time.

If the airport does not provide weather information, a nearby airport's weather is used. Each field in the weather section can be manually edited. The weather source and raw text are displayed at the bottom of the weather section.



Takeoff Performance Weather Section (KHOU TAF)

Temperature

The Terminal Aerodrome Forecast (TAF) does not provide temperature data. If Takeoff & Landing Performance indicates that weather data is provided by a TAF, temperature from the MOS forecast will be used. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to “Using Custom Weather”.

When custom weather information has been entered, the performance results are updated and the edited values are used throughout Takeoff Performance. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.



Takeoff Analysis Custom Weather

Wind Direction

Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use °M** button. Using magnetic winds changes the weather source to custom.

Altimeter

Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field. Changing altimeter units does not result in custom weather.

Weather Reset

To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

17.2.6 Takeoff Performance - Aircraft Configuration

The Aircraft Configuration section is populated with the planned takeoff weight and default values from the **Field Performance** settings.

Each field in the section can be edited to accommodate a non-standard takeoff configuration. Adjusting the takeoff configuration from this view updates the planning results and not the default configuration.

Safety Distance Factor

The Safety Distance Factor is a user-specified safety margin. The Safety Distance Factor has a minimum and default value of 1.0 and can only be edited on a per-flight basis.

When a value other than 1.0 is entered in the Safety Distance Factor field, all distance results are multiplied by the user-specified amount. For example, to add a 25% safety margin to all results, enter a Safety Distance Factor of 1.25. To revert back to the original calculations, change the Safety Distance Factor to 1.0.

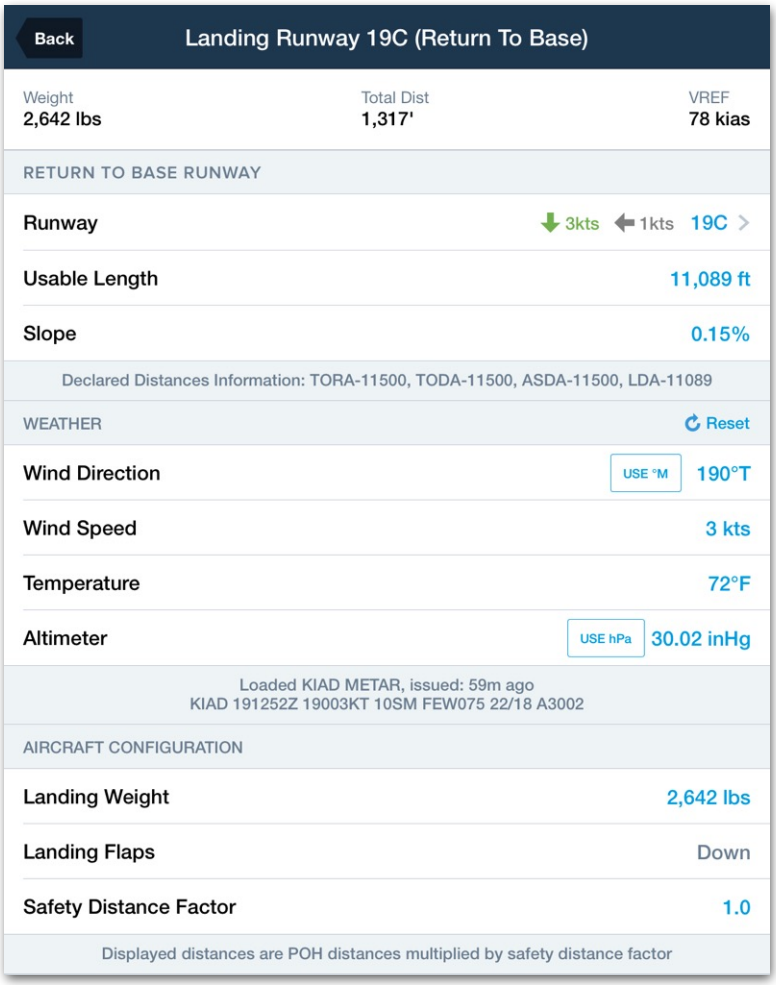


Adding a Safety Distance Factor

17.2.7 Takeoff Performance - Emergency Return

The Emergency Return section is used to determine Landing Performance for the departure airport in the event of an emergency after departure. To conduct an Emergency Return analysis, tap the field and select a runway.

If an Emergency Return results in an overweight condition, a warning message is displayed at the top of the Emergency Return view. However, that warning is not also displayed on the Flights view since an emergency return is often expected to be overweight.

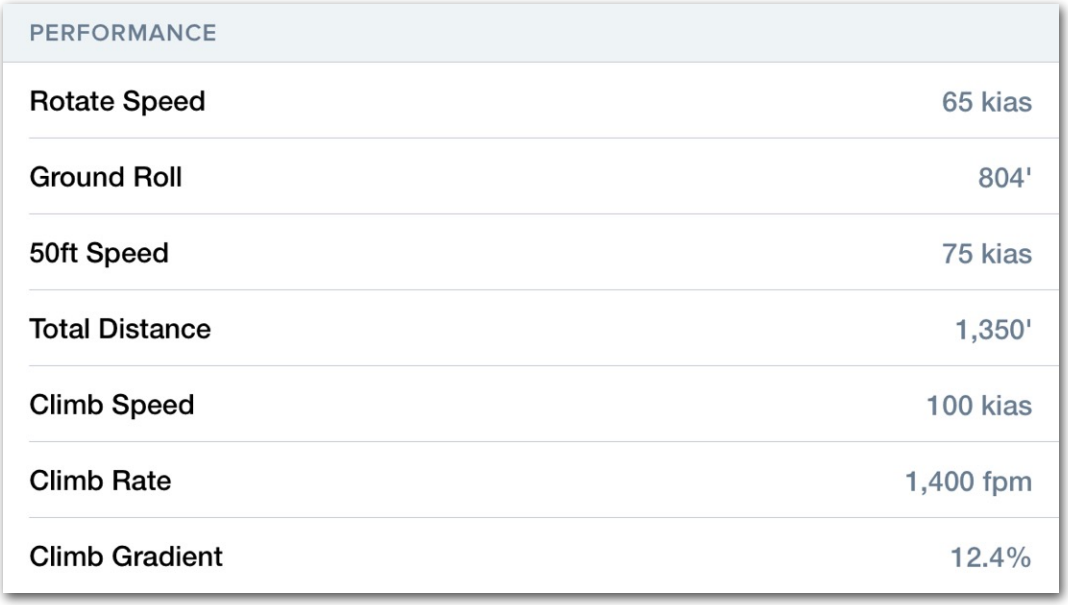


Emergency Return View

17.2.8 Takeoff Performance - Performance Details

The Performance section includes results for the selected runway given the planned weather and aircraft configuration. Performance results are interpolated from flight manual performance data and are not physics-based.

The items in the Performance section vary by aircraft type and represent the information found in the AFM (including the name of the performance parameter).



Takeoff Performance Section

Performance Parameter Definitions

This table lists generic takeoff output labels for most aircraft, though not all aircraft provide every output label and some aircraft have specific output labels that apply only to that aircraft and are not listed here. Consult the AFM for further detail on the specific aircraft configuration used for these outputs.

Takeoff Output Label	Description
Rotate Speed	Target takeoff speed upon which to initiate takeoff rotation.
Liftoff Speed	Approximate speed when main gear leaves the runway; faster than rotate speed, but slower than 50 ft speed.
Ground Roll	Takeoff distance from brake release point until main gear lifts off the runway.
50 ft Speed	Initial climb speed reached at end of total takeoff distance and at the obstacle height of 50 ft AGL with gear down and takeoff flaps.
Total Distance	Takeoff distance from brake release point through reaching 50 ft obstacle height point above ground level (AGL). Consists of ground roll distance and air segment for initial climb, all at takeoff flap setting and gear down (if retractable).
Takeoff Distance	Typically the distance from brake release through 35 feet AGL. The climb altitude may be lower in some scenarios– see AFM for details.
Accel-Stop Distance	Distance from brake release point through acceleration to a reject speed and subsequent deceleration to a full stop; aircraft never leaves the runway (this distance is typically only found with twin engine aircraft).
Climb Speed	Target speed for the initial climb after reaching the 50 ft AGL takeoff point, typically gear up, if retract (see POH for flap setting used).
Climb Rate	Instantaneous rate of climb in ft/min for the initial climb after reaching the 50 ft AGL takeoff point typically gear up, if retract (see POH for flap setting used).

Takeoff Output Label	Description
Climb Gradient	Instantaneous climb gradient (rise/run) for the initial climb after reaching the 50 ft AGL takeoff point typically gear up, if retract (see POH for flap setting used).
Takeoff Climb Speed	Target speed for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.
Takeoff Climb Rate	Instantaneous rate of climb in ft/min for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.
Takeoff Climb Gradient	Instantaneous climb gradient (rise/run) for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.
Cruise Climb Speed	Target en route climb speed, typically flaps up and gear up, if retract.
Cruise Climb Rate	En route climb rate, typically flaps up and gear up, if retract.
Cruise Climb Gradient	En route climb gradient, typically flaps up and gear up, if retract.
OEI Climb Speed	Target climb speed when one engine inoperative (OEI) on a twin engine aircraft.
OEI Climb Rate	Climb rate when one engine inoperative (OEI) on a twin engine aircraft.

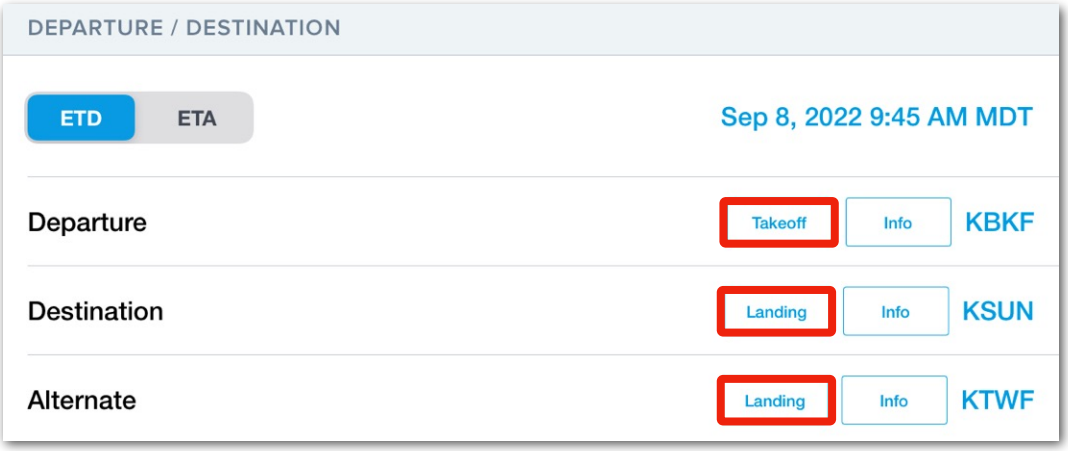
17.3 Calculating Landing Performance

Landing Performance results can be calculated for the departure, destination, and alternate airport. To calculate results, begin by entering the flight's route, payload, and fuel details into the Flights view.

To calculate Landing Performance, tap the **Landing** button next to the destination or alternate airport and select a runway. To calculate Landing Performance for the departure airport, select the **Emergency Return** option from the Takeoff Performance view.

If the **Landing** button is missing, it is not possible to calculate Landing Performance. The **Takeoff** or **Landing** buttons can be hidden under the following conditions:

- The selected aircraft does not support Takeoff & Landing Performance.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.

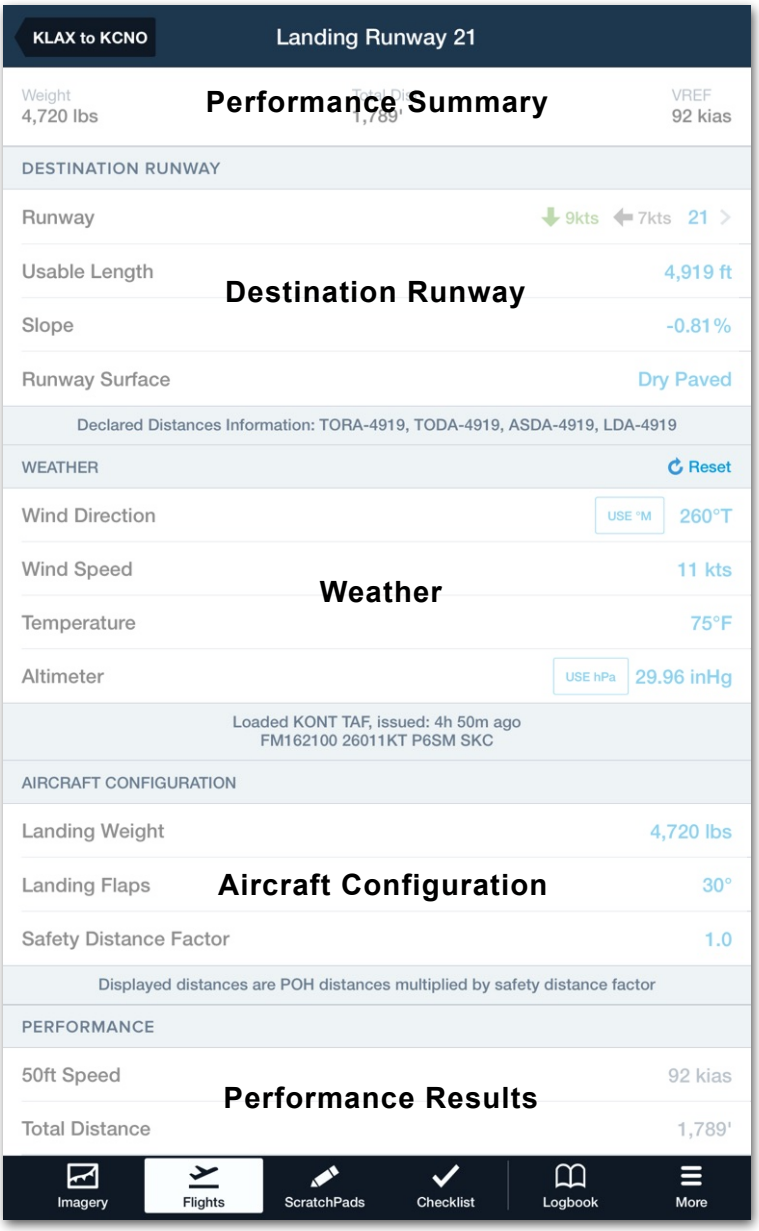


Takeoff & Landing Performance Buttons

17.3.1 Landing Performance View

The Landing Performance view is organized into five sections. The Landing Performance view is populated with the latest runway, weather, and default aircraft configuration data.

Blue text in this view can be edited for hypothetical planning purposes or to accommodate circumstances that are unique to the flight. For example, if the runway usable length is reduced due to construction, manually edit the length to represent the available runway distance.



Landing Performance Sections

17.3.2 Landing Performance Summary

A summary of the Landing Performance results is always visible at the top of the Landing Performance view.



Landing Performance Summary

The summary displays the planned landing weight, the distance required to land and stop the aircraft, and the landing reference speed. Compete results are available in the Performance section at the bottom of the Landing Performance view.

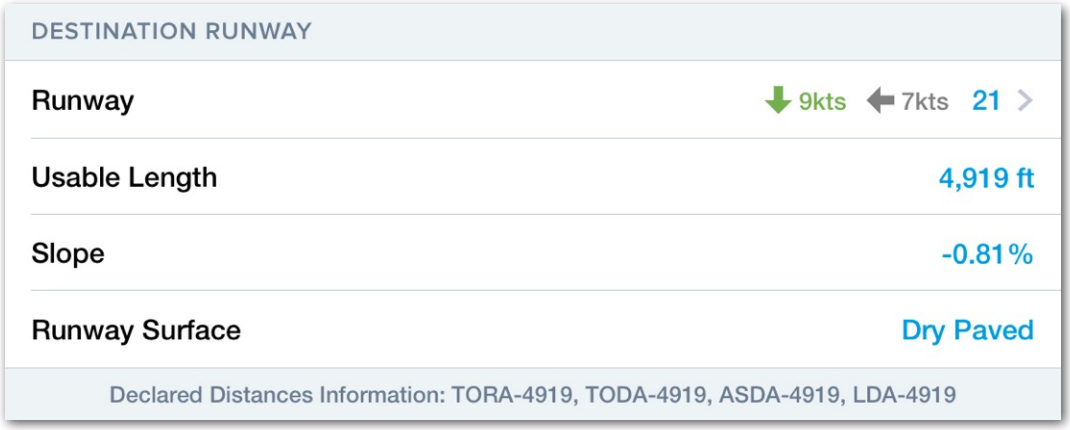
Performance Summary results are displayed when a runway is selected and are based on the default landing configuration, weather, and latest runway data. Performance results are updated each time a new landing runway is selected or a configurable field is edited.

17.3.3 Landing Performance - Destination Runway

The Destination Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent items that affect the selected aircraft takeoff performance.

Some aircraft do not provide performance data for common variables such as the runway's surface condition (rain, snow, etc). As a result, if the AFM does not include this data, the Destination Runway section will not include it either.

Destination Runway values can be overwritten to accommodate unique circumstances. To overwrite a value, tap the applicable field, enter a new value, and tap **Close**.



Landing Performance - Destination Runway Section

Declared Distances

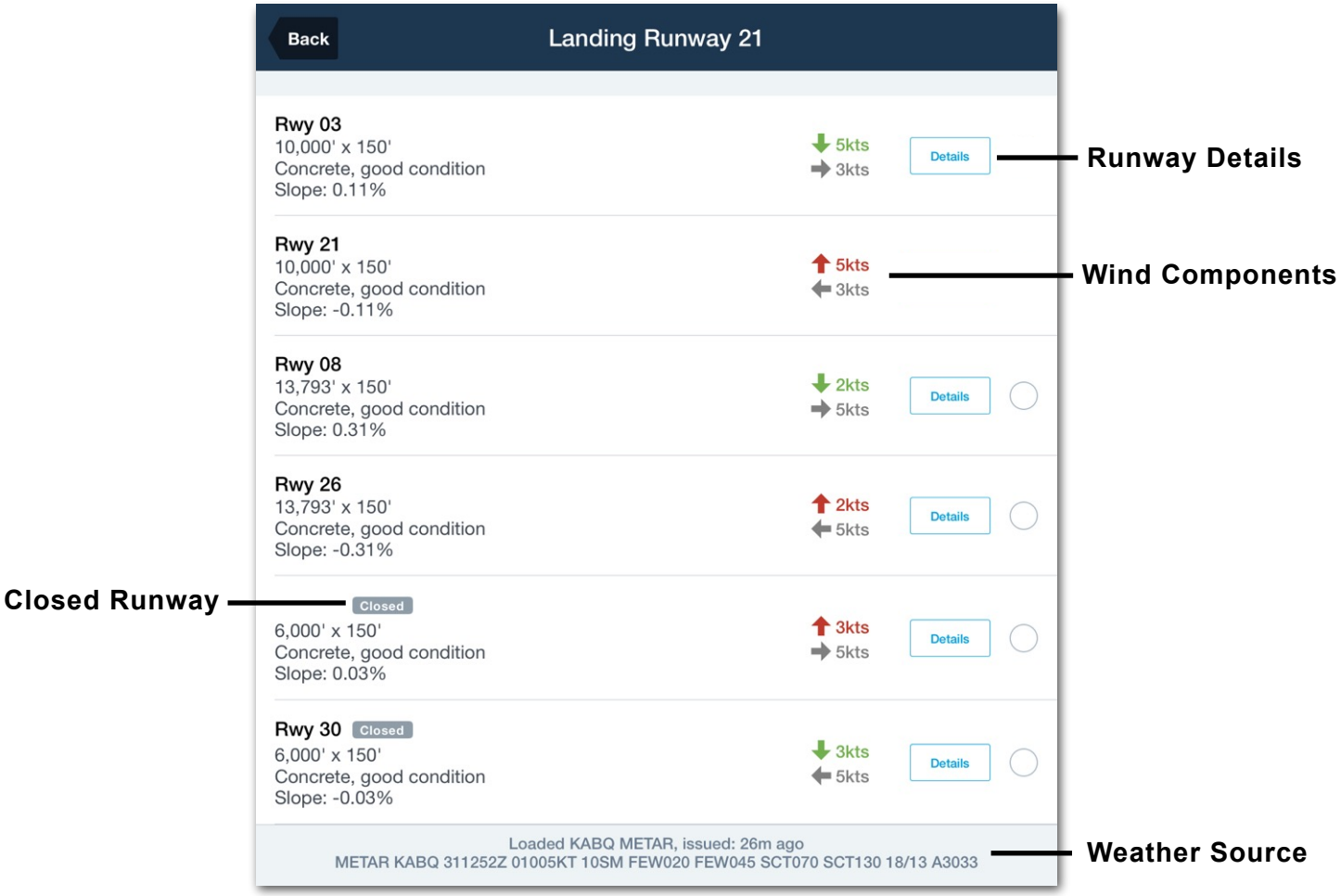
Declared runway distances are displayed at the bottom of the section.

- **TORA** - The portion of the runway suitable for the takeoff ground roll.
- **TODA** - Takeoff Distance Available (includes stopway and clearway).
- **ASDA** - Accelerate Stop Distance Available (includes stopway).
- **Stopway** - Paved area beyond TORA that can be used for stopping during a rejected takeoff.
- **Clearway** - Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb.
- **LDA** - Runway Landing Distance Available.

17.3.4 Selecting a Destination Runway

To select a destination runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a *Closed* tag is displayed next to the runway name. If a runway's usable length is reduced due to a NOTAM, the reduced useable length is not automatically reflected in the Destination Runway section.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind component for each runway is displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

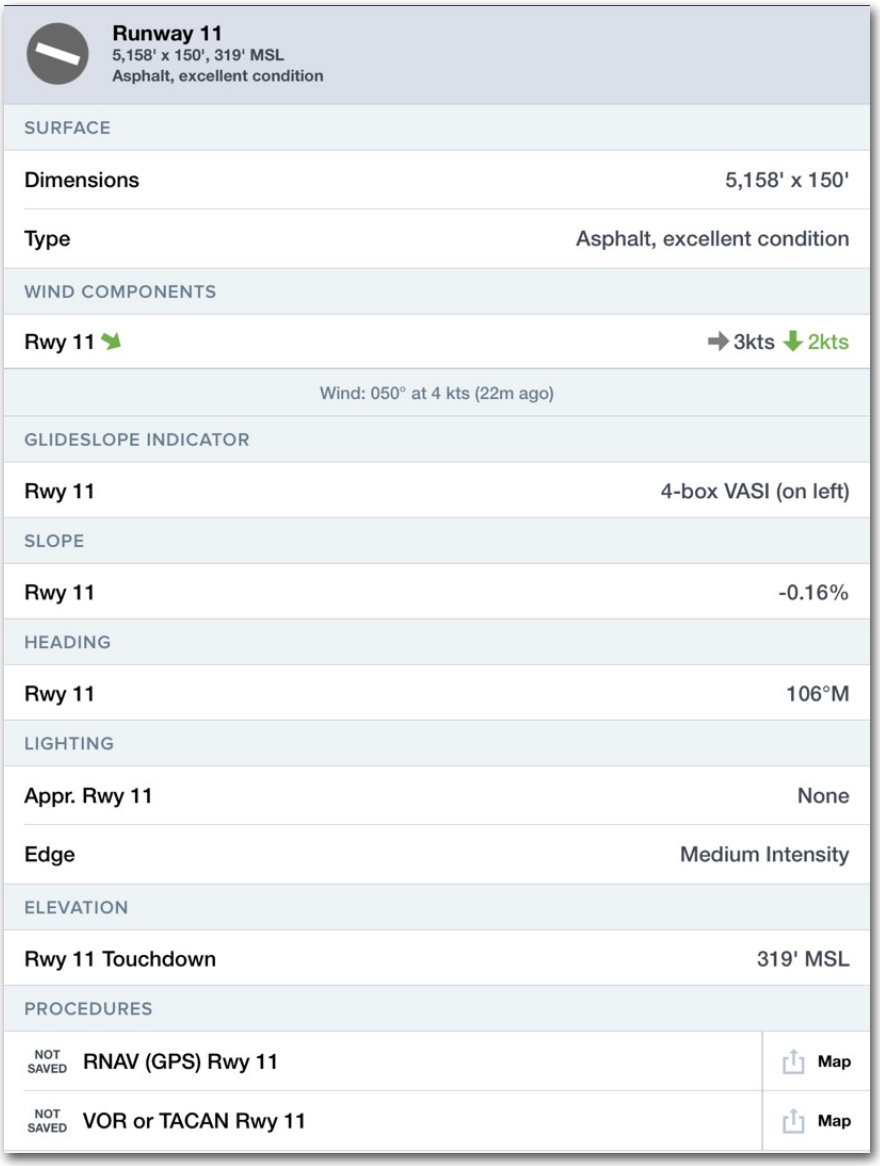


Selecting a Destination Runway

Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures



Runway Detail View

17.3.5 Landing Performance - Weather

The Weather section displays the destination airport's latest METAR, TAF, MOS, or general forecast based on weather data availability and the flight's estimated arrival time.

If the airport does not provide weather information, Landing Performance uses the appropriate weather from a nearby airport. Each field in the weather section can be manually edited. The weather source and raw text are displayed at the bottom of the weather section.



Takeoff Performance Weather Section (KHOU TAF)

Temperature

The Terminal Aerodrome Forecast (TAF) does not provide temperature data. If Takeoff & Landing Performance indicates weather data is provided by a TAF, temperature from the MOS forecast will be used. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to “Using Custom Weather”.

When custom weather information has been entered, the results are updated and the edited values are used throughout Landing Performance. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.



Takeoff Analysis Custom Weather

Wind Direction

Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use °M** button. Using magnetic winds changes the weather source to custom.

Altimeter

Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

Weather Reset

To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

17.3.6 Landing Performance - Aircraft Configuration

The Aircraft Configuration section is populated with the planned landing weight and default values from the **Field Performance** settings.

Each field in the section can be edited to accommodate a non-standard landing configuration. Adjusting the landing configuration from this view updates the planning results and not the default configuration.

Safety Distance Factor

The Safety Distance Factor is a user-specified safety margin. The Safety Distance Factor has a minimum and default value of 1.0 and can only be edited on a per-flight basis.

When a value other than 1.0 is entered in the Safety Distance Factor field, all distance results are multiplied by the user-specified amount. For example, to add a 25% safety margin to all results, enter a Safety Distance Factor of 1.25. To revert back to the original calculations, change the Safety Distance Factor to 1.0.

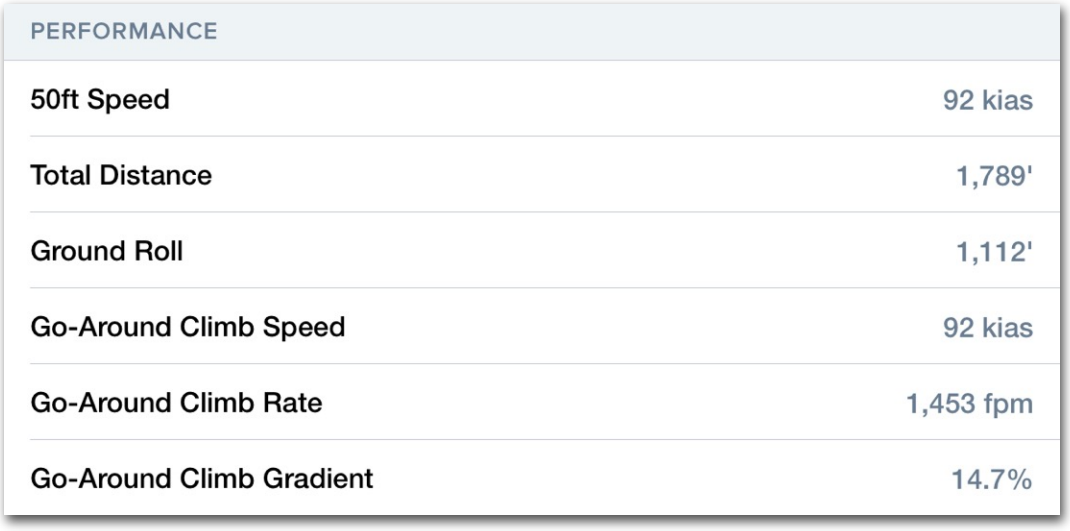


Adding a Safety Distance Factor

17.3.7 Landing Performance - Performance Details

The Performance section includes results for the selected runway given the planned weather and aircraft configuration. Performance results are interpolated from flight manual performance data and are not physics-based.

The items in the Performance section vary by aircraft type and represent the information found in the AFM (including the name of the performance parameter).



Landing Performance Results

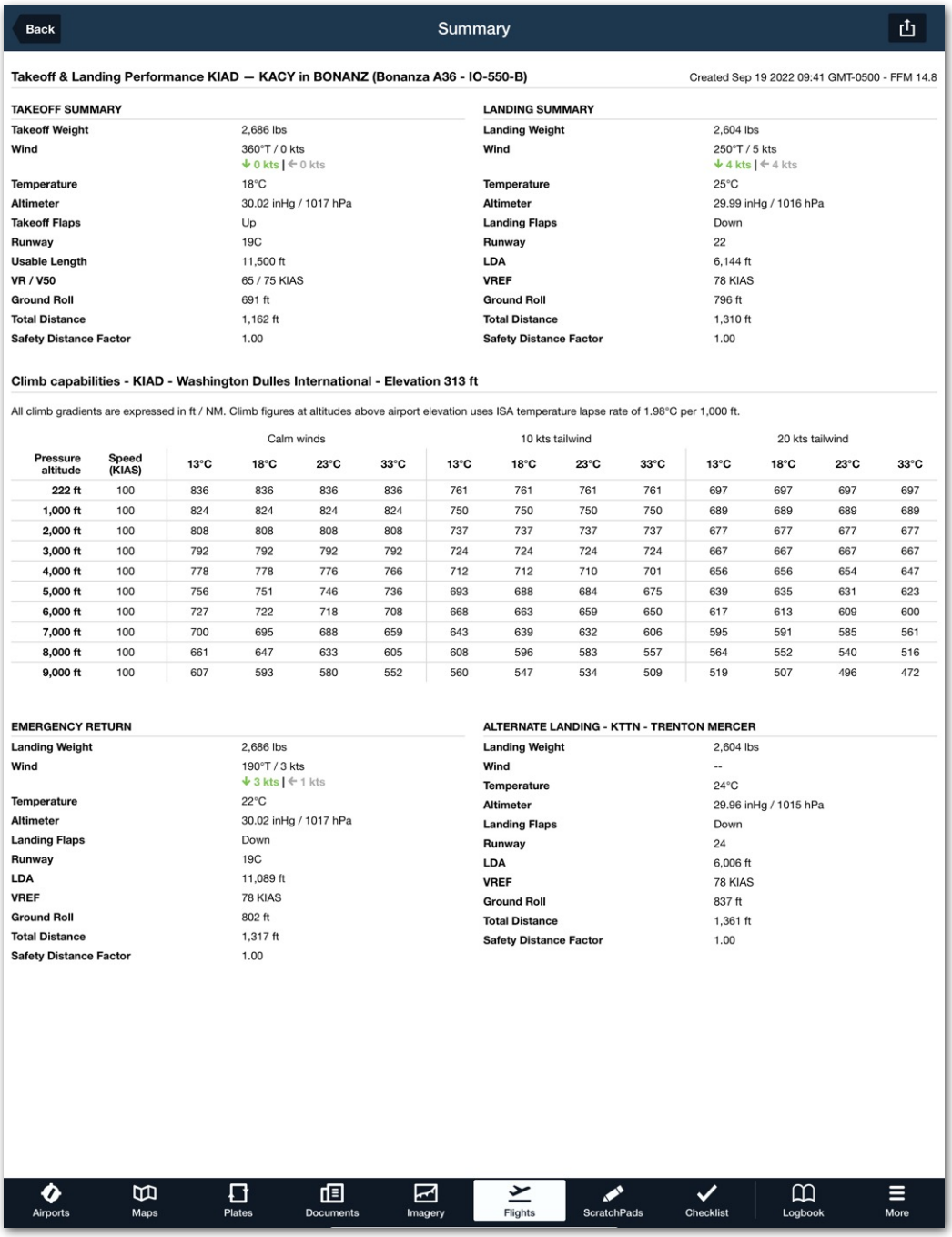
Landing Output Labels

This table lists generic landing output labels used for most aircraft, though not all aircraft provide every output label, and some aircraft have specific output labels that apply only to that aircraft and are not listed here. Consult the POH or AFM for further detail on the specific aircraft configuration used for these outputs.

Landing Output Label	Description
50 ft Speed (or Approach Speed)	Target threshold crossing speed for landing and at 50 ft AGL (obstacle height point). Typically referred to as the reference speed (V_{REF}), some manuals call it the approach speed (V_{APP}).
Total Distance	Landing distance from 50 ft AGL obstacle height point (over approach end runway threshold) until full stop is reached. Consists of air portion with flare, touchdown and stopping portion.
Ground Roll	Landing distance from touchdown point on the runway until full stop is reached.
Go-Around/Balked Landing Climb Speed	Target go-around speed, typically in landing flap/gear configuration.
Go-Around/Balked Landing Climb Rate	Go-around climb rate in ft/min. Consult POH for flap and gear configuration.
Go-Around/Balked Landing Climb Gradient	Go-around climb gradient (rise/run). Consult POH for flap and gear configuration.

17.4 Takeoff & Landing Summary Document

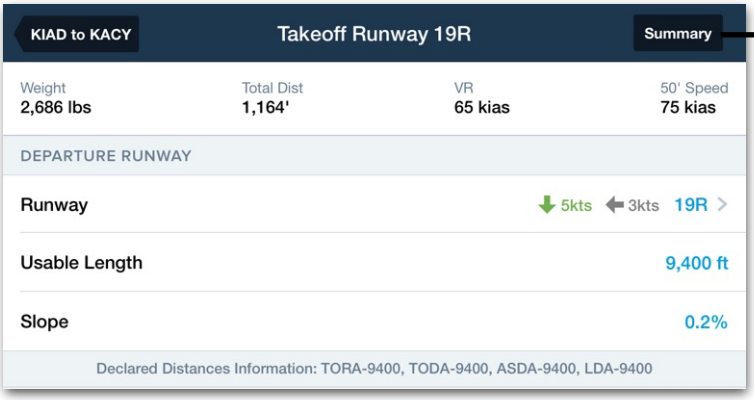
Takeoff & Landing Performance includes a summary document. The document includes a climb performance table (when climb data is available) and Takeoff & Landing Performance data for all selected runways. If an emergency return runway or an alternate airport runway is not selected, the summary document does not include this information.



Takeoff & Landing Performance Summary Document

17.4.1 Generating the Summary Document

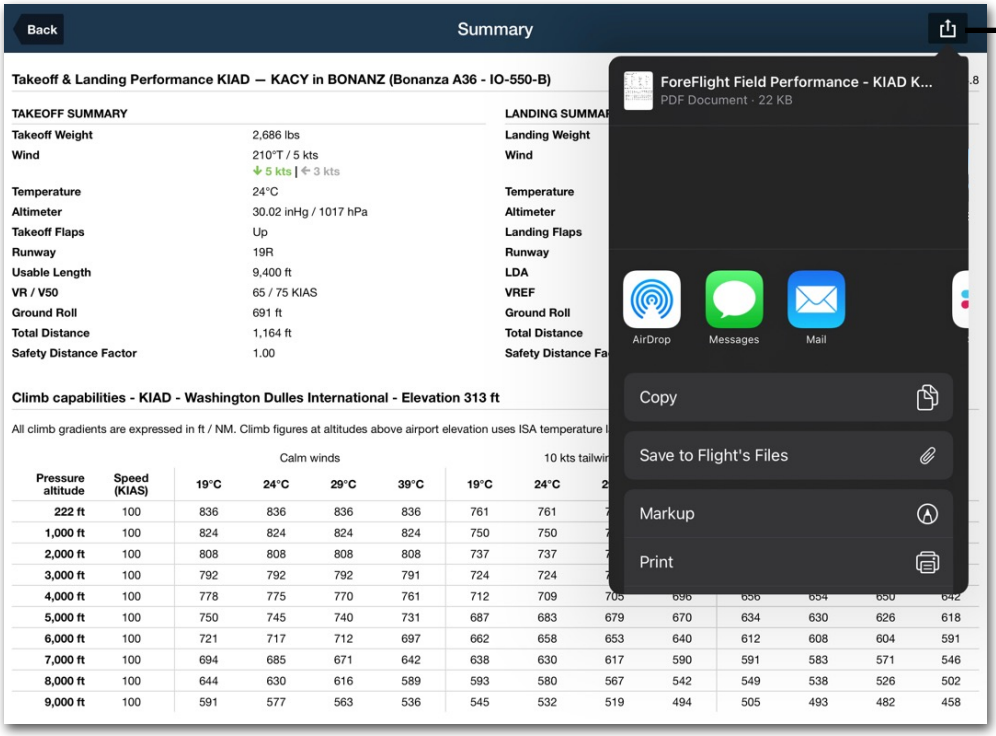
To generate the Summary Document, select Takeoff & Landing Performance runways for the departure, destination, and alternate airport. Tap **Summary** in the upper-right corner of the Takeoff *or* Landing Performance view.



Generate Summary Document

17.4.2 Summary Document Options

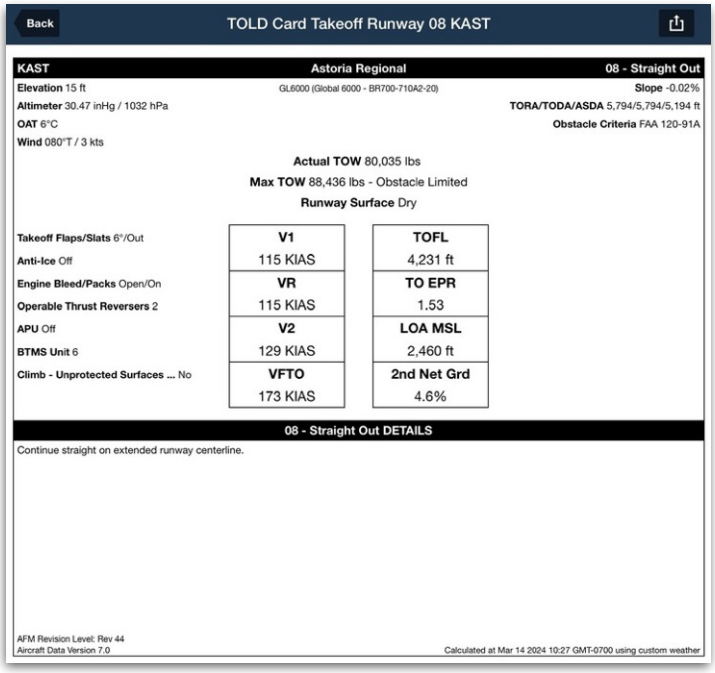
The Summary can be annotated, shared, printed, or attached to a Flight by tapping the share button in the upper-right corner when viewing the document.



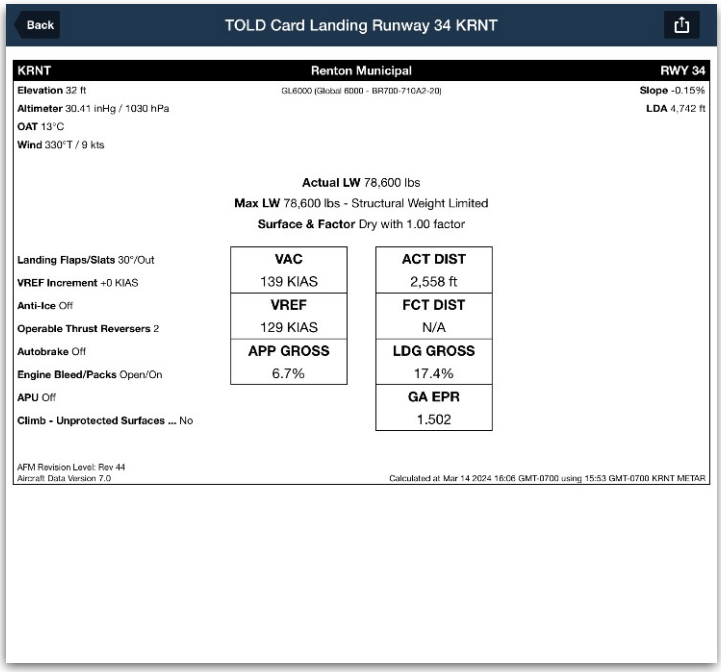
Share Button

17.5 TOLD Card

The Takeoff and Landing Data (TOLD) is a standardized single-page summary of performance data such as speeds, performance calculations and meteorological conditions.



TOLD Card (Takeoff)



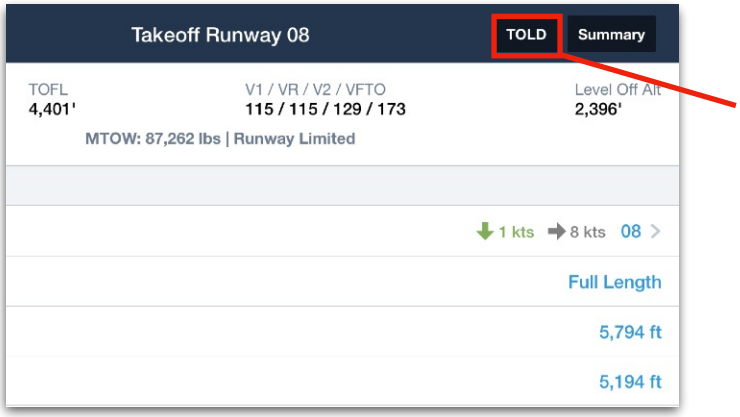
TOLD Card (Landing)

17.5.1 Generating the TOLD Card

To generate the TOLD Card:

1. Select Takeoff & Landing Performance runways for the departure, destination, and alternate airport.

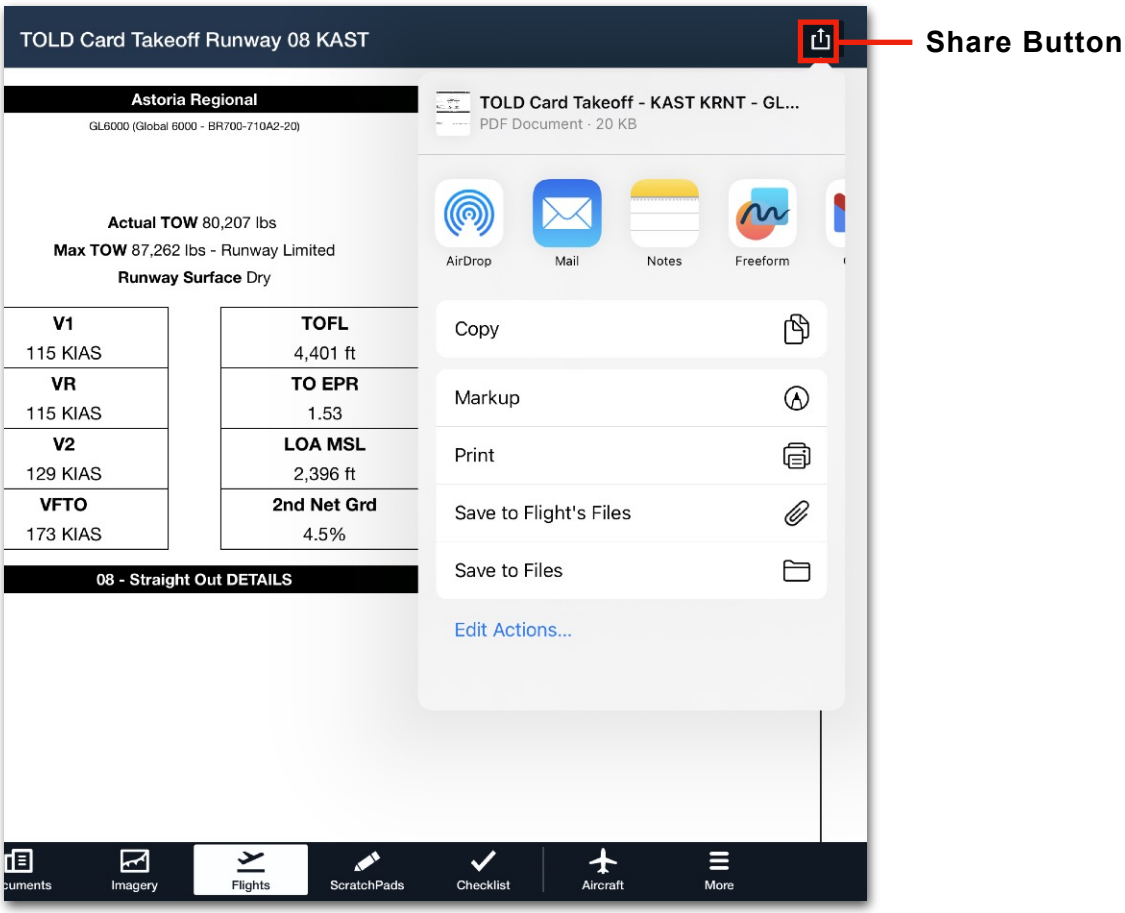
2. Tap **TOLD** in the upper-right corner of the Takeoff or Landing Performance view.



Generate TOLD Card

17.5.2 TOLD Card Options

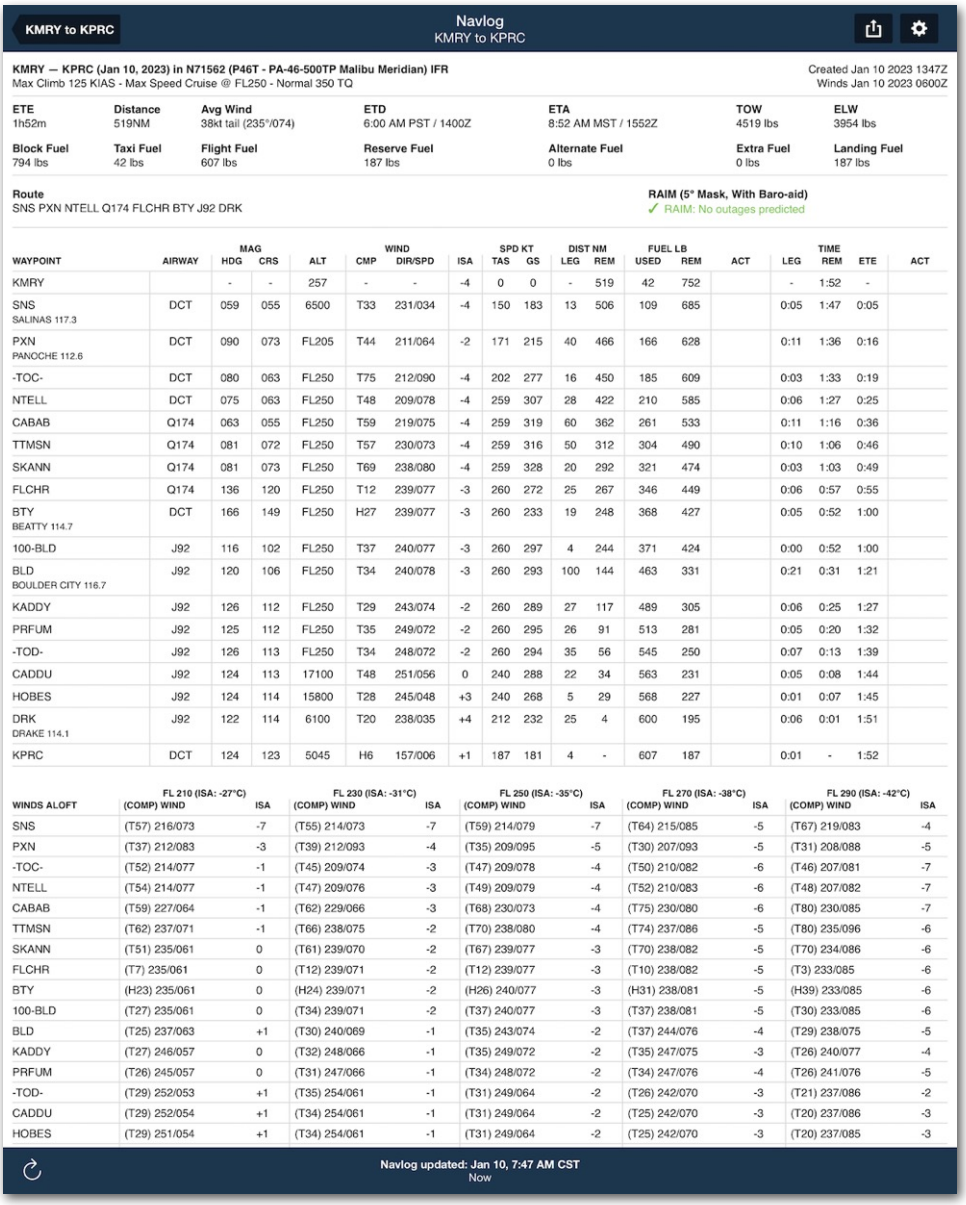
The TOLD Card can be annotated, shared, printed, or attached to a flight by tapping the share button in the upper-right corner when viewing the document.



NAVLOG

ForeFlight Navlog is a static PDF document that contains a flight summary, per-leg performance results, airport details, weather, and various blank fields for recording flight actuals using a pen and paper. There are up to six **types of Navlog**, depending on the ForeFlight subscription tier.

Navlogs are synced to a user account and saved indefinitely provided the flight is not deleted. If a flight is deleted from ForeFlight Mobile or ForeFlight Web, the Navlog is also deleted and cannot be restored.



KMRY to KPRC

Navlog
KMRY to KPRC

KMRY — KPRC (Jan 10, 2023) in N71562 (P46T - PA-46-500TP Malibu Meridian) IFR
Max Climb 125 KIAS - Max Speed Cruise @ FL250 - Normal 350 TQ

Created Jan 10 2023 1347Z
Winds Jan 10 2023 0600Z

ETE	Distance	Avg Wind	ETD	ETA	TOW	ELW
1h52m	519NM	38kt tail (235°/074)	6:00 AM PST / 1400Z	8:52 AM MST / 1552Z	4519 lbs	3954 lbs

Block Fuel	Taxi Fuel	Flight Fuel	Reserve Fuel	Alternate Fuel	Extra Fuel	Landing Fuel
794 lbs	42 lbs	607 lbs	187 lbs	0 lbs	0 lbs	187 lbs

Route
SNS PXN NTELL Q174 FLCHR BTY J92 DRK

RAIM (5° Mask, With Baro-aid)
✓ RAIM: No outages predicted

		MAG			WIND			SPD KT		DIST NM		FUEL LB			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KMRY		-	-	257	-	-	-4	0	0	-	519	42	752		-	1:52	-	
SNS SALINAS 117.3	DCT	059	055	6500	T33	231/034	-4	150	183	13	506	109	685		0:05	1:47	0:05	
PXN PANOCHE 112.6	DCT	090	073	FL205	T44	211/064	-2	171	215	40	466	166	628		0:11	1:36	0:16	
-TOC-	DCT	080	063	FL250	T75	212/090	-4	202	277	16	450	185	609		0:03	1:33	0:19	
NTELL	DCT	075	063	FL250	T48	209/078	-4	259	307	28	422	210	585		0:06	1:27	0:25	
CABAB	Q174	063	055	FL250	T59	219/075	-4	259	319	60	362	261	533		0:11	1:16	0:36	
TTMSN	Q174	081	072	FL250	T57	230/073	-4	259	316	50	312	304	490		0:10	1:06	0:46	
SKANN	Q174	081	073	FL250	T69	238/080	-4	259	328	20	292	321	474		0:03	1:03	0:49	
FLCHR	Q174	136	120	FL250	T12	239/077	-3	260	272	25	267	346	449		0:06	0:57	0:55	
BTY BEATTY 114.7	DCT	166	149	FL250	H27	239/077	-3	260	233	19	248	368	427		0:05	0:52	1:00	
100-BLD	J92	116	102	FL250	T37	240/077	-3	260	297	4	244	371	424		0:00	0:52	1:00	
BLD BOULDER CITY 116.7	J92	120	106	FL250	T34	240/078	-3	260	293	100	144	463	331		0:21	0:31	1:21	
KADDY	J92	126	112	FL250	T29	243/074	-2	260	289	27	117	489	305		0:06	0:25	1:27	
PRFUM	J92	125	112	FL250	T35	249/072	-2	260	295	26	91	513	281		0:05	0:20	1:32	
-TOD-	J92	126	113	FL250	T34	248/072	-2	260	294	35	56	545	250		0:07	0:13	1:39	
CADDU	J92	124	113	17100	T48	251/056	0	240	288	22	34	563	231		0:05	0:08	1:44	
HOBES	J92	124	114	15800	T28	245/048	+3	240	268	5	29	568	227		0:01	0:07	1:45	
DRK DRAKE 114.1	J92	122	114	6100	T20	238/035	+4	212	232	25	4	600	195		0:06	0:01	1:51	
KPRC	DCT	124	123	5045	H6	157/006	+1	187	181	4	-	607	187		0:01	-	1:52	

	FL 210 (ISA: -27°C)		FL 230 (ISA: -31°C)		FL 250 (ISA: -35°C)		FL 270 (ISA: -38°C)		FL 290 (ISA: -42°C)	
WINDS ALOFT	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA
SNS	(T57) 216/073	-7	(T55) 214/073	-7	(T59) 214/079	-7	(T64) 215/085	-5	(T67) 219/083	-4
PXN	(T37) 212/083	-3	(T39) 212/093	-4	(T35) 209/095	-5	(T30) 207/093	-5	(T31) 208/088	-5
-TOC-	(T52) 214/077	-1	(T45) 209/074	-3	(T47) 209/078	-4	(T50) 210/082	-6	(T46) 207/081	-7
NTELL	(T54) 214/077	-1	(T47) 209/076	-3	(T49) 209/079	-4	(T52) 210/083	-6	(T48) 207/082	-7
CABAB	(T59) 227/064	-1	(T62) 229/066	-3	(T68) 230/073	-4	(T75) 230/080	-6	(T80) 230/085	-7
TTMSN	(T62) 237/071	-1	(T66) 238/075	-2	(T70) 238/080	-4	(T74) 237/086	-5	(T80) 235/096	-6
SKANN	(T51) 235/061	0	(T61) 239/070	-2	(T67) 239/077	-3	(T70) 238/082	-5	(T70) 234/086	-6
FLCHR	(T7) 235/061	0	(T12) 239/071	-2	(T12) 239/077	-3	(T10) 238/082	-5	(T3) 233/085	-6
BTY	(H23) 235/061	0	(H24) 239/071	-2	(H26) 240/077	-3	(H31) 238/081	-5	(H39) 233/085	-6
100-BLD	(T27) 235/061	0	(T34) 239/071	-2	(T37) 240/077	-3	(T37) 238/081	-5	(T30) 233/085	-6
BLD	(T25) 237/063	+1	(T30) 240/069	-1	(T35) 243/074	-2	(T37) 244/076	-4	(T29) 238/075	-5
KADDY	(T27) 246/057	0	(T32) 248/066	-1	(T35) 249/072	-2	(T35) 247/075	-3	(T26) 240/077	-4
PRFUM	(T26) 245/057	0	(T31) 247/066	-1	(T34) 248/072	-2	(T34) 247/076	-4	(T26) 241/076	-5
-TOD-	(T29) 252/053	+1	(T35) 254/061	-1	(T31) 249/064	-2	(T26) 242/070	-3	(T21) 237/086	-2
CADDU	(T29) 252/054	+1	(T34) 254/061	-1	(T31) 249/064	-2	(T25) 242/070	-3	(T20) 237/086	-3
HOBES	(T29) 251/054	+1	(T34) 254/061	-1	(T31) 249/064	-2	(T25) 242/070	-3	(T20) 237/085	-3

Navlog updated: Jan 10, 7:47 AM CST
Now

Performance Tier Standard Navlog

18.1 Generating Navlogs

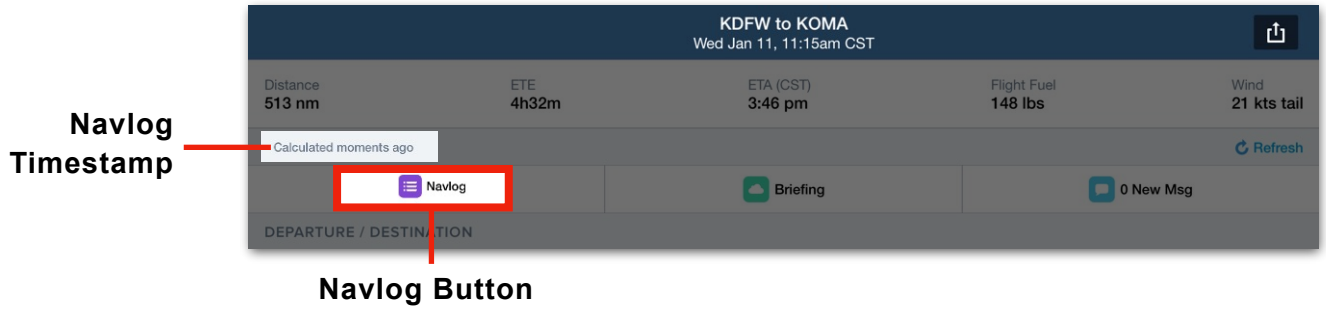
Navlogs are generated using ForeFlight's cloud-based flight planning engine. Therefore, an active internet connection is required to generate Navlogs. This feature is independent of the NavLog on the Maps view and may contain slightly different flight planning results.

ForeFlight's cloud-based flight planning engine is more accurate than the planning engine available on the Maps view as it factors more variables (e.g., aircraft weight, temperatures aloft, etc.).

Navlogs are generated without user input. A new Navlog is generated every time a change is made to the Flights view. Once a Navlog is generated, it is saved locally to the device and can be accessed offline. Therefore, if a flight is planned while connected to the Internet, the Navlog will be available for offline viewing.

18.1.1 Accessing Navlogs

Navlogs are accessed from the ForeFlight Mobile or ForeFlight Web *Flights* view by tapping the **Navlog** button near the top of the screen.



When the **Navlog** button is tapped, the *latest* Navlog is displayed in the Navlog viewer. It is not possible to view historical Navlogs that were generated as the flight was being planned.

Navlogs are synced to a user account. Generating a Navlog using ForeFlight Web and then tapping the **Navlog** button in ForeFlight Mobile results in the same document, and vice versa.

IMPORTANT: An internet connection is required to generate a Navlog.

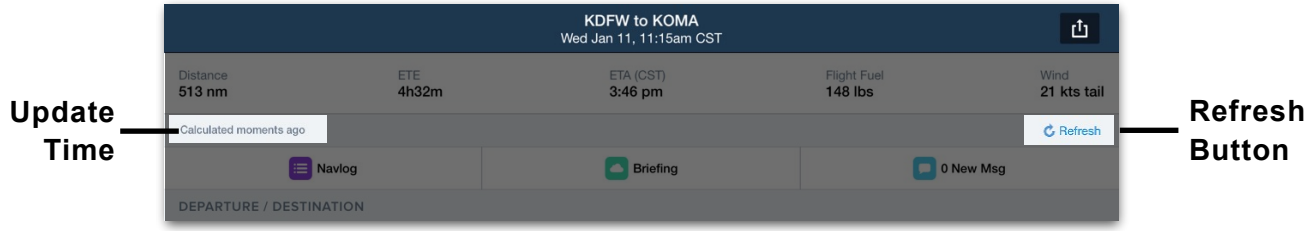
18.1.2 Refreshing Navlogs

Pilots who generate Navlogs in advance of their estimated departure time are encouraged to refresh their Navlogs prior to flight as updated weather forecasts may be available.

IMPORTANT: The Navlog does not automatically refresh; an internet connection is required to refresh the Navlog.

There are three methods for refreshing the Navlog.

- Tapping the **Refresh** button on the Flights view (recommended).
- Opening the Navlog and tapping the refresh icon in the left corner of the lower toolbar.
- Editing the flight.



Flights View

The time at which the Navlog was generated is displayed above the Navlog button and on the Navlog itself. To incorporate the latest weather forecasts, the Navlog must be refreshed.

When the Navlog is refreshed with any of the techniques listed above, the Navlog is updated with the latest available weather, and the Navlog timestamp is updated.

18.2 Navlog Types

There are six types of Navlogs. The table below indicates available Navlog types per subscription.

Subscription	Basic	Standard	Standard (PS)**	International	Custom	Active Navlog
Starter	✓	✓				
Essential	✓	✓				
Premium	✓		✓	✓		
Business Pro	✓	✓				
Business Performance	✓		✓	✓		*
MFB Pro	✓	✓				
MFB Performance	✓		✓	✓		*
Business + Dispatch	✓		✓	✓	✓	*
MFB + Dispatch	✓		✓	✓	✓	*

* **Active Navlog** is available as a per-account add-on for Business Performance accounts.

** (PS) - Performance Level Subscription

All Navlog types are read-only, printable, and shareable documents. Navlogs cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to make annotations.

The Basic Navlog contains essential flight planning details. The Standard and International Navlogs contain additional flight planning details in commonly used formats. Basic, Standard, Standard for Performance-level subscriptions, and International Navlog types are discussed in detail later in this chapter.

Custom Navlogs can be created with a ForeFlight Dispatch account. See the **ForeFlight Dispatch Guide** for additional information.

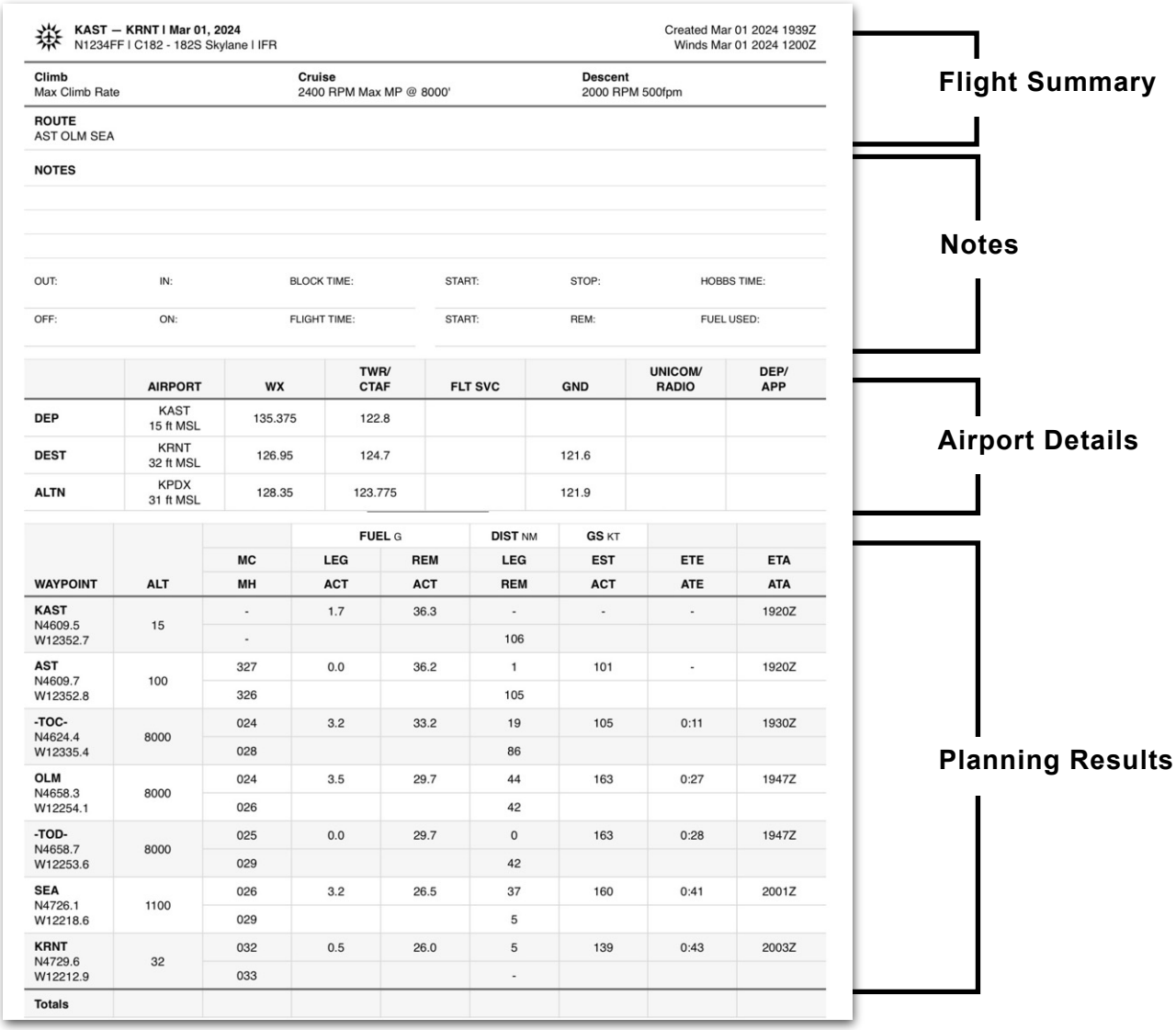
Navlog Template Selection

After a Navlog is generated, a different template may be selected. The Navlog Settings (gear) button in the upper toolbar can be used to toggle between Navlog formats.

NOTE: The International Navlog is only available to Premium, Business Performance, and MFB Performance customers.

18.2.1 Basic Navlog

The Basic Navlog is available to all customers. As depicted below, the Basic Navlog is organized into sections. Each section is described in detail throughout this chapter.



KAST — KRNT | Mar 01, 2024
N1234FF | C182 - 182S Skylane | IFR

Created Mar 01 2024 1939Z
Winds Mar 01 2024 1200Z

Climb	Cruise	Descent
Max Climb Rate	2400 RPM Max MP @ 8000'	2000 RPM 500fpm

ROUTE
AST OLM SEA

NOTES

OUT:	IN:	BLOCK TIME:	START:	STOP:	HOBBS TIME:
OFF:	ON:	FLIGHT TIME:	START:	REM:	FUEL USED:

	AIRPORT	WX	TWR/ CTAF	FLT SVC	GND	UNICOM/ RADIO	DEP/ APP
DEP	KAST 15 ft MSL	135.375	122.8				
DEST	KRNT 32 ft MSL	126.95	124.7		121.6		
ALTN	KPDX 31 ft MSL	128.35	123.775		121.9		

			FUEL G		DIST NM	GS KT		
		MC	LEG	REM	LEG	EST	ETE	ETA
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	36.3	-	-	-	1920Z
		-			106			
AST N4609.7 W12352.8	100	327	0.0	36.2	1	101	-	1920Z
		326			105			
-TOC- N4624.4 W12335.4	8000	024	3.2	33.2	19	105	0:11	1930Z
		028			86			
OLM N4658.3 W12254.1	8000	024	3.5	29.7	44	163	0:27	1947Z
		026			42			
-TOD- N4658.7 W12253.6	8000	025	0.0	29.7	0	163	0:28	1947Z
		029			42			
SEA N4726.1 W12218.6	1100	026	3.2	26.5	37	160	0:41	2001Z
		029			5			
KRNT N4729.6 W12212.9	32	032	0.5	26.0	5	139	0:43	2003Z
		033			-			
Totals								

Flight Summary

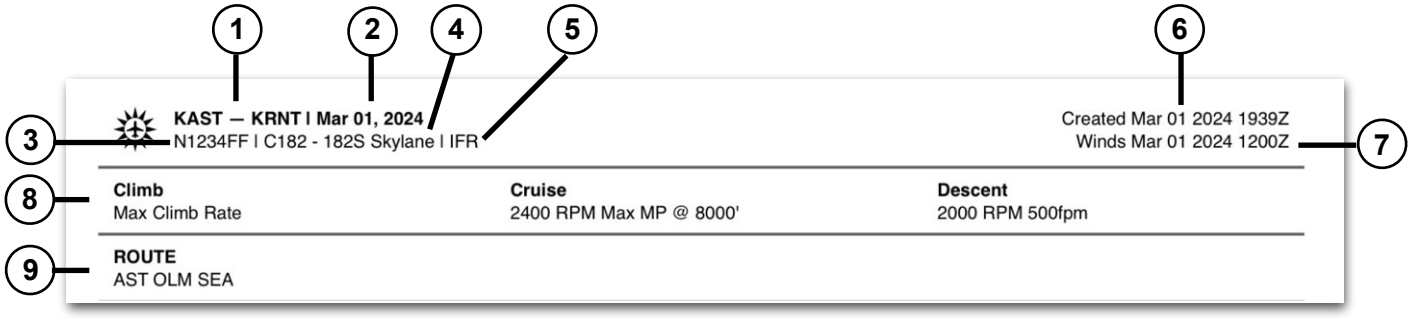
Notes

Airport Details

Planning Results

18.2.1.1 Basic Navlog Flight Summary Section

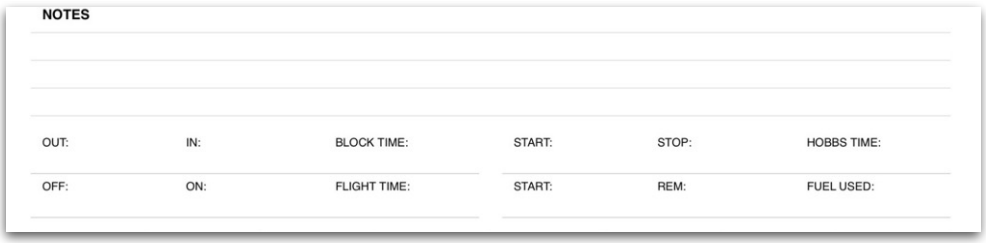
The Basic Navlog summary section provides an overview of the fight.



1. Departure and destination identifiers, names (for airports without identifiers), or lat/long coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is *filed* with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds aloft data timestamp.
8. Performance profile.
9. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.

18.2.1.2 Basic Navlog Notes Section

The Notes section provides blank fields for notes and manually recording flight times. These fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.



Notes Section

18.2.1.3 Basic Navlog Airport Details

The Airport Details section includes commonly used airport frequencies and field elevation.

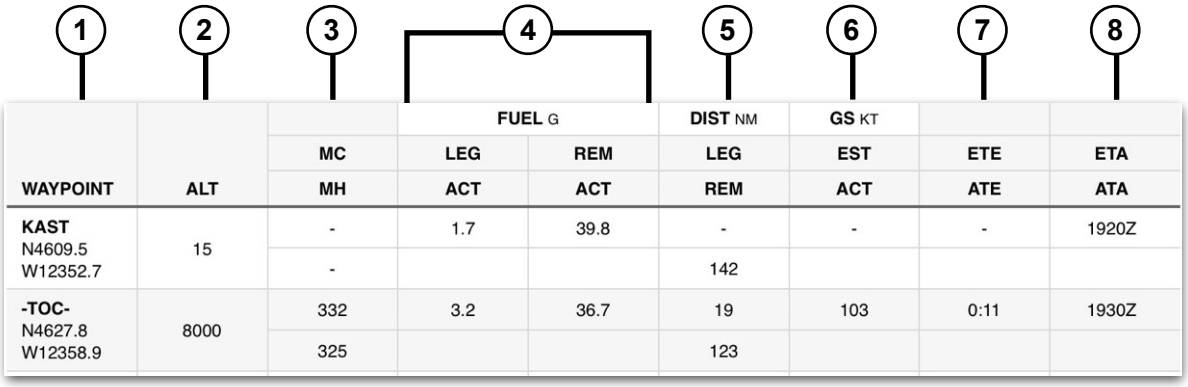
NOTE: Only one listing is shown for each radio frequency category. To review additional frequencies see **Info Tab**.

	AIRPORT	WX	TWR/ CTAF	FLT SVC	GND	UNICOM/ RADIO	DEP/ APP
DEP	KAST 15 ft MSL	135.375	122.8				
DEST	KRNT 32 ft MSL	126.95	124.7		121.6		
ALTN	KPDX 31 ft MSL	128.35	123.775		121.9		

Basic Navlog Airport Details

18.2.1.4 Basic Navlog Planning Table Definition

Definitions for the values found in the planning table are given below.



			FUEL G		DIST NM	GS KT		
		MC	LEG	REM	LEG	EST	ETE	ETA
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
-TOC- N4627.8 W12358.9	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route, top of climb and descent, and 100 NM waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
2. Altitude (MSL) at which the waypoint is crossed.
3. Magnetic Course (true course corrected for geographic variation)/Magnetic Heading (magnetic course corrected for winds).
4. Fuel section displayed in units selected in aircraft profile
   - LEG - Planned fuel required for the flight plan leg.
   - REM - Planned fuel remaining upon flight plan leg completion.
5. Leg distance and total flight distance remaining.
6. Average estimated groundspeed (GS) for the leg.
7. Estimated time for the leg rounded to the nearest minute.
8. Estimated time of arrival based on proposed departure time.

18.2.1.5 Basic Navlog Planning Results Section

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Each waypoint row describes the leg of the flight leading to it from the previous waypoint. In the image below, the leg of the flight from HQM to OLM is described on the row for OLM. In other words, to get to the next waypoint, read that waypoint row.

			FUEL G		DIST NM	GS KT		
		MC	LEG	REM	LEG	EST	ETE	ETA
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
-TOC- N4627.8 W12358.9	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			
HQM N4656.8 W12409.0	8000	332	2.5	34.2	30	154	0:23	1942Z
		324			93			
OLM N4658.3 W12254.1	8000	073	4.3	29.7	51	147	0:44	2003Z
		081			42			

How to read planning results from HQM to OLM

Routes with legs greater than 100 NM

If any leg in the route is longer than 100 NM, that leg is subdivided into 100 NM increments. Each of these increments becomes a new leg and is assigned a unique name representing the distance from it to the waypoint.

In the example below, the leg “300-KOMA” is reached when the aircraft is 300 NM from KOMA.

If the waypoint is an airport without an identifier, the airport’s lat/long coordinates are listed instead, e.g. “300-5036N00827E” for 300 NM from Garbenheimer Weisen Airfield.

WAYPOINT	ALT	MC MH	LEG ACT	REM ACT	LEG REM	EST ACT	ETE ATE	ETA ATA
KDFW N3253.8 W09702.3	606	- -	1.7	56.7	- 507	-	-	1920Z
500-KOMA N3300.5 W09701.4	3800	003 360	1.2	55.3	7 500	95	0:05	1924Z
-TOC- N3310.9 W09700.1	8000	003 351	1.8	53.7	10 490	96	0:11	1930Z
400-KOMA N3440.1 W09648.9	8000	003 353	8.0	45.5	90 400	138	0:50	2009Z
300-KOMA N3619.7 W09636.0	8000	003 354	9.0	36.5	100 300	137	1:34	2053Z
200-KOMA N3759.3 W09622.5	8000	004 356	9.3	27.3	100 200	134	2:19	2138Z
100-KOMA N3938.8 W09608.4	8000	004 360	9.3	17.8	100 100	132	3:04	2223Z
-TOD- N4047.5 W09558.3	8000	004 359	6.3	11.7	69 31	136	3:34	2254Z
KOMA N4118.2 W09553.6	985	004 360	3.3	8.3	31 -	132	3:48	2308Z

Direct flight from KDFW to KOMA divided into 100 NM segments

Top of Climb and Descent

The Basic Navlog includes waypoints for the top of climb (TOC) and top of descent (TOD). These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

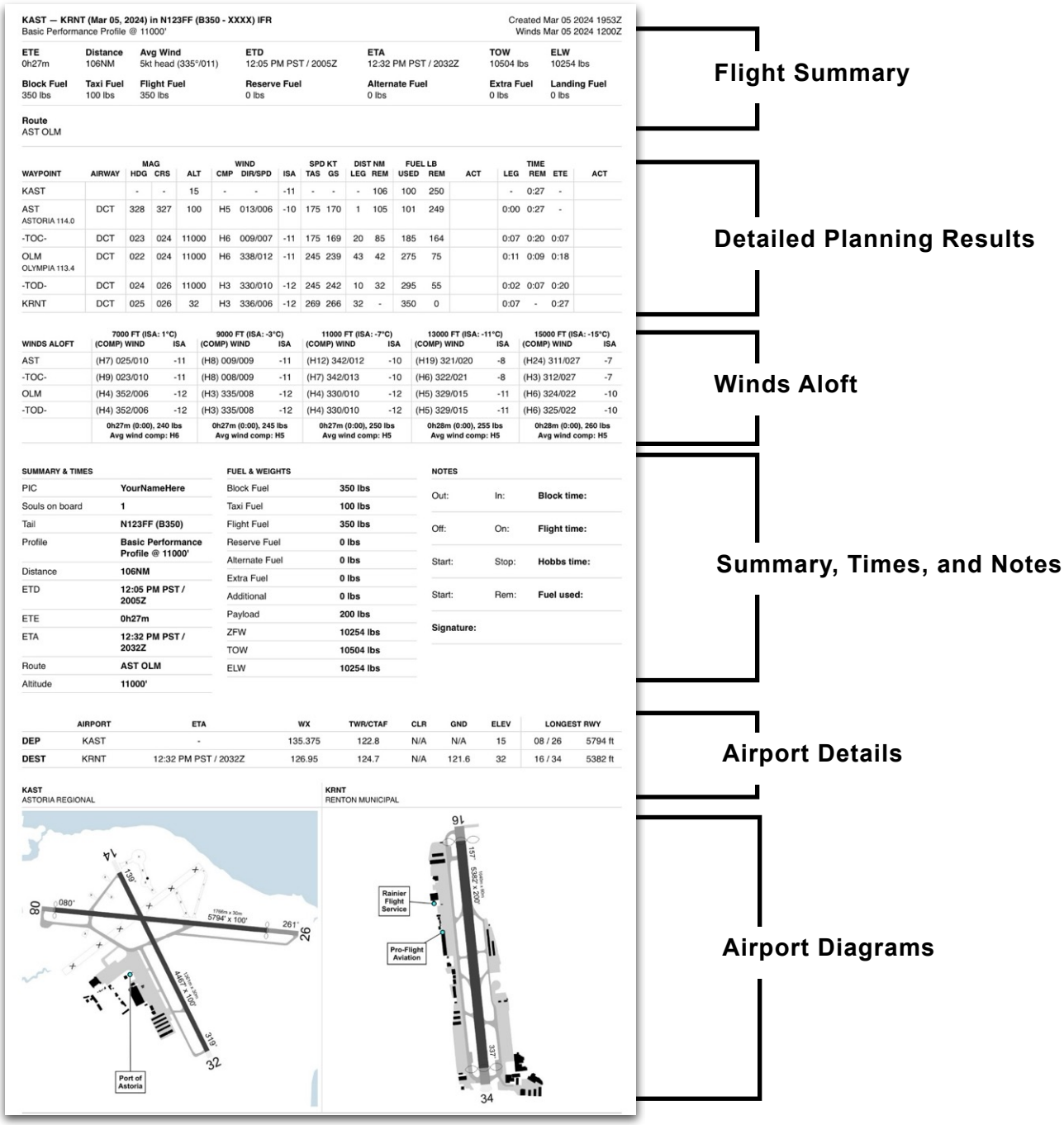
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
AST N4609.7 W12352.8	100	327	0.0	39.8	0	101	-	1920Z
		326			142			
-TOC- N4627.8 W12359.0	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			
HQM N4656.8 W12409.0	8000	332	2.5	34.2	30	154	0:23	1942Z
		324			93			
OLM N4658.3 W12254.1	8000	073	4.3	29.7	51	147	0:44	2003Z
		081			42			
-TOD- N4658.5 W12253.9	8000	026	0.0	29.7	0	162	0:44	2003Z
		029			42			
KRNT N4729.6 W12212.9	32	026	3.7	26.0	42	158	0:59	2019Z
		029			-			

Top of climb and descent waypoints

18.2.2 Standard Navlog

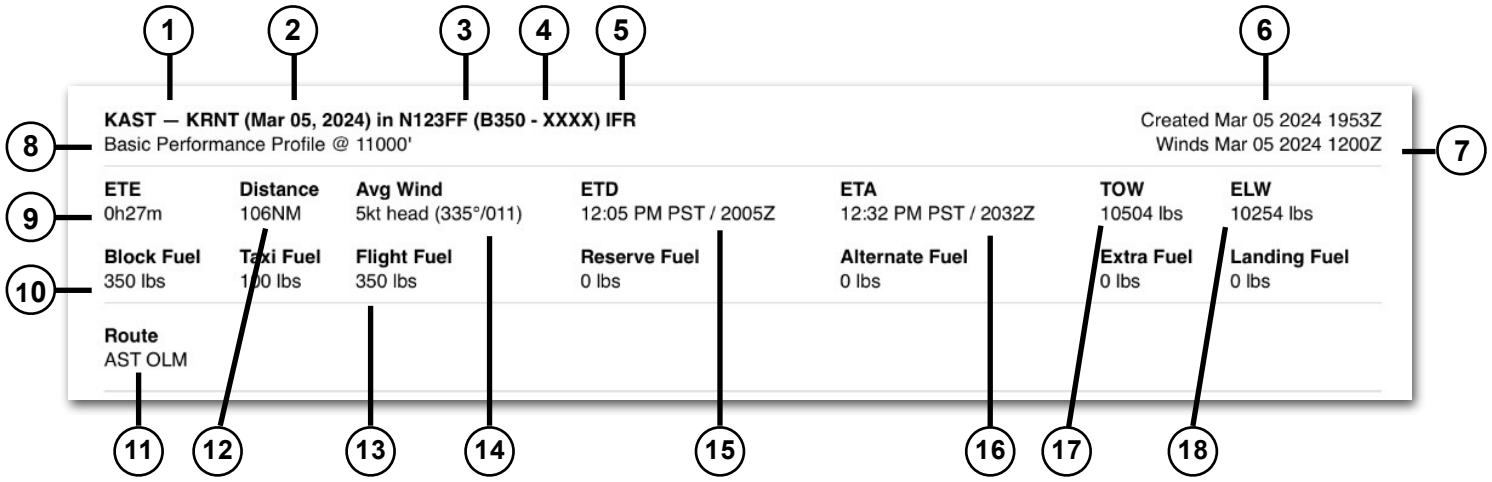
The Standard Navlog is available to all customers. The Standard Navlog for Premium, Business Performance, and MFB Performance customers have additional features described in **Standard (PS) Navlog**.

The Standard Navlog is described in detail throughout this section.



18.2.2.1 Standard Navlog Flight Summary Section

The Standard Navlog summary section provides an overview of the fight.



1. Departure and destination identifiers, names (for airports without identifiers), or lat/long coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is *filed* with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds Aloft Observation Time. The observation time the wind forecast is based on (0000Z, 0600Z, 1200Z, or 1800Z).

NOTE: Winds aloft observations require 5-7 hours for processing. For example, a 1200Z forecast may not be available until 1900Z but is indexed as a 1200Z observation. Each forecast remains valid for up to 6 hours

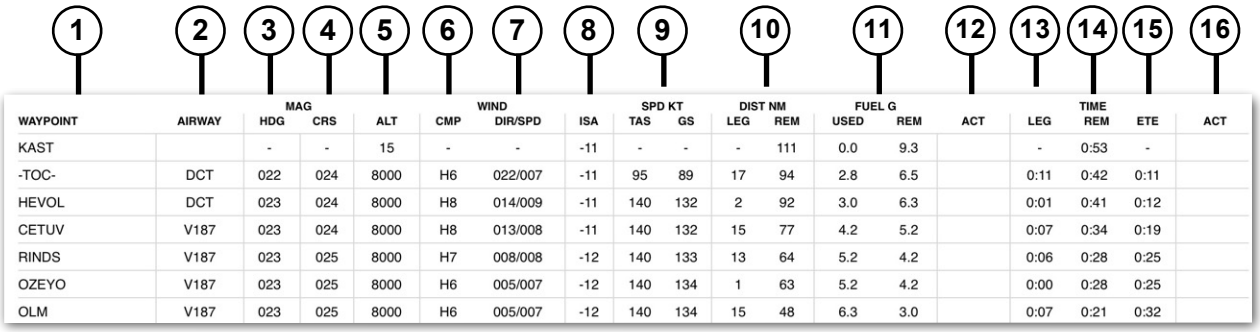
8. Selected aircraft performance profile.
9. Estimated flight time en route.
10. Block fuel is the sum of flight, alternate, reserve, and extra fuel.
11. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.

12. Total distance along the route.
13. Total flight fuel.
14. Average wind and wind component for the duration of the flight.
15. Estimated departure time in departure time zone local and Zulu formats.
16. Estimated arrival time in local and Zulu formats.
17. Planned takeoff weight.
18. Estimated landing weight.

NOTE: Reserve Fuel, Extra Fuel, and Landing Fuel are calculated only for Performance level subscriptions and will show as 0 in the standard navlog.

18.2.2.2 Standard Navlog Planning Table Definitions

Definitions for the values found in the planning table are given below.



		MAG				WIND		SPD KT		DIST NM		FUEL G			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAST		-	-	15	-	-	-11	-	-	-	111	0.0	9.3		-	0:53	-	
-TOC-	DCT	022	024	8000	H6	022/007	-11	95	89	17	94	2.8	6.5		0:11	0:42	0:11	
HEVOL	DCT	023	024	8000	H8	014/009	-11	140	132	2	92	3.0	6.3		0:01	0:41	0:12	
CETUV	V187	023	024	8000	H8	013/008	-11	140	132	15	77	4.2	5.2		0:07	0:34	0:19	
RINDS	V187	023	025	8000	H7	008/008	-12	140	133	13	64	5.2	4.2		0:06	0:28	0:25	
OZEYO	V187	023	025	8000	H6	005/007	-12	140	134	1	63	5.2	4.2		0:00	0:28	0:25	
OLM	V187	023	025	8000	H6	005/007	-12	140	134	15	48	6.3	3.0		0:07	0:21	0:32	

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route, top of climb and descent, and 100 NM waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
2. Airway or terminal procedure by which the waypoint is defined. If no airway or terminal procedure defines the point, the route is direct (DCT).
3. Magnetic heading (magnetic course corrected for winds).
4. Magnetic course (true course corrected for geographic variation).
5. Altitude (MSL) at which the waypoint is crossed.
6. Average wind component for the leg (e.g., T8 is an eight-knot tailwind, and H4 is a four-knot headwind.

7. *Average* wind direction and speed for the leg at the planned altitude.

8. Temperature in degrees Celsius for the planned altitude in relation to the International Standard Atmosphere (ISA). For example, ISA at 14,000' is -12.5ºC. A temperature of +9 in the Navlog results in an ambient temperature of -3.5ºC at altitude.

9. Average true airspeed (TAS) and groundspeed (GS) for the leg.

10. Leg distance (left) and total flight distance remaining.

11. Estimated fuel required for the leg.

12. Blank field to record actual fuel used. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.

13. Time required to complete the leg.

14. Estimated total time remaining for the flight.

15. Estimate total time en route when crossing the waypoint.

16. Blank field to record actual flight time. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.

18.2.2.3 Standard Navlog Planning Results Section

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Each waypoint row describes the leg of the flight leading to it from the previous waypoint. In the image below, the leg of the flight from HEVOL to CETUV is described on the row for CETUV. In other words, to get to the next waypoint, read the next waypoint row.

		MAG			WIND			SPD KT		DIST NM		FUEL G			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAST		-	-	15	-	-	-11	-	-	-	111	0.0	9.3		-	0:53	-	
-TOC-	DCT	022	024	8000	H6	022/007	-11	95	89	17	94	2.8	6.5		0:11	0:42	0:11	
HEVOL	DCT	023	024	8000	H8	014/009	-11	140	132	2	92	3.0	6.3		0:01	0:41	0:12	
CETUV	V187	023	024	8000	H8	013/008	-11	140	132	15	77	4.2	5.2		0:07	0:34	0:19	
RINDS	V187	023	025	8000	H7	008/008	-12	140	133	13	64	5.2	4.2		0:06	0:28	0:25	
OZEYO	V187	023	025	8000	H6	005/007	-12	140	134	1	63	5.2	4.2		0:00	0:28	0:25	
OLM	V187	023	025	8000	H6	005/007	-12	140	134	15	48	6.3	3.0		0:07	0:21	0:32	

Routes with legs greater than 100 NM

If any leg in the route is longer than 100 NM, that leg is subdivided into 100 NM increments. Each of these increments becomes a new leg and is assigned a unique name representing the distance from it to the waypoint.

In the example below, the leg “300-KOMA” is reached when the aircraft is 300 NM from KOMA.

If the waypoint is an airport without an identifier, the lat/long coordinates are listed instead, e.g. “300-5036N00827E” for 300 NM from Garbenheimer Weisen Airfield.

Top of Climb and Descent

WAYPOINT	AIRWAY	MAG HDG	MAG CRS	ALT	WIND CMP	WIND DIR/SPD	ISA	SPD KT TAS	SPD KT GS	DIST NM LEG	DIST NM REM
KDFW		-	-	606	-	-	+7	0	0	-	507
500-KOMA	DCT	351	003	3900	T15	237/023	+7	80	95	7	500
-TOC-	DCT	340	003	14000	T16	258/033	+9	80	96	20	480
400-KOMA	DCT	345	003	14000	H6	276/041	+9	135	129	80	400
300-KOMA	DCT	343	003	14000	H8	276/046	+10	135	127	100	300
200-KOMA	DCT	349	003	14000	T4	262/036	+9	135	139	100	200
100-KOMA	DCT	352	004	14000	T4	261/028	+7	135	139	100	100
-TOD-	DCT	353	004	14000	T3	265/026	+5	135	138	38	62
KOMA	DCT	360	004	985	T8	222/018	+2	135	143	62	-

Direct flight from KDFW to KOMA divided into 100 NM segments

The Basic Navlog includes waypoints for the top of climb (TOC) and top of descent (TOD). These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

WAYPOINT	AIRWAY	MAG HDG	MAG CRS	ALT
KIAH		-	-	96
BBYSE	STYCK8	338	348	4500
SPICR	STYCK8	322	332	12100
-TOC-	STYCK8	323	332	14000
WLLIS	STYCK8	327	332	14000
STYCK	STYCK8	325	333	14000
-TOD-	DCT	334	346	14000
CQY CEDAR CREEK 114.8	DCT	331	345	13400
HOWDY	CQY1	304	314	10600
KDFW	CQY1	302	313	606

Top of climb and descent waypoints

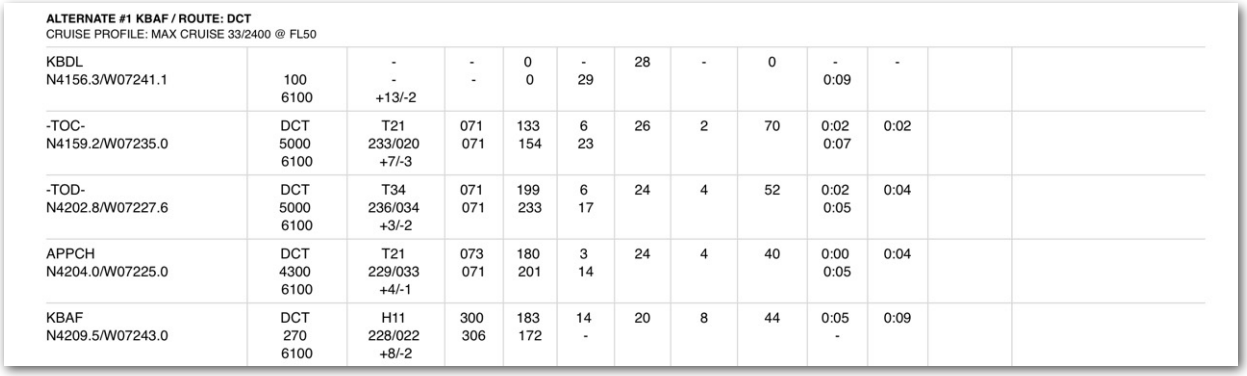
Alternate Airports

When an alternate airport is included in the flight, the Navlog introduces an “APPCH" waypoint to add time and distance representative of the time and fuel required to fly a missed approach procedure and instrument approach.

With the exception of Dispatch accounts, alternate fuel calculations use the same cruise, climb, and descent profiles as the flight to calculate the fuel to the alternate airport.

The routing from the initial destination airport to the alternate airport is not direct, nor does it reflect a published approach. Rather, it serves as an estimate for flight planning purposes.

A fuel buffer is added to account for the additional routing and varies by aircraft type. Jet and Turboprop aircraft add a 30 NM buffer. Piston aircraft add a 15 NM buffer. No alternate buffer added when planning with a helicopter.



ALTERNATE #1 KBAF / ROUTE: DCT
CRUISE PROFILE: MAX CRUISE 33/2400 @ FL50

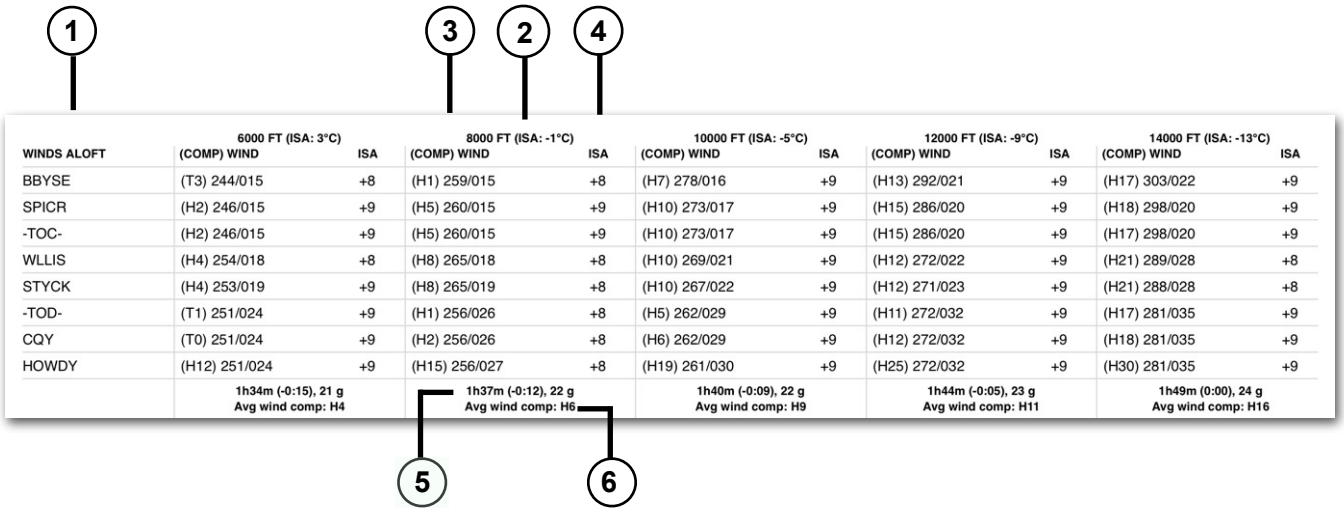
KBDL N4156.3/W07241.1	 100 6100	- - +13/-2	- -	0 0	- 29	28	-	0	- 0:09	-		
-TOC- N4159.2/W07235.0	DCT 5000 6100	T21 233/020 +7/-3	071 071	133 154	6 23	26	2	70	0:02 0:07	0:02		
-TOD- N4202.8/W07227.6	DCT 5000 6100	T34 236/034 +3/-2	071 071	199 233	6 17	24	4	52	0:02 0:05	0:04		
APPCH N4204.0/W07225.0	DCT 4300 6100	T21 229/033 +4/-1	073 071	180 201	3 14	24	4	40	0:00 0:05	0:04		
KBAF N4209.5/W07243.0	DCT 270 6100	H11 228/022 +8/-2	300 306	183 172	14 -	20	8	44	0:05 -	0:09		

Alternate Airport Planning Results

18.2.2.4 Standard Navlog Winds Aloft Table

The Winds Aloft table includes forecast wind and temperatures at each waypoint for five different altitudes up to the planned cruise altitude in 2,000 ft increments. A brief summary is included at the bottom of each column. The summary reflects the flight planning results should the aircraft be flown at that particular altitude.

The winds and temperatures in this section reflect the forecast weather at the specific waypoint and not an average across route segments. To read the table, find the appropriate waypoint in the left column. Follow its row to the right to the desired altitude column.

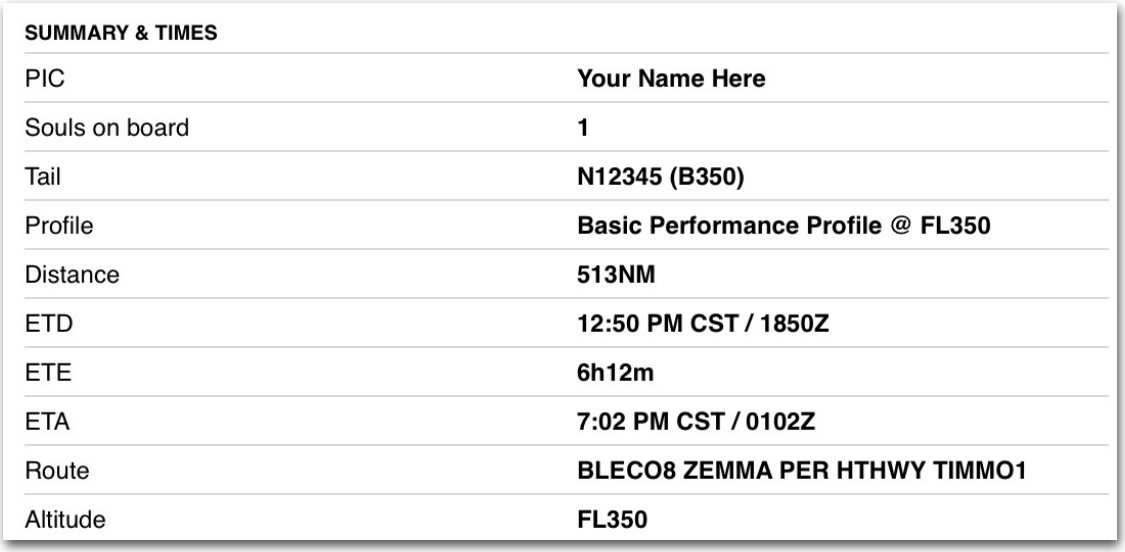


WINDS ALOFT	6000 FT (ISA: 3°C) (COMP) WIND	ISA	8000 FT (ISA: -1°C) (COMP) WIND	ISA	10000 FT (ISA: -5°C) (COMP) WIND	ISA	12000 FT (ISA: -9°C) (COMP) WIND	ISA	14000 FT (ISA: -13°C) (COMP) WIND	ISA
BBYSE	(T3) 244/015	+8	(H1) 259/015	+8	(H7) 278/016	+9	(H13) 292/021	+9	(H17) 303/022	+9
SPICR	(H2) 246/015	+9	(H5) 260/015	+9	(H10) 273/017	+9	(H15) 286/020	+9	(H18) 298/020	+9
-TOC-	(H2) 246/015	+9	(H5) 260/015	+9	(H10) 273/017	+9	(H15) 286/020	+9	(H17) 298/020	+9
WLLIS	(H4) 254/018	+8	(H8) 265/018	+8	(H10) 269/021	+9	(H12) 272/022	+9	(H21) 289/028	+8
STYCK	(H4) 253/019	+9	(H8) 265/019	+8	(H10) 267/022	+9	(H12) 271/023	+9	(H21) 288/028	+8
-TOD-	(T1) 251/024	+9	(H1) 256/026	+8	(H5) 262/029	+9	(H11) 272/032	+9	(H17) 281/035	+9
CQY	(T0) 251/024	+9	(H2) 256/026	+8	(H6) 262/029	+9	(H12) 272/032	+9	(H18) 281/035	+9
HOWDY	(H12) 251/024	+9	(H15) 256/027	+8	(H19) 261/030	+9	(H25) 272/032	+9	(H30) 281/035	+9
	1h34m (-0:15), 21 g Avg wind comp: H4		1h37m (-0:12), 22 g Avg wind comp: H6		1h40m (-0:09), 22 g Avg wind comp: H9		1h44m (-0:05), 23 g Avg wind comp: H11		1h49m (0:00), 24 g Avg wind comp: H16	

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route) listed as identifiers or lat/long coordinates if there is no identifier.
2. International Standard Atmospheric (ISA) temperature rounded to the nearest degree for the altitude (e.g., 6000 FT ISA 3ºC).
3. Wind component at the waypoint (in parenthesis). For example, (T8) is an eight-knot tailwind, and (H4) is a four-knot headwind. Forecast true wind direction and speed to the right of the wind component.
4. Temperature in degrees Celsius compared to the International Standard Atmospheric temperature (ISA).
5. From left to right: Estimated time en route for the altitude column. Estimated time en route difference (rounded to the nearest minute) compared to the planned cruise altitude. Required fuel for the altitude column.
6. Average wind component of the entire flight for the altitude column.

18.2.2.5 Standard Navlog Summary & Times

The Summary & Times section contains information sourced from the Flights page, the user account, and the flight plan filing form.



SUMMARY & TIMES	
PIC	**Your Name Here**
Souls on board	**1**
Tail	**N12345 (B350)**
Profile	**Basic Performance Profile @ FL350**
Distance	**513NM**
ETD	**12:50 PM CST / 1850Z**
ETE	**6h12m**
ETA	**7:02 PM CST / 0102Z**
Route	**BLECO8 ZEMMA PER HTHWY TIMMO1**
Altitude	**FL350**

Standard Navlog Summary & Times Section

PIC - automatically populated with the name associated with the account. Tap **More** > **Account** to change the name.

Souls on board - 1 is the default entry. If a flight plan is filed, the *Persons on Board* field is copied from the filing form to this section of the Navlog. Performance tier customers can edit this field using the Flight's Payload section.

Tail - reflects the selected registration number and type code.

Profile - reflects the selected Performance Profile.

Distance - reflects the total distance along the route.

ETD - the estimated departure time in local and Zulu formats.

ETE - the estimated time en route for the planned cruise altitude.

ETA - the estimated arrival time in local and Zulu formats.

Route - waypoints, including airways, arrival and departure procedures, navaids, and waypoints.

Altitude - reflects the planned cruise altitude.

18.2.2.6 Standard Navlog Fuel & Weights Section

The Fuel & Weights section contains information sourced from Flights and Aircraft pages.

Block Fuel - the total of flight and alternate fuel.

Taxi Fuel - not computed for the Standard Navlog.

Flight Fuel - total flight fuel.

Reserve Fuel - not computed for the Standard Navlog.

Alternate Fuel - the fuel required to reach the alternate destination.

Extra Fuel - not computed for the Standard Navlog.

Additional Fuel - Additional ETP fuel added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing.

FUEL & WEIGHTS	
Block Fuel	**20.2 g**
Taxi Fuel	**0.0 g**
Flight Fuel	**8.4 g**
Reserve Fuel	**0.0 g**
Alternate Fuel KPDX	**11.8 g**
Extra Fuel	**0.0 g**
Additional	**0.0 g**
Payload	**200 lbs**
ZFW	**1933 lbs**
TOW	**2054 lbs**
ELW	**2004 lbs**

Standard Navlog Fuel & Weights Section

Payload - total payload (passengers and cargo).

ZFW - zero fuel weight.

TOW - takeoff weight.

ELW - estimated landing weight.

18.2.2.7 Standard Navlog Notes Section

The Notes section provides blank fields for manually recording flight times. These fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.

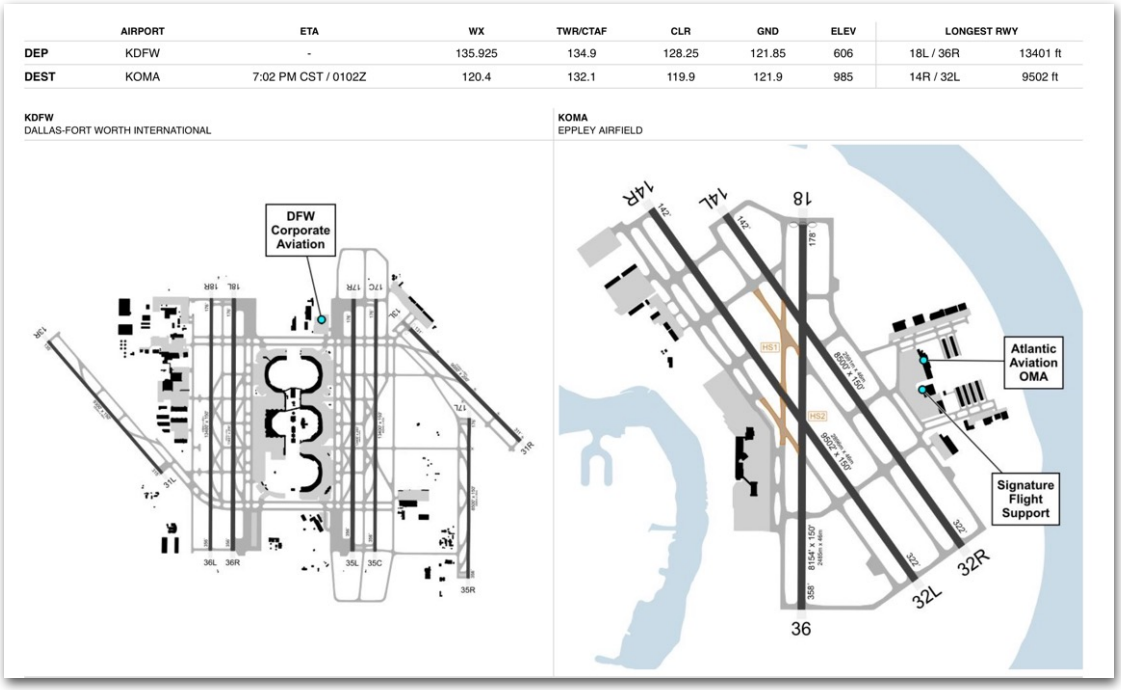
NOTES		
Out:	In:	**Block time:**
Off:	On:	**Flight time:**
Start:	Stop:	**Hobbs time:**
Start:	Rem:	**Fuel used:**
Signature:		

Basic Navlog Notes Section

18.2.2.8 Standard Navlog Airport Details

The Airport Details section includes commonly used airport frequencies, field elevation, longest runway, and FBO location details.

NOTE: Only one listing is shown for each radio frequency category. To review additional frequencies see **Info Tab**.



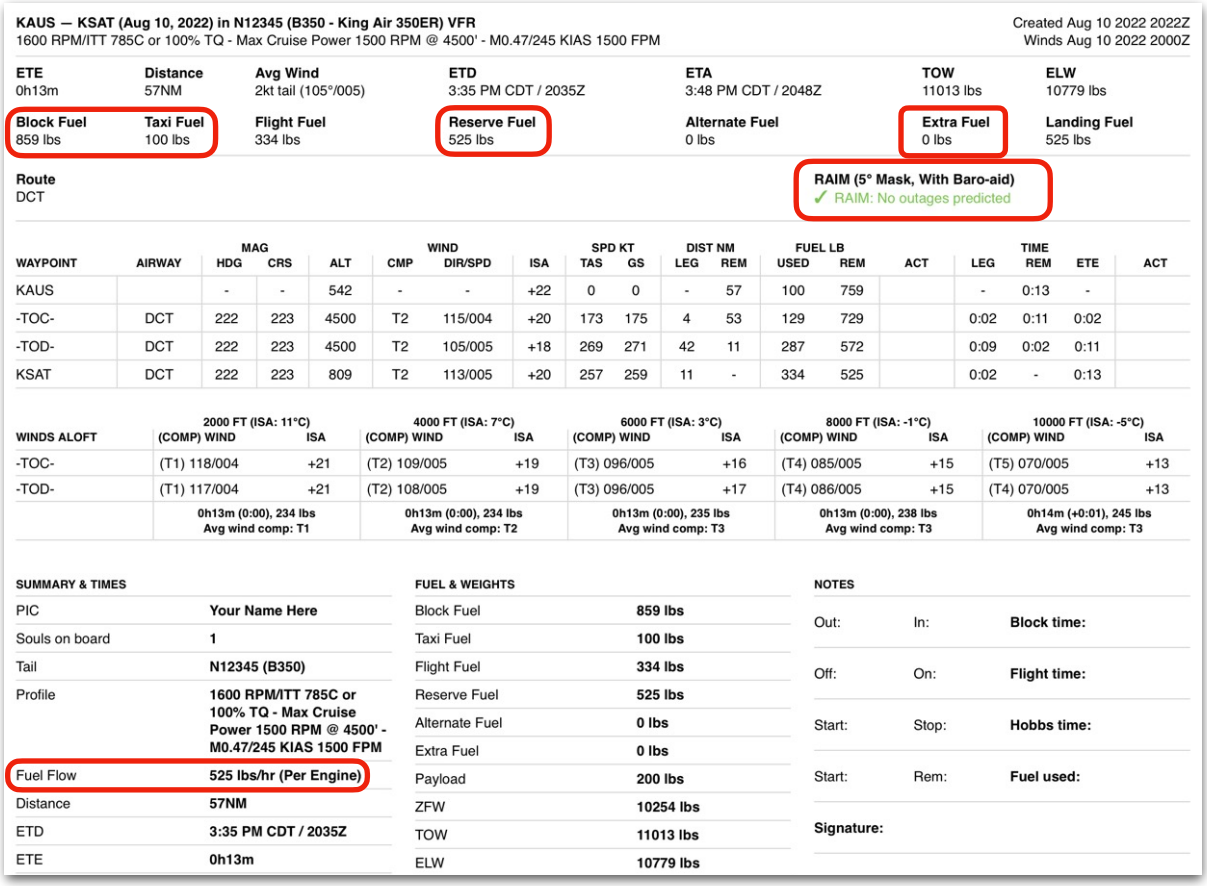
Basic Navlog Airport Details Section

18.2.3 Standard (PS) Navlog

The Standard (PS) Navlog is only available to Premium, Business Performance, and MFB Performance customers. The Navlog Settings (gear) button in the upper toolbar provides the option to toggle between Basic, Standard, and **International** Navlog formats.

The Performance Standard Navlog is identical to the **Standard Navlog**, with additional features. Those additional features are circled below and discussed in this section.

NOTE: The Navlog selection menu does not differentiate between Standard and Standard (PS) Navlogs. The generated Standard Navlog will automatically contain subscription-level data.



KAUS — KSAT (Aug 10, 2022) in N12345 (B350 - King Air 350ER) VFR
1600 RPM/ITT 785C or 100% TQ - Max Cruise Power 1500 RPM @ 4500' - M0.47/245 KIAS 1500 FPM

Created Aug 10 2022 2022Z
Winds Aug 10 2022 2000Z

ETE	Distance	Avg Wind	ETD	ETA	TOW	ELW
0h13m	57NM	2kt tail (105°/005)	3:35 PM CDT / 2035Z	3:48 PM CDT / 2048Z	11013 lbs	10779 lbs

Block Fuel	Taxi Fuel	Flight Fuel	Reserve Fuel	Alternate Fuel	Extra Fuel	Landing Fuel
859 lbs	100 lbs	334 lbs	525 lbs	0 lbs	0 lbs	525 lbs

Route
DCT

RAIM (5° Mask, With Baro-aid)
✓ RAIM: No outages predicted

		MAG			WIND			SPD KT		DIST NM		FUEL LB			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAUS		-	-	542	-	-	+22	0	0	-	57	100	759		-	0:13	-	
-TOC-	DCT	222	223	4500	T2	115/004	+20	173	175	4	53	129	729		0:02	0:11	0:02	
-TOD-	DCT	222	223	4500	T2	105/005	+18	269	271	42	11	287	572		0:09	0:02	0:11	
KSAT	DCT	222	223	809	T2	113/005	+20	257	259	11	-	334	525		0:02	-	0:13	

	2000 FT (ISA: 11°C)		4000 FT (ISA: 7°C)		6000 FT (ISA: 3°C)		8000 FT (ISA: -1°C)		10000 FT (ISA: -5°C)	
WINDS ALOFT	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA
-TOC-	(T1) 118/004	+21	(T2) 109/005	+19	(T3) 096/005	+16	(T4) 085/005	+15	(T5) 070/005	+13
-TOD-	(T1) 117/004	+21	(T2) 108/005	+19	(T3) 096/005	+17	(T4) 086/005	+15	(T4) 070/005	+13
	0h13m (0:00), 234 lbs Avg wind comp: T1		0h13m (0:00), 234 lbs Avg wind comp: T2		0h13m (0:00), 235 lbs Avg wind comp: T3		0h13m (0:00), 238 lbs Avg wind comp: T3		0h14m (+0:01), 245 lbs Avg wind comp: T3	

SUMMARY & TIMES

PIC	Your Name Here
Souls on board	1
Tail	N12345 (B350)
Profile	1600 RPM/ITT 785C or 100% TQ - Max Cruise Power 1500 RPM @ 4500' - M0.47/245 KIAS 1500 FPM
Fuel Flow	525 lbs/hr (Per Engine)
Distance	57NM
ETD	3:35 PM CDT / 2035Z
ETE	0h13m

FUEL & WEIGHTS

Block Fuel	859 lbs
Taxi Fuel	100 lbs
Flight Fuel	334 lbs
Reserve Fuel	525 lbs
Alternate Fuel	0 lbs
Extra Fuel	0 lbs
Payload	200 lbs
ZFW	10254 lbs
TOW	11013 lbs
ELW	10779 lbs

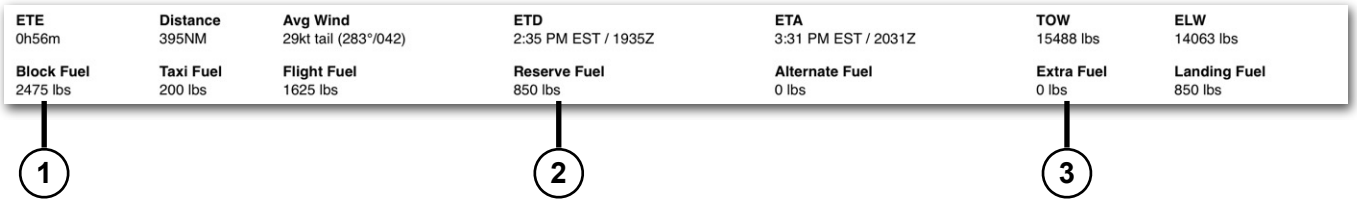
NOTES

Out:	In:	Block time:
Off:	On:	Flight time:
Start:	Stop:	Hobbs time:
Start:	Rem:	Fuel used:

Signature:

Standard Navlog Additional Features

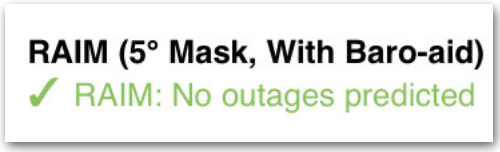
18.2.3.1 Additional Performance Standard Navlog Features



The following features are only included with the Performance Standard Navlog.

1. Block fuel refers to the total quantity of fuel in the tanks prior to engine start (sum of flight, alternate, reserve, and extra fuel).
2. The default amount of reserve fuel specified in the aircraft profile or from a manual entry on the flight planning form.
3. Extra fuel specified by the fuel policy or from a manual entry.

Performance Standard Navlog RAIM Prediction



The Performance Standard Navlog can include a RAIM prediction for the flight. If conducted, the RAIM calculation will indicate whether or not outages are predicted.

This calculation is conducted assuming the aircraft is equipped with barometric pressure-aiding equipment and the GPS antenna is installed on the airframe to ensure a maximum 5-degree airframe mask angle.

The Standard Navlog includes RAIM prediction for any flight that meets one of the following criteria.

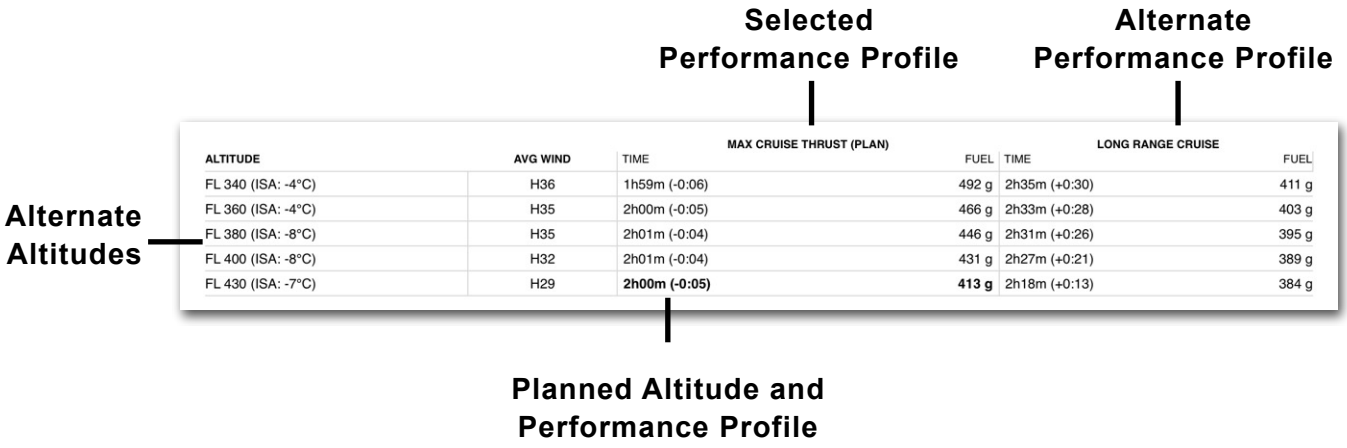
- The flight is conducted entirely within the continental United States, Alaska, Hawaii, or Puerto Rico.
- The flight begins and ends in the continental United States and spends less than or equal to 15 minutes in Canadian airspace.
- The flight begins and ends in the continental United States and spends less than or equal to 15 minutes in Mexican airspace.
- The flight begins and ends in Alaska and spends less than or equal to 15 minutes in Canadian airspace.

Performance Standard Navlog Fuel Flow

The Performance Standard Navlog includes a Fuel Flow field in the Summary & Times section. This is a calculated value that reflects the average fuel flow for the entirety of the flight.

SUMMARY & TIMES	
PIC	**Your Name Here**
Souls on board	**2**
Tail	**C560 (C56X)**
Profile	**250 KIAS / M0.65 - Max Cruise Thrust @ FL410 - Normal 2000 fpm**
Fuel Flow	**800 lbs/hr (Per Engine)**
Distance	**395NM**
ETD	**2:35 PM EST / 1935Z**
ETE	**0h58m**
ETA	**3:33 PM EST / 2033Z**
Route	**EWC WOMBT PIGGZ SLT HNK STELA1**
Altitude	**FL410**

Standard Navlog Fuel Flow

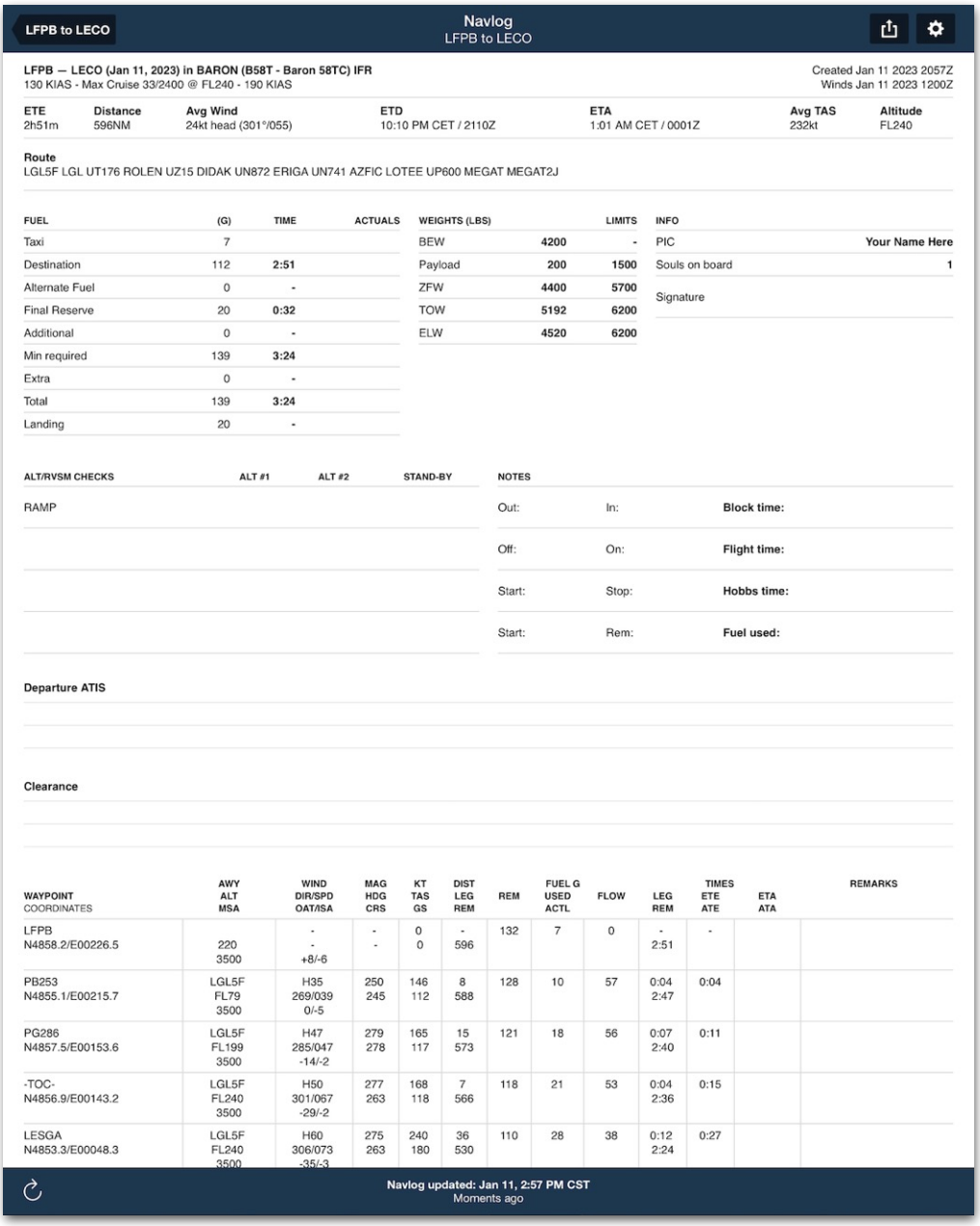


ALTITUDE	AVG WIND	MAX CRUISE THRUST (PLAN) TIME	FUEL	LONG RANGE CRUISE TIME	FUEL
FL 340 (ISA: -4°C)	H36	1h59m (-0:06)	492 g	2h35m (+0:30)	411 g
FL 360 (ISA: -4°C)	H35	2h00m (-0:05)	466 g	2h33m (+0:28)	403 g
FL 380 (ISA: -8°C)	H35	2h01m (-0:04)	446 g	2h31m (+0:26)	395 g
FL 400 (ISA: -8°C)	H32	2h01m (-0:04)	431 g	2h27m (+0:21)	389 g
FL 430 (ISA: -7°C)	H29	**2h00m (-0:05)**	**413 g**	2h18m (+0:13)	384 g

18.2.4 International Navlog

The International Navlog is only available to Premium, Business Performance, and MFB Performance customers. The Navlog Settings (gear) button in the upper toolbar can be used to toggle between the International and Standard Navlog formats.

The International Navlog contains much of the same information as the **Standard** and **Performance Standard Navlogs**, however, it also includes fields pertinent to international flights.



LFPB to LECO

Navlog
LFPB to LECO

LFPB — LECO (Jan 11, 2023) in BARON (B58T - Baron 58TC) IFR
130 KIAS - Max Cruise 33/2400 @ FL240 - 190 KIAS

Created Jan 11 2023 2057Z
Winds Jan 11 2023 1200Z

ETE	Distance	Avg Wind	ETD	ETA	Avg TAS	Altitude
2h51m	596NM	24kt head (301°/055)	10:10 PM CET / 2110Z	1:01 AM CET / 0001Z	232kt	FL240

Route
LGL5F LGL UT176 ROLEN UZ15 DIDAK UN872 ERIGA UN741 AZFIC LOTEE UP600 MEGAT MEGAT2J

FUEL	(G)	TIME	ACTUALS
Taxi	7		
Destination	112	2:51	
Alternate Fuel	0	-	
Final Reserve	20	0:32	
Additional	0	-	
Min required	139	3:24	
Extra	0	-	
Total	139	3:24	
Landing	20	-	

WEIGHTS (LBS)		LIMITS
BEW	4200	-
Payload	200	1500
ZFW	4400	5700
TOW	5192	6200
ELW	4520	6200

INFO	
PIC	Your Name Here
Souls on board	1
Signature	

ALT/RVSM CHECKS	ALT #1	ALT #2	STAND-BY
RAMP			

NOTES		
Out:	In:	Block time:
Off:	On:	Flight time:
Start:	Stop:	Hobbs time:
Start:	Rem:	Fuel used:

Departure ATIS

Clearance

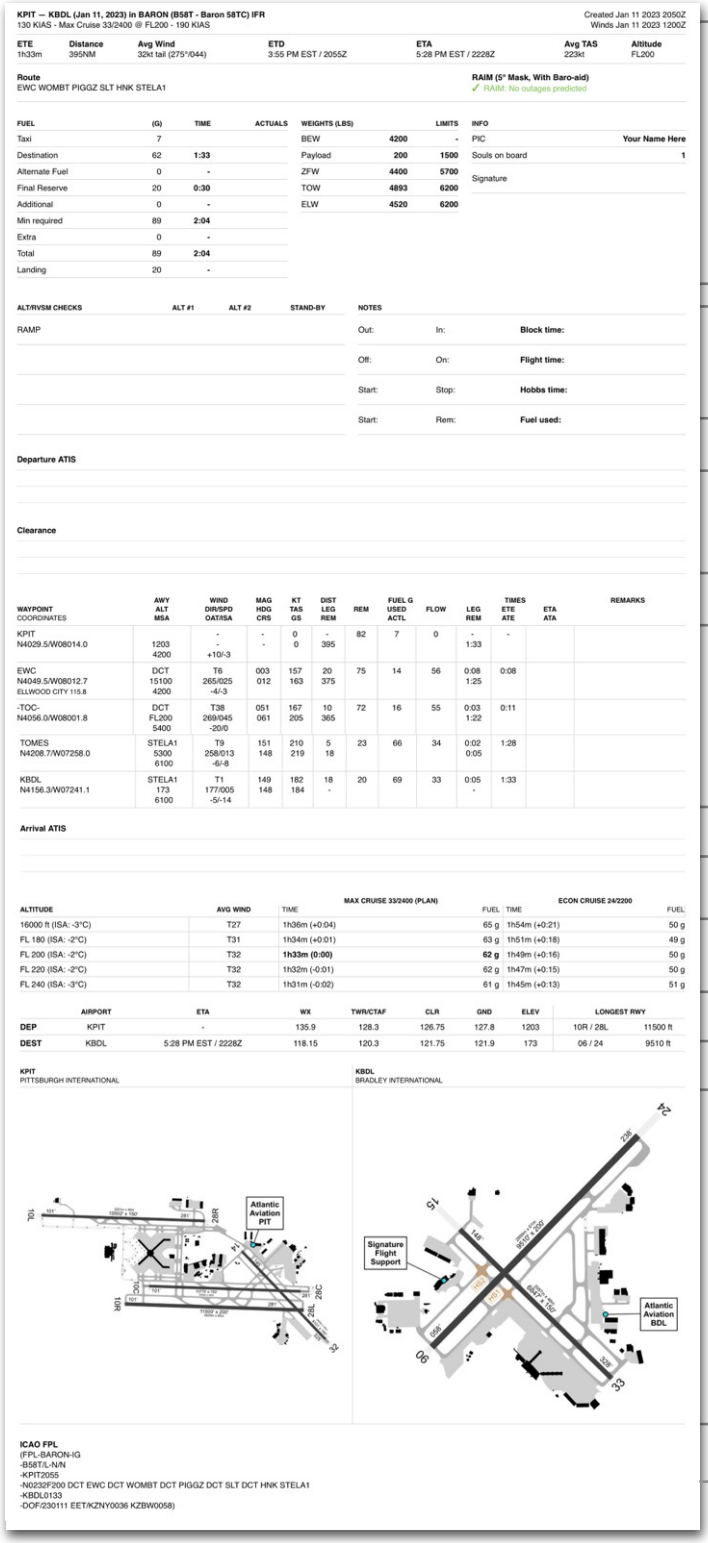
WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL G USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-6	- -	0 0	- 596	132	7	0	- 2:51	-		
PB253 N4855.1/E00215.7	LGL5F FL79 3500	H35 269/039 0/-5	250 245	146 112	8 588	128	10	57	0:04 2:47	0:04		
PG286 N4857.5/E00153.6	LGL5F FL199 3500	H47 285/047 -14/-2	279 278	165 117	15 573	121	18	56	0:07 2:40	0:11		
-TOC- N4856.9/E00143.2	LGL5F FL240 3500	H50 301/067 -29/-2	277 263	168 118	7 566	118	21	53	0:04 2:36	0:15		
LESGA N4853.3/E00048.3	LGL5F FL240 3500	H60 306/073 -35/-3	275 263	240 180	36 530	110	28	38	0:12 2:24	0:27		

Navlog updated: Jan 11, 2:57 PM CST
Moments ago

International Navlog

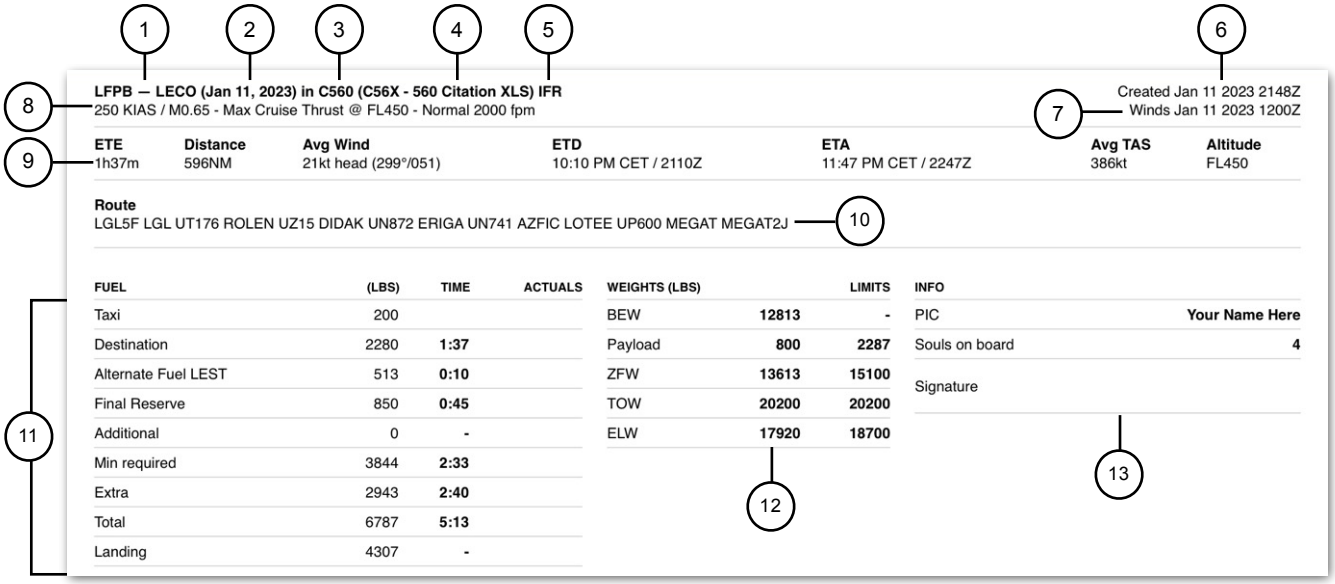
18.2.4.1 International Navlog Layout

As depicted below, the International Navlog is organized into sections. Each section is described in detail throughout this chapter.



18.2.4.2 International Navlog Flight Summary Section

The International Navlog summary section provides an overview of the fight.



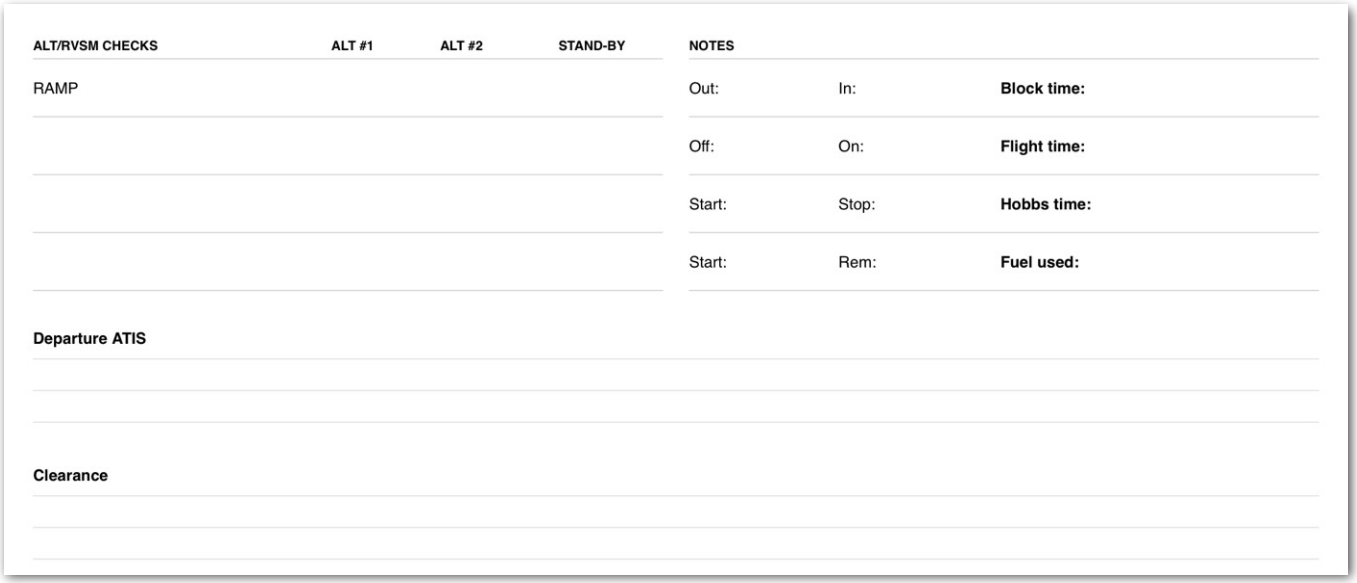
1. Departure and destination identifiers, names (for airports without identifiers), or coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is *filed* with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds aloft data timestamp.
8. Selected aircraft performance profile.
9. From left to right:
   - Estimated flight time en route.
   - Total route distance.
   - Average wind component, direction, and speed.
   - Estimated departure time in local and Zulu formats.
   - Estimated arrival time in local and Zulu formats.
   - Average true airspeed for the entirety of the flight.
   - Planned cruise altitude.

10. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
11. The Fuel section includes required and optional fuel amounts. When a time is provided, it is calculated at the en route cruise fuel flow. The Actuals column can be used to record actual fuel amounts during flight. From top to bottom, the fuel section includes:
    - Taxi fuel as specified in the Aircraft profile or manually edited on Flights.
    - Total flight fuel and flight time.
    - Total fuel and time required for the alternate airport (if specified).
    - Total reserve fuel amount and time.
    - Total additional fuel amount and time.
    - Minimum fuel required with
    - Extra fuel amount and time.
    - Total planned fuel amount (sum of taxi, destination, alternate, final reserve, additional, extra, and additional fuel).
    - Fuel amount at landing.
12. The Weights section includes planned and aircraft weight limits. If a limit is exceeded, the Navlog does *not* display an error message or change the text to indicate the exceedance. Weights include, from top to bottom:
    - The BEW as defined by the aircraft profile.
    - Total payload (passengers and cargo).
    - Zero fuel weight and maximum zero fuel weight capacity.
    - Planned takeoff weight and maximum takeoff weight for the aircraft.
    - Estimated landing weight and maximum landing weight for the aircraft.
13. The Info section contains the following fields:
    - PIC is automatically populated with the name associated with the account. Tap **More** > **Accounts** to change the name.
    - Souls on board is copied from the Flight's payload section.
    - The Signature field can be signed after the navlog is printed or using an annotation-capable PDF viewer.

18.2.4.3 International Navlog Blank Fields

The following section can be used to record altitudes, times, fuel amounts, weather observations, IFR clearances, or any other notes deemed appropriate.

The Navlog must be printed or opened with a viewer capable of editing PDFs to record actual fuel amounts, as the International Navlog is a read-only document.



Blank fields for recording ALT/RVSM, notes, ATIS, and IFR clearances

18.2.4.4 International Navlog Planning Results Section

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Planning results for two adjacent waypoints are located on the bottom row of the two waypoints. For example, the heading, distance, and speed requirements between LESGA and LGL are located on the lower row of the two rows. In other words, once a waypoint is crossed, the applicable flight details for the next leg are on the following row.

WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL LBS USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-6	- -	0 0	- 596	6587	200	0	- 1:37	-		
PB253 N4855.1/E00215.7	LGL5F FL74 3500	H36 265/038 0/-6	247 245	248 214	8 588	6483	304	2875	0:02 1:35	0:02		
PG286 N4857.5/E00153.6	LGL5F FL178 3500	H45 282/045 -13/-3	278 278	335 290	15 573	6332	455	2973	0:03 1:32	0:05		
LESGA N4853.3/E00048.3	LGL5F FL359 3500	H49 308/072 -41/-4	271 263	349 300	43 530	6033	754	2071	0:08 1:24	0:13		
LGL N4847.4/E00031.8 L'AIGLE 112.7	LGL5F FL386 3500	H26 308/070 -63/-7	251 241	354 328	12 518	5977	810	1486	0:03 1:21	0:16		

How to read planning results from LESGA to LGL

Routes with legs greater than 100 NM

If a route has legs that are more than 100 NM in length, the legs are automatically divided into 100 NM increments for more accurate flight planning. Each leg is defined by an automatically created waypoint that follows the notation: Distance - [waypoint ID or lat/long coordinates]

WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL LBS USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-7	- -	0 0	- 564	6587	200	0	- 1:33	-		
500-LECO N4822.9/E00105.3	DCT FL337 3500	H21 296/052 -23/-4	244 236	323 302	64 500	6070	717	2427	0:13 1:20	0:13		
-TOC- N4736.4/W00035.0	DCT FL450 3500	H19 308/059 -63/-7	243 235	373 355	82 418	5750	1037	1388	0:14 1:06	0:27		
400-LECO N4726.0/W00056.8	DCT FL450 3500	H25 294/044 -60/-3	240 234	411 386	18 400	5698	1089	1112	0:03 1:03	0:30		
300-LECO N4626.9/W00254.5	DCT FL450 3500	H20 301/046 -60/-4	240 234	412 392	100 300	5413	1374	1117	0:15 0:48	0:45		
200-LECO N4525.8/W00447.9	DCT FL450 3500	H20 303/052 -63/-6	240 233	416 396	100 200	5126	1661	1136	0:15 0:33	1:00		
-TOD- N4447.3/W00555.3	DCT FL450 1000	H23 297/051 -65/-8	238 232	418 396	61 139	4949	1838	1144	0:10 0:23	1:10		
100-LECO N4422.8/W00637.2	DCT FL331 1000	H18 307/061 -65/-8	240 232	410 392	39 100	4842	1945	1081	0:06 0:17	1:16		
LECO N4318.1/W00822.6	DCT 330 6200	H4 299/028 -20/0	236 231	338 334	100 -	4422	2365	1402	0:17 -	1:33		

Direct route between LFPB and LECO with 100 NM legs

Top of Climb and Descent

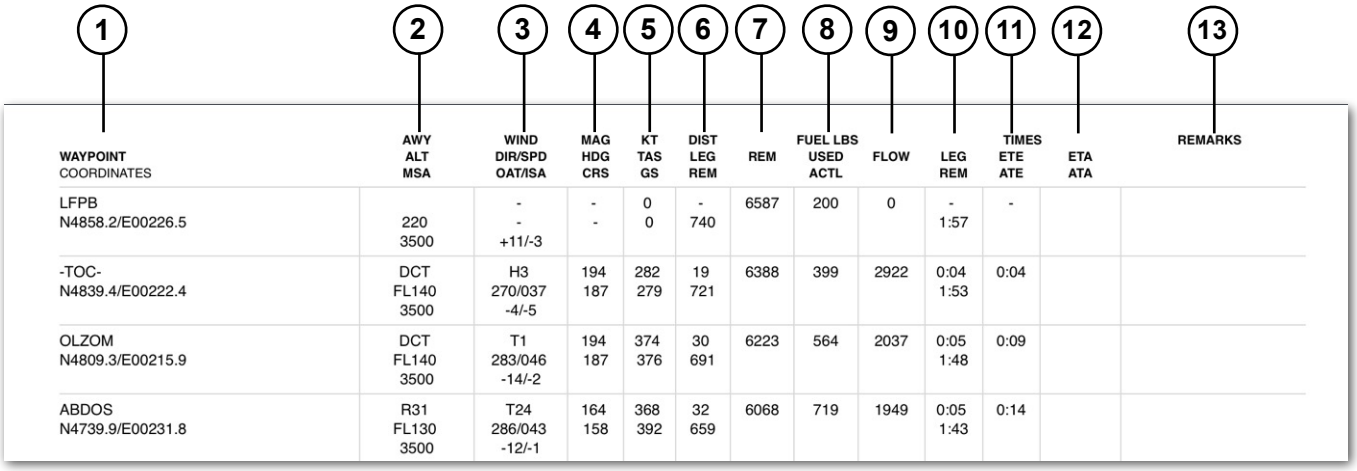
The Basic Navlog includes waypoints for the top of climb (TOC) and top of descent (TOD). These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL LBS USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-7	- -	0 0	- 564	6587	200	0	- 1:33	-		
500-LECO N4822.9/E00105.3	DCT FL337 3500	H21 296/052 -23/-4	244 236	323 302	64 500	6070	717	2427	0:13 1:20	0:13		
-TOC- N4736.4/W00035.0	DCT FL450 3500	H19 308/059 -63/-7	243 235	373 355	82 418	5750	1037	1388	0:14 1:06	0:27		
400-LECO N4726.0/W00056.8	DCT FL450 3500	H25 294/044 -60/-3	240 234	411 386	18 400	5698	1089	1112	0:03 1:03	0:30		
300-LECO N4626.9/W00254.5	DCT FL450 3500	H20 301/046 -60/-4	240 234	412 392	100 300	5413	1374	1117	0:15 0:48	0:45		
200-LECO N4525.8/W00447.9	DCT FL450 3500	H20 303/052 -63/-6	240 233	416 396	100 200	5126	1661	1136	0:15 0:33	1:00		
-TOD- N4447.3/W00555.3	DCT FL450 1000	H23 297/051 -65/-8	238 232	418 396	61 139	4949	1838	1144	0:10 0:23	1:10		
100-LECO N4422.8/W00637.2	DCT FL331 1000	H18 307/061 -65/-8	240 232	410 392	39 100	4842	1945	1081	0:06 0:17	1:16		
LECO N4318.1/W00822.6	DCT 330 6200	H4 299/028 -20/0	236 231	338 334	100 -	4422	2365	1402	0:17 -	1:33		

Top of climb and descent waypoints

International Navlog Table Definitions

Definitions for the values found in the planning table are given below. All definitions are given per column from top to bottom. Blank fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to record actuals.



WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL LBS USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +11/-3	- -	0 0	- 740	6587	200	0	- 1:57	-		
-TOC- N4839.4/E00222.4	DCT FL140 3500	H3 270/037 -4/-5	194 187	282 279	19 721	6388	399	2922	0:04 1:53	0:04		
OLZOM N4809.3/E00215.9	DCT FL140 3500	T1 283/046 -14/-2	194 187	374 376	30 691	6223	564	2037	0:05 1:48	0:09		
ABDOS N4739.9/E00231.8	R31 FL130 3500	T24 286/043 -12/-1	164 158	368 392	32 659	6068	719	1949	0:05 1:43	0:14		

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route) listed as identifiers or lat/long coordinates for airports without identifiers. Coordinates for waypoints are included in the Degree, Minute, Decimal Minute (DDMM.m) format and cannot be changed.

2. Airway (AWY) or terminal procedure that includes the waypoint. If an airway or procedure does not define the waypoint, the route between points is direct (DCT). Altitude (ALT) at which the waypoint is crossed.

3. *Average* wind component for the leg (e.g., T8 is an average eight-knot tailwind and H4 a four-knot headwind). *Average* wind direction and speed for the leg at the planned altitude. Average outside air temperature (OAT) at the planned altitude and its divergence from the International Standard Atmospheric (ISA) temperature.

4. Magnetic heading (magnetic course corrected for winds) and Magnetic course (true course corrected for geographic variation).

5. Knots true airspeed (TAS) and groundspeed (GS).

6. Leg distance and distance remaining for the flight in nautical miles. Navlog distance units cannot be adjusted.

7. Fuel remaining at each waypoint. Fuel units reflect the selection in the aircraft profile.
8. Planned fuel use per leg and a blank area to notate actual fuel (ACTL) usage. Fuel units reflect the selection in the aircraft profile.
9. Average fuel flow per leg. Fuel units reflect the selection in the aircraft profile.
10. Estimated time en route per leg. Total time remaining per waypoint.
11. Cumulative time en route per leg and a blank area to notate actual cumulative en route time.
12. Blank fields to notate estimated and actual time of arrival based on the actual departure time.
13. Blank field for recording any remarks deemed necessary by the pilot.

International Navlog Alternate Airports

When an alternate airport is included in the flight, the Navlog introduces an “APPCH" waypoint to add time and distance representative of the time and fuel required to fly a missed approach procedure and instrument approach.

Alternate fuel calculations use the same cruise, climb, and descent profiles to calculate the fuel to the alternate airport.

The routing from the initial destination airport to the alternate airport is not direct, nor does it reflect a published approach. Rather, it serves as an estimate for flight planning purposes.

The alternate routing varies by aircraft type. Jet and Turboprop aircraft add a 30 NM buffer. Piston aircraft add a 15 NM buffer. There is no alternate buffer added when planning with a helicopter.

18.2.2.5 International Navlog Arrival ATIS

The arrival ATIS section can be used to record the weather for the destination airport. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to record the weather.



Arrival ATIS section

18.2.2.6 International Navlog Comparison Table

The International Navlog comparison table lists various hypothetical performance results. The table is composed of four columns and five rows.

The two rightmost columns include the selected performance profile with (plan) appended its name and the performance profile with the best range. It is not possible to manually select another alternate performance profile.

Alternate cruise altitudes are listed in increments of 2,000 feet (ft) up to the planned cruise altitude. To the right of each alternate cruise altitude is its average wind component (e.g., H36 is an average 36 knot headwind).

Reading the Comparison Table

To read the comparison table, follow the desired cruise altitude to the desired performance profile to find the estimated time en route and the required fuel for that combination. The time difference compared to the currently planned route is given in parentheses (e.g., -0:05 is a five-minute shorter route).

The performance results for the planned cruise altitude and performance profile are displayed in **bold text**.

NOTE: The comparison table performance results are for a single climb and descent to the alternate altitude. As a result, if the planned route has step climbs or descents, the comparison table performance results may not match the Navlog for the altitude and performance profile combination.

18.2.2.7 International Navlog Flight Information Region

The Flight Information Region (FIR) section includes details for the FIRs that the aircraft will enter. Each FIR includes:

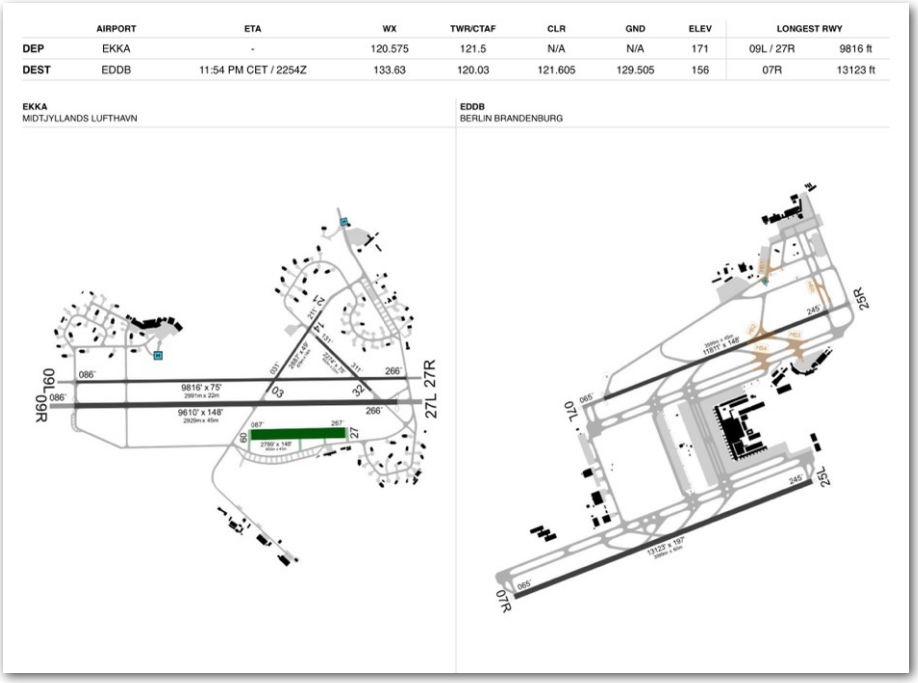
- The identifier and name (e.g., LFFF - Paris)
- The estimated time en route (EET) while within the boundaries of the FIR.
- The FIR entry and exit time in Zulu format.
- The total distance covered in the FIR.

FLIGHT INFORMATION REGION	EET	ENTRY	EXIT	DISTANCE	FLIGHT INFORMATION REGION	EET	ENTRY	EXIT	DISTANCE
LFFF - PARIS	-	2145Z	2214Z	162NM	LFFF - FRANCE	1:32	2317Z	2317Z	1NM
LFBB - BORDEAUX	0:29	2214Z	2317Z	278NM	LECM - MADRID	1:32	2317Z	0012Z	295NM

International Navlog Flight Information Region section

18.2.2.8 Airport Details

The Airport Details section includes commonly used airport frequencies, field elevation, longest runway, and FBO location details (if available).



International Navlog Airport Details

18.2.2.9 International Navlog ICAO Flight Plan

The International Navlog includes the coded ICAO flight plan (FPL) at the bottom of the document. This information exists whether or not a flight plan is filed.



International Navlog ICAO Flight Plan

18.3 Printing and Sharing Navlogs

Navlogs can be printed and shared using the built-in iOS share menu. To print or share a Navlog:

1. Open the Navlog by tapping the **Navlog** button.
2. Tap the **Send To** button in the upper toolbar.
3. Choose an option from the menu.

When a Navlog is printed or shared, it is automatically divided into pages to accommodate a standard 8.5 by 11-inch standard sheet of paper.

ACTIVE NAVLOG

Active Navlog is an in-flight interactive tool for recording actual fuel usage, waypoint crossing time, waypoint remarks, and more. Unlike the standard Navlog, Active Navlog updates the flight's estimated time and fuel burn based on actual usage.

Active Navlog is available to Business Performance customers as a per-user add-on and MFB One customers. With ForeFlight **Dispatch**, completed active navlogs are automatically attached to the flight. As a result, Dispatch is recommended when using Active Navlog.

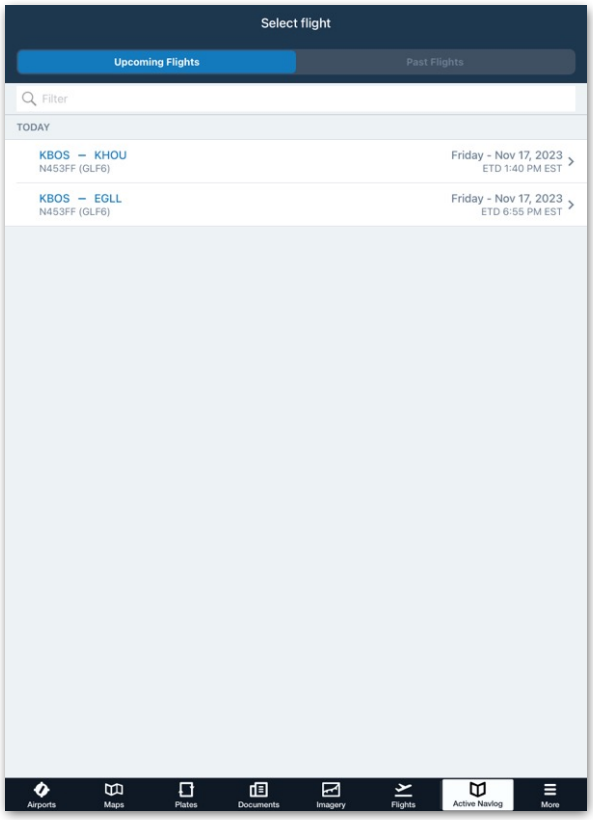
NOTE: Oceanic Plotting is a feature in Active Navlog that is available to customers with Dispatch and active Active Navlog licenses. To see Oceanic Plotting features see **Chapter 20, Active Navlog Oceanic Plotting**.

19.1 About the Design

Active Navlog contains various components:

- The **Flight List** displays Upcoming and Past Flights.
- The **Active Navlog Editor** is used to record flight actuals.
- **Flight Banners** display the Active Navlog's status. Each flight planned with the Flights view results in an Active Navlog. The planned route, estimated departure time, aircraft, performance profile, and cruise altitude are copied from the Flights view to the Active Navlog.

Once actual time and fuel values are entered in the Active Navlog, the Active Navlog is considered "In Progress" and edits to the Flights view are no longer copied. Active Navlog entries do not update the Flights view or the standard PDF Navlog.



Flight List

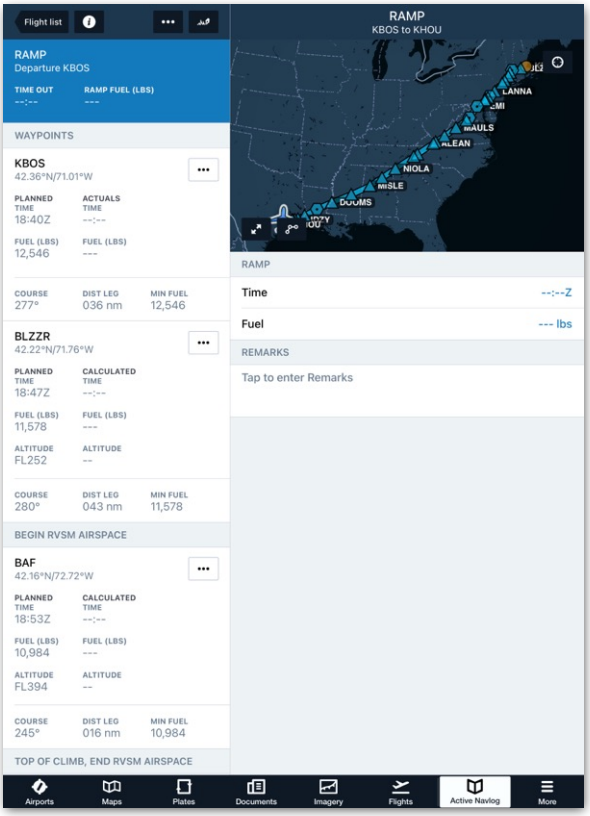
19.1.1 Accessing the Flight List

To access the **Flight List**, tap **More** > **Active Navlog**. Tap a flight from the list to open it in the Navlog Editor.

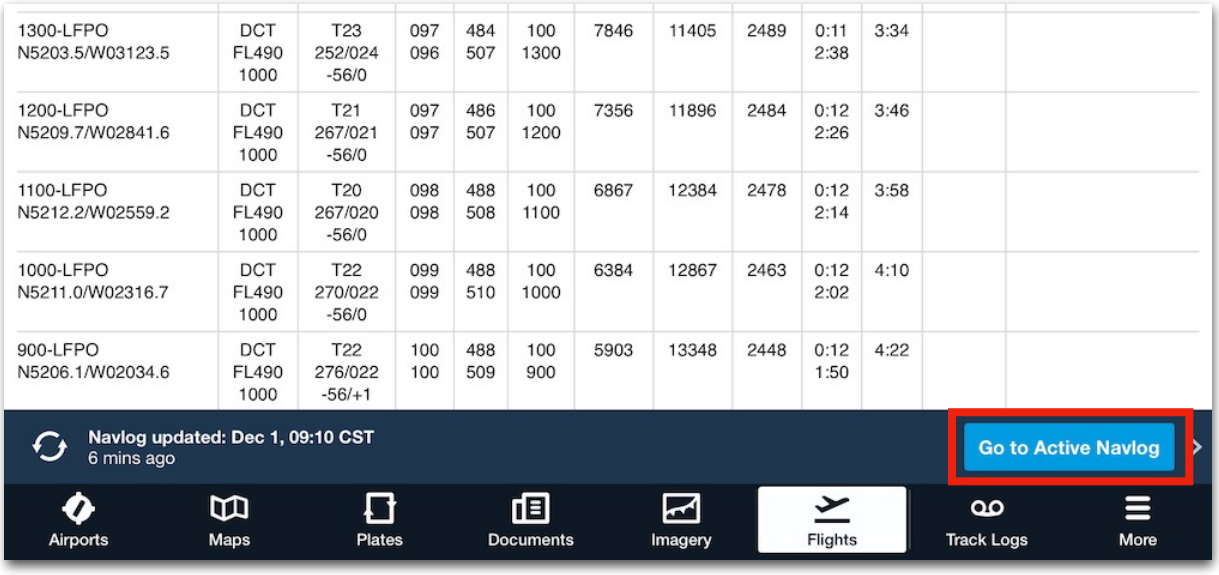
19.1.2 Accessing the Active Navlog Editor

The Active Navlog Editor can be accessed in two ways:

- **Option 1**: From the Active NavLog view, tap a flight in the **Flight List**.
- **Option 2**: From the Flights view, select a flight, and open its **Navlog**. Near the bottom of the navlog, tap **Go To Active Navlog**.



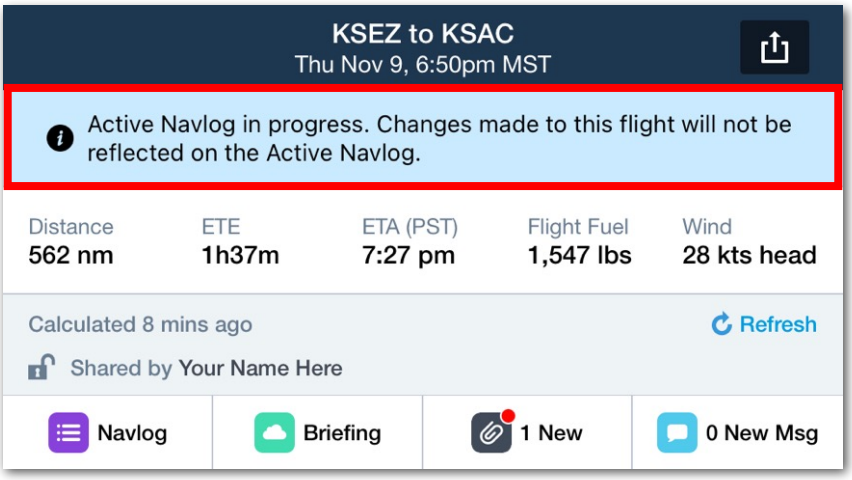
Active Navlog Editor



Go to Active Navlog Button in Flight View Navlog

19.1.3 Active Navlog Banners

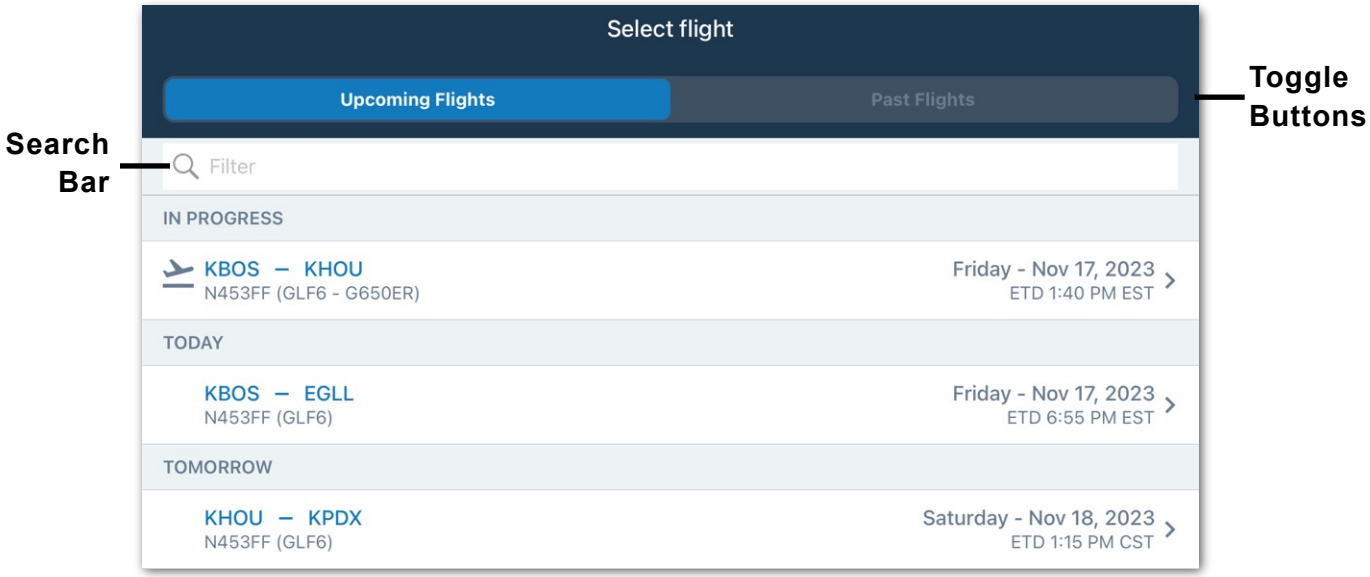
When an Active Navlog is in progress, a **banner** is displayed on the Flights view.



Banner Message Displayed on Flights Page

19.2 Flight List

The Flight List is divided into two sections. **Upcoming Flights** and **Past Flights**. To navigate between the two views, tap the toggle buttons or swipe the screen left and right. A search bar near the top of the view allows users to filter flights by destination, departure, or tail number.



Upcoming Flights List

19.2.1 Upcoming Flights

The Upcoming Flights section lists all planned flights for the next two days. The list is sorted with the earliest flights at the top. Flights are further organized into:

- **In Progress:** This section contains flights with actual time and fuel values entered.
- **Today:** This section contains flights without actuals and a planned departure time of today (local time).
- **Tomorrow:** This section contains flights that are planned to depart tomorrow. Flights beyond tomorrow can only be opened by tapping **Go To Active Navlog** from the bottom of the **standard Navlog**.

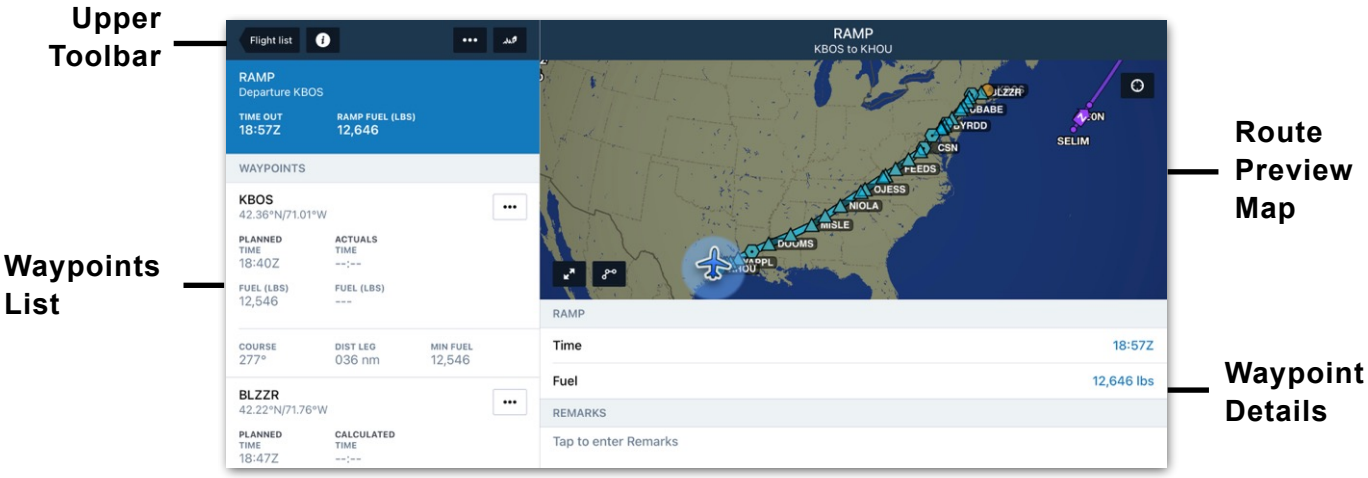
19.2.2 Past Flights

The Past Flights section contains:

- Flights with estimated departure times more than 48 hours old.
- Active Navlogs with a signature.

19.3 Active Navlog Editor

The Navlog Editor contains an **Upper Toolbar**, **Waypoints List**, Route Preview Map, and a Waypoint Details section. Each section and its functionality is summarized below and described later in the chapter.

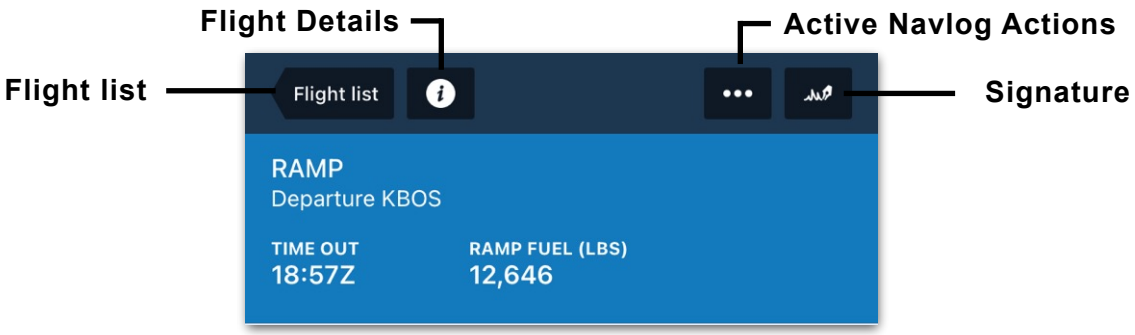


Navlog Editor

19.3.1 Upper Toolbar

The Active Navlog Editor Upper Toolbar contains the following features:

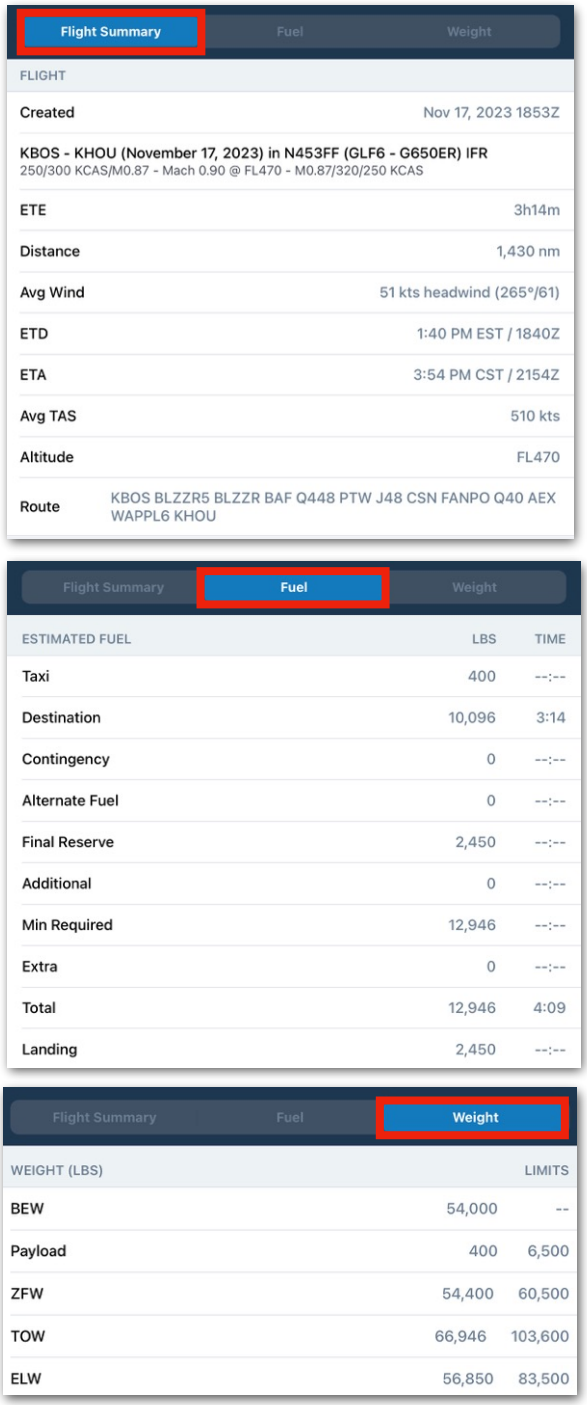
- **Flight list** button for navigating back to the **Flight List**.
- **Flight Details** button for viewing **Flight Details**.
- **Active Navlog Actions** button for recording **Altimeter Checks**, **Fuel Checks**, ATC Clearance, **adding remarks**, **recording ATIS**, and starting Altimeter and Fuel **Interval Timers**.
- **Signature** button for signing the active navlog.



Navlog Editor - Upper Toolbar

19.3.2 Flight Details

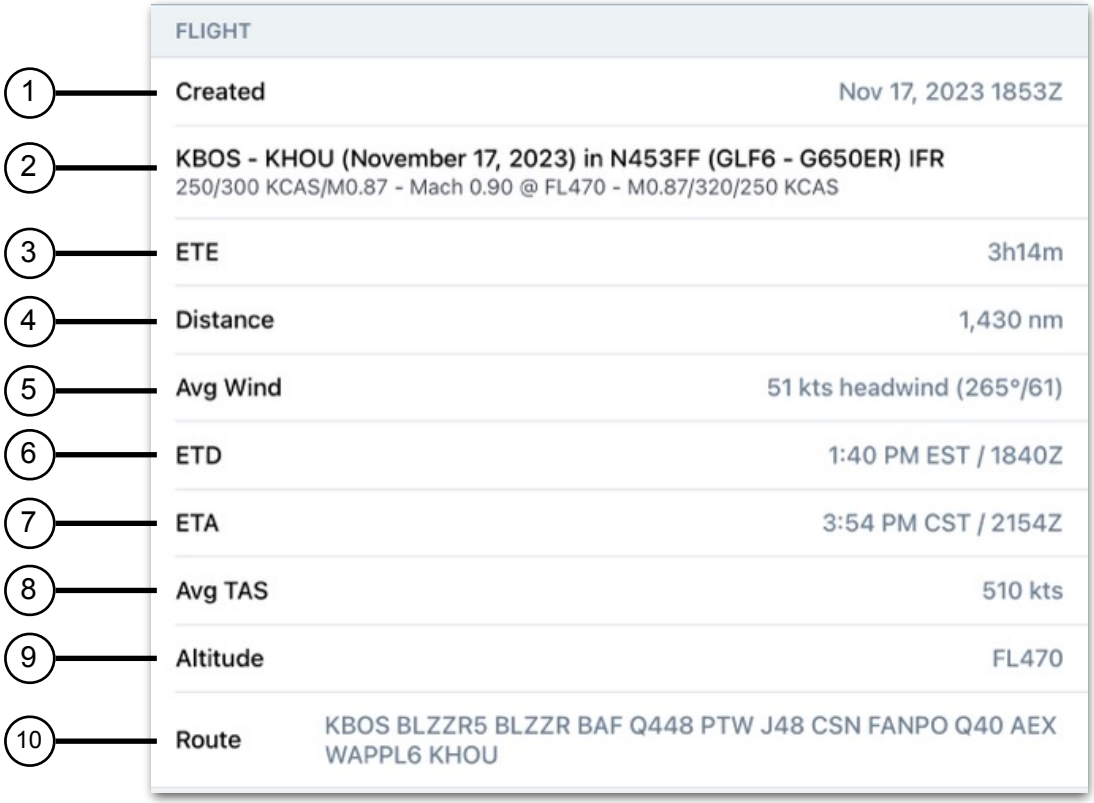
The Flight Details pop-up contains a **Flight Summary**, **Fuel Summary**, and **Weight Summary**. Tap the buttons at the top of the window or finger-swipe across the screen to navigate between the views. The summaries are generated when the active navlog is opened and are not updated when the **route is edited**.



Flight Details

Flight Summary

The flight summary provides an overview of the flight.

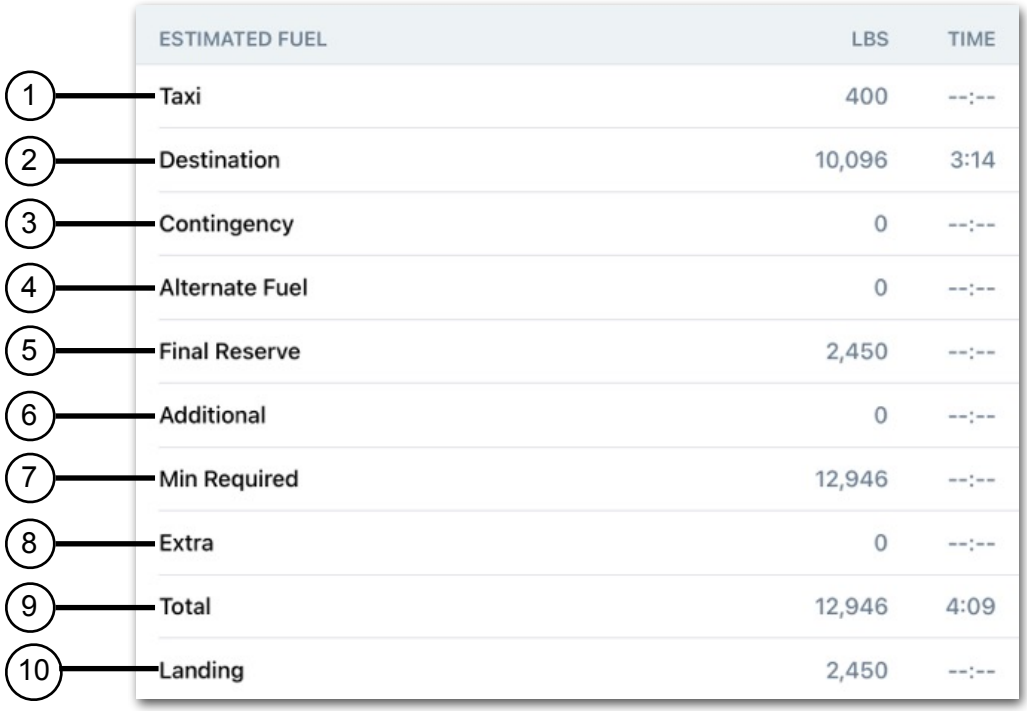


Flight Summary

1. **Created:** The date and Zulu time when the active navlog was created.
2. **Route Summary**: From left to right: Departure - Destination, Departure Date, Tail Number (Aircraft Type - Description), Flight Rules, Performance Profiles.
3. **ETE:** The estimated time en route.
4. **Distance:** The total distance of the route.
5. **Avg Wind:** Average wind for the entirety of the flight.
6. **ETD:** Estimated time of departure (local / Zulu time).
7. **ETA:** Estimated time of arrival (local / Zulu time).
8. **Avg TAS:** Average true airspeed for the entirety of the flight.
9. **Altitude:** Planned cruise altitude.
10. **Route:** Planned route.

Fuel Summary

The Fuel Summary provides a detailed breakdown of the flight fuel. Fuel and, when applicable, times are provided in two separate columns.

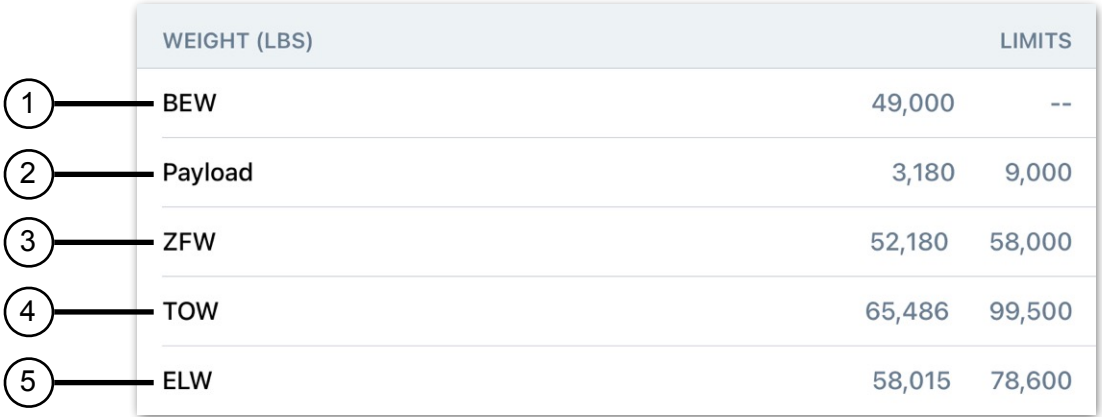


Fuel Summary

1. **Taxi:** Fuel as specified by the aircraft profile.
2. **Destination:** Fuel required to fly to the destination airport.
3. **Contingency Fuel**: Fuel that is uplifted to account for unforeseen circumstances.
4. **Alternate Fuel:** Fuel required to fly to the alternate airport. See **alternate fuel** for more information.
5. **Final Reserve:** The default amount of reserve fuel as determined by the aircraft profile or as specified on the flight planning form.
6. **Additional:** Additional ETP fuel added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing.
7. **Min Required:** The sum of taxi, destination, alternate, final reserve, and additional fuel.
8. **Extra:** User-specified extra fuel. Fuel in excess of the minimum required fuel.
9. **Total:** Min Required fuel plus Extra fuel. The amount of fuel that should be in the aircraft at start.
10. **Landing:** The planned landing fuel.

Weight Summary

The Weight Summary provides an overview of weights at different flight stages. Planned weights and aircraft weight limitations are displayed in separate columns.



Weight Summary

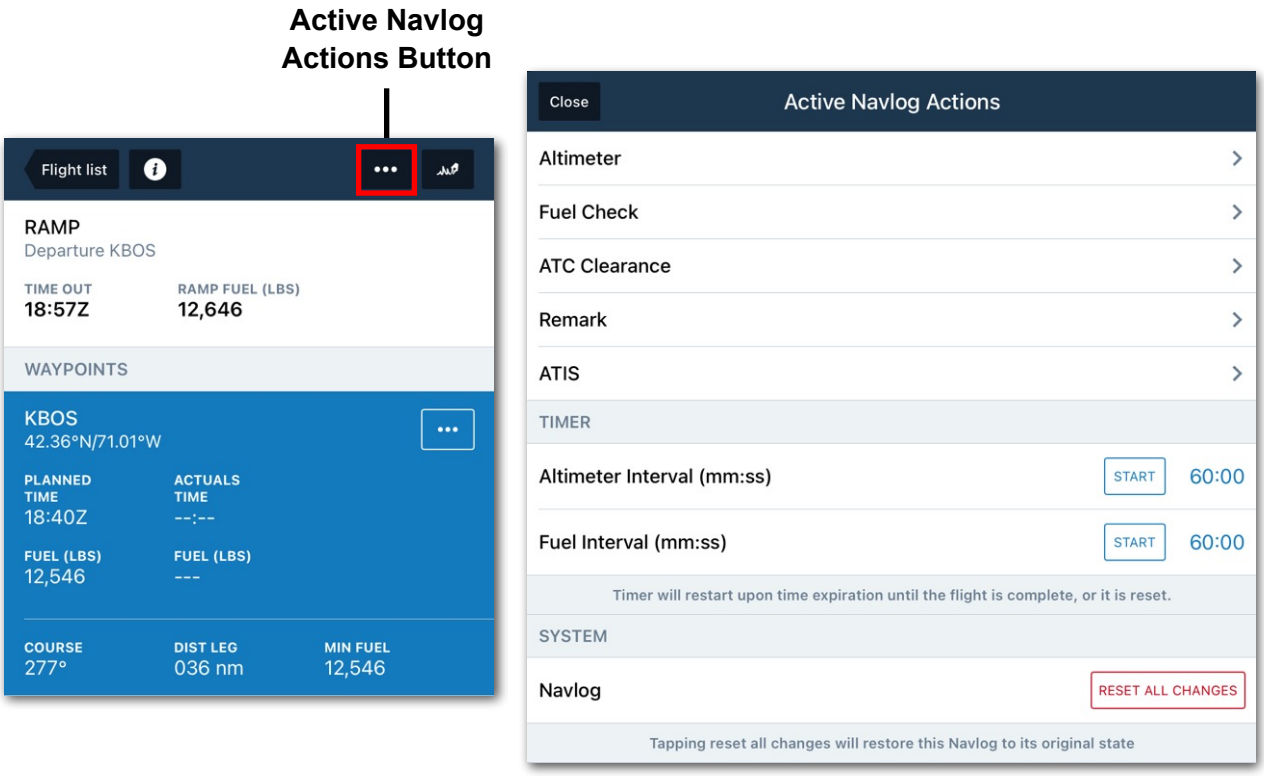
1. **BEW:** Basic Empty Weight as defined in the aircraft profile.
2. **Payload:** Planned and maximum payload (persons and cargo).
3. **ZFW:** Planned and maximum zero fuel weight.
4. **TOW:** Planned and maximum takeoff weight.
5. **ELW:** Estimated landing and maximum landing weight.

19.4 Active Navlog Actions

Active Navlog allows users to perform the following actions:

- **Altimeter Checks**
- **Fuel Checks**
- **ATC Clearance**
- **Add General Remarks**
- **Record ATIS**
- **Start a Timer**
- **Resetting the Navlog.**

To perform any of the above actions, tap the three-dot Active Navlog Action button in the upper toolbar and select an option from the menu.



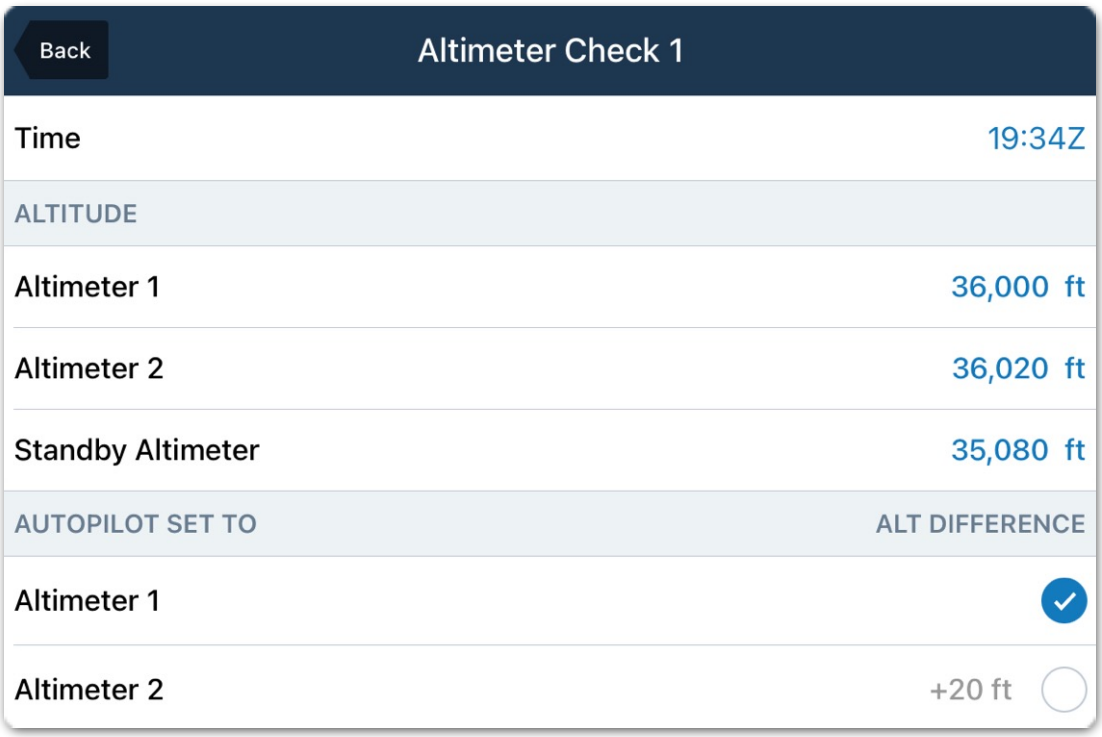
Active Navlog Actions Button opens the Active Navlog Actions Pop-Over.

19.4.1 Conducting an Altimeter Check

The Altimeter check allows pilots to record the indicated altitudes of their primary and standby altimeters to determine how much error exists between the systems.

To conduct an Altimeter check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. If this is the first Altimeter check for the flight, the Altimeter Check (1) editor is automatically opened. If this is not the first Altimeter check, tap **New Altimeter Check**.
3. Enter the time, indicated altitude for each altimeter, and select which altimeter the autopilot is set to. After selecting an altimeter, the difference between altimeters is calculated.
4. When complete, tap the **Back** button.



Performing an Altimeter Check

Viewing Altimeter Checks

Completed Altimeter checks can be accessed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **Altimeter**.

Completed checks are listed in chronological order and are also included as a table at the end of the **Active Navlog PDF Document**.

Editing Altimeter Checks

To edit an Altimeter check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. Select the desired Altimeter check.
3. Manually edit the desired fields as necessary.
4. Tap the **Back** button when complete.

Deleting Altimeter Checks

To delete a completed Altimeter check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. Perform one of the two options:

   (i) Swipe right to left across an Altimeter check. Tap **Delete**.

   (ii) Select the desired Altimeter check. Tap **Delete Altimeter Check** at the bottom of the menu. Tap **Delete**.

19.4.2 Conducting a Fuel Check

The Fuel Check allows pilots to record fuel amounts at any time. This feature is useful for pilots wanting to analyze fuel burn more frequently than at each route waypoint. To conduct a fuel check:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Fuel Check.**
2. If this is the first fuel check for the flight, the Fuel Check (1) editor is automatically opened. If this is not the first fuel check, tap **New Fuel Check**.
3. Enter time and fuel values as appropriate.
4. When complete, tap the **Back** button.

Viewing Fuel Checks

Completed Fuel Checks can be accessed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **Fuel Check**.

Completed checks are listed in chronological order and are also included as a table at the end of the **Active Navlog PDF Document**.

Editing Fuel Checks

To edit a fuel check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap **Fuel Check** and select a completed check.
3. Manually edit the check as necessary.
4. Tap the **Back** button when complete.

Deleting Fuel Checks

To delete a completed fuel check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Fuel Check**.
2. Perform one of the two options:

   (i) Swipe right to left across a fuel check. Tap **Delete**.

   (ii) Select a completed fuel check. Tap **Delete Fuel Check** at the bottom of the menu. Tap **Delete**.

19.4.3 Adding ATC Clearances

An ATC Clearance can be added **to a waypoint** or at any time using the **Active Navlog Actions** menu. To add an ATC Clearance:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. If this is the first remark for the flight, the Clearance (1) editor is automatically opened. If this is not the first remark, tap **New Clearance**.
3. Enter the Clearance time, title, and clearance as appropriate. When complete, tap the **Back** button.

Viewing ATC Clearances

Completed clearances can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **ATC Clearance**. Completed Clearances are listed in chronological order.

Completed Clearances are listed in chronological order and are also included as a table on the **Active Navlog PDF Document**.

Editing ATC Clearances

To edit a clearance, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. Select the desired clearance and manually edit as necessary.
3. Tap the **Back** button when complete.

Deleting ATC Clearances

To delete a clearance, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. Perform one of the two options:

   (i) Swipe right to left across a fuel check. Tap **Delete**.

   (ii) Select a completed fuel check. Tap **Delete Remark** at the bottom of the menu. Tap **Delete**.

19.4.4 Adding Remarks

Remarks can be added **to a waypoint** or at any time using the Active Navlog Actions menu. To add a general remark:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. If this is the first remark for the flight, the Remark (1) editor is automatically opened. If this is not the first remark, tap **New Remark**.
3. Enter the remark's time, title, and remark as appropriate. When complete, tap the **Back** button.

Viewing Remarks

Completed remarks can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **Remark**. Completed remarks are listed in chronological order.

Completed Remarks are listed in chronological order and are also included as a table on the **Active Navlog PDF Document**.

Editing Remarks

To edit a remark, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. Select the desired remark and manually edit as necessary.
3. Tap the **Back** button when complete.

Deleting Remarks

To delete a remark, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. Perform one of the two options:

   (i) Swipe right to left across a remark. Tap **Delete**.

   (ii) Select a completed remark. Tap **Delete Remark** at the bottom of the menu. Tap **Delete**.

19.4.5 Documenting ATIS

The Active Navlog Actions menu can be used to type ATIS. To so do, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATIS**.
2. If this is the first ATIS recording, the ATIS editor is automatically opened. If not, tap **New ATIS**.
3. Enter the time, tap the departure or destination airport (or manually type airport identifier), and manually Type the ATIS broadcast information.
4. When complete, tap the **Back** button.

Viewing ATIS

Completed ATIS can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **ATIS**. Completed ATIS are listed in chronological order.

Completed ATIS are listed in chronological order and are included as a table on the **Active Navlog PDF Document**.

Editing ATIS

To edit an ATIS recording, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap **ATIS** and select the appropriate ATIS.
3. Manually edit the ATIS recording as necessary.
4. Tap the **Back** button when complete.

Deleting ATIS

To delete an ATIS, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATIS**.
2. Perform one of the two options:

   (i) Swipe right to left across the ATIS. Tap **Delete**.

   (ii) Select a completed ATIS. Tap **Delete ATIS** at the bottom of the menu. Tap **Delete**.

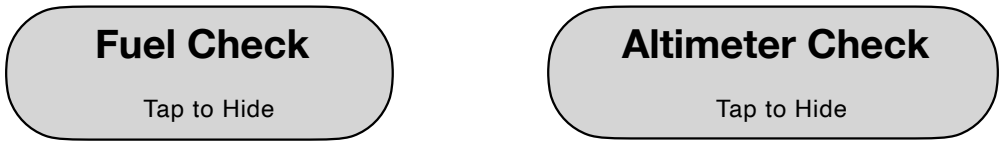
19.4.6 Interval Timers

Interval Timers allow pilots to set recurring reminders for recording Altimeter or FUEL checks. The timers can be active simultaneously. iOS notifications must be enabled for this feature. To set a timer, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap the Altimeter Interval or Fuel Interval clock duration **[60:00]**.
3. Set a timer frequency. A minimum of one minute must be set. For example, to set a timer that repeats every fifteen minutes set **15:00**.
4. Tap the **START** button.

Timer Notification Behavior

After starting a timer, the START button becomes a RESET button, and the timer begins counting down. When the timer ends, audible and visual notifications are played, and the timer starts again. When ForeFlight is open, the notification style shown below is displayed. Tap the notification to dismiss it.



Interval Timer Visual Notifications

If ForeFlight Mobile is not open, the notification behavior is controlled by the notification settings on the iOS device. Open the iPad/iPhone Settings app and select **Notifications** > **ForeFlight** to select the behavior. Tap the notification to open ForeFlight Mobile.



iOS Banner Style Notification

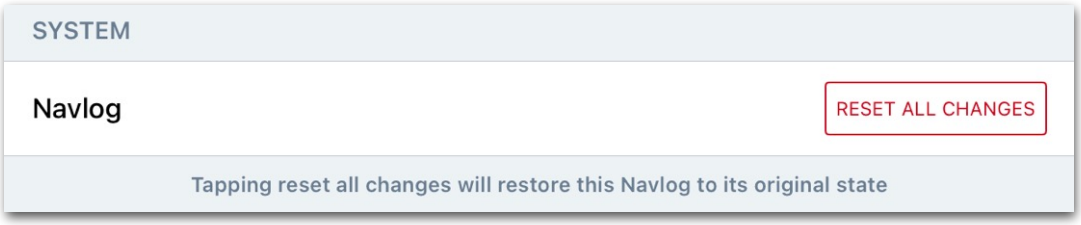
Stopping the Timer

Timers repeat until they are manually stopped, or the flight ends. To stop a timer, tap the **Active Navlog Actions** button and tap the **RESET** button. Once stopped, the timer duration can be adjusted, or the timer can be restarted.

19.4.7 Re-Setting the Active Navlog

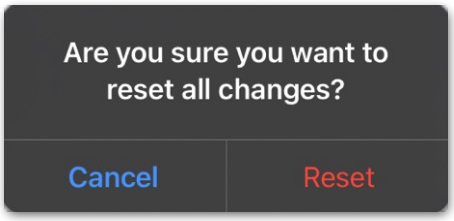
There may be situations where a user needs to reset the inputs that have been made to an Active Navlog. To reset the Active Navlog, follow these steps:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap the **RESET ALL CHANGES** button.



Reseting the Active Navlog

3. Tap the **Reset** button to confirm this action.



Confirmation Pop-Over

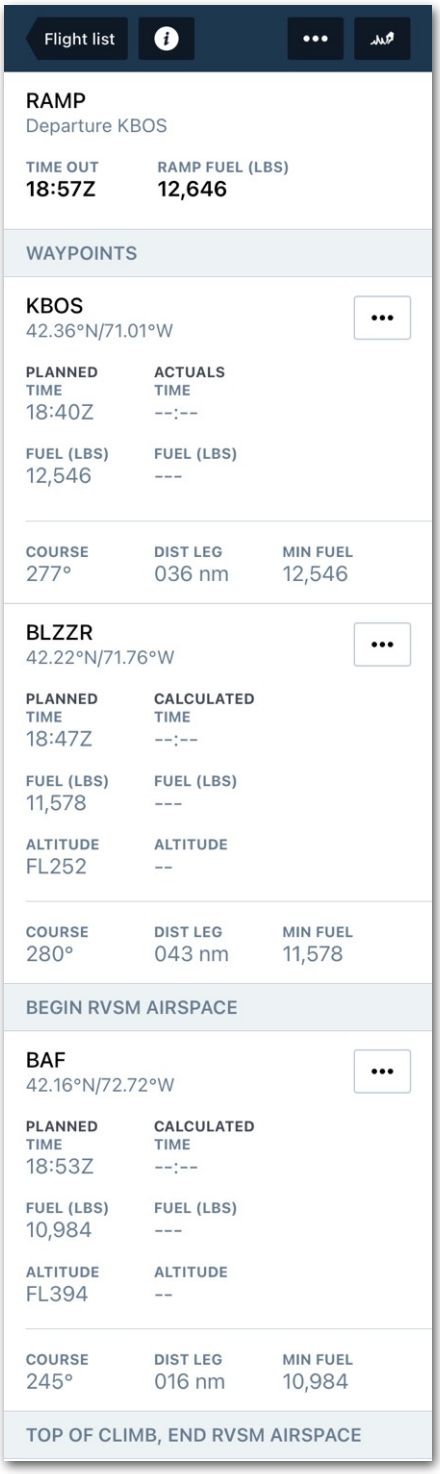
CAUTION: Re-setting the Active Navlog will cause all user entered data to be erased and cannot be undone.

19.5 Waypoints List

The Waypoints list displays all route waypoints. The list is organized into the following sections:

- Ramp (Departure)
- Waypoints
- Top of Climb
- Begin RVSM Airspace
- End RVSM Airspace
- Top of Descent
- Alternate
- Ramp (Destination).

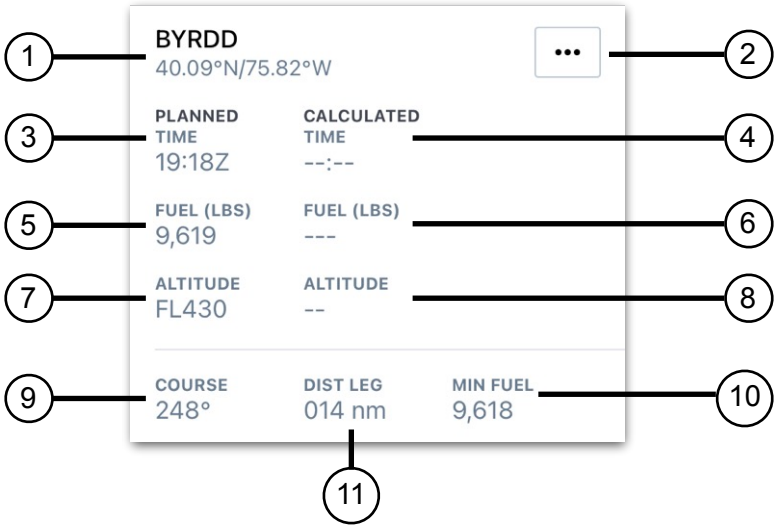
Each waypoint contains various fields based on planning and actual data. Additional waypoint element information is available on the next page.



Waypoints List

19.5.1 Route Waypoint Elements

Each route waypoint contains the data listed below. Values reflect when the aircraft crosses the waypoint.



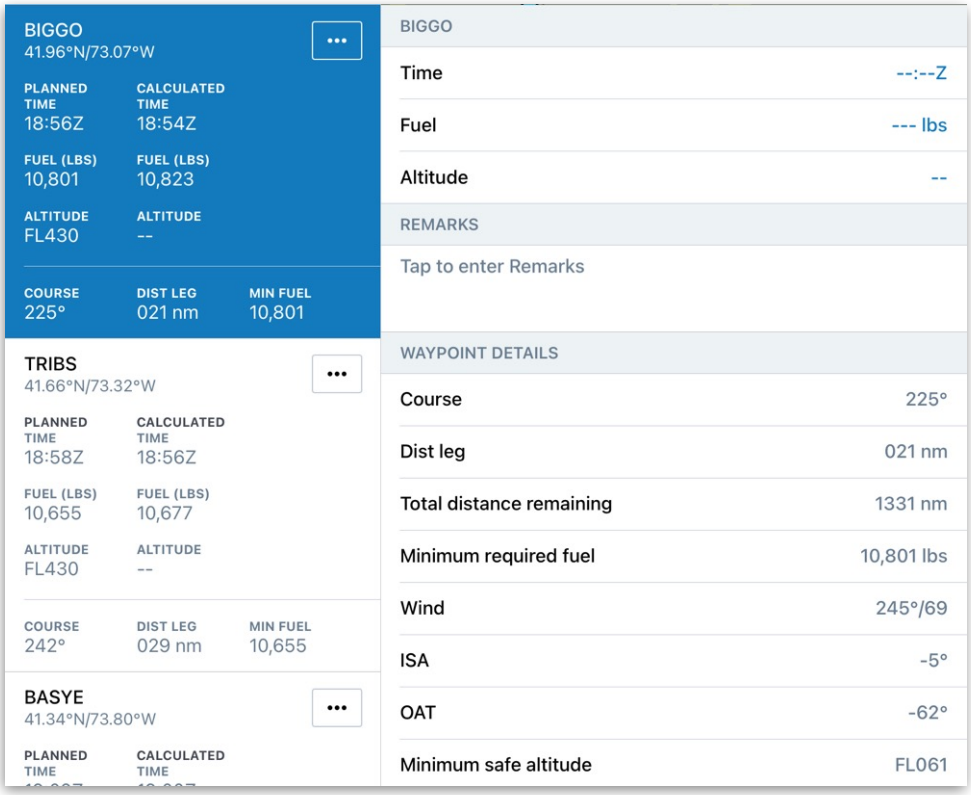
1. BYRDD: Waypoint identifier and latitude/longitude coordinates. The coordinate format can be adjusted in **More** > **Settings** > **Units/Time** > **Coordinates**.
2. Three-dot action button for making **route edits**.
3. **Planned Time:** The planned waypoint arrival time determined by the aircraft profile, route, and forecast weather. See **Active Navlog Planning Logic** for more information.
4. **Calculated Time:** The calculated waypoint arrival time based on user-entered actuals. See **Active Navlog Planning Logic** for more information.
5. **Planned Fuel**: The planned fuel is calculated from the planned arrival time.
6. **Calculated Fuel:** The calculated fuel is based on user-entered actuals.
7. **Planned Altitude**: The planned altitude is determined by using aircraft performance values and the filed altitude.
8. **Calculated Altitude**: The calculated altitude is based on user-entered actuals.
9. **COURSE:** The course to the next waypoint.
10. **MIN FUEL**: The Minimum Fuel field displays the minimum fuel required at each waypoint. This value is determined by the aircraft profile performance data, route, forecast weather, and does not update as actuals are entered.
11. **DIST LEG:** Leg distance to the waypoint.

19.6 Adding Actual Flight Details

Entering actual flight information as a flight progresses allows the Active Navlog to provide updated calculated times and fuel burn for en-route planning. As actuals are entered, the estimates for each subsequent waypoint are updated. See **Active Navlog Planning Logic** for more information.

To enter actual **Time**, **Fuel**, **Altitude**, or **Remarks**, tap anywhere on the Waypoint data in the waypoint list. The waypoint information will be highlighted in blue, and Actuals and Waypoint Details will be displayed on the right side of the Active Navlog Editor.

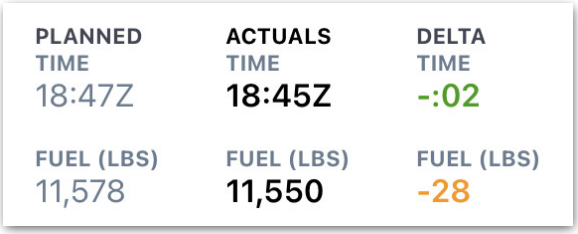
Actual values can be entered at any time and in any order. Beginning with Ramp actuals and entering subsequent waypoints in order as they are reached is recommended.



Entering Waypoint Actuals

After adding the waypoint actual time and fuel amounts, the following actions occur:

- The *planned* values are replaced with *actual* values in bold text.
- The planned values are compared to its actual values. The differences are displayed next to the actual values. Values that are better than estimated (less time or more remaining fuel) are displayed in green text. Values that are worse than estimated are displayed in orange text.



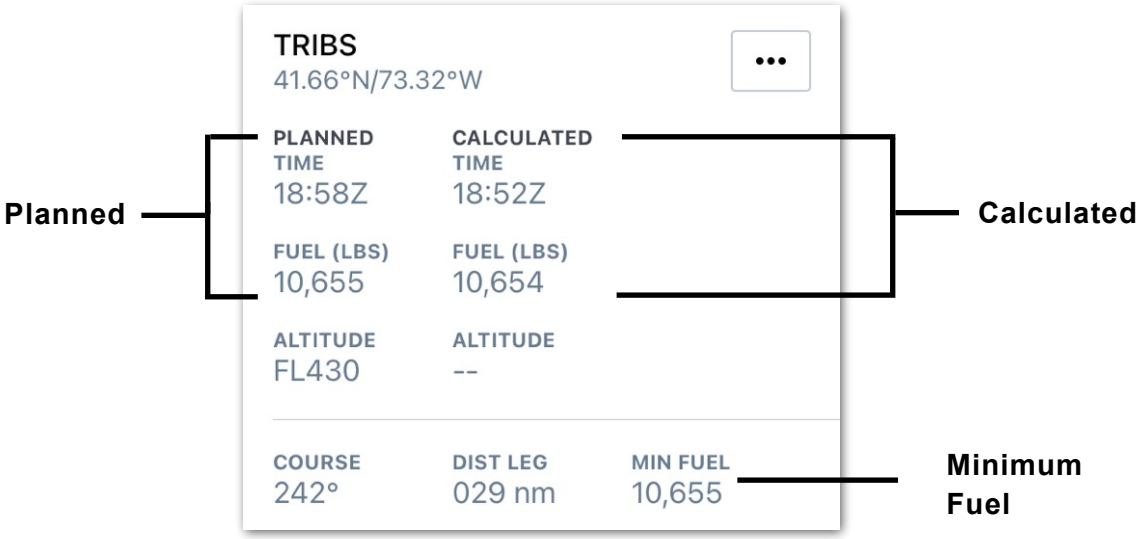
Time and Fuel Details (Planned and Actual)

NOTE: The first two waypoints (Ramp and Departure) do not apply the coloring discussed above.

- If the departure airport's values differ from planned, the active navlog is replanned. See **Active Navlog Planning Logic** for more information.
- Subsequent estimates are updated based on the user-entered actuals.

19.6.1 Active Navlog Planning Logic

Active Navlog has three unique time and fuel fields: Minimum, Planned, and Calculated. Some of the data is dynamically updated as actuals are entered. The other data is predetermined by the flight plan.



Time and Fuel Data

Minimum Fuel

The Minimum Fuel field displays the minimum fuel required at each waypoint. This value is determined by the aircraft profile's performance data, route, and forecast weather and does not update as actuals are entered.

Planned and Replanned Time/Fuel

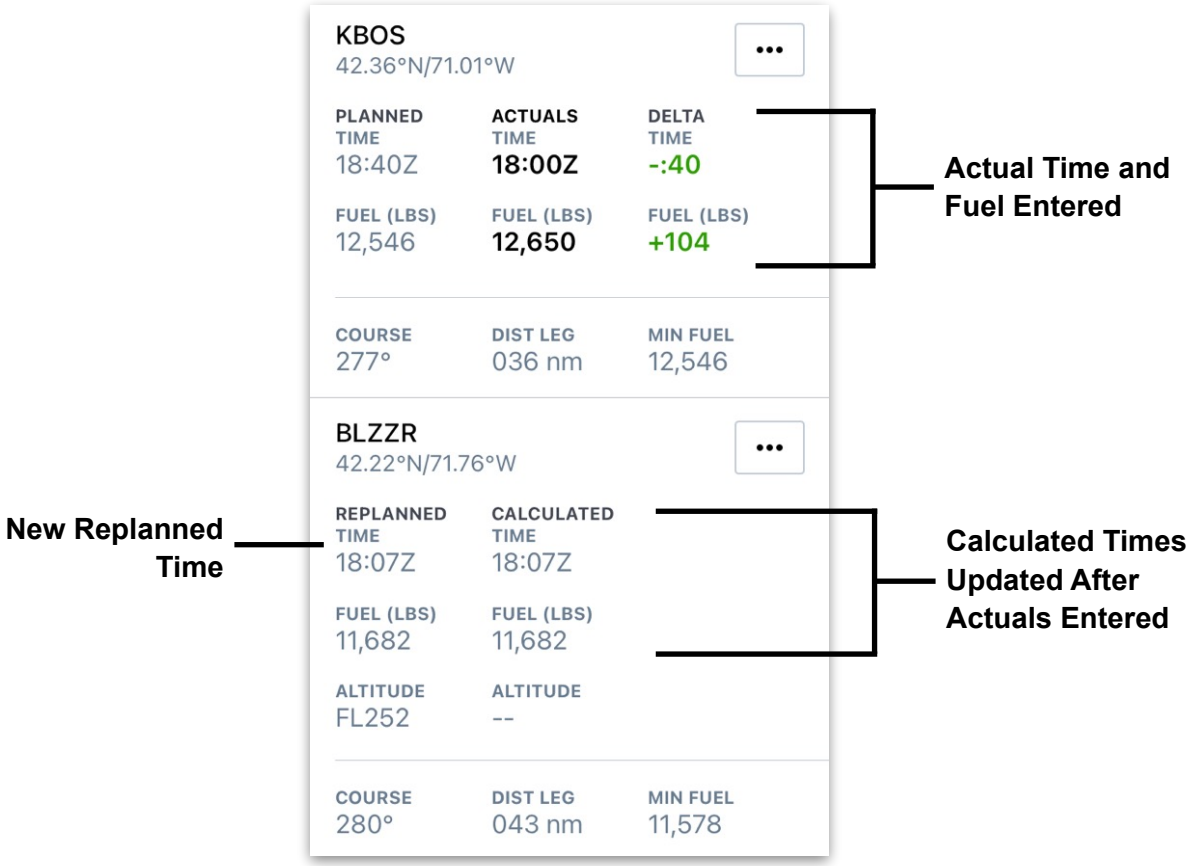
The Planned field displays each waypoint's planned arrival time and minimum fuel requirement. These values are based on flight planning data and do not update as actuals are entered, with one exception.

If the departure airport's time or fuel actuals differ from what was planned, the planned time and fuel requirement for each subsequent waypoint are replanned. When this occurs, the "PLANNED" label is replaced with a "REPLANNED" label (see next page). This is the only action that results in the active navlog being replanned.

For example, if the aircraft departs before or after the planned departure time or with more or less fuel than planned, the active navlog is replanned, and each waypoint's planned time and fuel calculations are updated accordingly.

NOTE: If the Ramp time or fuel values differ from planned, it does not result in replanning as the exact time to taxi is unknown.

In the example below, the aircraft departed from KBOS with an extra 104 pounds of fuel and 40 minutes before the planned departure time. As a result, the subsequent waypoints were replanned using those values.



Active Navlog Replanning

Calculated Time and Fuel

Calculated time and fuel values are updated each time a pilot adds actuals. Calculated values are not updated:

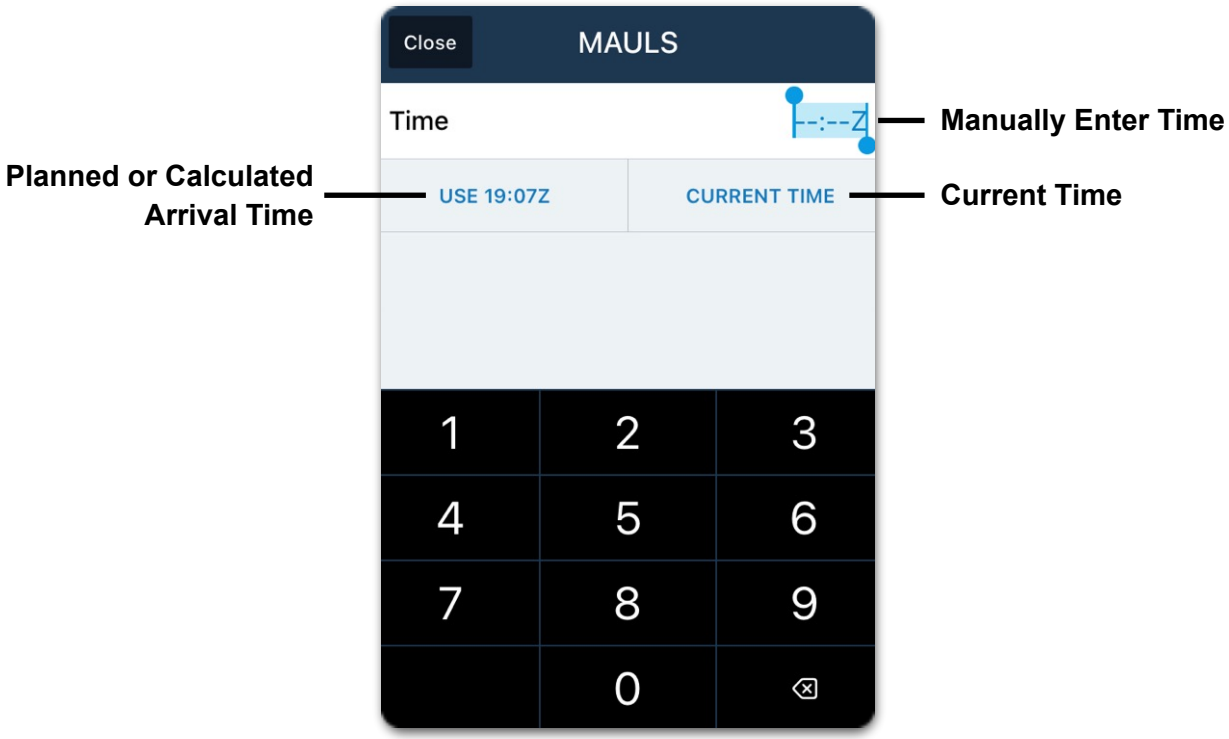
- If the waypoint already has actual values entered.
- If the waypoint occurs before the waypoint with actuals.

19.6.2 Adding Actual Time

To add the actual waypoint crossing time, tap the **Time** field for the appropriate waypoint and then do one of the following:

- Use the numerical keyboard to enter the time manually. Tap the **Close** button in the menu header to save the time.
- Tap **CURRENT TIME** to enter the current Zulu time. Tap the **Close** button in the menu header to save the time.
- Tap **USE 00:00Z** to enter the Planned/Replanned or Calculated waypoint arrival time. If any actual time has been entered for previous waypoints, this time will be the Calculated arrival time. Tap the **Close** button in the menu header to save the time.

NOTE: If the flight departs before or after the planned departure time, the active navlog is replanned. See **Active Navlog Planning Logic** for more information.



Waypoint Time Entry

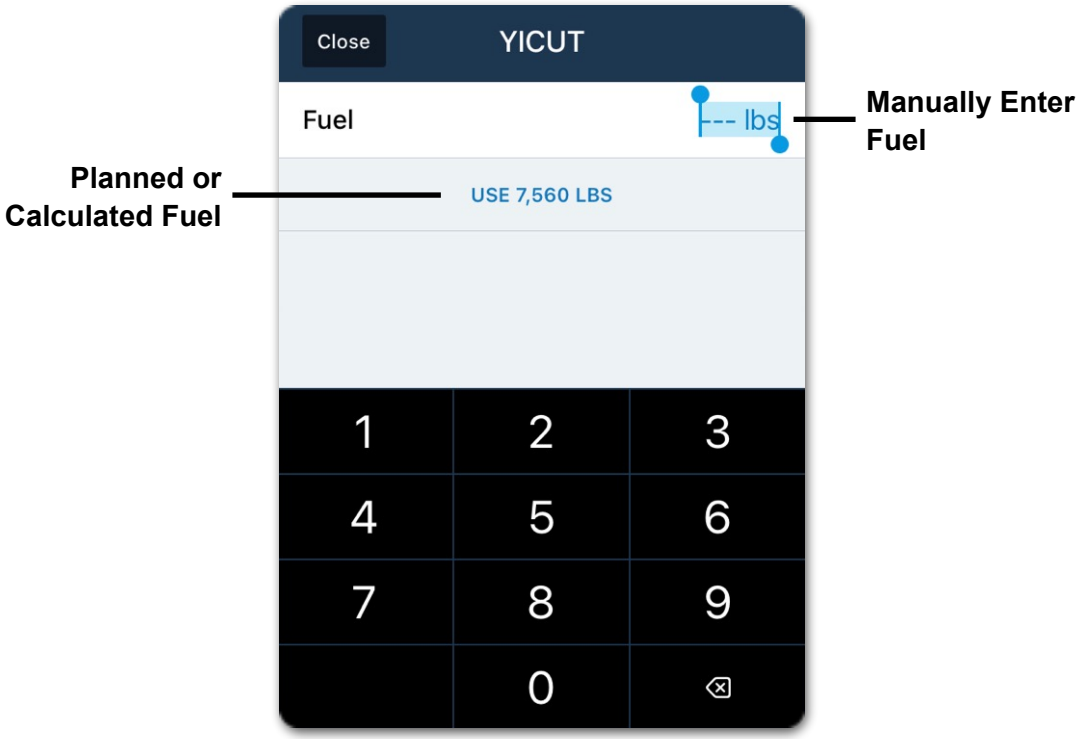
NOTE: Actual times are automatically copied to the **Flight Log** Times sections.

19.6.3 Adding Actual Fuel

To enter fuel details, tap the **Fuel** field for the appropriate waypoint and do one of the following:

- The Fuel field is highlighted, and manual fuel entry can be completed by typing in the fuel amount. When complete, tap the **Close** button.
- Tap **USE 0,000 LBS** to enter the planned waypoint fuel. If any actual fuel has been entered for previous waypoints, this fuel will be the calculated fuel. Tap the **Close** button in the menu header to save the fuel.

NOTE: If the flight departs with more or less fuel than planned, the active navlog is replanned. See **Active Navlog Planning Logic** for more information.



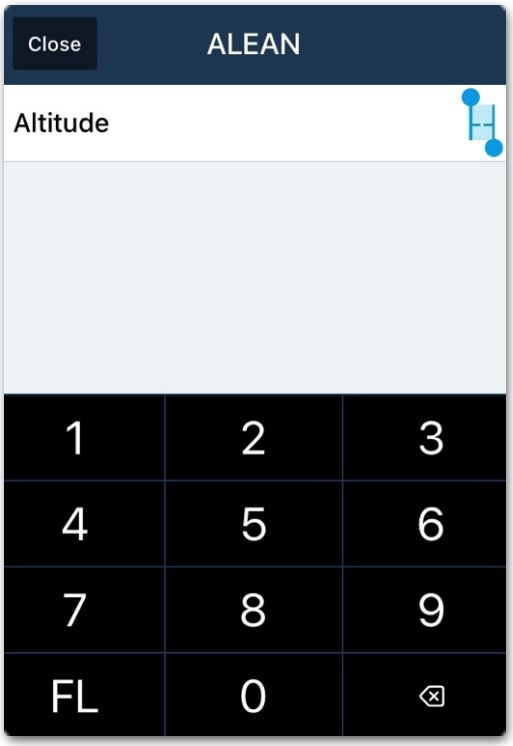
Waypoint Fuel Entry

NOTE: The actual fuel amount entered at the destination ramp is automatically copied to the Fuel at Shutdown field in the **Flight Log**.

19.6.4 Adding Actual Altitude

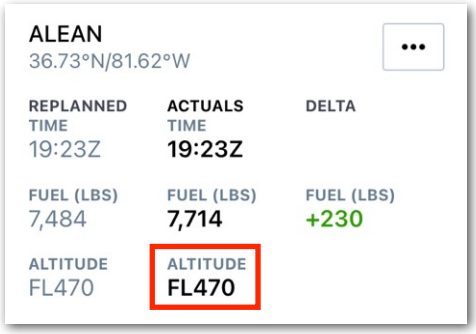
To enter actual altitude, follow the steps below:

1. Tap the Altitude field to open the Altitude pop-over.
2. Use the keyboard and flight level **[FL]** button (if necessary) to enter the waypoint's crossing altitude.
3. When complete, tap the **Close** button in the menu header.



Waypoint Altitude Entry

When an actual crossing altitude is entered, it is displayed below the waypoint actuals. If this optional field is not entered, the ALT field is not displayed in the waypoint table for the waypoint.



NOTE: Adding an actual altitude does not affect planned or calculated values.

19.6.5 Adding Waypoint Remarks

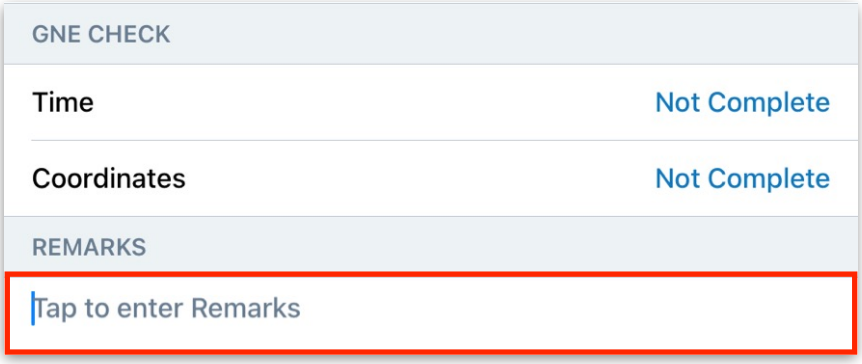
Waypoint remarks can be added in the waypoint actuals editor. These remarks differ from the **general remarks** in the following ways:

- Waypoint remarks can be added, viewed, and edited from the waypoint actuals editor. General remarks can only be accessed from the Actions button in the upper toolbar.
- When the active navlog is signed, the contents of the waypoint remark are added in line with the waypoint to the **Active Navlog PDF Document**. General remarks are listed in a table on the first page of the Active Navlog PDF Document.

To add a waypoint remark, follow the steps below:

1. Tap the Remarks field to open the keyboard.
2. Type in desired remarks.
3. Close the keyboard when finished to save the remarks.

The entered remarks will not be visible on the waypoint list unless the waypoint is selected. Remarks will be visible on the **Active Navlog PDF Document** in line with the waypoint on the waypoint table.



Entering Waypoint Remarks

Viewing or Deleting Waypoint Remarks

To view, edit, or delete a waypoint remark, tap the waypoint where the remark was entered. The remark will be visible in the **REMARKS** field. To delete the remark, use the keyboard to delete all or part of the remark. Close the keyboard to stop editing.

19.7 Editing Actual Flight Details

Time, Fuel, and Altitude actuals for any waypoint can be edited anytime. Editing a waypoint's actuals results in the same actions as when the actuals were originally added.

To edit an actual after it has been added, follow the steps below:

1. Tap on the waypoint to be edited.
2. Tap on the field to be adjusted.
3. Manually adjust the actuals.
4. When complete, tap the **Close** button in the menu header.

Deleting Actuals

If actual values were entered in error, they can be deleted. Deleting actuals restores estimates to the values that existed before the actual was added.

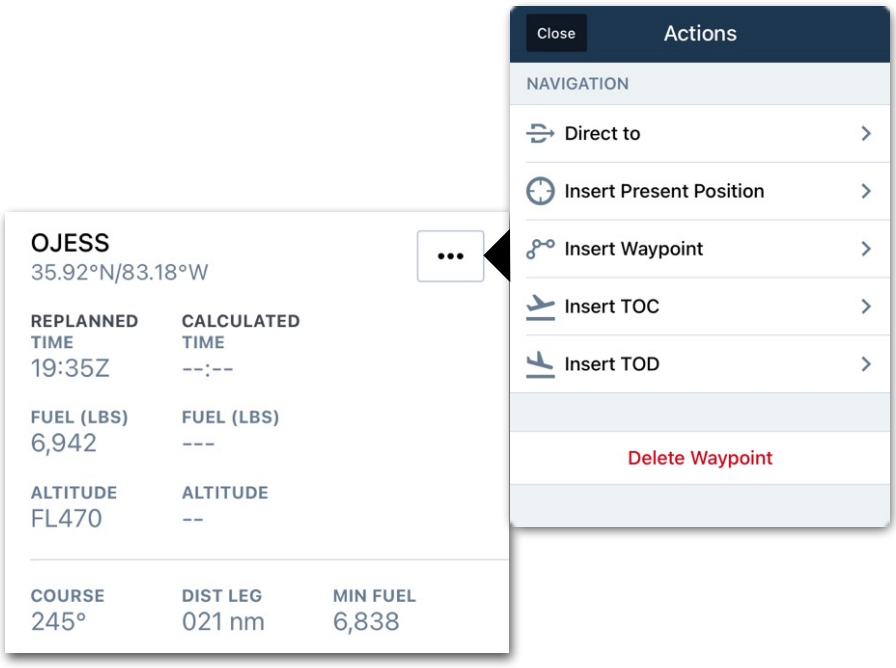
To delete an actual entry:

1. Tap on the waypoint to be edited.
2. Tap on the field to be adjusted.
3. Tap the backspace button to delete the entry.
4. When complete, tap the **Close** button in the menu header.

19.8 Editing the Route

Active Navlog can accommodate en-route changes. Edits made with Active Navlog are not reflected in the Flights view and vice versa.

To edit the route, tap the three-dot action button for the appropriate waypoint and select one of the actions.



Route Edit Actions Menu

19.8.1 Direct To Route Edits

When rerouted direct to a waypoint, update the active navlog with the steps below:

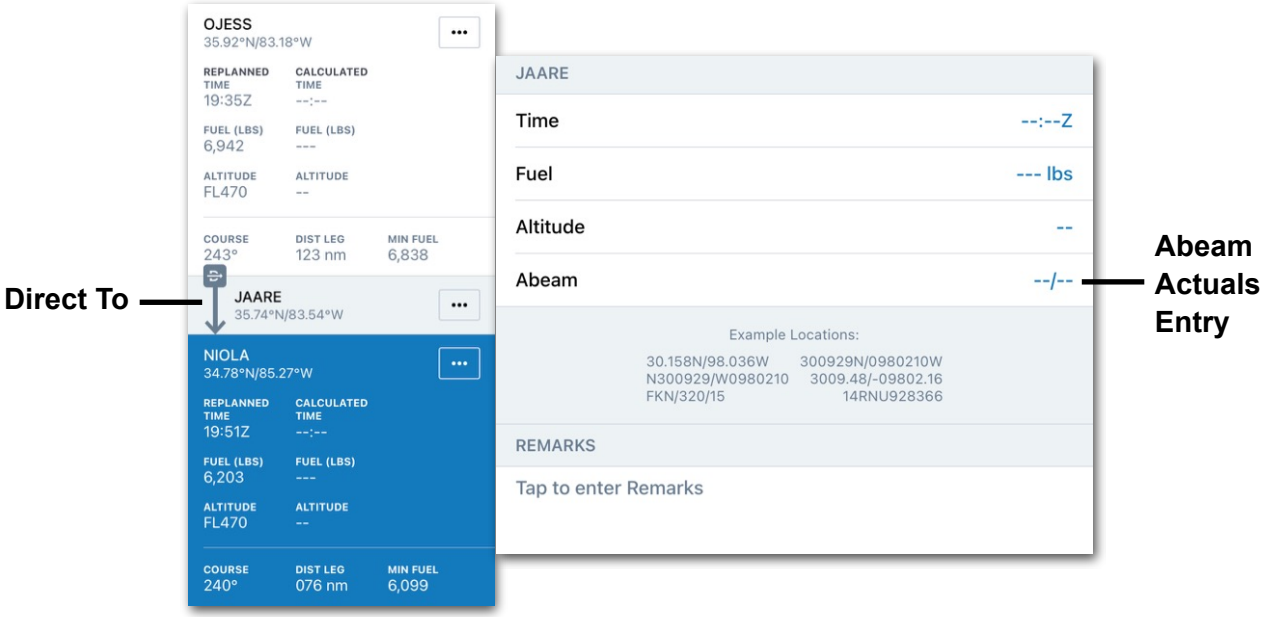
1. Tap the waypoint where clearance has been received to fly Direct *to*.
2. Tap the appropriate three-dot action button and select **Direct to.**
3. In the Direct to menu, select the *from* waypoint where the Direct to portion begins. When complete, tap **Confirm**.

NOTE: If issued a direct to clearance from a position other than a route waypoint, first **insert the coordinates** or Present Position where the direct to portion of the route begins. Then, proceed with the direct to edit.

NOTE: It is not possible to navigate directly to the top of climb or descent.

Logging ABEAM Details

Direct to route edits update the Navlog Waypoint list with a vertical line indicating where the Direct to portion begins and ends. An ABEAM field is added to the Actuals fields to allow recording when the aircraft is abeam the waypoint.



Route with Direct to edit

To record actual abeam details:



1. Tap the **ABEAM** field.
2. Tap **PRESENT POSITION** or enter coordinates manually.
3. When complete, tap the **Close** button in the menu header.

NOTE: The Abeam Location field is populated with current coordinates.

Removing a Direct To Edit

To remove a direct to edit:

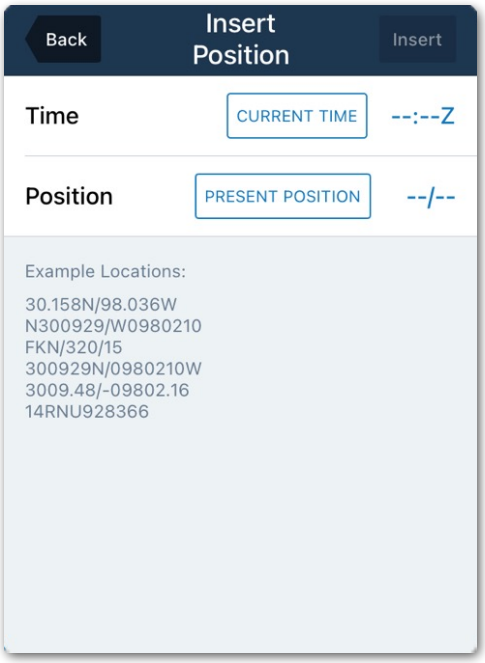
1. Tap the three-dot action button for a bypassed waypoint.
2. Select **Undo abeam**.
3. Repeat for each waypoint as necessary.

19.8.2 Inserting Present Position

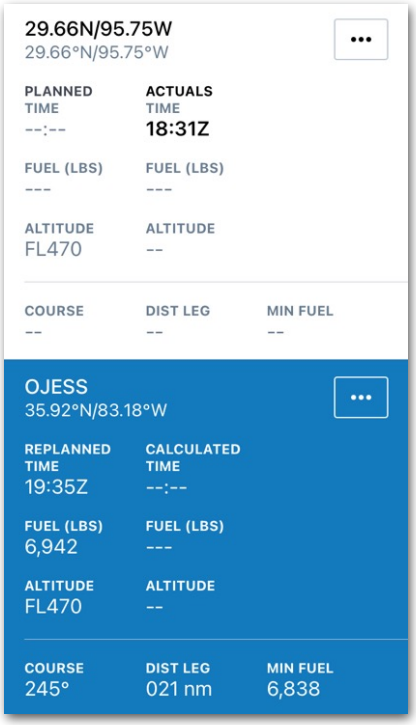
To add a Present Position to the route, follow the steps below:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap **Insert Present Position**.
3. Tap **Insert Present Position Before** or **Insert Present Position After** as appropriate.
4. Tap the **CURRENT TIME** and **PRESENT POSITION** buttons or enter the information manually by tapping on that field and using the keyboard to enter the data.
5. When complete, tap the **Insert** button in the menu header.

The Present Position will be inserted into the waypoint list before or after the selected waypoint with the coordinates and time that was entered.



Insert Present Position



Present Position Inserted before OJESS

19.8.3 Inserting Route Waypoints

To add a waypoint to the route, follow the steps below:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap **Insert Waypoint**.
3. Tap **Insert Waypoint Before** or **Insert Waypoint After** as appropriate.
4. Type in the waypoint's coordinates, identifier, or airway as applicable.
5. When complete, tap the **Add** button in the menu header.

The Waypoint will be inserted into the Waypoint list before or after the selected waypoint in the appropriate waypoint sequence.

NOTE: It is not possible to insert a waypoint between waypoints where actual values have been entered, or before or after the departure airport.

Supported Waypoint Types

The following types of waypoints can be added to Active Navlog.

- Airport Identifiers
- Navaids
- Airways
- Waypoints
- Latitude/Longitude Coordinates.

19.8.4 Inserting Top of Climb (TOC)

To insert a TOC into the route, follow the steps below:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap **Insert TOC**.
3. Tap **Insert TOC Before Waypoint** or **Insert TOC After Waypoint** as appropriate.

The TOC will be inserted into the waypoint list before or after the selected waypoint.

NOTE: Tapping on the TOC waypoint allows actuals to be entered and edited similar to other waypoints.

19.8.5 Inserting Top of Descent (TOD)

To insert a TOD into the route, follow the steps below:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap **Insert TOD**.
3. Tap **Insert TOD Before Waypoint** or **Insert TOD After Waypoint** as appropriate.

The TOD will be inserted into the waypoint list before or after the selected waypoint.

NOTE: Tapping on the TOD waypoint allows actuals to be entered and edited similar to other waypoints.

19.8.6 Deleting Route Waypoints

To remove a waypoint from the route, follow the steps below:

1. Tap the three-dot action button for the waypoint to be removed.
2. Select **Delete Waypoint**.
3. Tap the confirmation pop-up **Delete** button.

19.9 Signing the Active Navlog

Active Navlog can be signed at any time. Once signed, the following actions occur:

- The active navlog is locked and cannot be modified. Remove the signature to modify the active navlog.
- The **Active Navlog PDF Document** is generated.
- The active navlog is moved to the **Past Flights list**, and a signature icon is added to the flight.



Archived Flight - Active Navlog Signature Icon

To sign the Active Navlog, follow the steps below:

1. Tap the signature button in the upper toolbar to display the signature menu. The menu includes a timestamp and flight info. These fields cannot be edited using this menu.
2. Tap **Add Signature**.
3. If more than one crew member was assigned to the flight with Dispatch, select the crew member who will sign the active navlog. Only one signature is required.
4. Tap **Sign**.
5. Use a finger or a stylus to add a signature. When complete, tap **Close**.

Removing a Signature

If a signed active navlog requires modification, the signature must be removed. To remove a signature, follow the steps below:

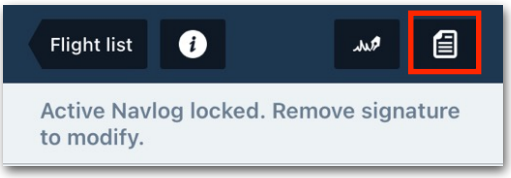
1. Tap the signature button in the upper toolbar.
2. Tap **Delete Signature** > **Delete**.

19.10 Sharing Active Navlog

The **Active Navlog PDF Document** can be shared after a **signature** has been added. The shared active navlog is a read-only file and cannot be used to modify actuals.

To share a signed active navlog, follow the steps below:

1. Tap the **Document** button in the upper toolbar to open the PDF document.



Document Button

2. While viewing the PDF document, tap the **Send To** button in the upper toolbar to open the iOS sharing menu.
3. Select one of the standard iOS sharing options. ForeFlight recommends sharing the navlog to the flight by selecting **Save to Flight's Files**.

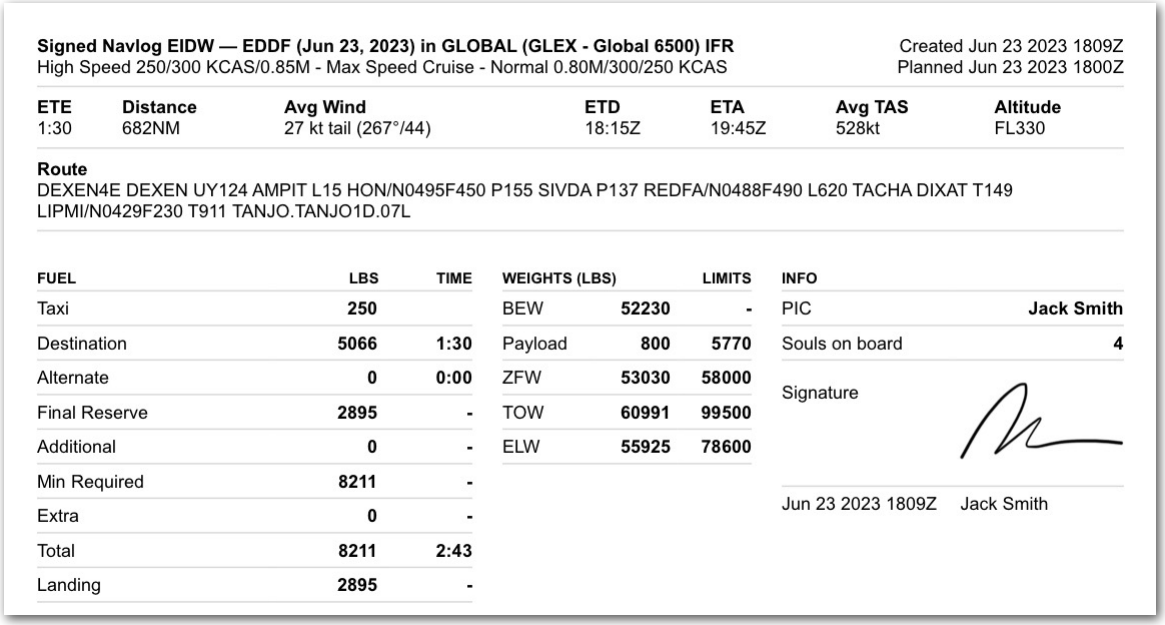
NOTE: The Active Navlog PDF Document is not automatically attached to the **Flight's Files**. If the flight was released from Dispatch, the signed PDF document is automatically listed alongside the other Navlog formats.

19.11 Active Navlog PDF Document

The Active Navlog PDF Document is a read-only **sharable** file that is generated after an active navlog has been **signed**. The navlog is divided into various sections. Tap the document button in the upper toolbar to access the document. Each section of the navlog is described below in the order it appears in the document.

19.11.1 General Flight Information

The General Section of the Active Navlog PDF Document contains information from the **Flight Details** pop-up. With the exception of the signature, this information is based on planning data and is not updated with actuals.



Signed Navlog EIDW — EDDF (Jun 23, 2023) in GLOBAL (GLEX - Global 6500) IFR
High Speed 250/300 KCAS/0.85M - Max Speed Cruise - Normal 0.80M/300/250 KCAS

Created Jun 23 2023 1809Z
Planned Jun 23 2023 1800Z

ETE	Distance	Avg Wind	ETD	ETA	Avg TAS	Altitude
1:30	682NM	27 kt tail (267°/44)	18:15Z	19:45Z	528kt	FL330

Route
DEXEN4E DEXEN UY124 AMPIT L15 HON/N0495F450 P155 SIVDA P137 REDFA/N0488F490 L620 TACHA DIXAT T149 LIPMI/N0429F230 T911 TANJO.TANJO1D.07L

FUEL	LBS	TIME
Taxi	250	
Destination	5066	1:30
Alternate	0	0:00
Final Reserve	2895	-
Additional	0	-
Min Required	8211	-
Extra	0	-
Total	8211	2:43
Landing	2895	-

WEIGHTS (LBS)		LIMITS
BEW	52230	-
Payload	800	5770
ZFW	53030	58000
TOW	60991	99500
ELW	55925	78600

INFO	
PIC	Jack Smith
Souls on board	4

Signature

Jun 23 2023 1809Z Jack Smith

Active Navlog PDF Document - General Flight Information

19.11.2 Additional Information

If applicable, additional information, such as ramp times, remarks, and ATIS is included below the general flight information.

RAMP	TIME	FUEL (LBS)
OUT	19:31Z	(START) 19022
OFF	00:30Z	18772
ON	05:33Z	4509
IN	05:40Z	(SHUTDOWN) 4400

REMARKS	TIME	INFO
Remark 1	20:05Z	General Remark

ATIS	TIME	INFO
KBOS (DEP)	20:06Z	231855Z 14009KT 10SM FEW038 34/24 A2997

Additional Flight Information

Ramp Information

Each active navlog PDF document contains a RAMP section that displays the actual OUT, OFF, ON, and IN (OOOI) times and fuel amounts from the departure and destination.

Remarks

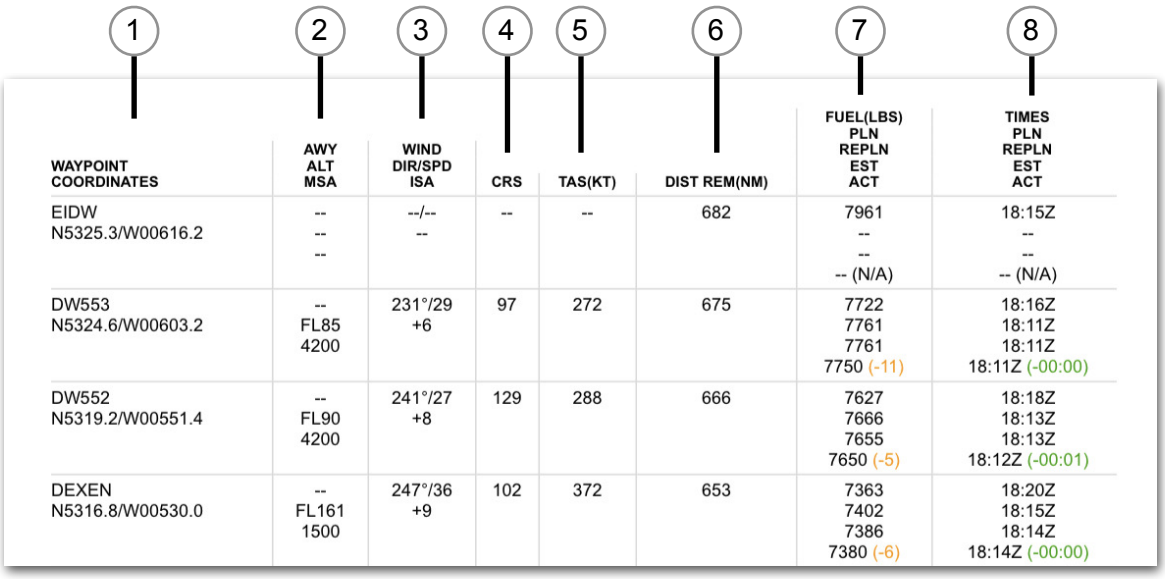
If a general remark is added using the **Active Navlog Actions** button, it is listed in the Additional Information section. If no general remarks are added, this section is hidden. As discussed later, waypoint remarks are added inline on the route table.

ATIS

If ATIS information is recorded using the **Active Navlog Actions** button, it is listed in the Additional Information section. If ATIS is not recorded, this section is hidden.

19.11.3 Route Table

The Route Table provides planned, estimated, and actual flight details. Refer to the image below for more information.

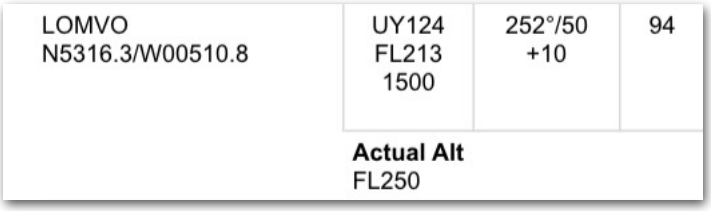


WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD ISA	CRS	TAS(KT)	DIST REM(NM)	FUEL(LBS) PLN REPLN EST ACT	TIMES PLN REPLN EST ACT
EIDW N5325.3/W00616.2	-- -- --	--/-- --	--	--	682	7961 -- -- -- (N/A)	18:15Z -- -- -- (N/A)
DW553 N5324.6/W00603.2	-- FL85 4200	231°/29 +6	97	272	675	7722 7761 7761 7750 (-11)	18:16Z 18:11Z 18:11Z 18:11Z (-00:00)
DW552 N5319.2/W00551.4	-- FL90 4200	241°/27 +8	129	288	666	7627 7666 7655 7650 (-5)	18:18Z 18:13Z 18:13Z 18:12Z (-00:01)
DEXEN N5316.8/W00530.0	-- FL161 1500	247°/36 +9	102	372	653	7363 7402 7386 7380 (-6)	18:20Z 18:15Z 18:14Z 18:14Z (-00:00)

Route Table

NOTE: If a route **waypoint is deleted** using the Active Navlog Editor prior to generating the PDF document, the waypoint is in the PDF document displayed using strikethrough notation. **Direct to route edits** use similar notation as the Active Navlog Editor.

4. Waypoint identifier. Latitude/longitude coordinates. Coordinate format can be adjusted in **More** > **Settings** > **Unit/Times** > **Coordinates**.
5. Airway details:
    - **AWY:** Airway (if applicable).
    - **ALT:** Planned waypoint crossing altitude. If an *actual altitude* is entered, it is displayed below the MSA in bold text.



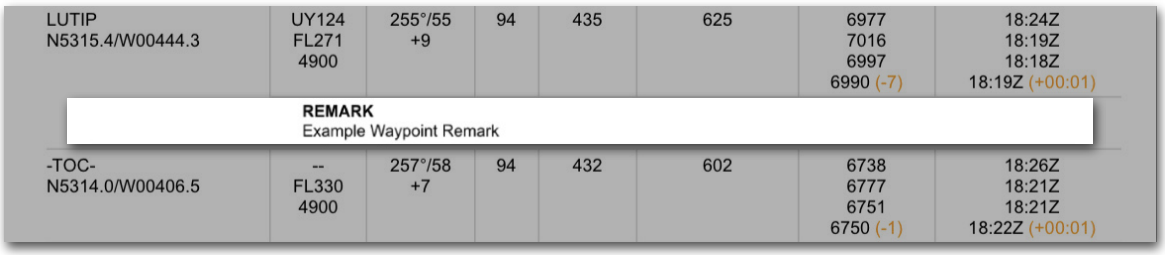
Waypoint with Actual Altitude

- **MSA:** The highest grid MORA value encountered along a route segment. See MORA for obstacle clearance definition.

6. Forecast wind/temps at the waypoint:
   - **DIR:** Forecast wind direction (true).
   - **SPD:** Forecast wind speed.
   - **ISA:** Temperature relative to the international standard.
7. **CRS:** Magnetic course to the waypoint.
8. **TAS:** Planned true airspeed upon crossing the waypoint.
9. **DIST REM:** Route distance remaining in nautical miles.
10. Fuel details as described below:
    - **PLN:** Planned fuel amount when reaching the waypoint.
    - **REPLN:** Replanned fuel amount. This value is calculated when the departure airport's time or fuel differs from planned. See **Active Navlog Planning Logic** for more information.
    - **EST:** Estimated fuel when reaching the waypoint. This value is determined by the previous waypoint's actual fuel amount.
    - **ACT:** Actual fuel amount as entered by the user. The difference between the planned and actual fuel is displayed in color-coded font. Actual fuel amounts less than planned are displayed in orange. Actual fuel amounts equal to or greater than planned are green.
11. Time details as described below (from top to bottom):
    - **PLN:** Planned waypoint crossing time.
    - **REPLN:** Replanned waypoint crossing time. This value is calculated when the departure airport's time or fuel differs from planned. See **Active Navlog Planning Logic** for more information.
    - **EST:** Waypoint estimated crossing time. This time is determined by the previous waypoint's crossing time.
    - **ACT:** Actual waypoint crossing time. The difference between the planned and actual times are displayed in color-coded font. Arrival times later than planned are orange. Arrival times earlier than planned are green.

19.11.4 Waypoint Remarks

When a **remark is added to a waypoint**, the contents of the remark are added inline to the route table section of the PDF document.

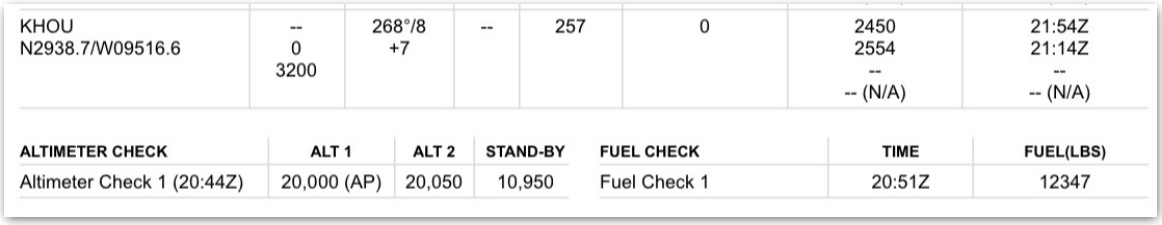


LUTIP N5315.4/W00444.3	UY124 FL271 4900	255°/55 +9	94	435	625	6977 7016 6997 6990 (-7)	18:24Z 18:19Z 18:18Z 18:19Z (+00:01)
	REMARK Example Waypoint Remark						
-TOC- N5314.0/W00406.5	-- FL330 4900	257°/58 +7	94	432	602	6738 6777 6751 6750 (-1)	18:26Z 18:21Z 18:21Z 18:22Z (+00:01)

Waypoint Remark

19.11.5 Altimeter and Fuel Checks

If **Altimeter** or **Fuel Checks** are performed, the check details are included at the end of the PDF document. If no checks are performed, this section is hidden.



KHOU N2938.7/W09516.6	-- 0 3200	268°/8 +7	--	257	0	2450 2554 -- -- (N/A)	21:54Z 21:14Z -- -- (N/A)

ALTIMETER CHECK	ALT 1	ALT 2	STAND-BY	FUEL CHECK	TIME	FUEL(LBS)
Altimeter Check 1 (20:44Z)	20,000 (AP)	20,050	10,950	Fuel Check 1	20:51Z	12347

Altimeter and Fuel Checks

ACTIVE NAVLOG OCEANIC PLOTTING

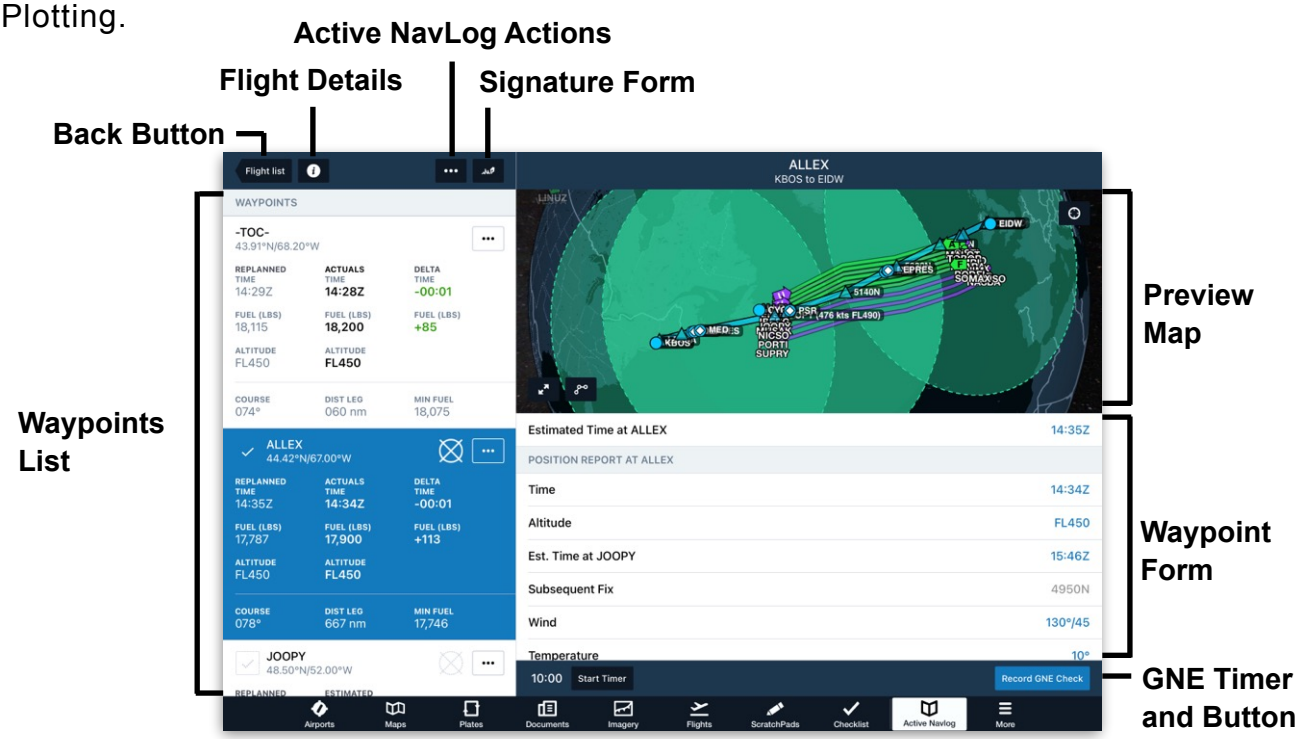
Oceanic Plotting is a valuable tool that helps crews maintain course accuracy in non-radar environments without ATC surveillance. This feature emerges from regulatory requirements ensuring flights adhere to ed flight paths and ensuring safety and compliance over large non-radar areas such as oceanic crossings. ForeFlights development is rooted in the guidelines set forth by **FAA Advisory Circular 91-70C** and **ICAO NAT Doc 007**.

IMPORTANT: The Active Navlog Oceanic Plotting chapter aligns with the procedures detailed in the Active Navlog Chapter. The steps outlined in this chapter specifically pertain to Oceanic Plotting.

20.1 About Oceanic Plotting

Oceanic Plotting requires a Dispatch account with Active Navlog activated. Oceanic Plotting is integrated with Active Navlog to provide flight progress tracking. ForeFlight's comprehensive planning and navigation features offer safe, efficient, and compliant operations while flying on oceanic routes and in non-radar airspace.

The checklist workflow recommended in AC 91-70C encourages an orderly task flow and reduces oceanic vertical, lateral, longitudinal, and timing navigation errors. The steps outlined in this chapter relate to Active NavLog functions specific to Oceanic Plotting.



20.1.1 Oceanic Plotting Steps

The procedures for Oceanic Plotting follow these steps:

- **Flight Planning** - The crew receives an oceanic clearance and will assign the Oceanic Entry (Coast-Out) and Oceanic Exit (Coast-In) points, activating the Oceanic Plotting symbols.
- **Preflight Waypoint Verification** - The crew will complete first and second pilot waypoint verification.
- **Subsequent Waypoint Verification** - The crew will follow established procedures in flight to verify subsequent waypoints.
- **Current Waypoint Verification** - The crew will transmit a position report, complete a GNE check, and verify current waypoint information.
- **The Master Document** - The Master Document is signed and saved as a PDF.

IMPORTANT: Organizational procedures for Oceanic Flights will include comprehensive steps aligned with AC 91-70C. This chapter only contains steps using ForeFlights Oceanic Plotting tools for planning and documentation.

20.2 Flight Planning (Oceanic Entry & Exit Assignment)

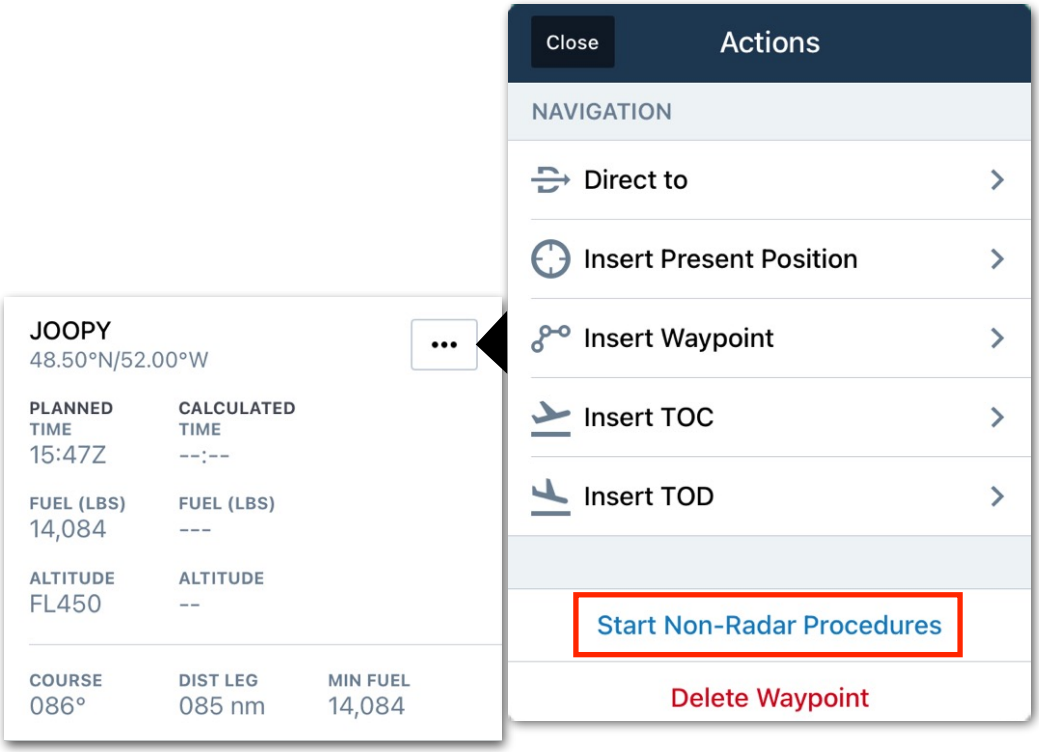
The flight plan (documented in the Navlog) and the oceanic clearance are used to create the Master Flight Plan (Master Document). The Master Document will be accessed via the Active Navlog to record waypoint crossing and flight progress.

NOTE: When an oceanic clearance is received in flight, the verification steps must be completed en route.

20.2.1 Designating Oceanic Entry

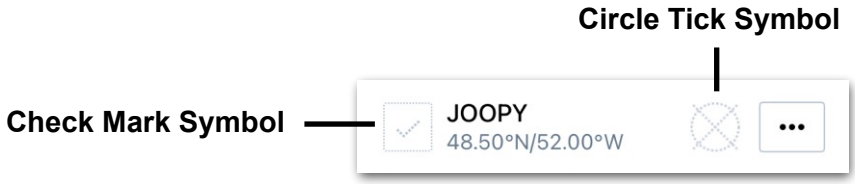
A point where non-radar procedures begin and radar contact ends must be designated. This point will be identified in the Oceanic Clearance. To designate an Oceanic Entry Point to begin non-radar procedures, follow these steps:

1. Find the waypoint on the waypoint list where Oceanic Plotting will begin.
2. Tap the three dot action button for the waypoint.
3. Tap **Start Non-Radar Procedures**.



Beginning Non-Radar Procedures

The Oceanic Plotting symbology is visible on the waypoint where non-radar procedures begin and all subsequent waypoints.

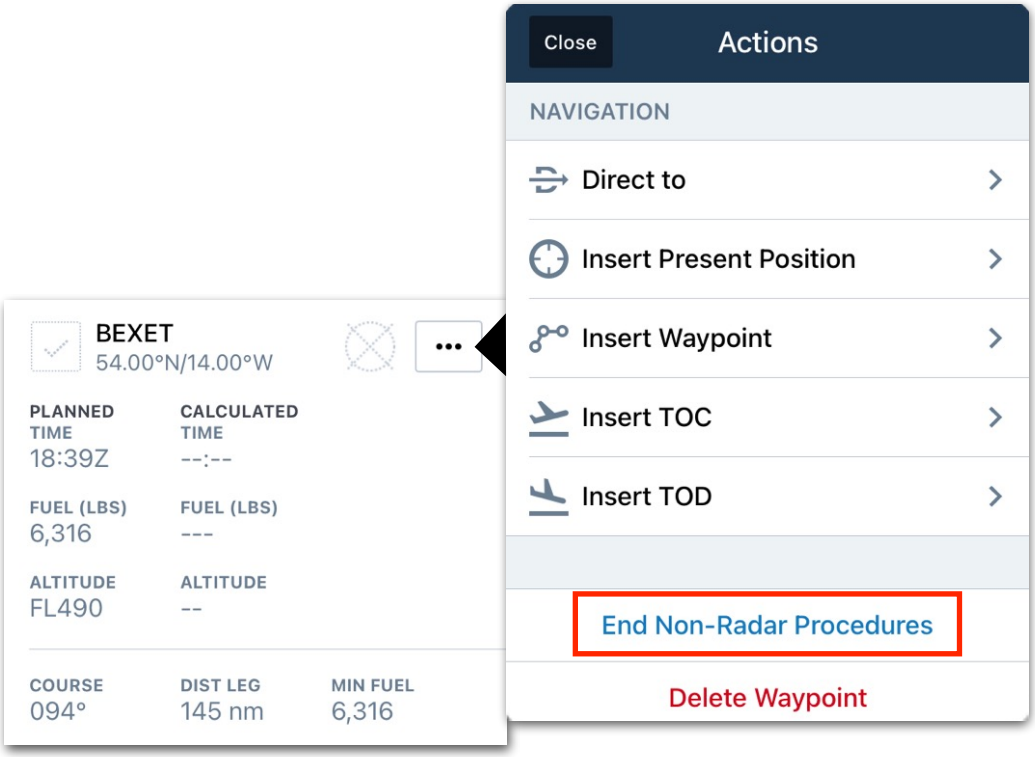


Oceanic Plotting Symbology

20.2.2 Designating Oceanic Exit

A point where non-radar procedures end and radar contact begins again must be designated. This point will be identified in the Oceanic Clearance. To designate an Oceanic Exit Point to end non-radar procedures, follow these steps:

1. Find the waypoint on the waypoint list where Oceanic Plotting will end.
2. Tap on the three-dot action button for the waypoint.
3. Tap **End Non-Radar Procedures**.



End Non-Radar Procedures

After a waypoint is designated the Oceanic Exit Point, where non-radar procedures will end, all oceanic plotting symbols will be removed from subsequent waypoints.

NOTE: The Oceanic Entry Point or Oceanic Exit Point can be a known waypoint or coordinates. To insert an Oceanic Entry or Exit in the waypoint list, go to **Inserting Route Waypoints**.

20.3 Preflight Waypoint Verification

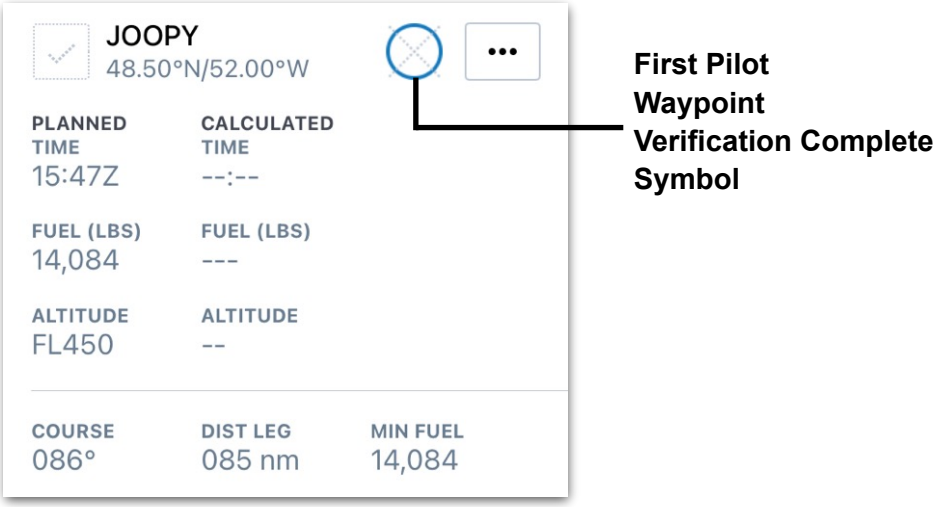
ForeFlight's Oceanic Plotting utilizes the circle tick methodology. After the Oceanic Entry and Oceanic Exit waypoints are established and entered into the Waypoint List, the crew should independently verify each waypoint.

20.3.1 First Pilot Waypoint Verification

To complete the first pilot verification, follow these steps:

1. Load the entire route into the Long Range Navigation System (LRNS), using the Master Document as the source.
2. Verify that the routing has been loaded correctly.
3. Tap on the Circle symbol for the desired waypoint to signify entry of the coordinates in the navigation computer have been verified.

The Circle symbol will change to a solid blue color, indicating that the first pilot verification is complete.



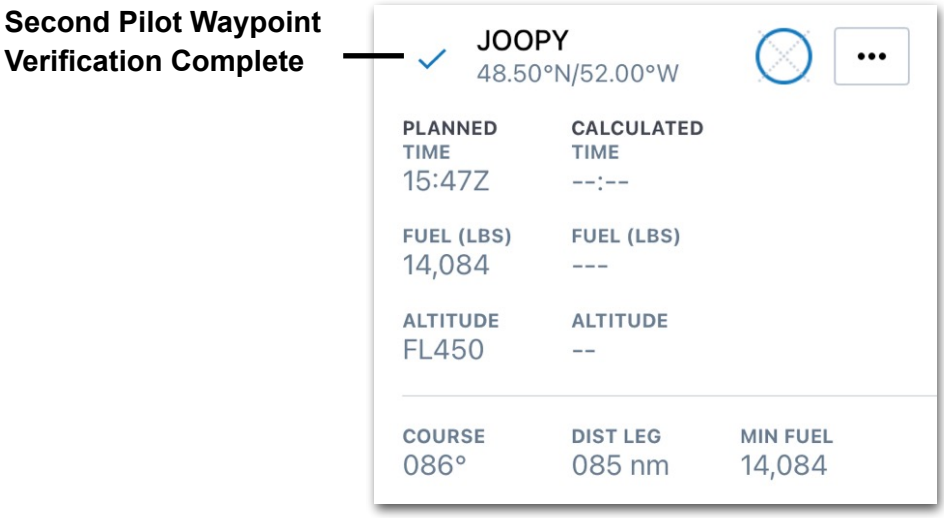
First Pilot Waypoint Verification

20.3.2 Second Pilot Waypoint Verification

After the first pilot has loaded and verified the LRNS entries against the flight plan, the second pilot should complete the following steps:

1. Confirm the waypoint data comparing what was entered into the LNRS against the flight plan document.
2. Tap the checkmark symbol for the desired waypoint to signify that they have cross-checked the coordinates in the navigation computer.

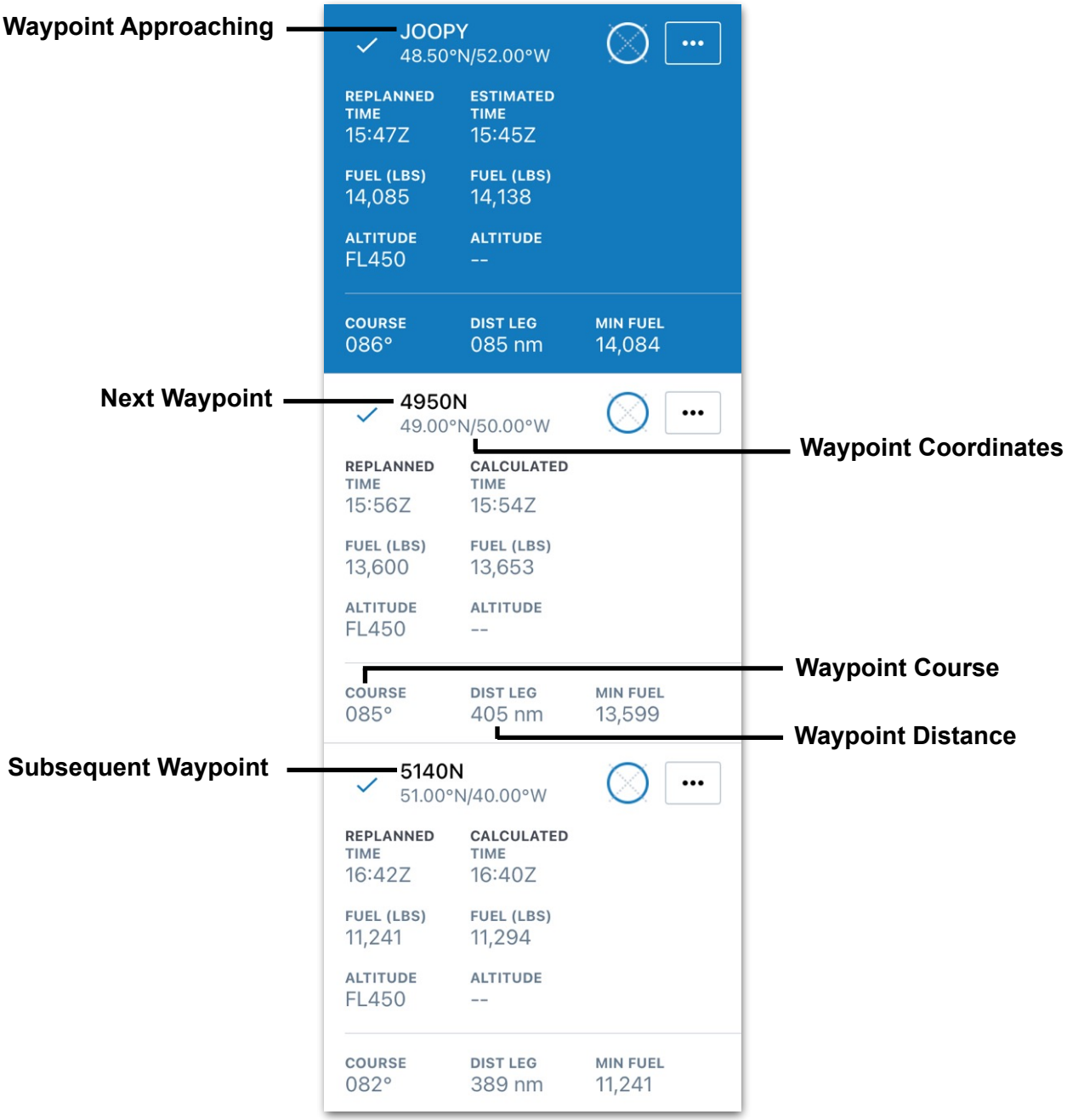
The checkmark symbol will change to a solid blue color, indicating that the second pilot waypoint verification is complete.



Second Pilot Verification Symbol

20.4 Subsequent Waypoint Verification

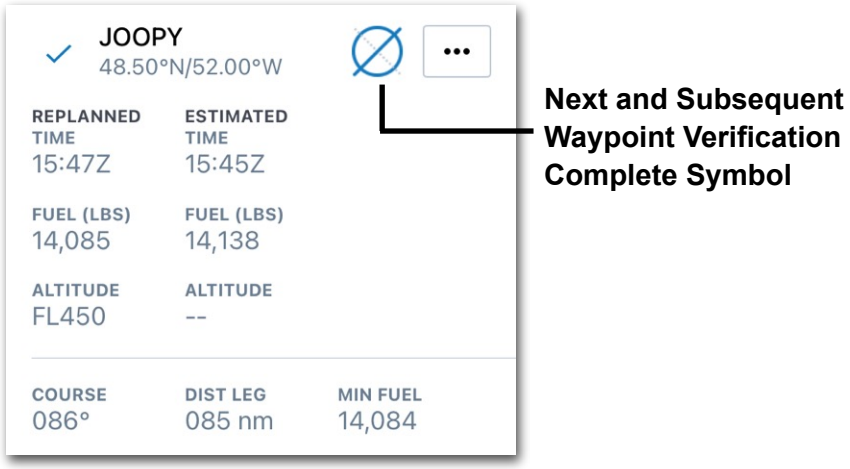
At a pre-established time before reaching each oceanic waypoint, verify the next and subsequent waypoints. Using the current effective route clearance, verify the expanded Flight Management Computer (FMC) coordinates for the next and subsequent waypoints. Check that the expected outbound magnetic course and distance to the next waypoint presented in the FMC agree with that clearance.



Subsequent Waypoint Verification

20.4.1 Marking Subsequent Waypoint Verification Complete

After verifying the waypoints, tap the circle symbol for the current waypoint being approached. A blue forward diagonal line will appear on the circle symbol to signify that the next and subsequent waypoints have been verified.



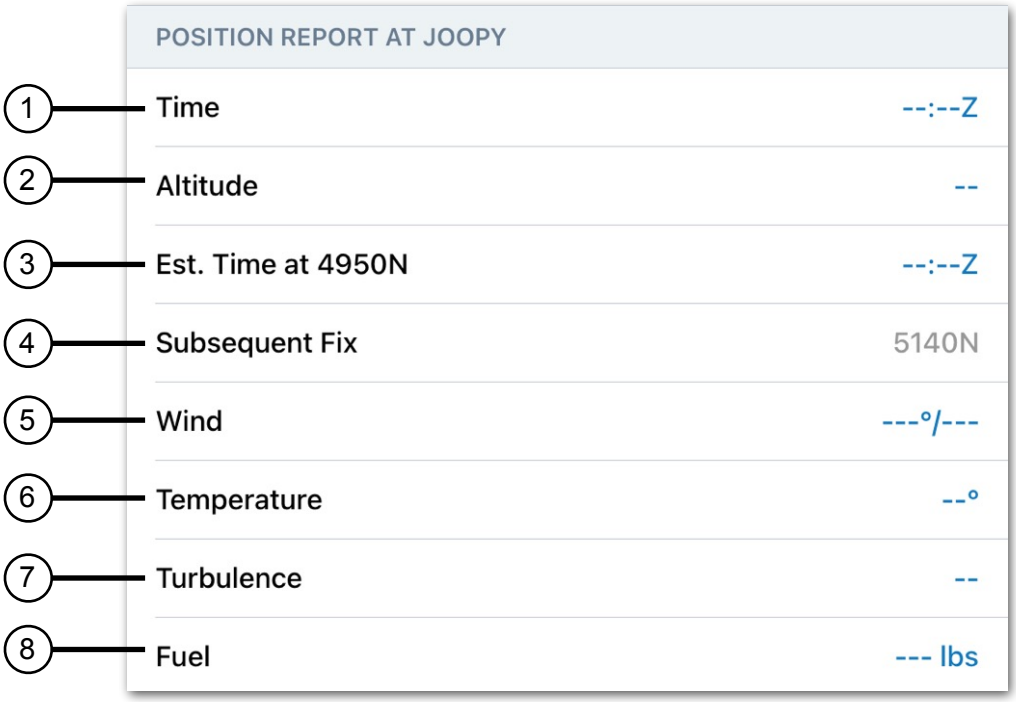
Next and Subsequent Waypoint Verification Complete

20.5 Current Waypoint Verification

When arriving at waypoints, two tasks must be completed: a position report and a GNE Check.

20.5.1 Position Reports

A position report must be completed at designated waypoints. Every oceanic waypoint has a form to enter data and record it to the Master Document. To access the position report form, tap on the waypoint. The *POSITION REPORT AT "[WAYPOINT NAME]*will be visible in the right-hand panel of the screen. For details on filling out the fields, see the section starting with **Adding Actual Time** in the Active Navlog chapter.



Position Report Actuals Entry

1. **Time**: The time can be entered manually or using the calculated time or current time buttons.
2. **Altitude**: Enter the altitude flown when crossing the waypoint.
3. **Est. Time at [Next Waypoint Name]**: The time can be entered manually or using the calculated time button.
4. **Subsequent Fix**: Displays the Waypoint identifier for the subsequent waypoint. This field is not editable.

5. **Wind**: Current wind direction and speed can be recorded by tapping the wind field and using the keyboard to enter the data.
6. **Temperature**: Current temperature data can be recorded by tapping the temperature field and using the keyboard to enter the data.
7. **Turbulence**: Current turbulence or chop data can be recorded, as well as intensity. To record turbulence data, tap the Turbulence field and use the keyboard to enter the data.
8. **Fuel**: The fuel onboard at the current waypoint can be recorded.

20.5.2 Gross Navigational Error (GNE) Check

Cross-check procedures, specifically the GNE Check, enable pilots to determine the aircraft is established on the cleared route, preventing significant navigational errors from occurring. Follow the procedures in this section to complete a GNE Check.

GNE Timer

When crossing a waypoint, tap the waypoint being crossed in the waypoint list and then tap the **Start Timer** button located at the bottom of the waypoint form. A countdown from 10 minutes will begin. When the timer reaches 0:00, a message will be presented indicating it is time to record the GNE check.



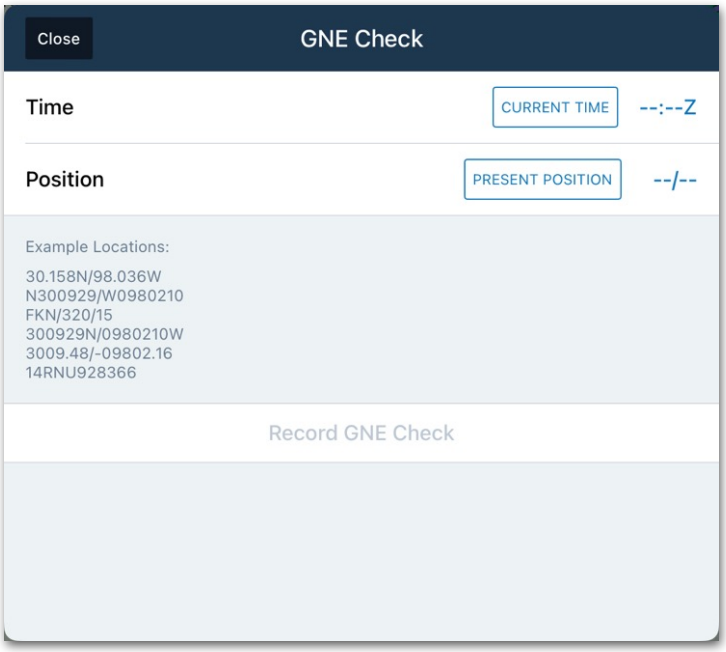
GNE Timer and Record GNE Check Buttons

Recording GNE Check

To add a GNE check, with the applicable waypoint selected, enter the time and coordinates into the GNE Check section in the waypoint form or tap the **Record GNE Check** button to open the GNE Check pop-over.

To record time, in the Time field, tap the **CURRENT TIME** button. The current time will autofill into the Time field. If the current time is not preferred, then enter the time manually by tapping the blank time field. Use the keyboard to enter the desired time and select the **Close** button to record the time.

To record the position, in the Position field, tap the **PRESENT POSITION** button. The coordinates for the present position will autofill into the Position field. To enter a position manually, tap the blank coordinates field to open the position pop-over. Enter the desired coordinates and select the **Close** button to record the position.

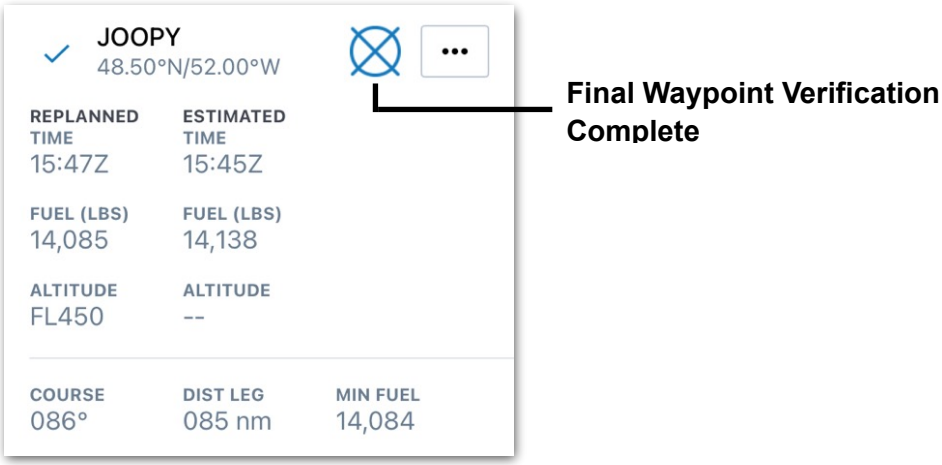


GNE Check Time and Position Pop-Over

Once the Time and Position have been recorded, tap the **Record GNE Check** button at the bottom of the GNE Check pop-over to save the GNE Check.

20.5.3 Recording Final Waypoint Verification

After the GNE Check is saved, the final waypoint verification is complete. Tap the circle symbol for the waypoint to display the final diagonal line.



Final Waypoint Verification

NOTE: The crew will perform subsequent and current waypoint verification for all oceanic waypoints repeating the steps presented above.

20.6 Signing the Master Document

After the flight is complete, the Master Document can be signed and locked to prevent further editing. To do so, follow these steps:

1. From the Upper Toolbar, tap the **Signature** button.
2. Select **Add Signature**.
3. Select the crew member that will be signing.
4. Select **Sign**.
5. Add a signature.
6. Select **Done**.
7. Select **Close** in the upper left corner of the Signature pop-over.

When completed, a Document button will appear to the right of the Signature button. See **Signing the Navlog** for more details. The Master Document can be viewed as a PDF by tapping the **Document** button. See the **Active Navlog PDF Document** section for details about the document design.

20.6.1 Removing a Signature from the Master Document PDF

If the Master Document PDF is signed but the signature needs to be removed, Follow th3se steps:

1. Tap on the **Signature** button in the top right-hand corner of the left hand column.
2. At the bottom of the Signature pop-over, select **Delete Signature**.
3. Select **Delete** frrom the confirmation pop-over.
4. Select **Close** from the upper left-hand corner of the pop-over.

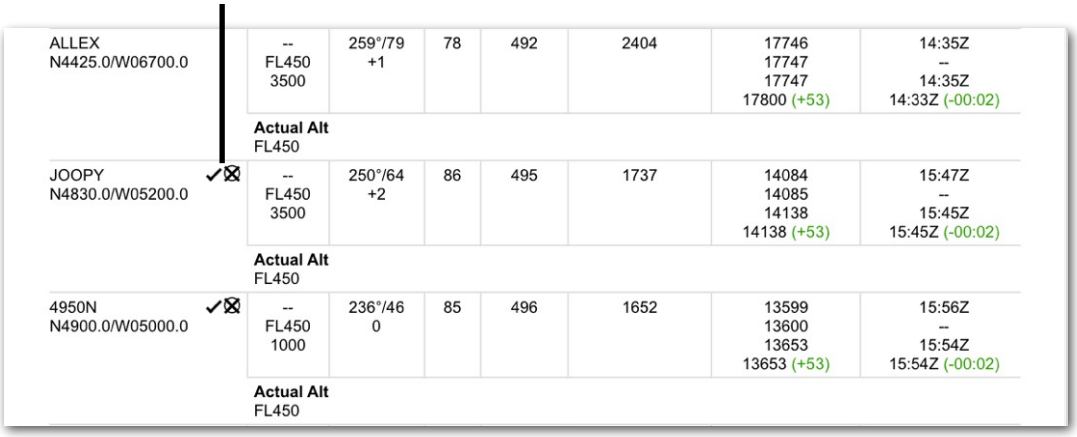
20.7 Finalizing Master Document (Active Navlog PDF)

The Master Document records all of the flight data that was entered during a flight using Active Navlog Oceanic Plotting, including Altimeter and Fuel Checks, Oceanic Plotting symbols, Position reports, and more. The features presented in this chapter are specific to Oceanic Plotting. See **Active Navlog PDF Document** for more details.

20.7.1 Route Table

The Circle/Tick symbology is added to the Route Table in the waypoint identifier column.

Circle Tick Symbology

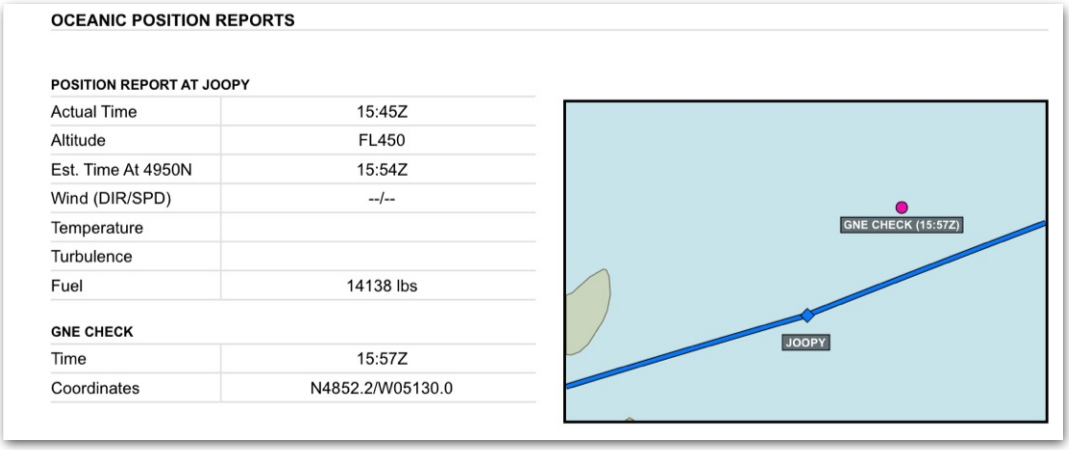


ALLEX N4425.0/W06700.0		-- FL450 3500	259°/79 +1	78	492	2404	17746 17747 17747 17800 (+53)	14:35Z -- 14:35Z 14:33Z (-00:02)
		Actual Alt FL450						
JOOPY N4830.0/W05200.0	✓⊠	-- FL450 3500	250°/64 +2	86	495	1737	14084 14085 14138 14138 (+53)	15:47Z -- 15:45Z 15:45Z (-00:02)
		Actual Alt FL450						
4950N N4900.0/W05000.0	✓⊠	-- FL450 1000	236°/46 0	85	496	1652	13599 13600 13653 13653 (+53)	15:56Z -- 15:54Z 15:54Z (-00:02)
		Actual Alt FL450						

Route Table with Oceanic Plotting Symbols

20.7.2 Oceanic Position Reports and GNE Check

The en route position report and GNE Check information is saved to the master document and available for viewing after the Route Table and is listed as Oceanic Position Reports. An example of a position report at JOOPY is shown below:



OCEANIC POSITION REPORTS

POSITION REPORT AT JOOPY

Actual Time	15:45Z
Altitude	FL450
Est. Time At 4950N	15:54Z
Wind (DIR/SPD)	--/--
Temperature	
Turbulence	
Fuel	14138 lbs

GNE CHECK

Time	15:57Z
Coordinates	N4852.2/W05130.0

Oceanic Position Report on Active Navlog PDF

BRIEFING

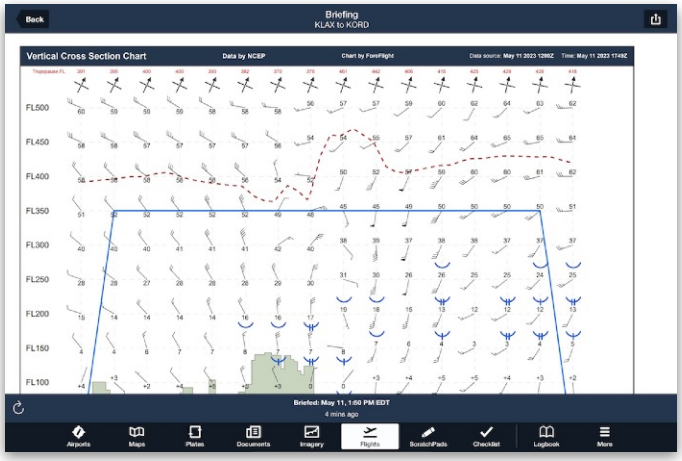
ForeFlight can generate graphical HTML or PDF preflight briefings from the Flights view. Once generated, briefings sync between devices on an account and remain saved for 120 days. This feature is available to all ForeFlight plan holders and requires an active internet connection.

21.1 About the Design

Briefings can be generated in one of two file formats (PDF or HTML) depending on subscription, flight plan location, and the **Briefing Format** setting. The HTML briefing is longer and more comprehensive. Each format is summarized below and described later in this chapter.

Graphical (PDF) format is *always* generated for a flight that is all or partly located outside the U.S., as well as for any flight planned with a Dispatch account. However, any user can opt to generate a PDF briefing.

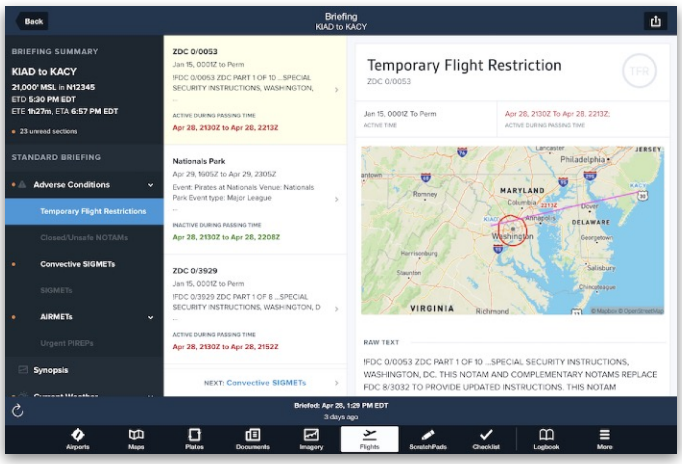
The PDF briefing can be printed and shared outside the ForeFlight app. Marked-up copies can also be saved.



PDF Briefing

Graphical (HTML) format is another option available to non-Dispatch account holders when planning a flight entirely within the U.S.

The HTML format is designed to be read inside ForeFlight or a web browser, and provides aids for navigating and understanding its contents. However, it cannot be printed or marked up the way a PDF briefing can.



HTML Briefing

21.1.1 Generating a Briefing

Briefings are generated from the Flights view. To generate a briefing, select a flight and tap the **Briefing** button in the upper right corner. The briefing will open in a new window.

If another briefing format is desired, see **Switching Briefing Format**.



After tapping **Close** to navigate away, the same briefing can be reopened by tapping the Briefing button again. However, if any flight details have been changed since the first briefing was generated, tapping the Briefing button replaces the old briefing with a new one to reflect those changes.

21.1.2 Switching Briefing Format

The Briefing Format setting determines whether briefings are generated as **PDF** or **HTML** documents.

NOTE: Dispatch account holders and pilots of flights not entirely within the U.S. *always* generate PDF briefings, regardless of the Briefing Format setting. Other pilots can use the HTML format.

To change this setting, tap **More** > **Settings** > **Briefing Format** and select **Graphical (PDF)** or **Graphical (HTML)**. The new format will be used to generate all *future* briefings.

Existing briefings will retain their old format as long as the flight plan details have not changed. The only way to regenerate an existing briefing in the other format is to do each of the following:

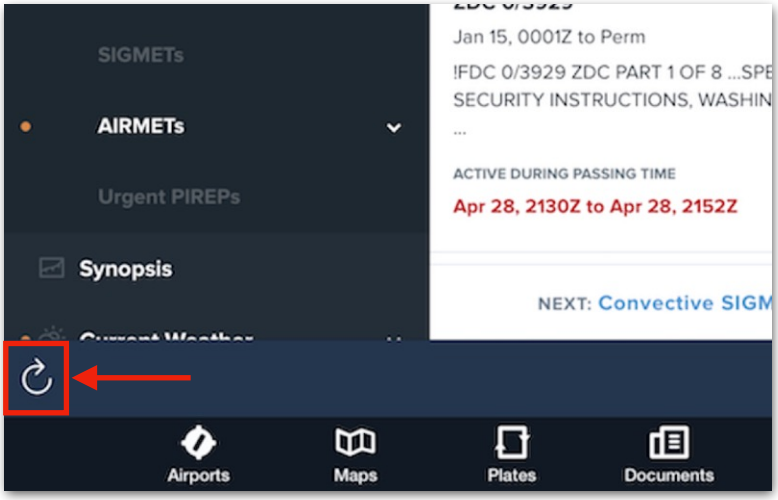
1. Change the **Briefing Format** setting to the other format.
2. Change the flight plan details, preferably in a minor way that won't noticeably alter the flight (such as a 5-minute delay in the ETD).
3. Tap the **Briefing** button again.

ForeFlight will generate a new briefing to encompass the altered flight plan details, and it will use the current Briefing Format setting.

21.1.3 Refreshing Weather and NOTAM Data

Briefings are static documents generated using weather and NOTAM data available at the time. Because this data is updated frequently, briefings grow outdated the longer they exist.

To refresh an existing briefing with the latest weather and NOTAM data, tap the **Refresh** button in the lower-left corner of the briefing. If the refreshed briefing uses the HTML format, updated sections will be **marked as unread**. Otherwise, there will be no indication of where updates were made.



Refreshing Briefing Data

21.1.4 Printing and Sharing

Briefings can be printed and shared outside ForeFlight in a variety of ways depending on the selected Briefing Format. Additionally, PDF briefings can be marked up before they are printed. For instructions on performing these operations, refer to the **end of the chapter**.

21.2 PDF Briefing

All ForeFlight users have access to the PDF briefing, a condensed multi-page file suitable for printing and sharing externally. Dispatch account holders and pilots flying outside the U.S. always use the PDF briefing.

The contents of the PDF briefing are described in the following sections in the order in which they appear: **Vertical Cross Section Chart**, **Wind Chart**, **Significant Weather Chart**, **METARs / TAFs**, **SIGMETs**, **Organized Track System**, and **NOTAMs**.

21.2.1 Vertical Cross Section Chart

The Vertical Cross Section Chart shows the weather over time as the route progresses from departure to destination. Its X-axis divides the flight into 15 equidistant segments that may represent waypoints or distances between them. The Y-axis divides the flight into flight-level (FL) altitudes. The sideways perspective of the Vertical Cross Section Chart is similar to the **Profile View**.

To read the chart, follow the blue route line from left to right, noting the weather it intersects. Then, look straight down to the labels at the bottom of the chart to see the **time and place** where the aircraft will encounter the weather. All of the chart's elements are described below.

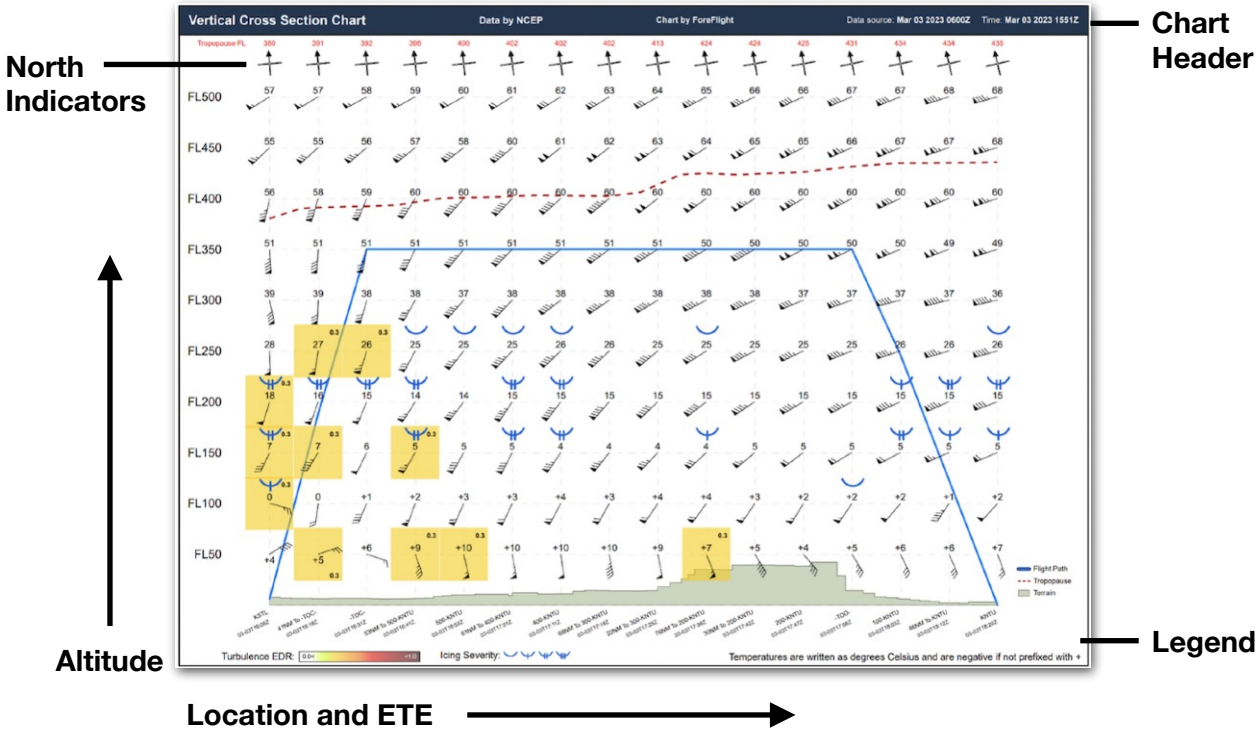


Chart Header

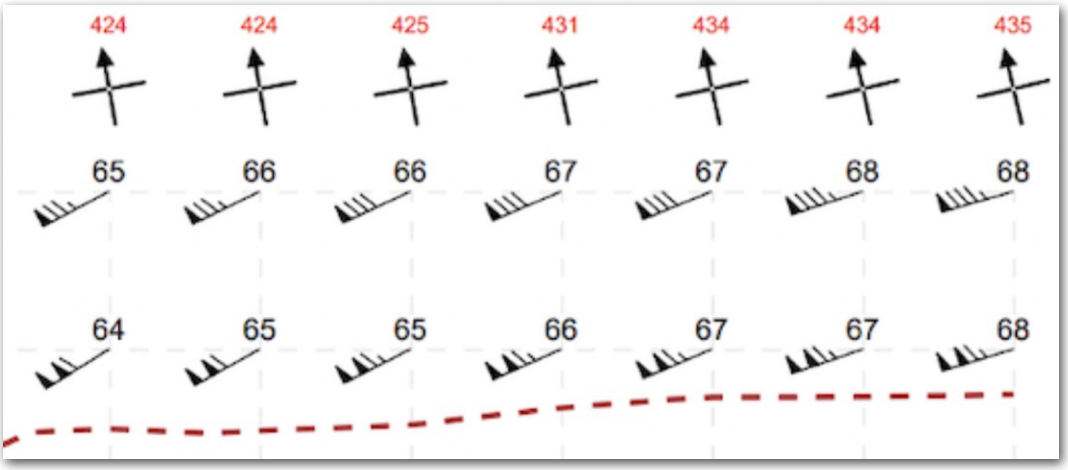
The top of the chart shows, from left to right: the title “Vertical Cross Section Chart”, the weather data source, the time when the weather data was gathered by the source, and the moment the briefing was generated.

IMPORTANT: The Time field on the Vertical Cross Section Chart is different from the Time field on the Wind Chart. This has implications for how the two charts are read. See the **Wind Chart** section for details.



Tropopause

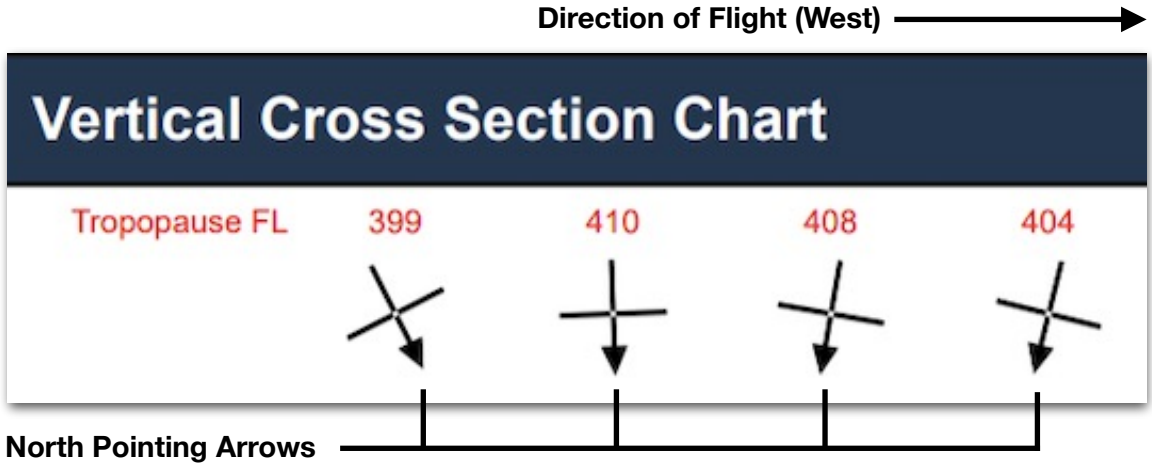
The height of the tropopause along each segment is depicted as a series of red numbers at the top of the chart. When the flight is planned near the tropopause, it is depicted as a red dashed line. The exact height of this line can be determined by reading the red flight-level altitudes on the Y-axis of the chart.



Tropopause Symbols (Red Line and Numbers)

Route Compass

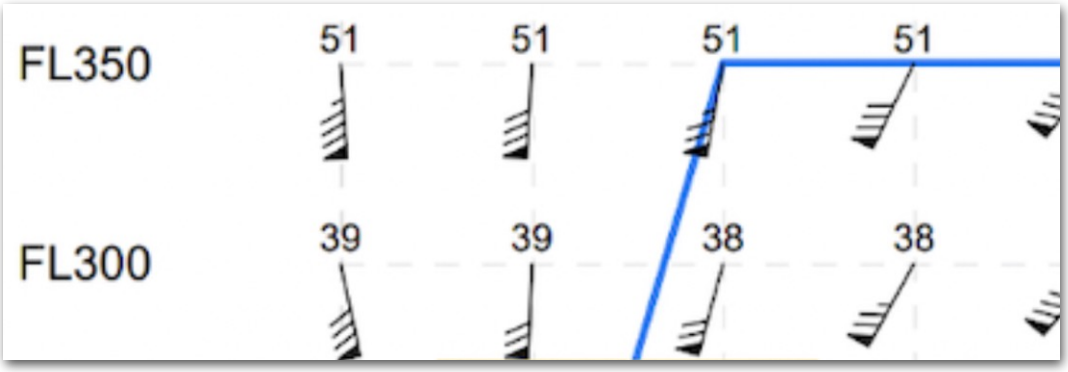
The top of the chart shows a series of compass crosses that can be used to estimate the direction of flight along each segment. To do so, read the chart from left to right and note the deflection of the north arrow on each cross.



Downward-pointing north arrows show this is a westerly flight.

Flight Path

A blue line shows the aircraft altitude along each segment of the flight, starting from departure (left corner of the chart) to destination (right corner). The rising and falling of this line corresponds to the flight level altitude along each segment, which can be read along the Y-axis of the chart.



Flight Path Leveling Off at FL350

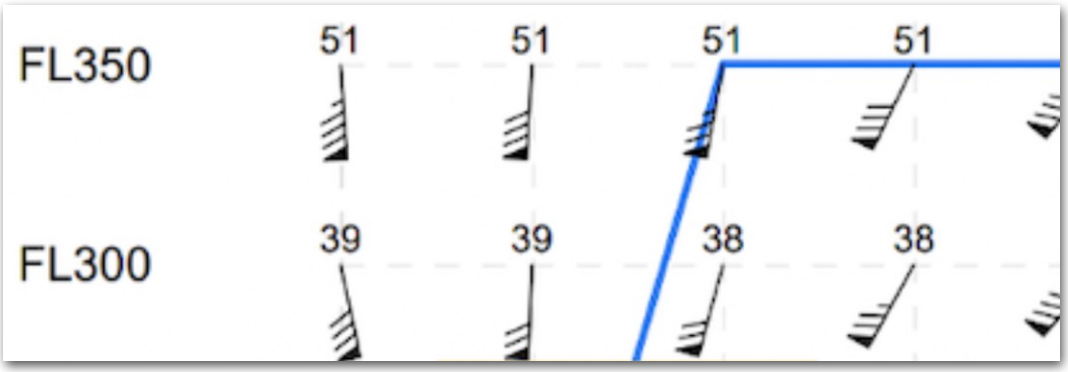
Wind Direction and Speed

Barbs throughout the chart show wind direction and speed. Wind speed is indicated by a stem with no barbs (calm winds), or a stem with short barbs (5 knots), long barbs (10 knots), or flags (50 knots). Wind direction is indicated by the direction of the stem in true degrees.

Barb Icon	Meaning
	0 knots / 90°
	5 knots / 315°
	15 knots / 45°
	60 knots / 270°

Wind Barb Symbols

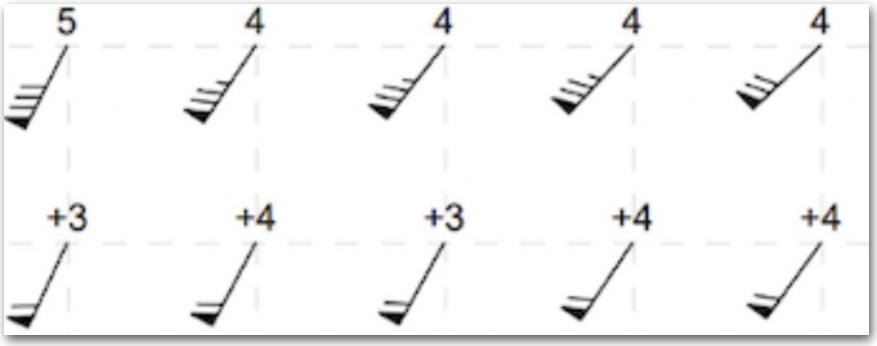
IMPORTANT: When reading the wind barbs on the Vertical Cross Section Chart, remember that they are oriented according to a left-to-right flight path, not in a North-up fashion as they would be on a map. If the long stem of the wind barb is pointing up, the wind is blowing from the right side of the aircraft in flight (not necessarily from the South). The **route compass** icons at the top of each column can be used to determine the direction of flight in each segment.



Wind Barbs Indicating Right Crosswind

Temperatures

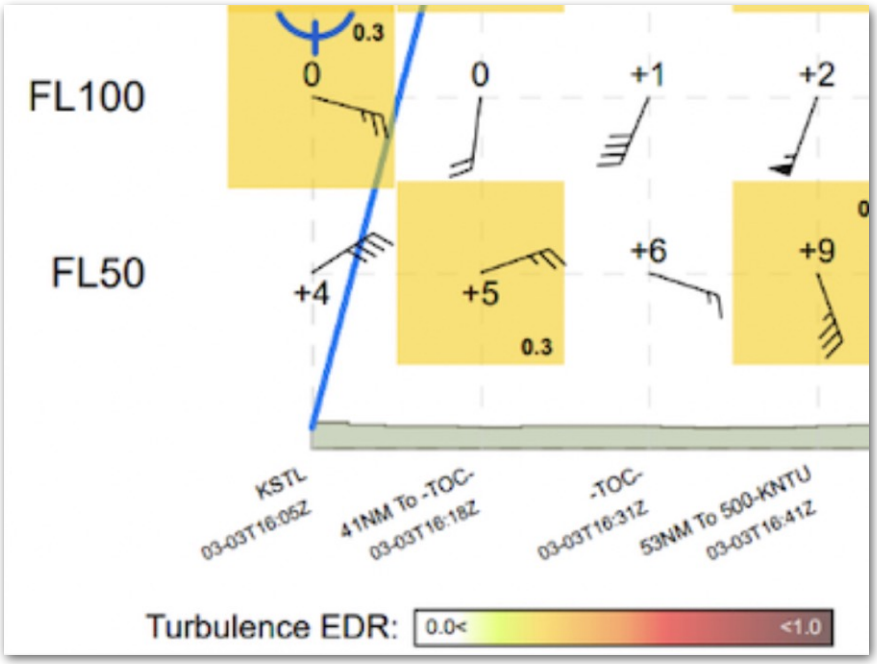
Temperatures are depicted as black numbers near the stem end of each wind barb and are all negative degrees Celsius unless prefixed with a + symbol.



Temperatures Ranging From -5°C to +4°C

Turbulence

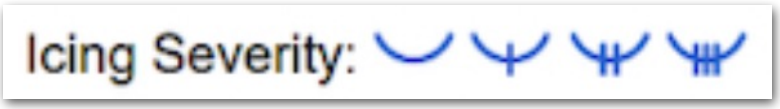
Colored boxes indicate the presence and severity of turbulence along each segment of the flight. The severity of turbulence along each segment is indicated by an EDR value in the corner of each box, and by color ranging from yellow to brown. The legend at the bottom of the chart shows an EDR scale that can be used to interpret the severity by color.



Turbulence at 0.3 on the EDR Scale

Icing Severity

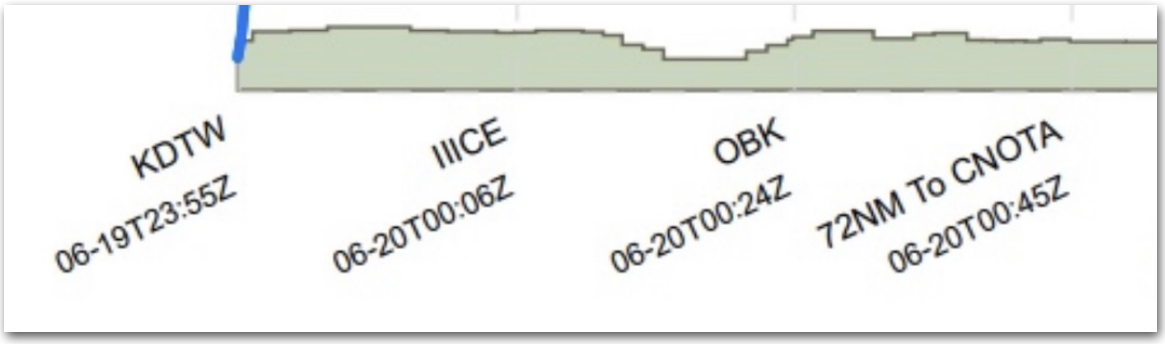
Blue semicircular symbols indicate the presence and severity of icing along each segment of the flight. The legend at the bottom of the chart shows each symbol in order of increasing severity from left to right: trace, light, moderate, and severe.



Icing Symbols

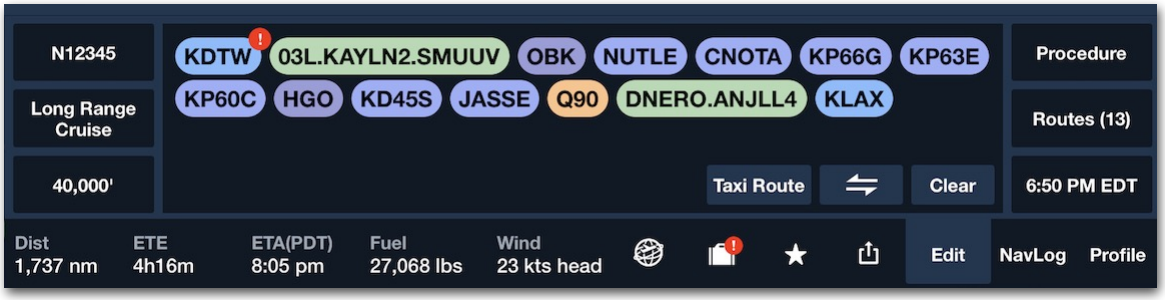
Flight Segments

The bottom edge of the chart includes labels for each segment along the flight, along with a timestamp for the expected ETA at that segment.



Flight Segments and ETEs

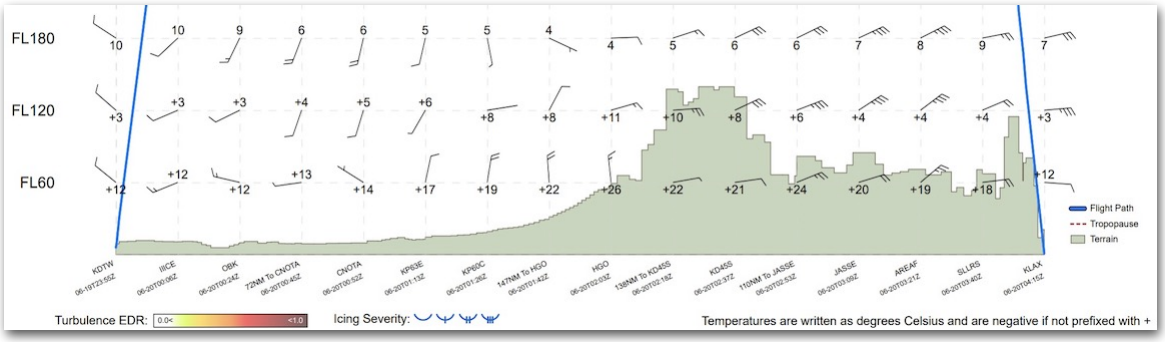
Flight segments are labeled based on elements of the flight plan and route. Depending on how the flight is constructed, each label may correspond to an airport, a waypoint, or a distance from a waypoint. Because the chart is divided evenly into 15 segments, not all route elements will be represented as labels.



Flight segment labels often correspond to route elements.

Terrain

Green portions along the bottom edge of the chart depict the rising and falling of terrain along the route of flight. It also shows terrain to either side of the route with a 0.1 -degree grid resolution. Like other chart elements, the terrain height at each segment can be roughly determined by reading the corresponding flight-level altitude on the Y-axis of the chart.

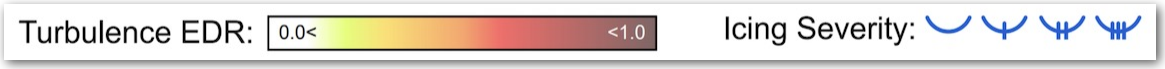


Terrain Rising Above FL120

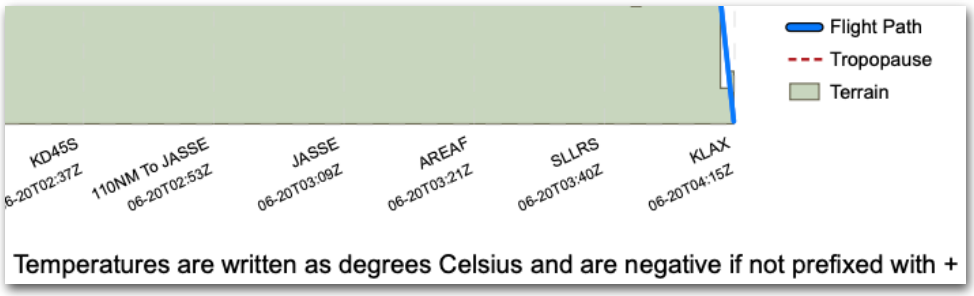
Legend

Along the bottom edge is a legend for use in interpreting the symbols throughout the Vertical Cross Section Chart. These aids include:

- A color-coded Turbulence EDR scale.
- Icing symbols listed in order of increasing severity.



- A depiction of the Flight Path and Tropopause lines, as well as terrain color.
- A note about temperature numbers.

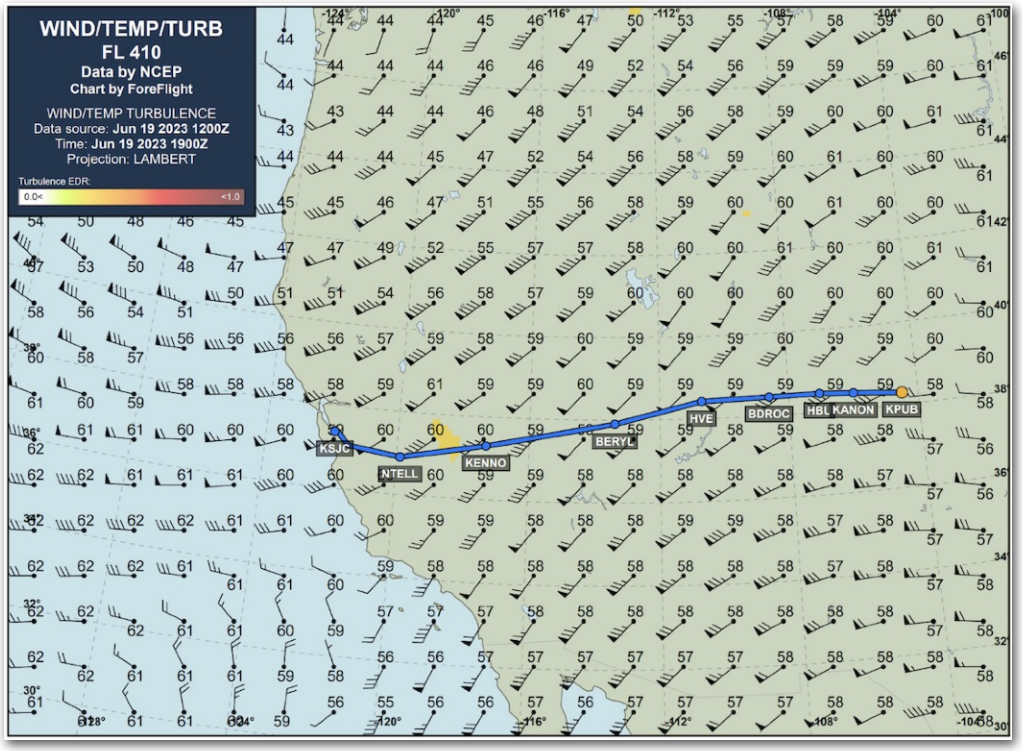


21.2.2 Wind Chart

The Wind Chart provides a visual representation of forecast wind, temperature, and turbulence expected at the flight's ETD. It offers a snapshot of forecast weather conditions at that moment in time and displays this weather over a map of the entire route. All chart elements are described below.

IMPORTANT: The Wind Chart is designed to provide a single forecast based on the scheduled departure time and should not be used to predict the weather conditions for the entire duration of a long flight.

Also, while it uses similar symbology for winds, temperatures, and turbulence as the Vertical Cross Section Chart, all directional symbols on the Wind Chart are oriented in a North-up fashion.



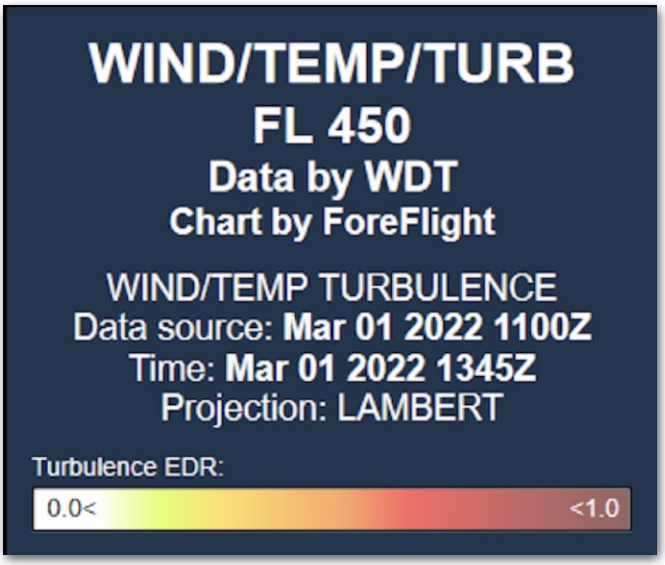
Wind Chart

Latitude/Longitude

If a flight covers a wide enough area, the Wind Chart will show lines of latitude and longitude and display their values on the chart edges. This can be used to estimate the coordinates of the forecast weather at the flight's ETD.

Chart Legend

The WIND/TEMP/TURB legend in the top left corner provides information for reading the chart's symbols.



Wind Chart Legend

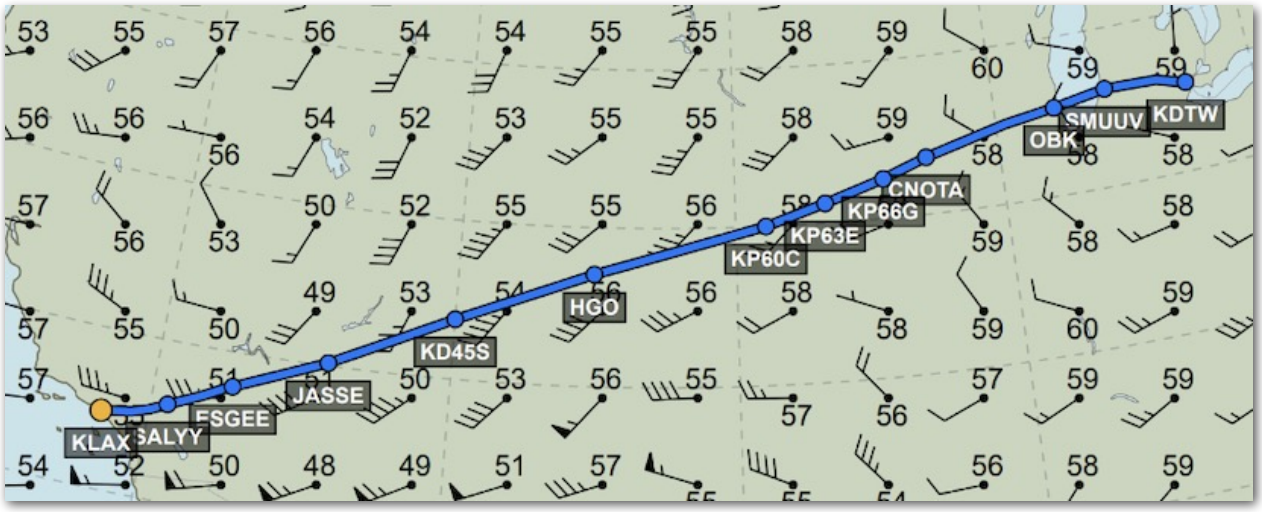
The following information is provided from the top down:

- The **height of the chart data** represents the maximum planned flight altitude and is conveyed as a flight-level altitude e.g. "FL 450" in the image.
- The chart's **data provider** is listed, e.g. "Data by WDT" in the image.
- The **Data source** field indicates when the wind, temperature, and turbulence data was collected by the above data provider, e.g. "Mar 01 2022 1100Z" in the image.
- The **Time** field shows the start of the forecast weather's valid period, e.g. "Mar 01 2022 1345Z" in the image, and is set according to the flight's ETD. This is different from the Vertical Cross Section Chart's Time field, which conveys when the briefing was generated.
- The **Projection** field indicates which projection was used for the chart, e.g. "LAMBERT" in the image.
- The **Turbulence EDR** scale can be used to interpret the intensity of turbulence on the chart according to color ranging from yellow to brown.

Route Line

The blue line on the chart shows the planned route of flight from start to finish.

IMPORTANT: While the route line intersects many weather symbols along the chart, those symbols represent weather forecast at the moment of the flight's ETD, not the moment when the aircraft crosses each point.



Wind Chart Route Line

Wind Direction and Speed

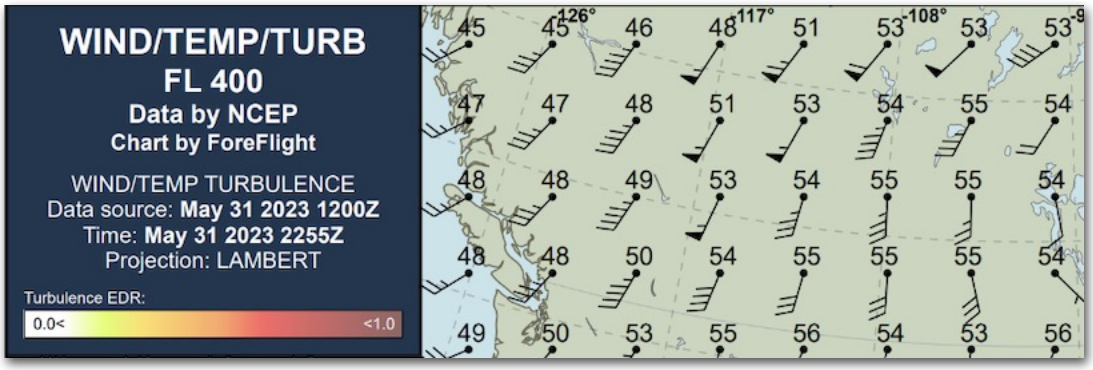
Barbs throughout the chart show wind direction and speed. Wind speed is indicated by a stem with no barbs (calm winds), or a stem with short barbs (5 knots), long barbs (10 knots), or flags (50 knots). Wind direction is indicated by the direction of the stem in true degrees.

Barb Icon	Meaning
	Less than 5 knots / 90°
	5 knots / 315°
	15 knots / 45°
	60 knots / 270

Wind Barb Symbols

Temperatures

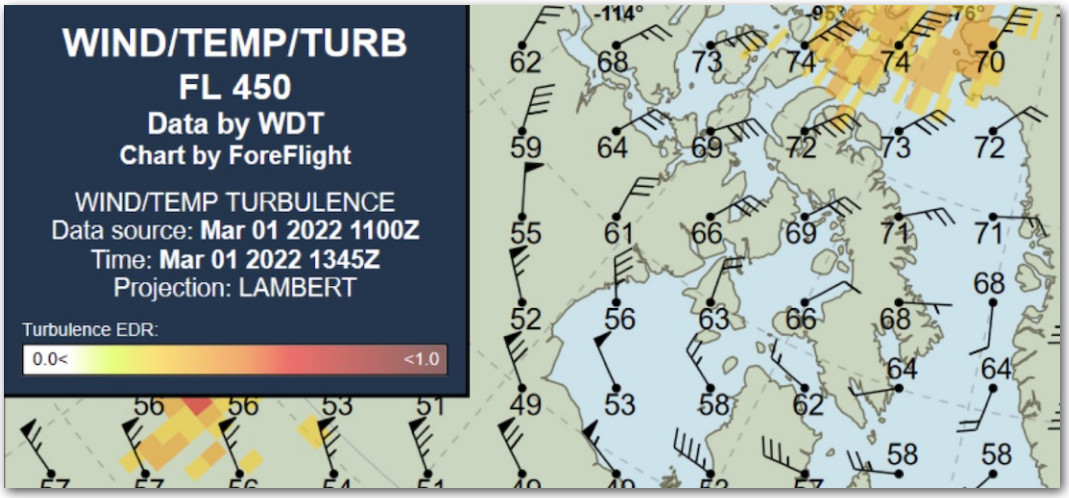
Temperatures are depicted near the stem end of each wind barb and are all negative degrees Celsius unless prefixed with a + symbol.



Temperatures at FL 400 from -45°C to -56°C

Turbulence

Turbulence is indicated on the Wind Chart by regions of color ranging from yellow to brown. The severity of turbulence can be interpreted using the Turbulence EDR scale in the chart legend.

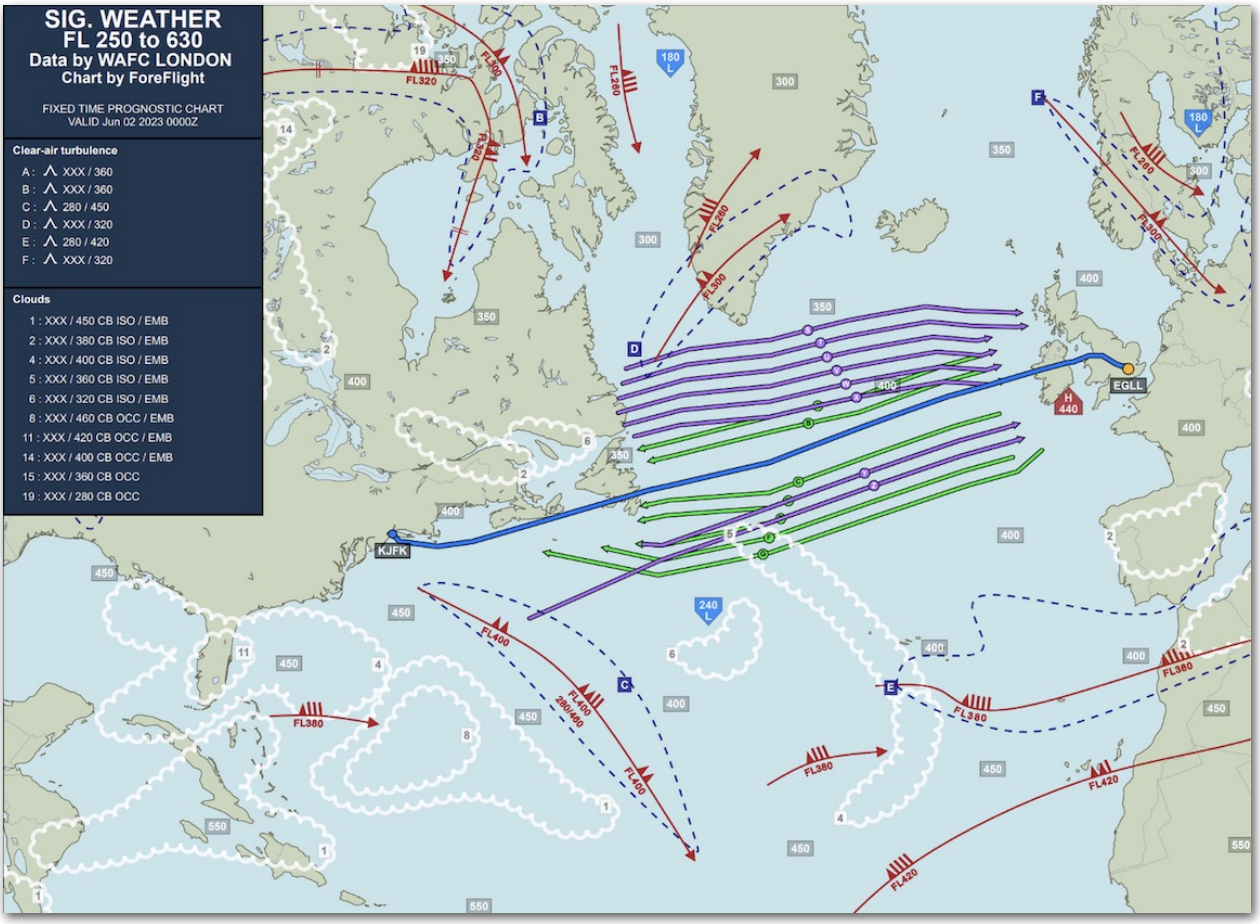


Moderate turbulence at FL 450

21.2.3 Significant Weather Chart

The Significant Weather Chart forecasts areas of clear-air turbulence, cumulonimbus clouds, jet stream location and velocity, and the expected height of the tropopause — all at a specific time and altitude range. For Performance-tier accounts, the chart also displays any nearby Organized Track Systems (OTS).

Each chart is valid at one of four predetermined, 6-hour intervals starting at 0000Z (i.e. 0000Z, 0600Z, 1200Z, and 1800Z). Each chart is also forecast at one of two altitude ranges: mid-level charts display weather at FL 100 to 450, and high-level charts display weather at FL 250 to 600. Significant Weather Chart elements are described below.



Significant Weather Chart

Chart Legend

A legend on the left side of the chart provides additional information that cannot be depicted graphically.

The chart legend includes the following information, from the top down:

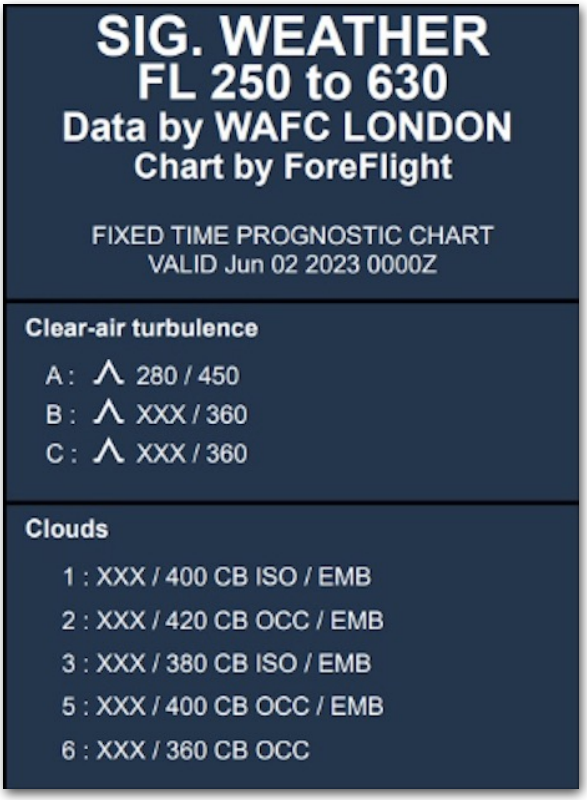


Chart Legend

- The **flight-level altitude range** covered by the chart is either mid-level (FL 100 to 450) for certain flights in Europe and Asia, or high-level (FL 250 to 630) for all other flights. To use the mid-level chart, all Flight Information Regions (FIRs) intersected by the route must start with E,L,O or V, and the maximum altitude of the flight must be below or equal to FL 450.
- The chart's **data provider** is listed. The data provider will be either WAFC London (EGRR) or WAFC Washington (KKCI).
- The **VALID** field indicates the date/time when the data shown on the chart becomes valid. Valid times are calculated in 6-hour intervals starting at 0000Z (i.e. 0000Z, 0600Z, 1200Z, and so on). The data for each valid time is published approximately 18 hours in advance. ForeFlight always uses weather data with a valid time closest to the flight's scheduled departure time.
- The **Clear-air turbulence** section lists the base and ceiling of each region of **clear-air turbulence** shown on the chart.
- The **Clouds** section lists the base and top of each **cumulonimbus cloud** layer shown on the chart.

Clear-Air Turbulence

Areas of turbulence are enclosed in dashed blue lines. Each area is labeled with a letter corresponding to an item in the chart legend describing the base and top of the clear-air turbulence layer. An (XXX) in place of the base height means that the turbulence layer exceeds the lower height limit of the chart e.g. FL 250 in the image below. Each item in the list is prefixed with a letter matching one of the graphics on the chart.



The blue dashed line refers to item B in the legend.

Cumulonimbus Clouds

Areas of cumulonimbus clouds are enclosed by a scalloped white line. Each area is labeled with a number corresponding to an item in the chart legend describing the base and tops of the cloud layer. An (XXX) in place of the base height means that the cloud base exceeds the lower height limit of the chart e.g. in the image below. Each item in the list is prefixed with a number matching one of the graphics on the chart.



The white lines refer to items 2 and 6 in the legend.

Tropopause Height

The height of the tropopause is conveyed with three-digit numbers enclosed in white boxes throughout the chart. Tropopause lows and highs are enclosed in blue or red polygons, respectively.



Tropopause Height Symbols

Jet Stream Location

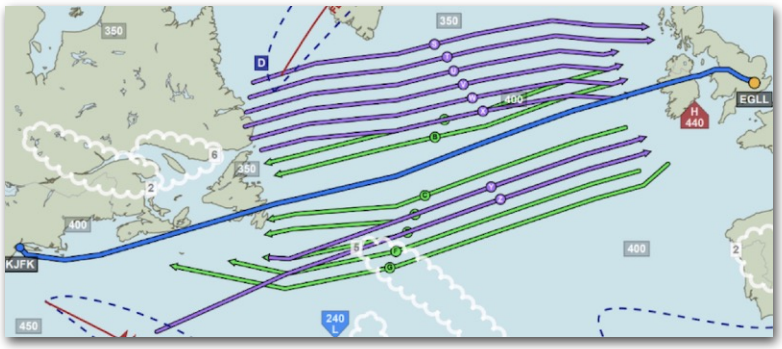
Jet streams with wind speeds of 80 knots or greater are depicted as solid red lines with directional arrowheads. Each line is labeled with its flight-level altitude and standard wind barb symbols.



Jet Stream at FL 380 with 80-Knot Winds

ceanic Track Systems

For transoceanic flights, the Significant Weather Chart displays nearby **Organized Track Systems (OTSs)**. This feature requires a Premium or Business Performance plan.



Oceanic Track Systems

21.2.4 METARs / TAFs

The PDF briefing includes one or more pages listing METARs and TAFs within 30 NM of the route. It groups METARs and TAFs into subcategories based on the phase of flight (departure, destination, alternate, etc), and depicts the flight category of each item using colored circles. All elements are described below.



METARs / TAFs

Flight Category

Each METAR and TAF is accompanied by a color-coded flight category icon to aid in scanning the general weather conditions along the route. The following table defines each icon.

Icons	Flight Category
	**LIFR:** Ceiling less than 500 feet or visibility less than 1 mile.
	**IFR:** Ceiling from 500 to less than 1,000 feet or visibility from 1 to less than 3 miles.
	**MVFR:** Ceiling from 1,000 to 3,000 feet or visibility from 3 to 5 miles.
	**VFR:** Ceiling greater than 3,000 feet and visibility greater than 5 miles; includes sky clear.

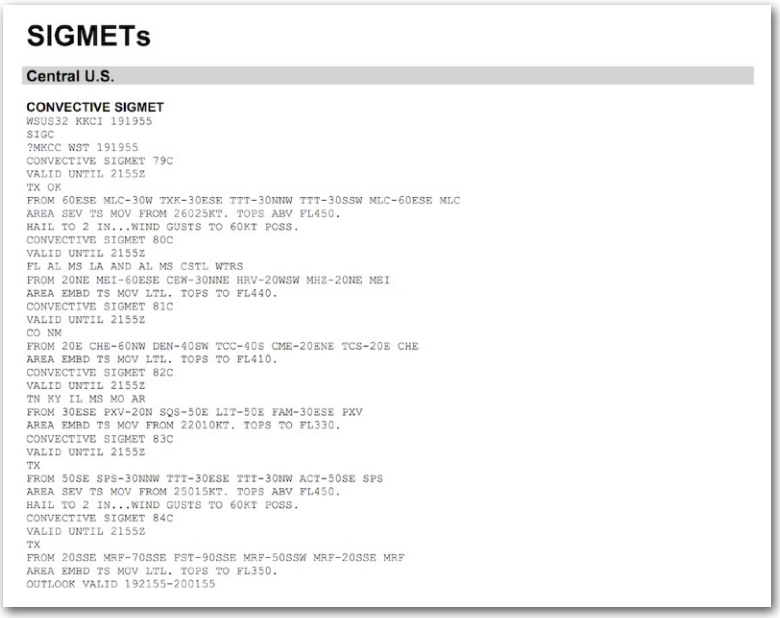
Airport Subcategories

The PDF briefing groups METARs and TAFs into subcategories depending on the type of flight, aircraft, and subscription. Some or all of the following subcategories may be displayed:

- Departure Airports
- Destination Airports
- Alternate Airports
- ETP Airports (Dispatch accounts only)
- En route Airports.

21.2.5 SIGMETs

The SIGMETs section lists relevant SIGMETs and Convective SIGMETs along the route, grouped by region. A SIGMET is included in the briefing if it is active within two hours before or after aircraft passage, and if the route intersects the FIR. (U.S. convective SIGMET locations are translated into East, Central, or West FIRs for the purpose of inclusion.)



SIGMETs

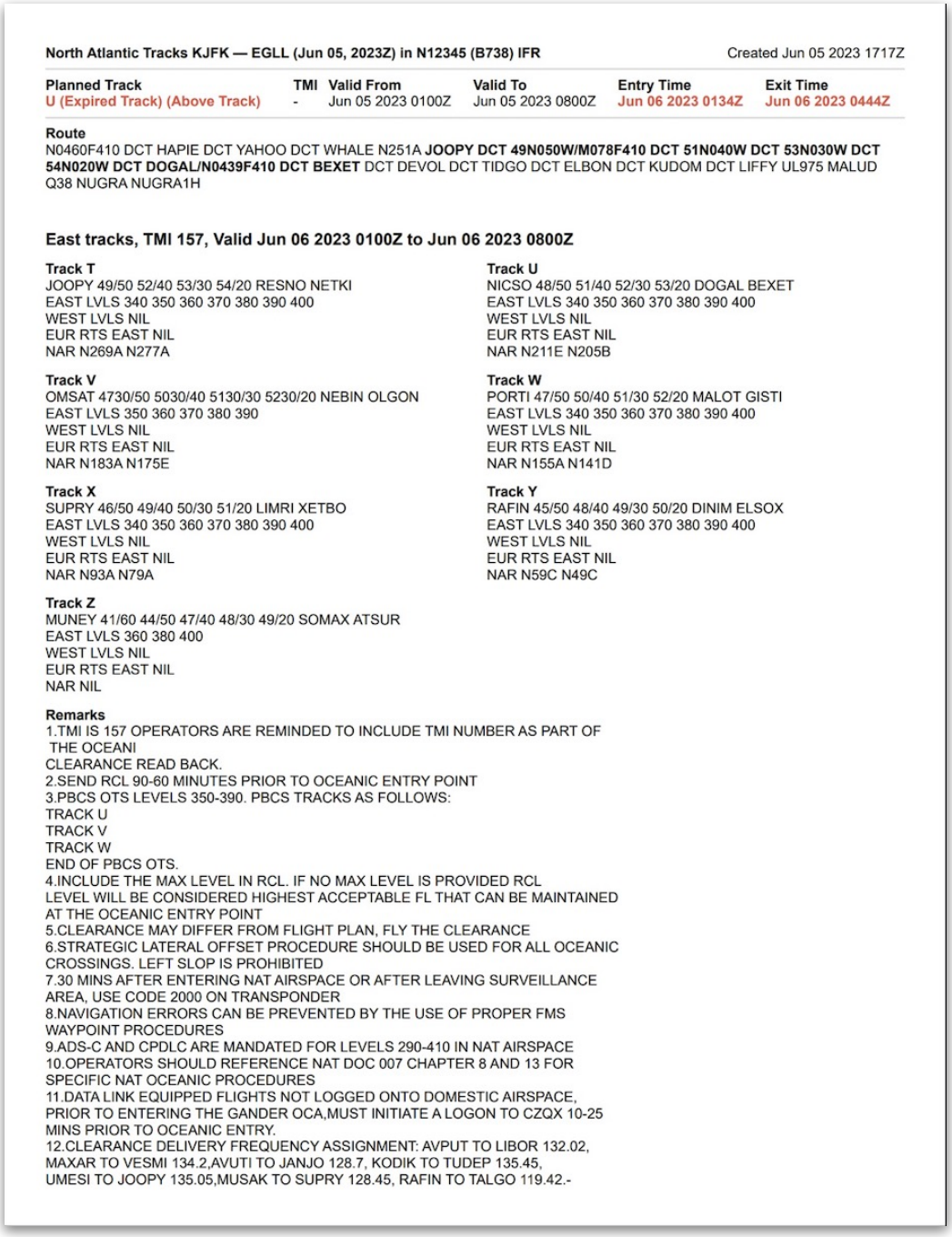
SIGMETs

Central U.S.

CONVECTIVE SIGMET
WSUS32 KKCI 191955
SIGC
?MKCC WST 191955
CONVECTIVE SIGMET 79C
VALID UNTIL 2155Z
TX OK
FROM 60ESE MLC-30W TXK-30ESE TTT-30NNW TTT-30SSW MLC-60ESE MLC
AREA SEV TS MOV FROM 26025KT. TOPS ABV FL450.
HAIL TO 2 IN...WIND GUSTS TO 60KT POSS.
CONVECTIVE SIGMET 80C
VALID UNTIL 2155Z
FL AL MS LA AND AL MS CSTL WTRS
FROM 20NE MEI-60ESE CEW-30NNE HRV-20WSW MHZ-20NE MEI
AREA EMBD TS MOV LTL. TOPS TO FL440.
CONVECTIVE SIGMET 81C
VALID UNTIL 2155Z
CO NM
FROM 20E CHE-60NW DEN-40SW TCC-40S CME-20ENE TCS-20E CHE
AREA EMBD TS MOV LTL. TOPS TO FL410.
CONVECTIVE SIGMET 82C
VALID UNTIL 2155Z
TN KY IL MS MO AR
FROM 30ESE PXV-20N SQS-50E LIT-50E FAM-30ESE PXV
AREA EMBD TS MOV FROM 22010KT. TOPS TO FL330.
CONVECTIVE SIGMET 83C
VALID UNTIL 2155Z
TX
FROM 50SE SPS-30NNW TTT-30ESE TTT-30NW ACT-50SE SPS
AREA SEV TS MOV FROM 25015KT. TOPS ABV FL450.
HAIL TO 2 IN...WIND GUSTS TO 60KT POSS.
CONVECTIVE SIGMET 84C
VALID UNTIL 2155Z
TX
FROM 20SSE MRF-70SSE FST-90SSE MRF-50SSW MRF-20SSE MRF
AREA EMBD TS MOV LTL. TOPS TO FL350.
OUTLOOK VALID 192155-200155

21.2.6 Organized Track System

For Performance-tier accounts, the PDF briefing includes a section providing details on an **OTS** if the flight passed near one.



North Atlantic Tracks KJFK — EGLL (Jun 05, 2023Z) in N12345 (B738) IFR Created Jun 05 2023 1717Z

Planned Track	TMI	Valid From	Valid To	Entry Time	Exit Time
U (Expired Track) (Above Track)	-	Jun 05 2023 0100Z	Jun 05 2023 0800Z	Jun 06 2023 0134Z	Jun 06 2023 0444Z

Route
N0460F410 DCT HAPIE DCT YAHOO DCT WHALE N251A **JOOPY DCT 49N050W/M078F410 DCT 51N040W DCT 53N030W DCT 54N020W DCT DOGAL/N0439F410 DCT BEXET** DCT DEVOL DCT TIDGO DCT ELBON DCT KUDOM DCT LIFFY UL975 MALUD Q38 NUGRA NUGRA1H

East tracks, TMI 157, Valid Jun 06 2023 0100Z to Jun 06 2023 0800Z

Track T
JOOPY 49/50 52/40 53/30 54/20 RESNO NETKI
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N269A N277A

Track U
NICSO 48/50 51/40 52/30 53/20 DOGAL BEXET
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N211E N205B

Track V
OMSAT 4730/50 5030/40 5130/30 5230/20 NEBIN OLGON
EAST LVLS 350 360 370 380 390
WEST LVLS NIL
EUR RTS EAST NIL
NAR N183A N175E

Track W
PORTI 47/50 50/40 51/30 52/20 MALOT GISTI
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N155A N141D

Track X
SUPRY 46/50 49/40 50/30 51/20 LIMRI XETBO
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N93A N79A

Track Y
RAFIN 45/50 48/40 49/30 50/20 DINIM ELSOX
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N59C N49C

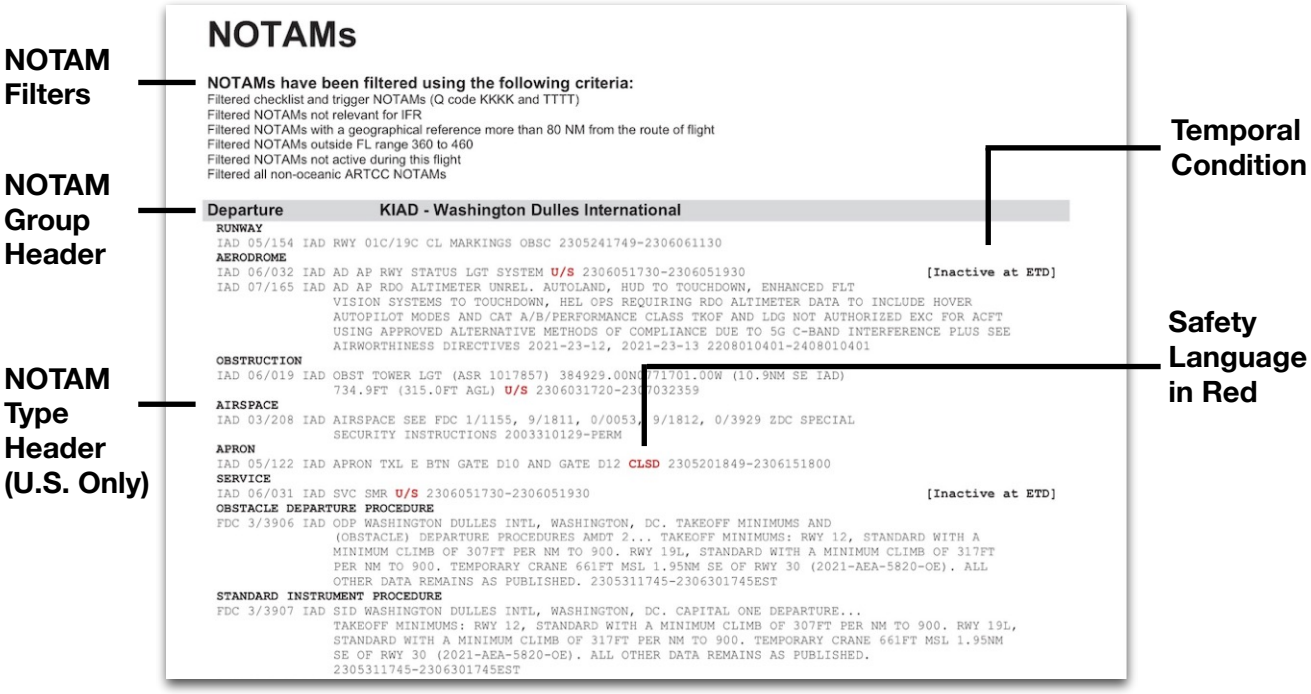
Track Z
MUNEY 41/60 44/50 47/40 48/30 49/20 SOMAX ATSUR
EAST LVLS 360 380 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR NIL

Remarks
1.TMI IS 157 OPERATORS ARE REMINDED TO INCLUDE TMI NUMBER AS PART OF THE OCEANI
CLEARANCE READ BACK.
2.SEND RCL 90-60 MINUTES PRIOR TO OCEANIC ENTRY POINT
3.PBCS OTS LEVELS 350-390. PBCS TRACKS AS FOLLOWS:
TRACK U
TRACK V
TRACK W
END OF PBCS OTS.
4.INCLUDE THE MAX LEVEL IN RCL. IF NO MAX LEVEL IS PROVIDED RCL LEVEL WILL BE CONSIDERED HIGHEST ACCEPTABLE FL THAT CAN BE MAINTAINED AT THE OCEANIC ENTRY POINT
5.CLEARANCE MAY DIFFER FROM FLIGHT PLAN, FLY THE CLEARANCE
6.STRATEGIC LATERAL OFFSET PROCEDURE SHOULD BE USED FOR ALL OCEANIC CROSSINGS. LEFT SLOP IS PROHIBITED
7.30 MINS AFTER ENTERING NAT AIRSPACE OR AFTER LEAVING SURVEILLANCE AREA, USE CODE 2000 ON TRANSPONDER
8.NAVIGATION ERRORS CAN BE PREVENTED BY THE USE OF PROPER FMS WAYPOINT PROCEDURES
9.ADS-C AND CPDLC ARE MANDATED FOR LEVELS 290-410 IN NAT AIRSPACE
10.OPERATORS SHOULD REFERENCE NAT DOC 007 CHAPTER 8 AND 13 FOR SPECIFIC NAT OCEANIC PROCEDURES
11.DATA LINK EQUIPPED FLIGHTS NOT LOGGED ONTO DOMESTIC AIRSPACE, PRIOR TO ENTERING THE GANDER OCA,MUST INITIATE A LOGON TO CZQX 10-25 MINS PRIOR TO OCEANIC ENTRY.
12.CLEARANCE DELIVERY FREQUENCY ASSIGNMENT: AVPUT TO LIBOR 132.02, MAXAR TO VESMI 134.2,AVUTI TO JANJO 128.7, KODIK TO TUDEP 135.45, UMESI TO JOOPY 135.05,MUSAK TO SUPRY 128.45, RAFIN TO TALGO 119.42.-

Transatlantic flights may include a North Atlantic Tracks section.

21.2.7 NOTAMs

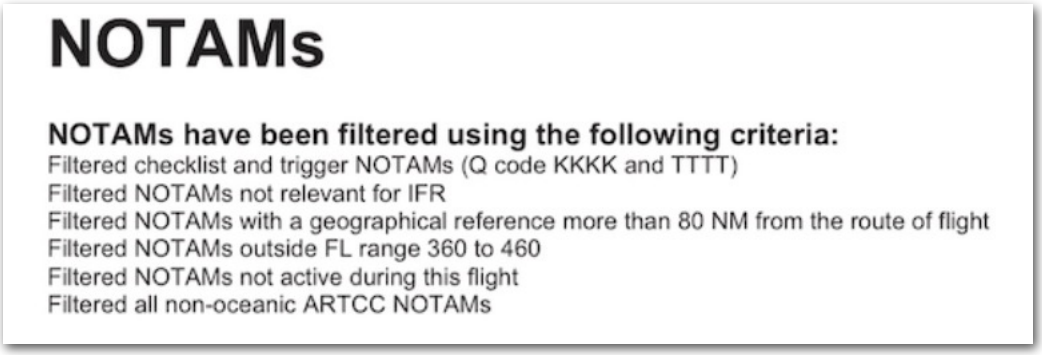
The PDF briefing ends with a list of NOTAMs considered most relevant to the flight. These NOTAMs are filtered, grouped, and marked up as described below.



PDF Briefing

NOTAM Filters

When a PDF briefing is requested, ForeFlight selects an initial list of NOTAMs (issued by relevant airports and overflown FIRs, and U.S. navigation NOTAMs within a 30-NM radius of the route). It then applies filters to narrow down the list. These filters cannot be adjusted. The page header indicates if any NOTAMs are filtered out of the briefing.



Header Showing Applied NOTAM Filters

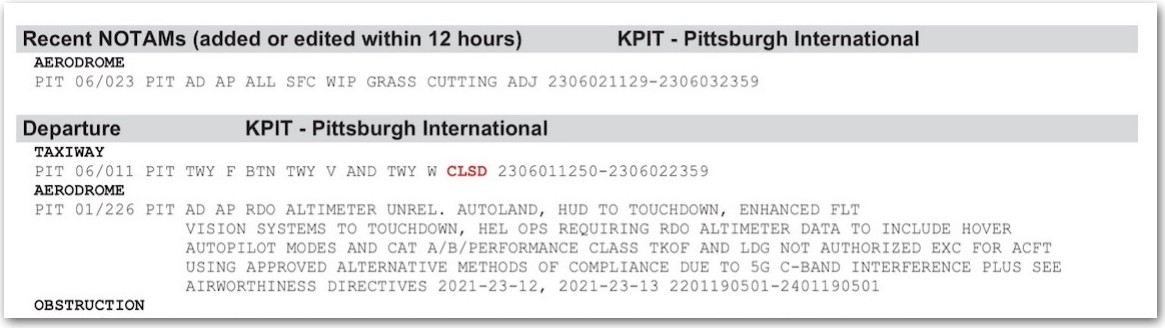
The PDF briefing uses the following NOTAM filters:

- **Flight Level Filter**: This filter removes all NOTAMs more than 50,000 ft outside the minimum or maximum flight planned altitudes.
- **Route Filter**: Removes all NOTAMs that affect an area more than 80 NM from the route.
- **Valid Time Filter**: Removes all NOTAMs that are not active 12 hours before or after the flight.
- **Miscellaneous NOTAMs Filter**: Removes all NOTAMs given an “M” in the PURPOSE field of their Q code, designating them as Miscellaneous NOTAMs that are not subject for a briefing.
- **Checklist NOTAMs Filter**: Removes all NOTAMs that have a Q code of “KKKK” or have a “K” in the SCOPE field of their Q code.
- **Flight Rules Filter**: Remove all NOTAMs that are not relevant to the flight based on the flight rules used. (For IFR flights, NOTAMs without an “I” in the TRAFFIC field are excluded. For VFR flights, NOTAMs without a “V” in the TRAFFIC field are excluded.)
- **Local Language Filter**: Removes non-English NOTAMs for each country below based on its series identifier:
  - Turkey (LT): G, H, M, L
  - Serbia (LY): C
  - Slovenia (LJ): C
  - Poland (EP): P, M, N, U, L, J
  - Italy (LI): C
  - Portugal (LP): D
  - Slovakia (LZ): C
- **ARTCC NOTAMs Filter**: Removes all FDC NOTAMs unless they are issued by the Departure, Destination, Alternate 1 or Alternate 2 airports, or are of type “NAV” and are issued by an en route airport.
- **Military NOTAMs Filter**: Removes all military NOTAMs from briefings for non-military flights. Specifically, this filter removes all NOTAMs containing the text “DOD PROCEDURAL NOTAM”.

NOTAM Groups

The PDF briefing groups NOTAMs under headings according to each phase of flight. Departure and destination NOTAMs are listed first, followed by en route NOTAMs and NOTAMs for overflown FIRs, ETP airports, and alternate airports.

Each group starts with a list of its recent NOTAMs (added or edited within the past 12 hours), followed by the remaining NOTAMs in that group.



Recent (added or edited within 12 hours) — **KPIT - Pittsburgh International**

AERODROME

PIT 06/023 PIT AD AP ALL SFC WIP GRASS CUTTING ADJ 2306021129-2306032359

Departure — **KPIT - Pittsburgh International**

TAXIWAY

PIT 06/011 PIT TWY F BTN TWY V AND TWY W **CLSD** 2306011250-2306022359

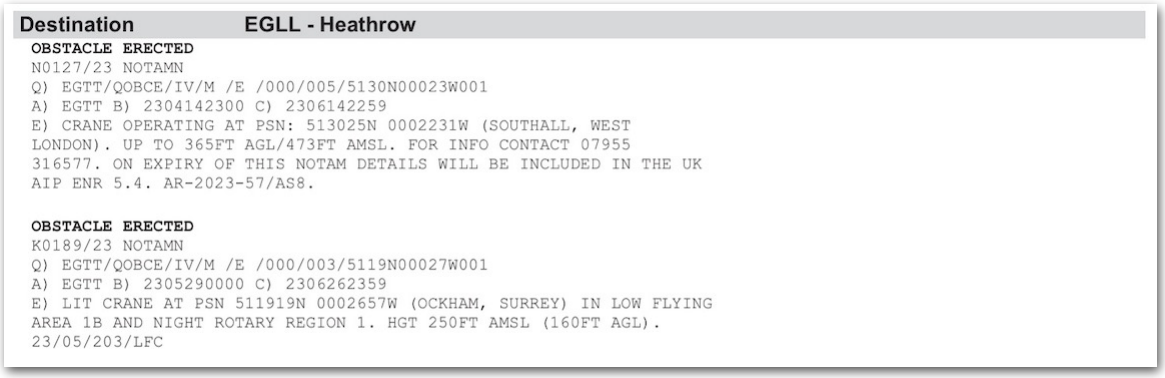
AERODROME

PIT 01/226 PIT AD AP RDO ALTIMETER UNREL. AUTOLAND, HUD TO TOUCHDOWN, ENHANCED FLT VISION SYSTEMS TO TOUCHDOWN, HEL OPS REQUIRING RDO ALTIMETER DATA TO INCLUDE HOVER AUTOPILOT MODES AND CAT A/B/PERFORMANCE CLASS TKOF AND LDG NOT AUTHORIZED EXC FOR ACFT USING APPROVED ALTERNATIVE METHODS OF COMPLIANCE DUE TO 5G C-BAND INTERFERENCE PLUS SEE AIRWORTHINESS DIRECTIVES 2021-23-12, 2021-23-13 2201190501-2401190501

OBSTRUCTION

Recent NOTAMs Listed Above

For any portion of the flight outside the U.S., NOTAMs are listed individually within each phase of flight. Each NOTAM is listed under a descriptive header in bold font.



Destination — **EGLL - Heathrow**

OBSTACLE ERECTED

N0127/23 NOTAMN
Q) EGTT/QOBCE/IV/M /E /000/005/5130N00023W001
A) EGTT B) 2304142300 C) 2306142259
E) CRANE OPERATING AT PSN: 513025N 0002231W (SOUTHALL, WEST LONDON). UP TO 365FT AGL/473FT AMSL. FOR INFO CONTACT 07955 316577. ON EXPIRY OF THIS NOTAM DETAILS WILL BE INCLUDED IN THE UK AIP ENR 5.4. AR-2023-57/AS8.

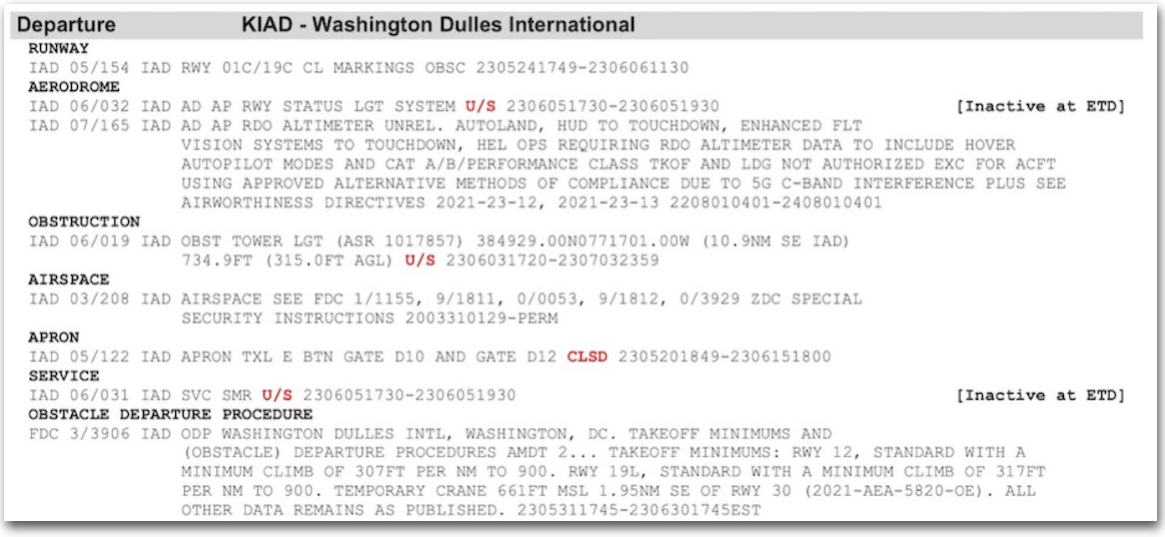
OBSTACLE ERECTED

K0189/23 NOTAMN
Q) EGTT/QOBCE/IV/M /E /000/003/5119N00027W001
A) EGTT B) 2305290000 C) 2306262359
E) LIT CRANE AT PSN 511919N 0002657W (OCKHAM, SURREY) IN LOW FLYING AREA 1B AND NIGHT ROTARY REGION 1. HGT 250FT AMSL (160FT AGL).
23/05/203/LFC

Non-U.S. NOTAMs Listed Individually with Headers

NOTAM Type Subgroups (U.S. Only)

For the U.S. portion of a flight, NOTAMs within each phase of the flight are further grouped by type. For example, the Departure airport list may include several subsections for “Runway”, “Aerodrome”, “Obstruction”, and other applicable types of NOTAMs.



Departure KIAD - Washington Dulles International

RUNWAY

IAD 05/154 IAD RWY 01C/19C CL MARKINGS OBSC 2305241749-2306061130

AERODROME

IAD 06/032 IAD AD AP RWY STATUS LGT SYSTEM **U/S** 2306051730-2306051930 [Inactive at ETD]

IAD 07/165 IAD AD AP RDO ALTIMETER UNREL. AUTOLAND, HUD TO TOUCHDOWN, ENHANCED FLT VISION SYSTEMS TO TOUCHDOWN, HEL OPS REQUIRING RDO ALTIMETER DATA TO INCLUDE HOVER AUTOPILOT MODES AND CAT A/B/PERFORMANCE CLASS TKOF AND LDG NOT AUTHORIZED EXC FOR ACFT USING APPROVED ALTERNATIVE METHODS OF COMPLIANCE DUE TO 5G C-BAND INTERFERENCE PLUS SEE AIRWORTHINESS DIRECTIVES 2021-23-12, 2021-23-13 2208010401-2408010401

OBSTRUCTION

IAD 06/019 IAD OBST TOWER LGT (ASR 1017857) 384929.00N0771701.00W (10.9NM SE IAD) 734.9FT (315.0FT AGL) **U/S** 2306031720-2307032359

AIRSPACE

IAD 03/208 IAD AIRSPACE SEE FDC 1/1155, 9/1811, 0/0053, 9/1812, 0/3929 ZDC SPECIAL SECURITY INSTRUCTIONS 2003310129-PERM

APRON

IAD 05/122 IAD APRON TXL E BTN GATE D10 AND GATE D12 **CLSD** 2305201849-2306151800

SERVICE

IAD 06/031 IAD SVC SMR **U/S** 2306051730-2306051930 [Inactive at ETD]

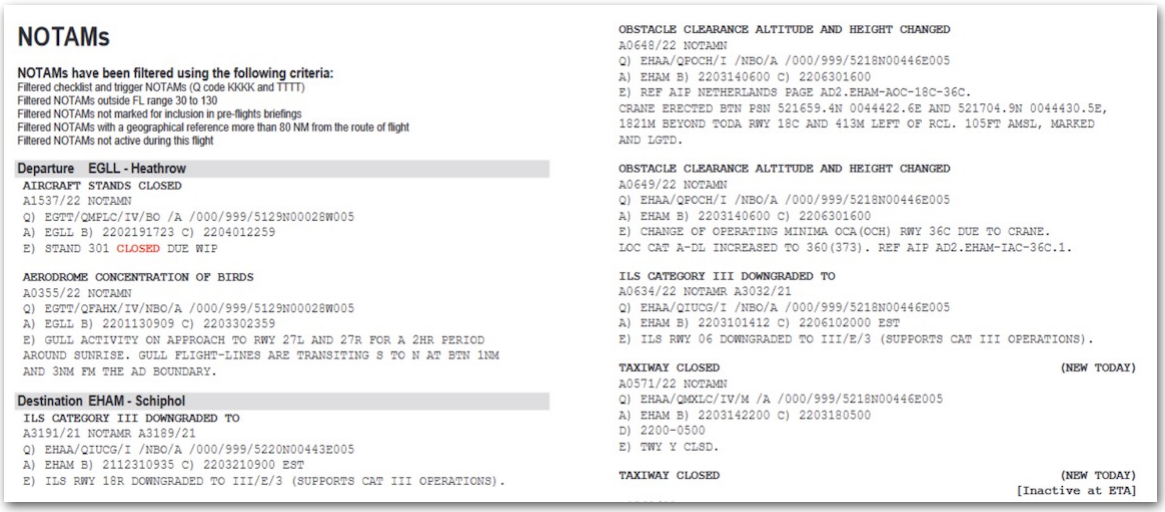
OBSTACLE DEPARTURE PROCEDURE

FDC 3/3906 IAD ODP WASHINGTON DULLES INTL, WASHINGTON, DC. TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES AMDT 2... TAKEOFF MINIMUMS: RWY 12, STANDARD WITH A MINIMUM CLIMB OF 307FT PER NM TO 900. RWY 19L, STANDARD WITH A MINIMUM CLIMB OF 317FT PER NM TO 900. TEMPORARY CRANE 661FT MSL 1.95NM SE OF RWY 30 (2021-AEA-5820-OE). ALL OTHER DATA REMAINS AS PUBLISHED. 2305311745-2306301745EST

U.S. NOTAMs Subdivided by Type

Two-Column Mode (Non-U.S. Flights Only)

For flights that are not in the U.S., the briefing can generate the NOTAMs section in a two-column mode to save page space.



NOTAMs

NOTAMs have been filtered using the following criteria:
Filtered checklist and trigger NOTAMs (Q code KKKK and TTTT)
Filtered NOTAMs outside FL range 30 to 130
Filtered NOTAMs not marked for inclusion in pre-flights briefings
Filtered NOTAMs with a geographical reference more than 80 NM from the route of flight
Filtered NOTAMs not active during this flight

Departure EGLL - Heathrow

AIRCRAFT STANDS CLOSED
A1537/22 NOTAMN
Q) EGTT/QMPLC/IV/BO /A /000/999/5129N00028W005
A) EGLL B) 2202191723 C) 2204012259
E) STAND 301 CLOSED DUE WIP

AERODROME CONCENTRATION OF BIRDS
A0355/22 NOTAMN
Q) EGTT/QFAHX/IV/NBO/A /000/999/5129N00028W005
A) EGLL B) 2201130909 C) 2203302359
E) GULL ACTIVITY ON APPROACH TO RWY 27L AND 27R FOR A 2HR PERIOD AROUND SUNRISE. GULL FLIGHT-LINES ARE TRANSITING S TO N AT BTN 1NM AND 3NM FM THE AD BOUNDARY.

Destination EHAM - Schiphol

ILS CATEGORY III DOWNGRADED TO
A3191/21 NOTAMR A3189/21
Q) EHAA/QIUCG/I /NBO/A /000/999/5220N00443E005
A) EHAM B) 2112310935 C) 2203210900 EST
E) ILS RWY 18R DOWNGRADED TO III/E/3 (SUPPORTS CAT III OPERATIONS).

OBSTACLE CLEARANCE ALTITUDE AND HEIGHT CHANGED
A0648/22 NOTAMN
Q) EHAA/QPOCH/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203140600 C) 2206301600
E) REF AIP NETHERLANDS PAGE AD2.EHAM-AOC-18C-36C.
CRANE ERECTED BTN PSN 521659.4N 0044422.6E AND 521704.9N 0044430.5E, 1821M BEYOND TODA RWY 18C AND 413M LEFT OF RCL. 105FT AMSL, MARKED AND LGTD.

OBSTACLE CLEARANCE ALTITUDE AND HEIGHT CHANGED
A0649/22 NOTAMN
Q) EHAA/QPOCH/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203140600 C) 2206301600
E) CHANGE OF OPERATING MINIMA OCA(OCH) RWY 36C DUE TO CRANE.
LOC CAT A-DL INCREASED TO 360(373). REF AIP AD2.EHAM-IAC-36C.1.

ILS CATEGORY III DOWNGRADED TO
A0634/22 NOTAMR A3032/21
Q) EHAA/QIUCG/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203101412 C) 2206102000 EST
E) ILS RWY 06 DOWNGRADED TO III/E/3 (SUPPORTS CAT III OPERATIONS).

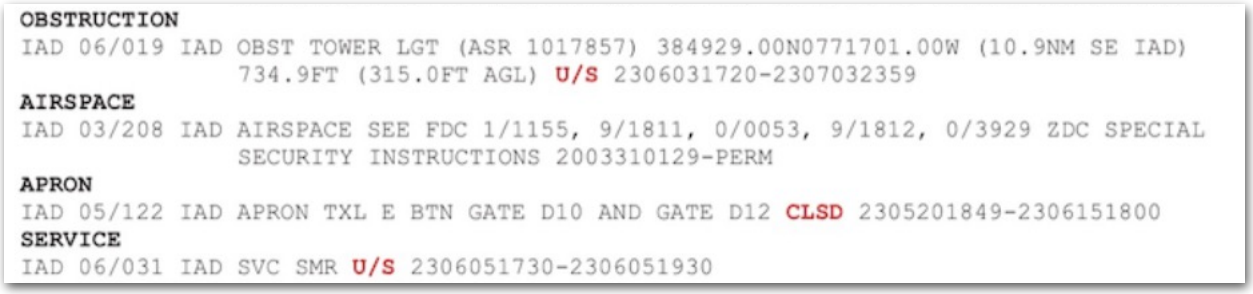
TAXIWAY CLOSED (NEW TODAY)
A0571/22 NOTAMN
Q) EHAA/QMXLC/IV/M /A /000/999/5218N00446E005
A) EHAM B) 2203142200 C) 2203180500
D) 2200-0500
E) TWY Y CLSD.

TAXIWAY CLOSED (NEW TODAY)
[Inactive at ETA]

Two-Column Format for Non-U.S. Briefings

Safety Items

NOTAMs containing specific safety-related contractions (such as “U/S” for unserviceable, or “CLSD” for closed) are highlighted in bold, red font.



Contractions “U/S” and “CLSD” Highlighted for Emphasis

Temporal Conditions

The right side of the PDF briefing identifies any NOTAMs that are new or inactive during the passing time.



NOTAM Temporal Conditions

21.3 HTML Briefing

Users flying in the U.S. with non-Dispatch subscriptions can generate an HTML version of the briefing.

The HTML briefing includes a **sidebar** for scanning and navigating its topics. It displays the current topic in a **viewing pane** that permits limited toggling between plain and raw text formats. These features are described below.

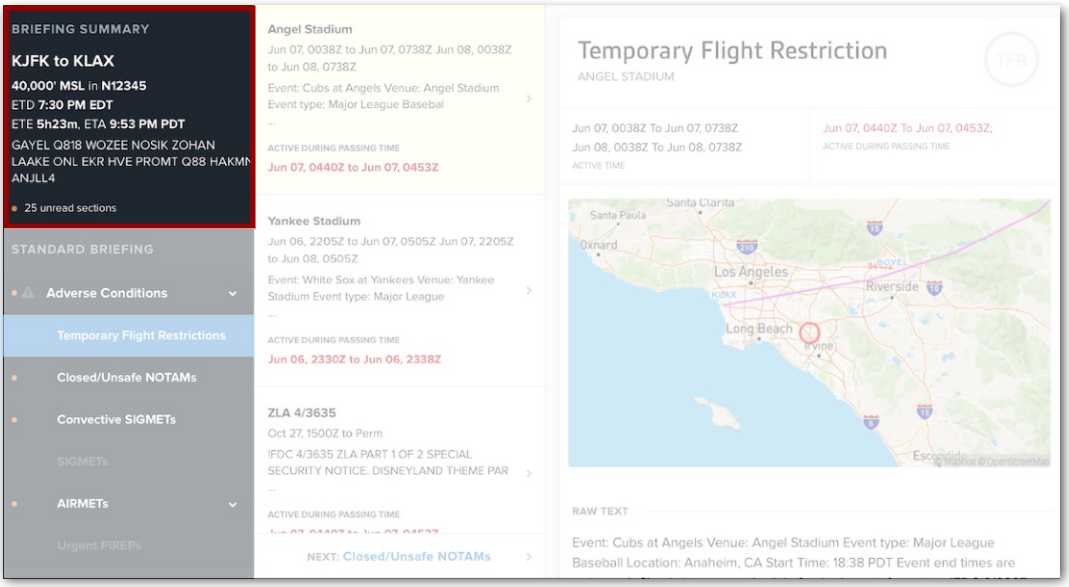
The HTML briefing is divided into the following weather and NOTAM topics, described later in this chapter: **Adverse Conditions**, **Synopsis**, **Current Weather**, **Forecasts**, and **NOTAMs**.

21.3.1 Navigation Sidebar

The HTML briefing sidebar is always displayed when the device is held in landscape mode. To display it in portrait mode, swipe right on the device screen or tap the sidebar icon (≡). To hide it, swipe left on the device screen or tap the close icon (X). The sidebar is divided into two halves and includes a progress-tracking feature.

Briefing Summary

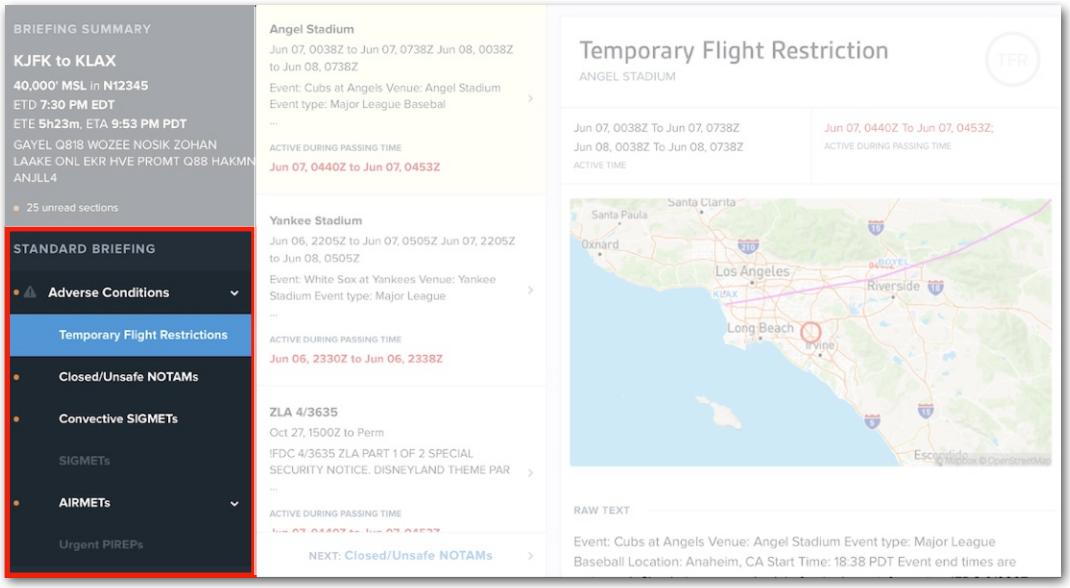
The top half of the navigation sidebar presents a briefing summary of flight data, including the departure and destination ICAO codes, planned altitude, aircraft, ETD, ETE, and ETA. It also indicates the number of **unread briefing sections**.



Sidebar - Briefing Summary

Standard Briefing Sections

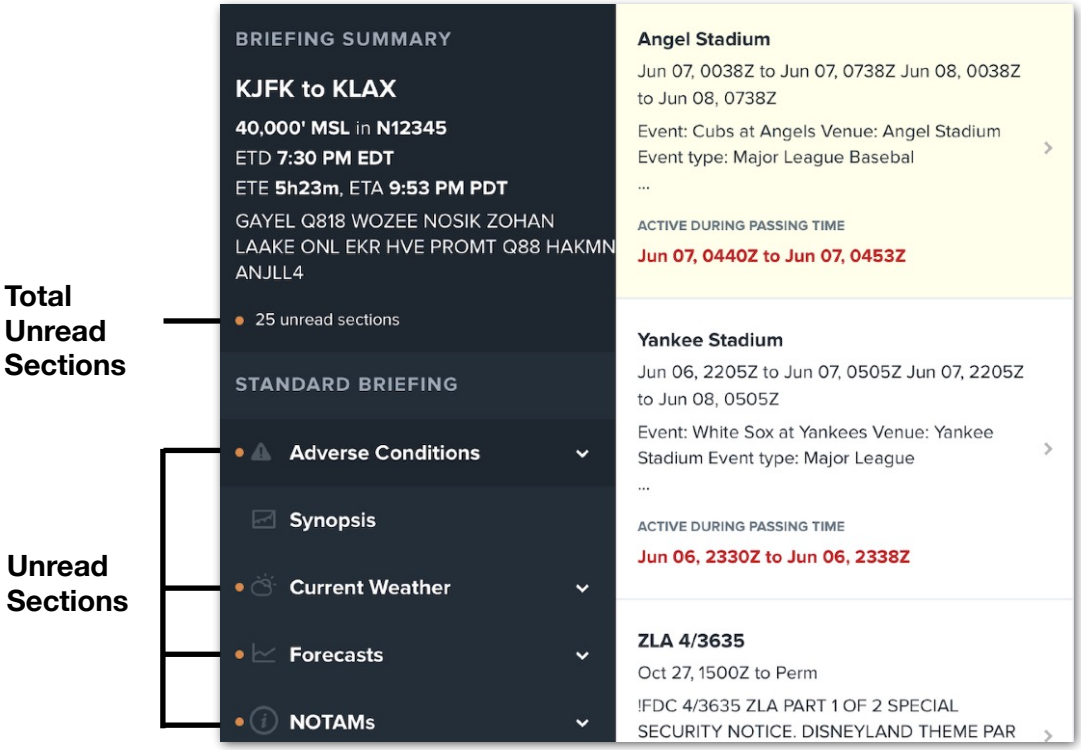
The bottom half of the sidebar lists all of the briefing sections. Tapping a section opens it in the viewing pane to the right. Some sections are followed by a carat symbol (V) and expand when tapped to display their subsections. Tap these to open them in the viewing pane. If a section is not included in the briefing, its title is grayed out in the sidebar. For example, the image below shows a briefing with no SIGMETs or Urgent PIREPs. Those sections are grayed out in the sidebar. All other sections are contained in the briefing, as indicated by bold white text.



Sidebar - Standard Briefing

Progress Tracking

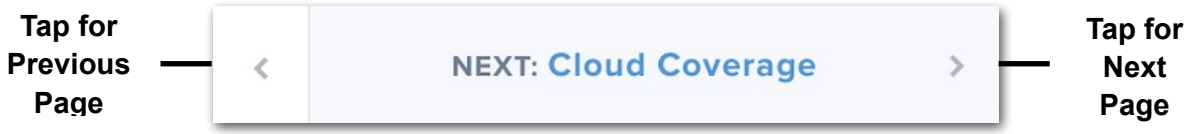
Orange dots in the sidebar indicate that a section (or one of its subsections) has not been viewed. An additional orange dot in the Briefing Summary displays the total number of unread sections. Once a section or subsection has been opened in the viewing pane, it is considered “read” and its orange dot disappears.



Progress Tracking

Previous and Next Page Navigation

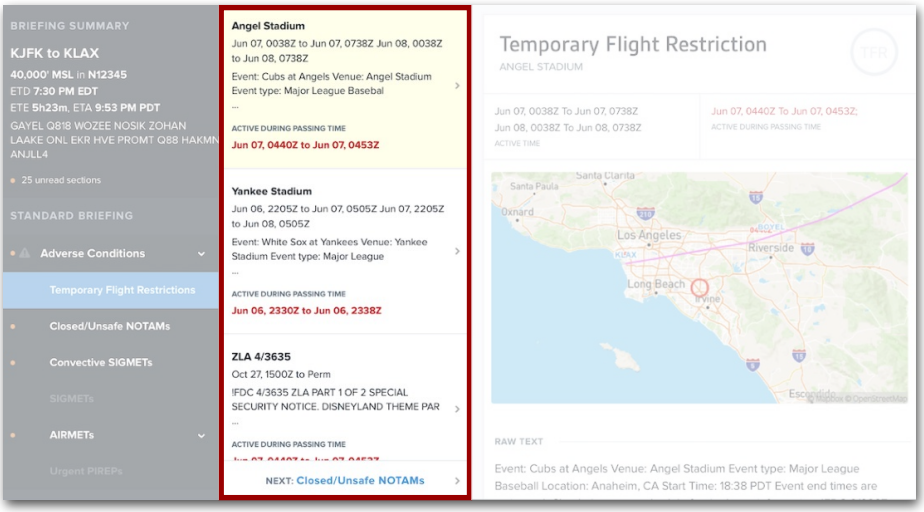
Buttons at the bottom of the page allow for navigating to the previous or next page. The name of the page is displayed in blue font e.g. “**NEXT** Cloud Coverage **>**”. Tap it to move to the next page, or tap the back button (“**<**“) to its left to move to the previous page.



Page Navigation

Secondary Sidebars

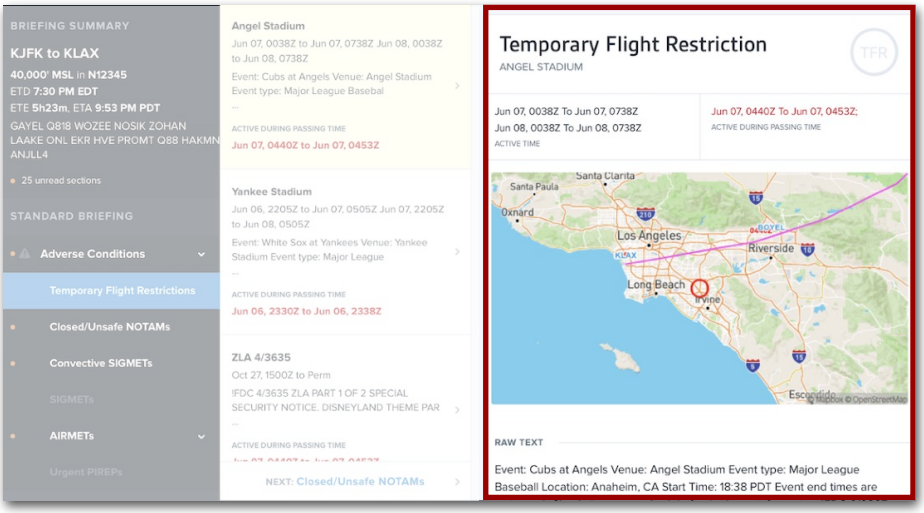
Many subsections of the briefing, such as Temporary Flight Restrictions, are several pages long. These are presented with a secondary sidebar that can be used to skim through and display individual pages. Each entry in the secondary sidebar summarizes the page contents. Tap the summary in the secondary sidebar to display its contents.



Secondary Sidebar

21.3.2 Viewing Pane

The right side of the briefing displays the contents of the selected section or subsection. Depending on the page being viewed, some or all of the following functionality may be available in the viewing pane.



Viewing Pane

Full-Screen Images

Images in the viewing pane can be tapped to view in full-screen mode, then panned and zoomed using onscreen finger gestures. Tap the **Briefing** back button at the top of the screen to close the full-screen image.

Plain/Raw Text Toggling

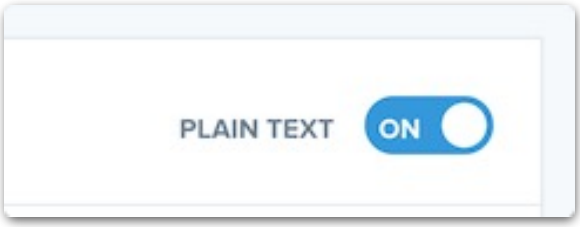
Several pages of the Graphical (HTML) briefing can be viewed in raw notation or plain language.

On split-screen pages like those in the Adverse Conditions section or the Synopsis page, raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the right column.



Show Raw Text Button

On full-screen pages like the METARs, TAFs, or NOTAMs pages, a **PLAIN TEXT** slider at the top right of the page can be used to toggle the text between raw and translated. The position of this slider is retained between pages in the same briefing.



Plain Text Toggle

21.3.3 Adverse Conditions

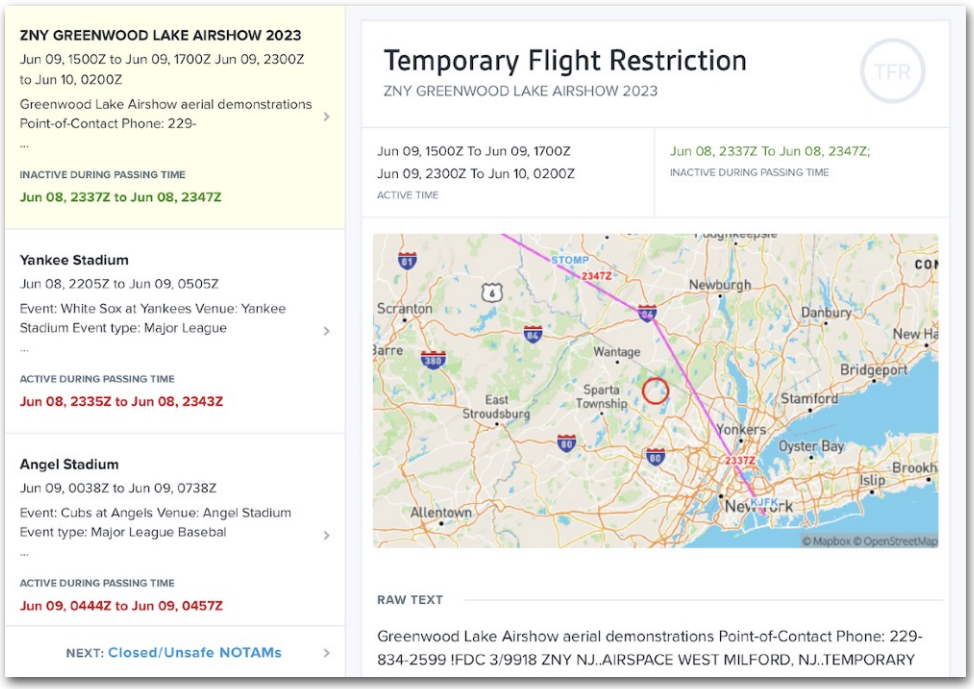
The Adverse Conditions section lists the following advisory types described below: **Temporary Flight Restrictions**, **Closed/Unsafe NOTAMs**, **Convective SIGMETs**, **AIRMETs**, and **Urgent PIREPs**. Each advisory type can be tapped to open a secondary sidebar listing instances of that advisory type.

Each advisory displays its name, active time, and location on a map. Additionally, Temporary Flight Restriction, Convective SIGMET, and AIRMET advisories display a color-coded indication of whether the advisory will be active when the aircraft passes within 2 NM of its location:

- **Red**: Active when the aircraft passes within 2 NM.
- **Orange**: Active within 1 hour before or after the aircraft passes within 2 NM.
- **Green**: Inactive within 1 hour before or after the aircraft passes within 2 NM.

Temporary Flight Restrictions

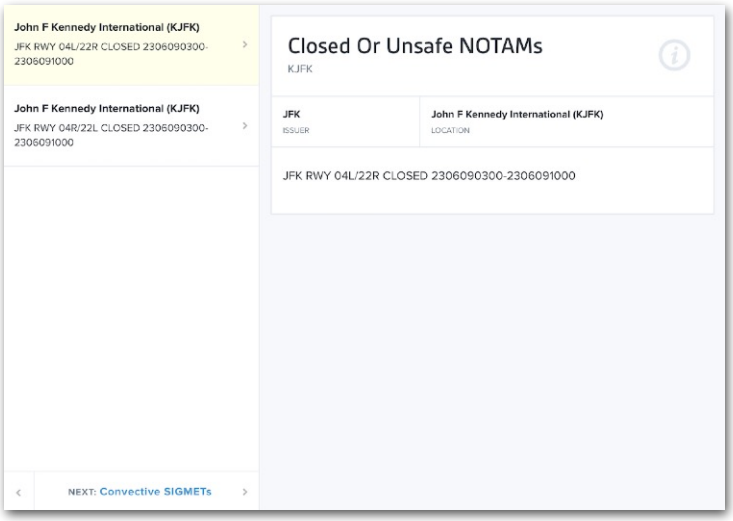
Temporary Flight Restrictions are listed in the HTML briefing if they occur less than 25 NM from the route and are active within one day of the flight's ETD and ETA.



Temporary Flight Restrictions

Closed/Unsafe NOTAMs

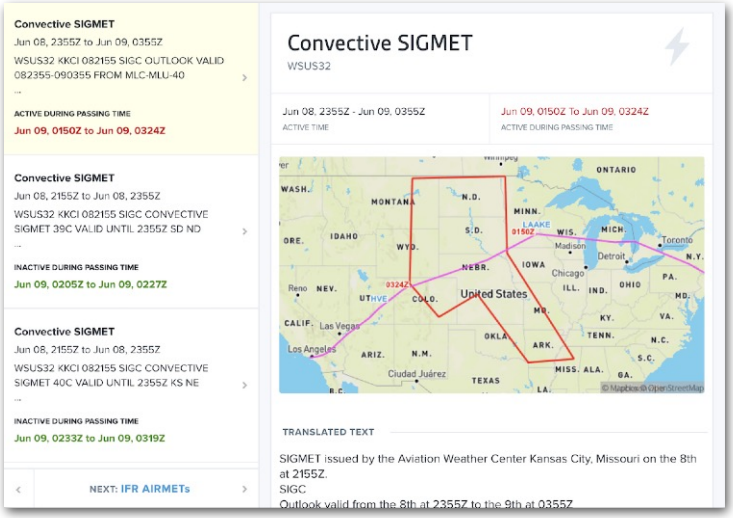
The Closed/Unsafe NOTAMs section contains runway and aerodrome NOTAMs that include the contractions “CLOSED” or “CLSD”, and which have passed the appropriate **NOTAM filters**.



Closed/Unsafe NOTAMs

Convective SIGMETs

Convective SIGMETs are listed in the briefing if they occur less than 80 NM from the route and are active within two hours of the flight’s ETD or ETA. Their raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.



Convective SIGMETs

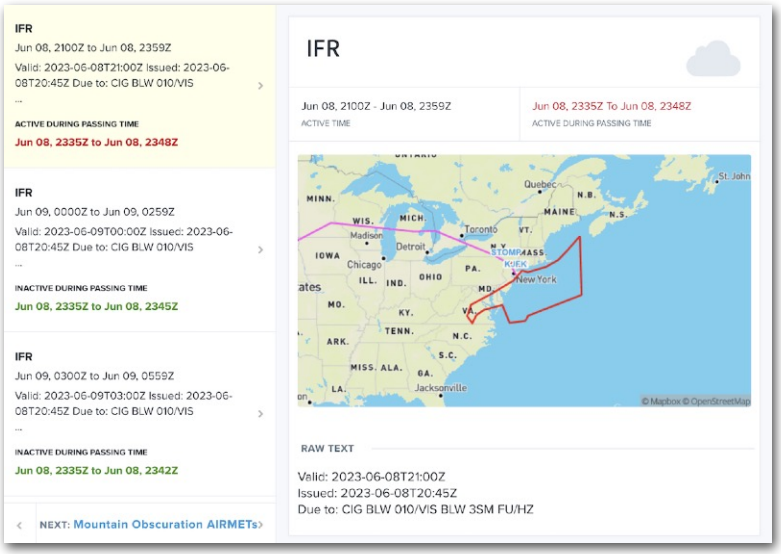
SIGMETs

SIGMETs are listed in the briefing if they occur less than 80 NM from the route and are active within two hours of the flight's ETD or ETA. Their raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.

AIRMETs

AIRMETs are listed in the HTML briefing if they occur less than 80 NM from the route and are active within two hours of the flight's ETD or ETA.

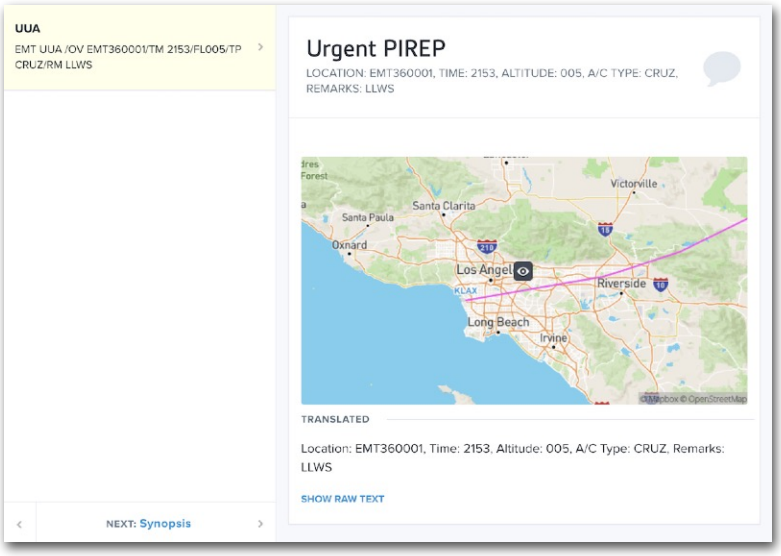
The HTML briefing sidebar groups AIRMETs into the following subheadings: IFR, Mountain Obscuration, Icing, Turbulence Low, Turbulence High, Low Level Wind Shear, and Other. Tapping one of the subheadings opens a page listing all AIRMETs of that type.



AIRMETs (IFR Group Shown)

Urgent PIREPs

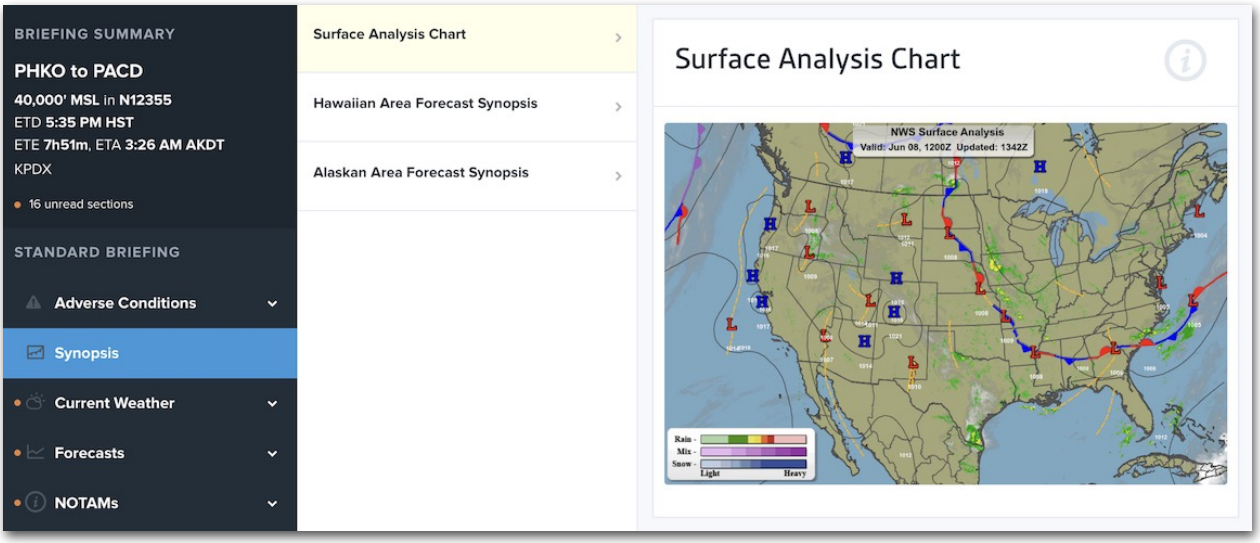
Urgent PIREPs are listed in the HTML briefing if they occur less than 80 NM from the route and are less than 90 minutes old. A PIREP's raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.



Urgent PIREPs

21.3.4 Synopsis

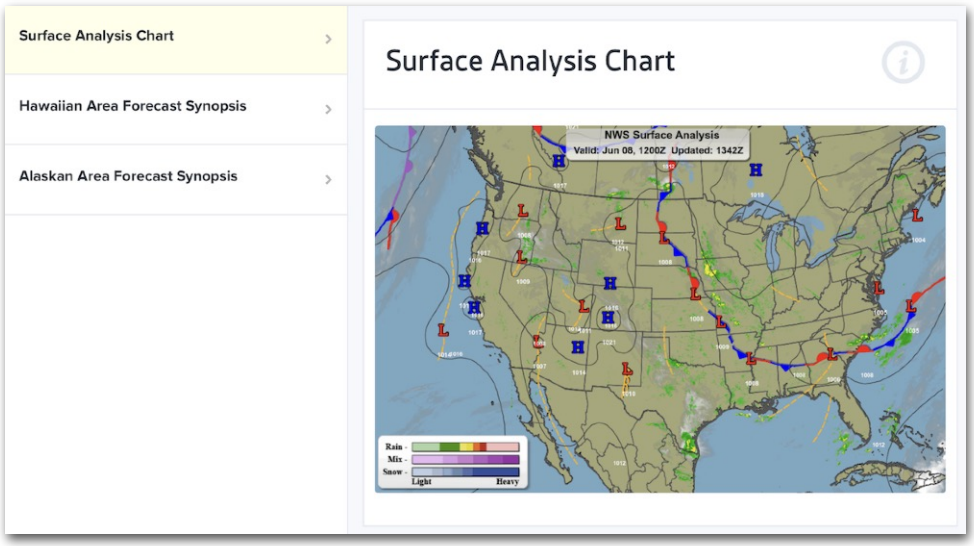
The Synopsis section provides an overview of weather trends for each geographical area through which the route passes. Depending on the flight, it may include charts for the **continental U.S.**, **Hawaii**, and **Alaska**. These charts are downloaded as images directly from their source and are not created by ForeFlight.



Synopsis Section

Surface Analysis Chart

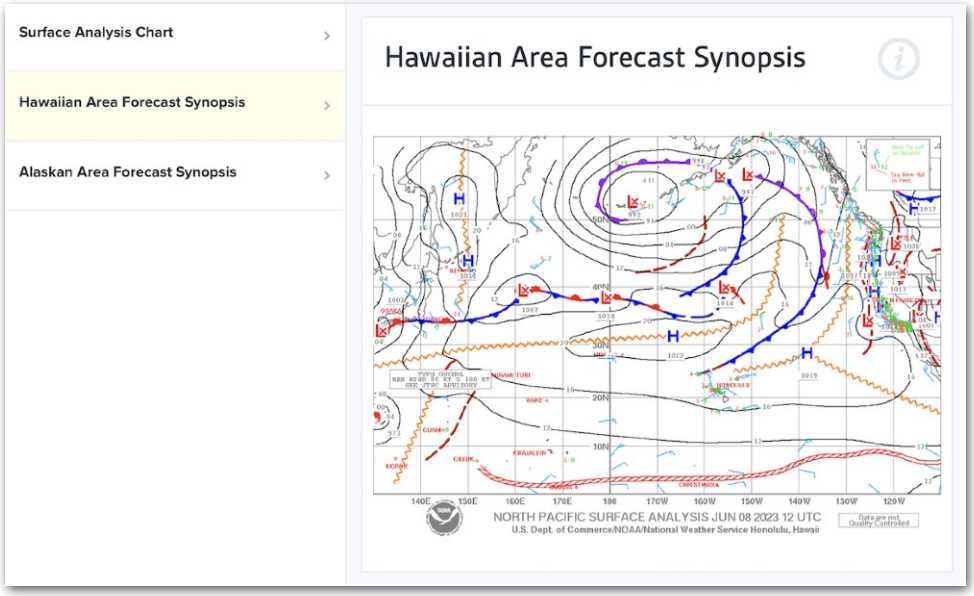
The HTML briefing always includes the latest Surface Analysis Chart for the continental U.S. published by the National Weather Service (NWS).



U.S. Surface Analysis Chart

Hawaiian Area Forecast Synopsis

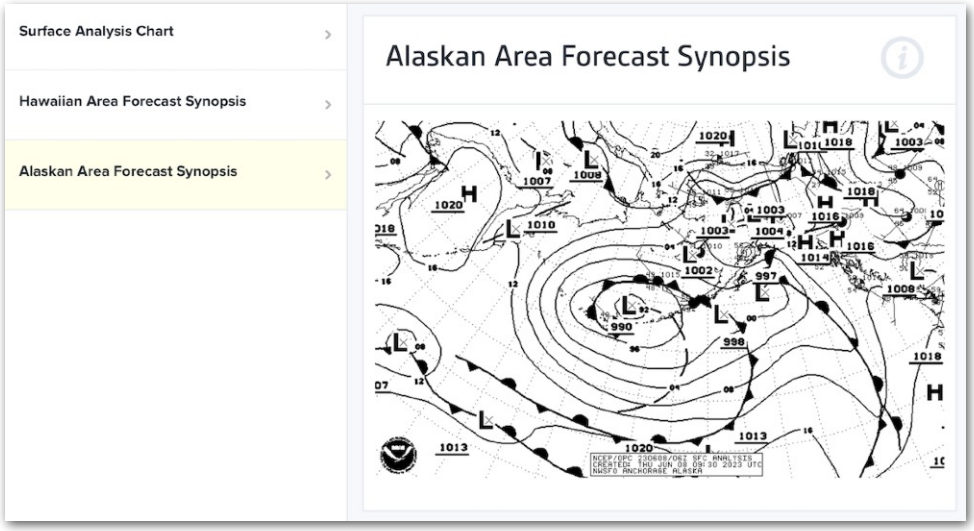
If the route intersects the Honolulu Area Control Center (FIR PHZH), the latest North Pacific Surface Analysis Chart from the NWS is provided.



Hawaiian Area Forecast Synopsis

Alaskan Area Forecast Synopsis

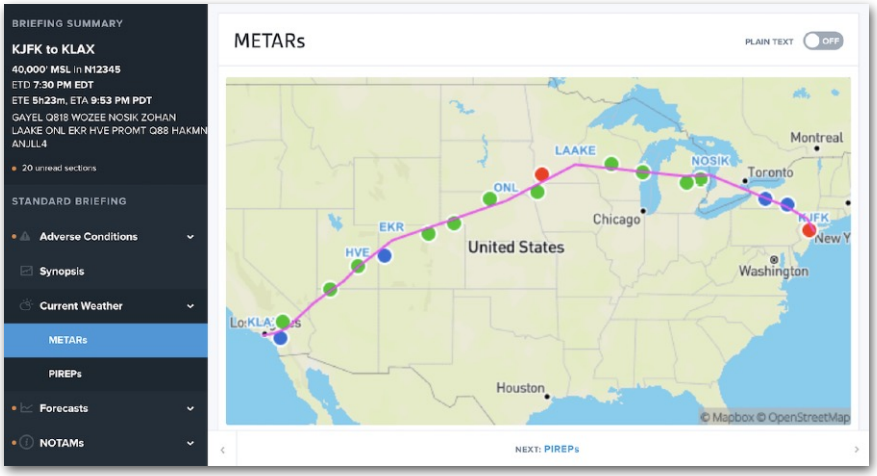
If the route intersects the Anchorage Area Control Center (FIR PAZA), the latest Alaskan Area Forecast from the NWS is provided.



Alaskan Area Forecast Synopsis

21.3.5 Current Weather

The Current Weather section displays **METARs** and **PIREPs** along the route. These are displayed graphically on a map, and listed beneath the map. This section allows toggling between raw and plain text.

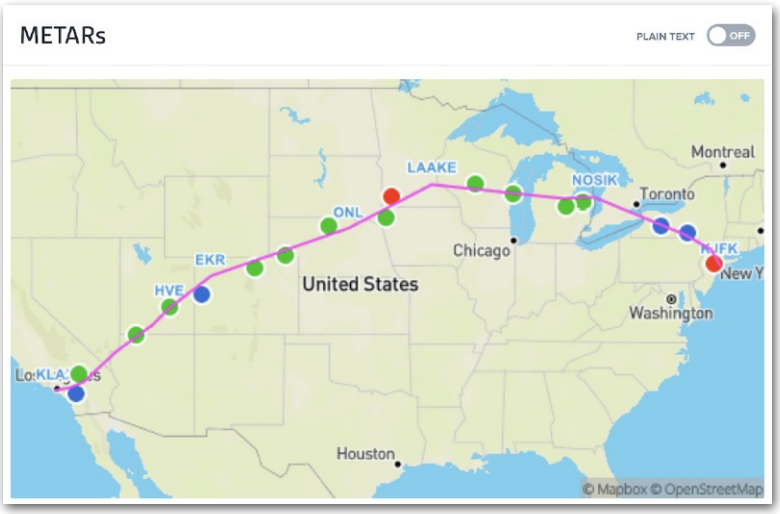


Current Weather Section

METARs

The METARs page shows METARs along the route as a map and a list.

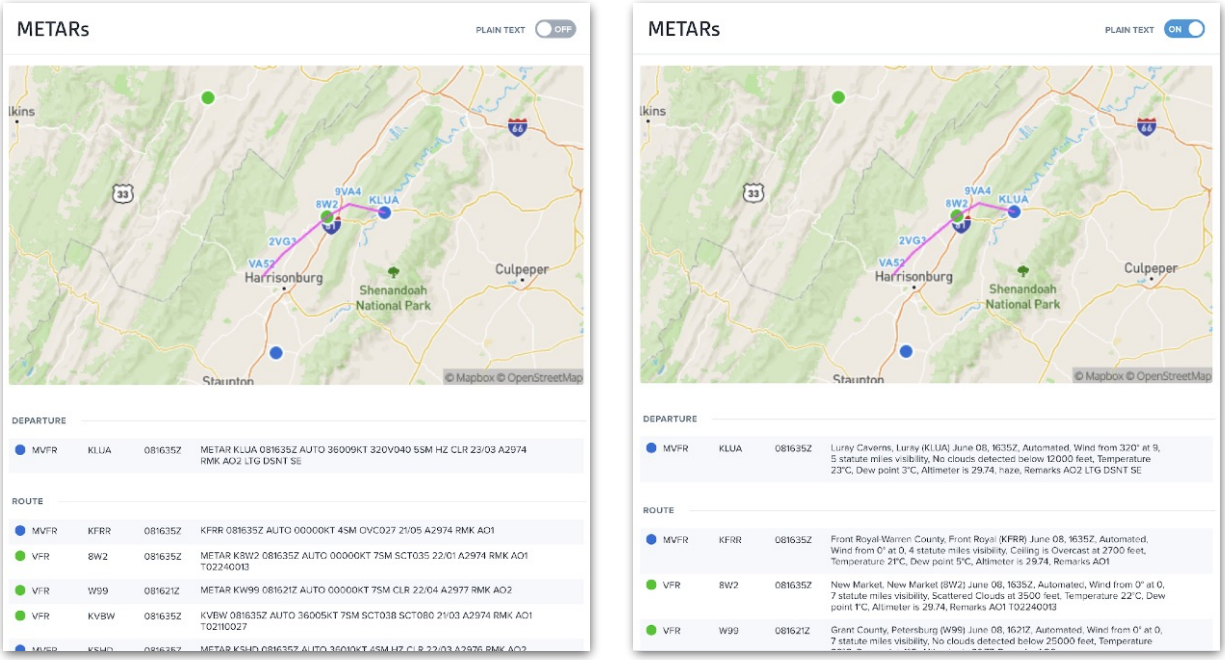
The map uses flight category icons to show a subset of METARs along the route. Only METARs with the worst weather are shown on the map. This is done to declutter the image for readability. The remaining METARs can be found in the list.



METARs Map

21. BRIEFING

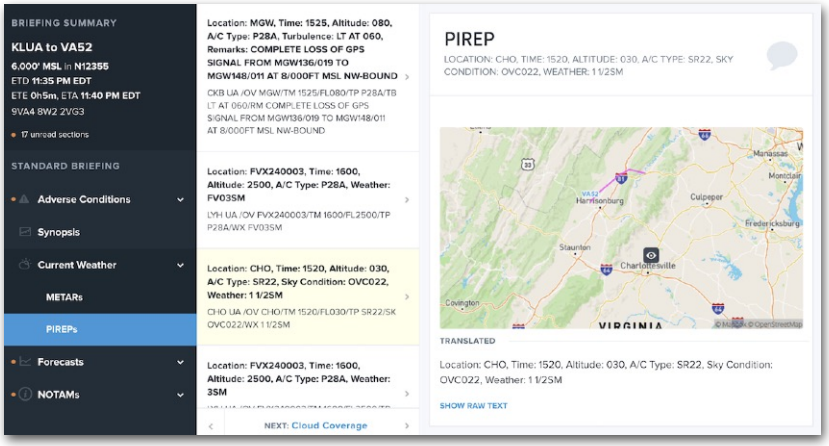
The list at the bottom of the page includes all METARs within 30 NM of the route in order from departure to destination. By default, METARs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the METARs page map.



Toggling Between Raw and Plain Text METARs

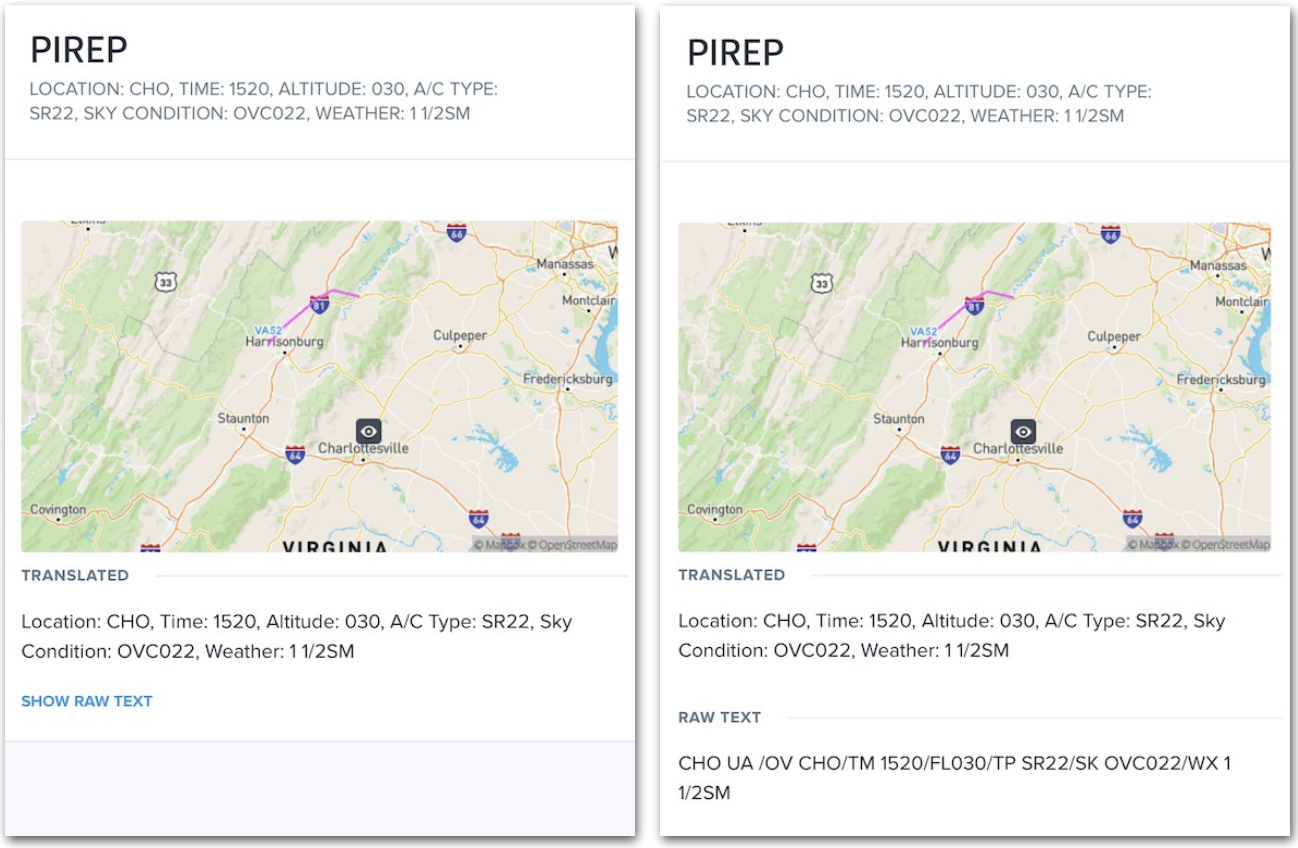
PIREPs

The PIREPs page uses a secondary sidebar to list all PIREPs less than 90 minutes old and within 80 NM of the route. When tapped, each PIREP is displayed on a map and as text.



PIREPs Page

The location of the PIREP is depicted with a symbol on the map. A plain-text description of the PIREP is provided above and beneath the map. To display the actual PIREP notation, tap **SHOW RAW TEXT** beneath the map.



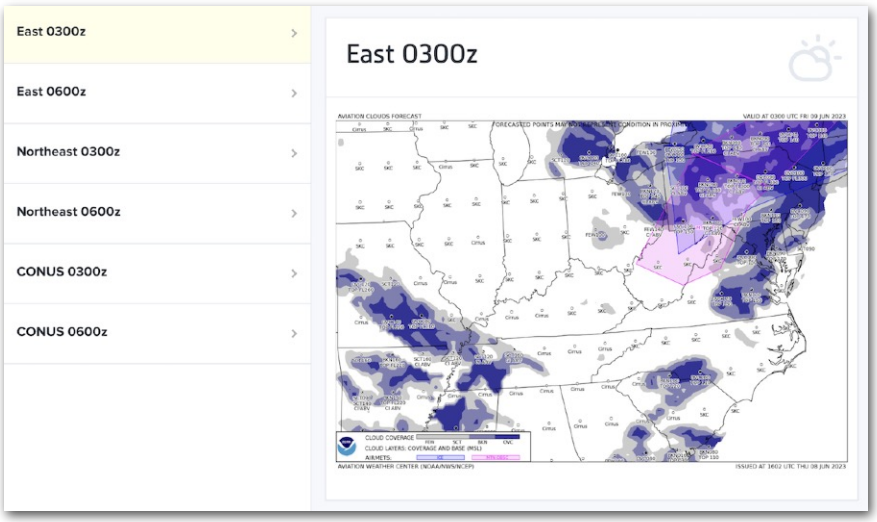
Displaying Raw Text PIREPs

21.3.6 Forecasts

The Forecasts section includes various images and tables providing information on forecast conditions along the route. Its contents include **Cloud Coverage**, **Vis, Sfc Winds & Precip**, **TAFs**, **Wind Chart**, **Vertical Cross Section Chart**, and **Winds Aloft Table**.

Cloud Coverage

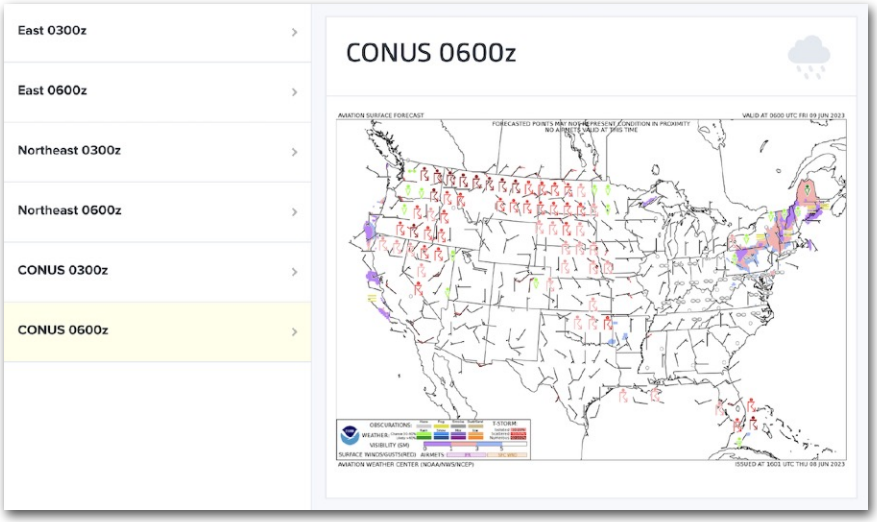
The Cloud Coverage section uses a secondary sidebar to list images generated by the NWS that show forecast cloud coverage. Images are provided for every region within the continental U.S. that the route passes through, and for all times that the flight is active.



Cloud Coverage

Vis, Sfc Winds & Precip

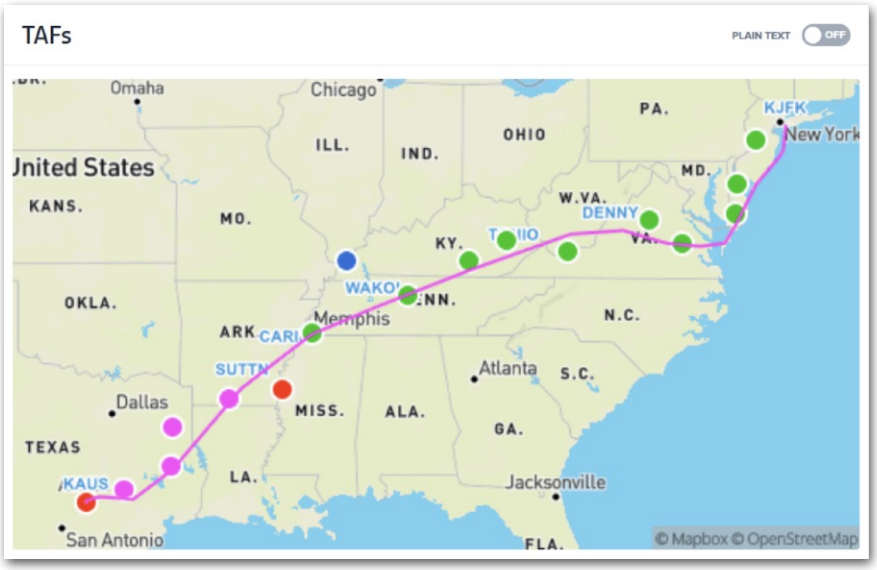
The Vis, Sfc Winds & Precip section uses a secondary sidebar to list images generated by the NWS that show forecast visibility, surface winds, and precipitation. Images are provided for every region within the continental U.S. that the route passes through, and for all times that the flight is active.



Vis, Sfc Winds & Precip

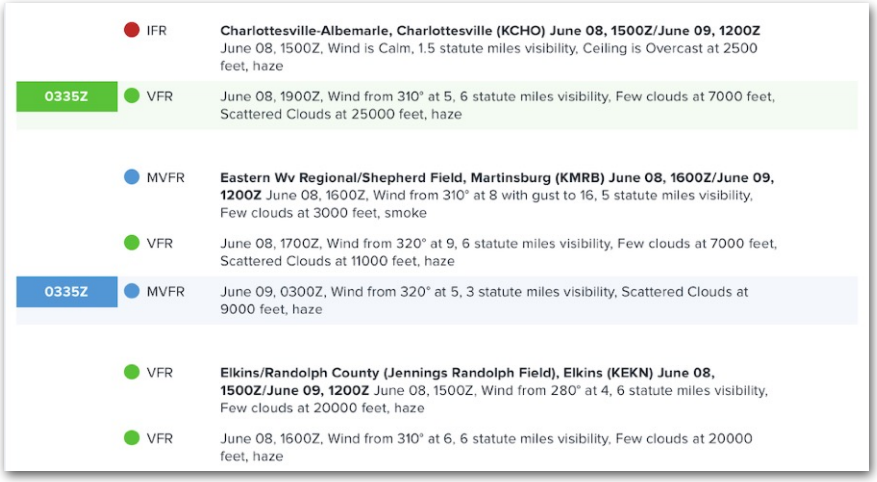
TAFs

The TAFs page displays TAFs for every airport that issues them along the route. Like the METARs page, it includes a map at the top showing the route and flight categories that correspond to the TAFs that will be valid for each airport at the passing time.



TAFs Map

Below the map is a list of TAFs within 30 NM of the route that will be valid at or near the time the aircraft passes each airport. If a portion of any TAF will be valid during the aircraft passing time, it will be highlighted in the flight-category color. By default, TAFs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the TAFs page map.



TAFs with Portions Active at Passing Time

Wind Chart

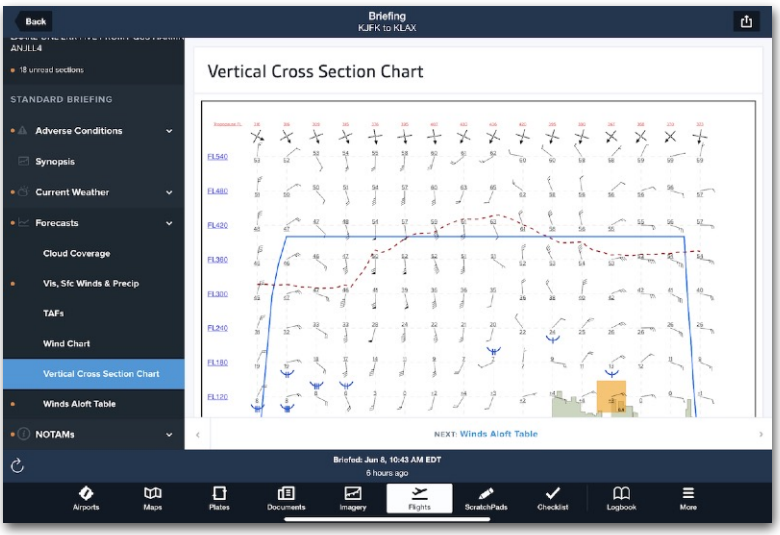
The Wind Chart shows forecast winds, temperatures, and turbulence along the route of flight at a single specific altitude and time. This chart is produced by ForeFlight and can be read in the same way as the Wind Chart in the **PDF briefing**.



Wind Chart

Vertical Cross Section Chart

The Vertical Cross Section Chart depicts winds, temperatures, turbulence, icing, tropopause, and terrain at different altitudes along the route of flight. This chart is produced by ForeFlight and can be read in the same way as the Vertical Cross Section Chart in the **PDF briefing**.



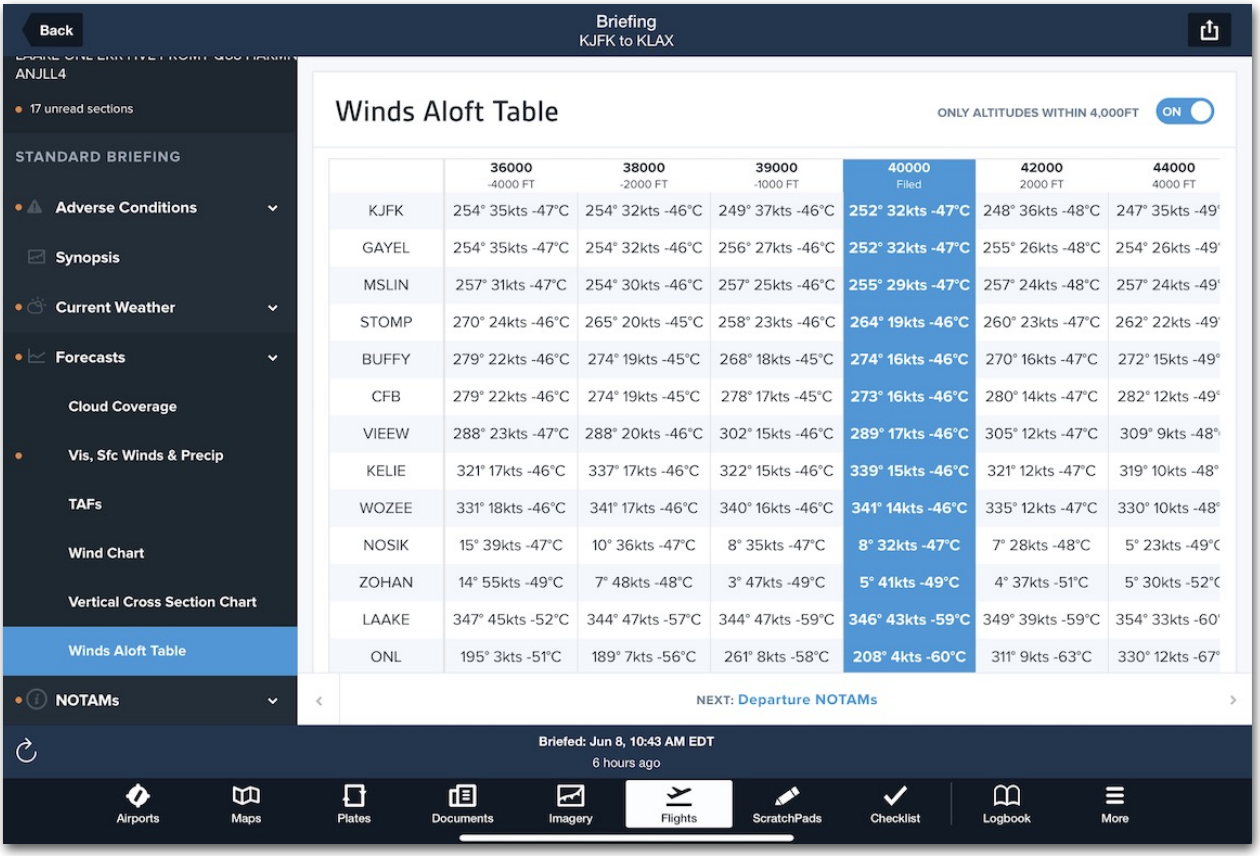
Vertical Cross Section Chart

Winds Aloft Table

The Winds Aloft Table compares forecast winds aloft at the filed altitude with winds aloft at other altitudes.

Enable the switch in the upper-right corner of the page to limit the altitudes shown to only those within 4,000 feet of the filed altitude (shown in the blue column). Disable it to show winds aloft forecasts for all altitudes.

Each column provides wind forecasts for different altitudes, and each row shows the forecast winds at each waypoint in the route. If the switch in the upper-right corner of the page is disabled, swipe left and right on each table to view forecast winds at altitudes that are more than 4,000’ from the filed altitude.



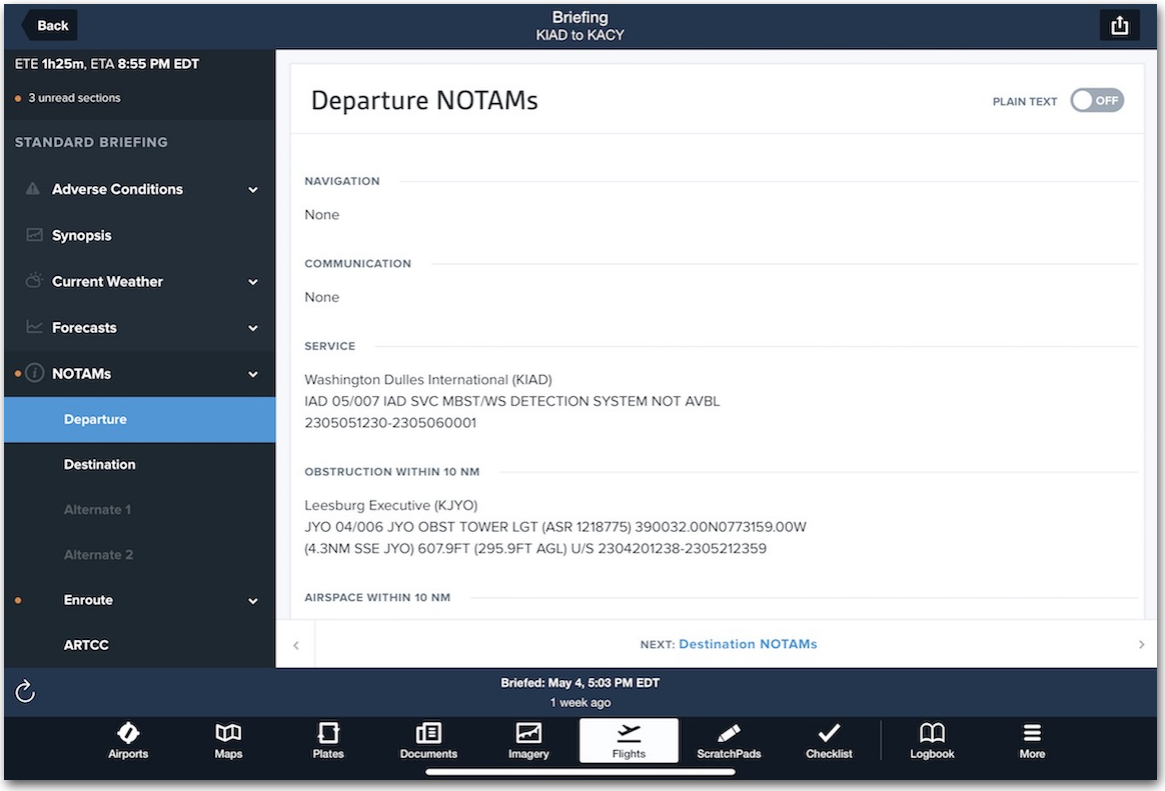
	36000 -4000 FT	38000 -2000 FT	39000 -1000 FT	40000 Filed	42000 2000 FT	44000 4000 FT
KJFK	254° 35kts -47°C	254° 32kts -46°C	249° 37kts -46°C	252° 32kts -47°C	248° 36kts -48°C	247° 35kts -49°
GAYEL	254° 35kts -47°C	254° 32kts -46°C	256° 27kts -46°C	252° 32kts -47°C	255° 26kts -48°C	254° 26kts -49°
MSLIN	257° 31kts -47°C	254° 30kts -46°C	257° 25kts -46°C	255° 29kts -47°C	257° 24kts -48°C	257° 24kts -49°
STOMP	270° 24kts -46°C	265° 20kts -45°C	258° 23kts -46°C	264° 19kts -46°C	260° 23kts -47°C	262° 22kts -49°
BUFFY	279° 22kts -46°C	274° 19kts -45°C	268° 18kts -45°C	274° 16kts -46°C	270° 16kts -47°C	272° 15kts -49°
CFB	279° 22kts -46°C	274° 19kts -45°C	278° 17kts -45°C	273° 16kts -46°C	280° 14kts -47°C	282° 12kts -49°
VIEEW	288° 23kts -47°C	288° 20kts -46°C	302° 15kts -46°C	289° 17kts -46°C	305° 12kts -47°C	309° 9kts -48°
KELIE	321° 17kts -46°C	337° 17kts -46°C	322° 15kts -46°C	339° 15kts -46°C	321° 12kts -47°C	319° 10kts -48°
WOZEE	331° 18kts -46°C	341° 17kts -46°C	340° 16kts -46°C	341° 14kts -46°C	335° 12kts -47°C	330° 10kts -48°
NOSIK	15° 39kts -47°C	10° 36kts -47°C	8° 35kts -47°C	8° 32kts -47°C	7° 28kts -48°C	5° 23kts -49°C
ZOHAN	14° 55kts -49°C	7° 48kts -48°C	3° 47kts -49°C	5° 41kts -49°C	4° 37kts -51°C	5° 30kts -52°C
LAAKE	347° 45kts -52°C	344° 47kts -57°C	344° 47kts -59°C	346° 43kts -59°C	349° 39kts -59°C	354° 33kts -60°
ONL	195° 3kts -51°C	189° 7kts -56°C	261° 8kts -58°C	208° 4kts -60°C	311° 9kts -63°C	330° 12kts -67°

Winds Aloft Table

21.3.7 NOTAMs

The NOTAMs section includes a filtered list of NOTAMs considered most relevant to the flight. It then applies additional filters to narrow down the list. These NOTAMs are filtered and grouped as described below.

NOTE: This section does not include closed/unsafe NOTAMs, which are found instead in the **Adverse Conditions** section.



NOTAMs: Departure

NOTAM Filters

When an HTML briefing is requested, ForeFlight gathers all airport NOTAMs within a 30-NM buffer of the route and all NOTAMs from overflown FIRs. The HTML briefing applies a similar list of NOTAM filters as those used in the **PDF briefing**, but it does not include the ARTCC NOTAM filters.

- **Flight Level Filter**: This filter removes all NOTAMs more than 50,000 ft outside the minimum or maximum flight planned altitudes.
- **Route Filter**: Removes all NOTAMs that affect an area more than 80 NM from the route.
- **Valid Time Filter**: Removes all NOTAMs that are not active 12 hours before or after the flight.
- **Miscellaneous NOTAMs Filter**: Removes all NOTAMs given an “M” in the PURPOSE field of their Q code, designating them as Miscellaneous NOTAMs that are not subject for a briefing.
- **Checklist NOTAMs Filter**: Removes all NOTAMs that have a Q code of “KKKK” or have a “K” in the SCOPE field of their Q code.
- **Flight Rules Filter**: Remove all NOTAMs that are not relevant to the flight based on the flight rules used. (For IFR flights, NOTAMs without an “I” in the TRAFFIC field are excluded. For VFR flights, NOTAMs without a “V” in the TRAFFIC field are excluded.)
- **Local Language Filter**: Removes non-English NOTAMs for each country below based on its series identifier:
  - Turkey (LT): G, H, M, L
  - Serbia (LY): C
  - Slovenia (LJ): C
  - Poland (EP): P, M, N, U, L, J
  - Italy (LI): C
  - Portugal (LP): D
  - Slovakia (LZ): C
- **Military NOTAMs Filter**: Removes all military NOTAMs from briefings for non-military flights. Specifically, this filter removes all NOTAMs containing the text “DOD PROCEDURAL NOTAM”.

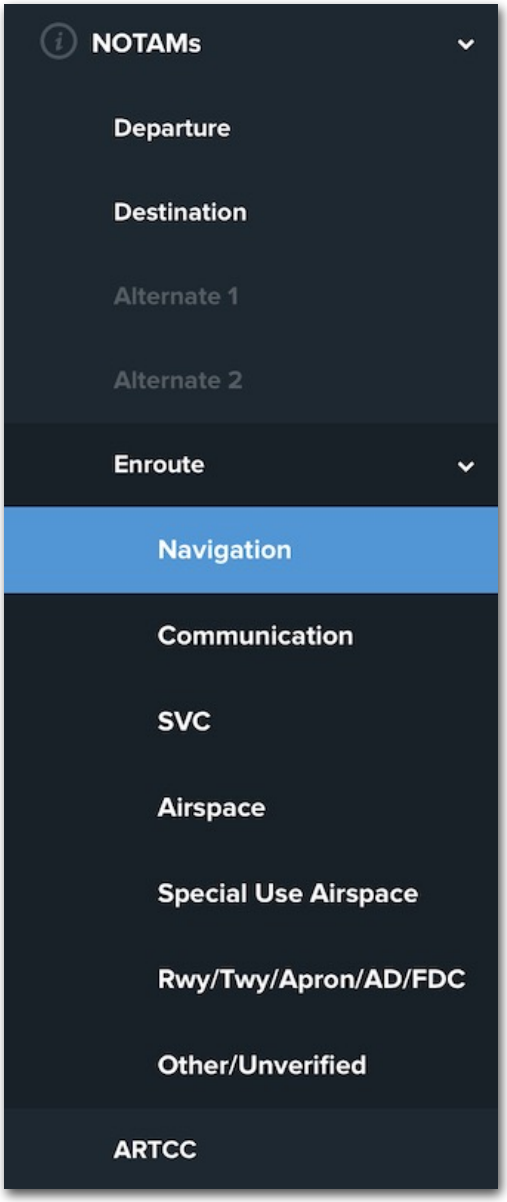
NOTAM Groups

The HTML briefing groups NOTAMs under the following subheadings in the main sidebar:

- Departure
- Destination
- Alternate 1
- Alternate 2
- En route
- ARTCC.

The En route group is further subdivided into these subgroups:

- Communication
- SVC
- Airspace
- Special Use Airspace
- Rwy/Twy/Apron/AD/FDC
- Other/Unverified.



NOTAM Groups

NOTAM Pages

Tapping a NOTAM group or subgroup heading opens a page on the right listing NOTAMs in that group.

Most pages list NOTAMs in order of the route of flight. However, the Departure, Destination, Alternate 1, and Alternate 2 groups instead list NOTAMs in the following order: Navigation, Communication, Service, Obstruction Within 10 NM, Airspace Within 10 NM, Special Use Airspace Within 10 NM, Runway, Taxiway, Apron, Aerodrome, FDC, and Other/Unverified

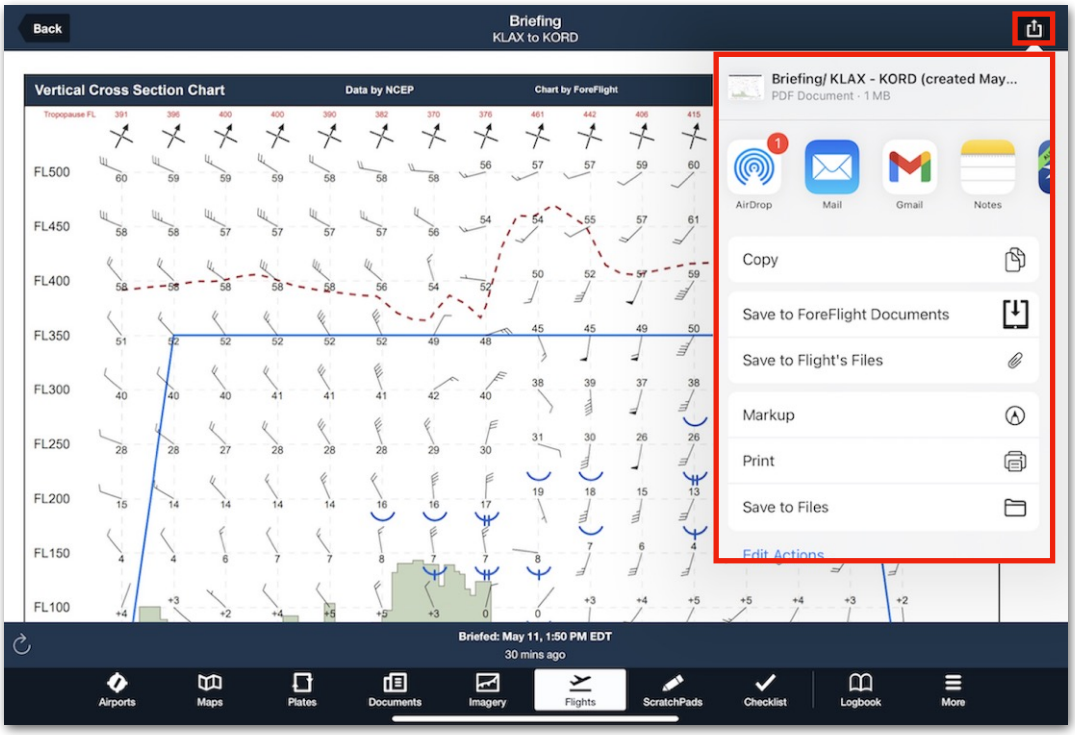
By default, METARs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the METARs page map.

21.4 Printing and Sharing

Briefings in PDF format can be printed. Briefings can be shared with varying results depending on whether they are PDF or HTML format. To share or print a briefing, tap the **Send To** button in the upper-right corner and select from one of the following options.

21.4.1 PDF Printing / Sharing

PDF briefings have the following printing and sharing options available:



Printing and Sharing

- *iOS apps (***AirDrop**, **Gmail**, **Notes**, etc.): Sends the PDF to the selected app. The results vary depending on the app. For example, Gmail will send a copy of the full PDF as an email attachment, while Notes will create a new note file with a thumbnail that opens the briefing.
- **Copy**: Sends a copy of the PDF to the device clipboard. The effects of pasting depend on its destination. For example, pasting to Notes creates a thumbnail of the first page of the briefing that can be tapped to show the other pages.
- **Save to ForeFlight Documents**: Sends the PDF to the device's **Imported Drive** in the Documents view.
- **Save to Flight's Files**: Saves the PDF as an attachment to the flight. This PDF can be accessed via the **Files** button on the Flights view. This action requires a Performance-tier subscription.
- **Markup**: Opens a copy of the PDF that can be saved with **markups**.
- **Print**: Sends the PDF briefing to a connected printer. A printed hard copy of the PDF briefing appears exactly how it does in ForeFlight.
- *Save to Device*: Tap **Save to Files** to save the PDF to a location on or connected to the device. Options include hard drive directories on the device along with connected cloud or network drives.

21.4.2 HTML Sharing

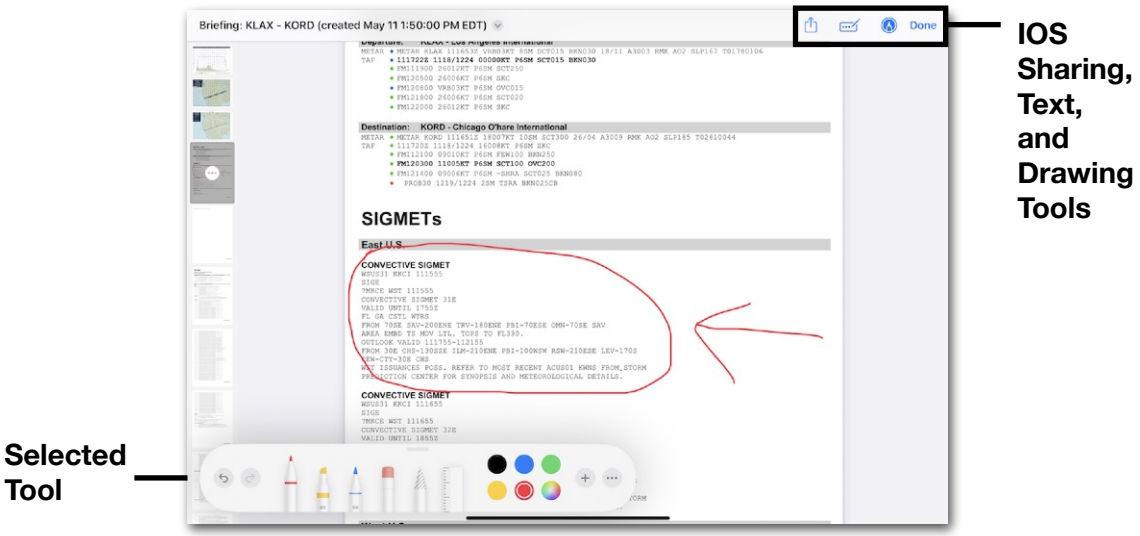
HTML briefings have the following sharing options available:

- *iOS apps (***AirDrop**, **Gmail**, **Notes**, etc.): Sends the URL of the HTML briefing to the selected app. Results vary based on the app used, but all involve pasting the URL or opening it in a web browser.
- **Copy**: Sends the URL of the HTML briefing to the device clipboard.
- **Add to Reading List**: Saves the HTML briefing to the Safari Reading List for viewing later, even without an internet connection. See Apple's Reading List documentation for details.

21.4.3 Adding Markups

Only PDF briefings can be marked up. This is done using the iOS drawing palette. Any annotations added this way are saved to a copy of the PDF, and do not overwrite the original briefing in ForeFlight.

To create a marked-up copy, tap the **Send To** icon, then tap **Markup**. Use the drawing and text tools at the top right corner of the screen to add markups, and then tap **Done** to save a copy, or tap the **Send To** icon for other iOS sharing options.



Marking Up a PDF Briefing

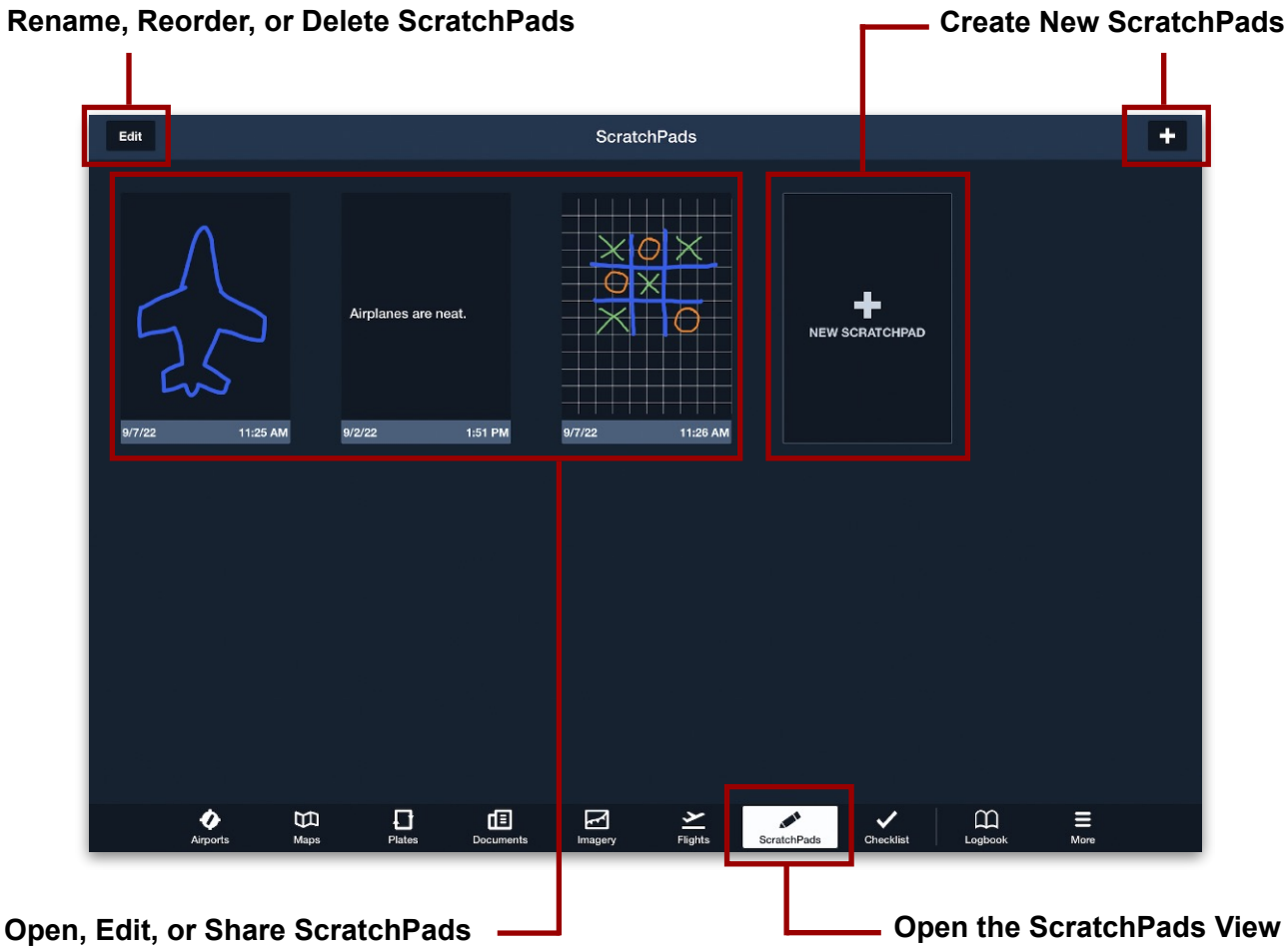
SCRATCHPADS

ScratchPads provides record-keeping space for notes using ForeFlight Mobile instead of pen and paper.

ScratchPads are automatically synced between devices on the account. ScratchPads can be copied, deleted, reordered, and saved to the device directory. PDFs of ScratchPads can be shared manually with other devices over the cloud and other apps on the device. With a Performance tier subscription, PDFs can be attached to the **flights**.

22.1 Design

ScratchPads are stored in a dedicated view on ForeFlight Mobile (iPad or iPhone). In the navigation toolbar, tap **ScratchPads** to see the available functionality and any existing ScratchPads arranged as thumbnail icons.

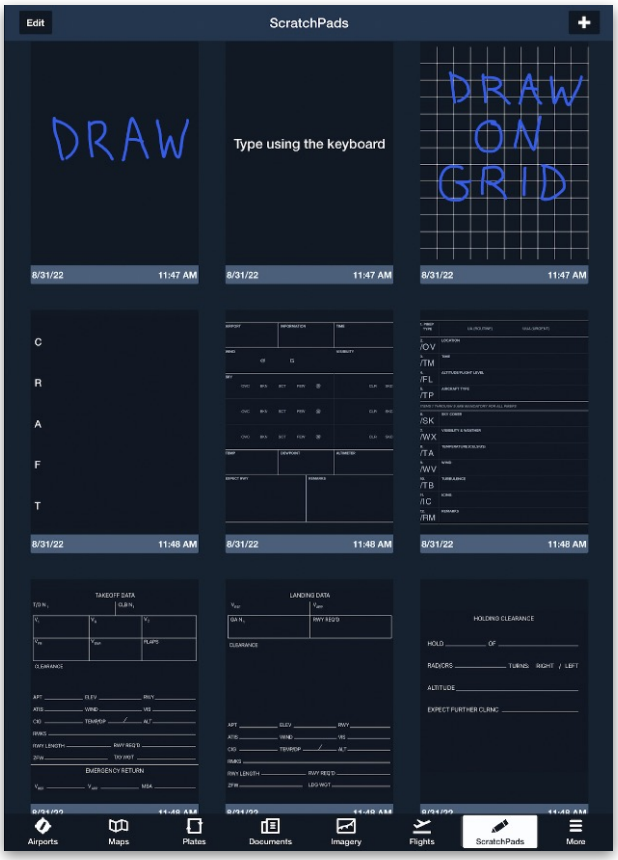


22.2 Selecting a Template

ForeFlight offers nine ScratchPad templates. Each one is an uneditable background image resembling a common aviation form (like a PIREP) or another tool (like a text document) to aid in note-taking. ForeFlight does not allow creating a custom template.

To select a template:

1. On the ScratchPads View, tap **New ScratchPad** or the **+** button in the upper-right corner of the device screen. (The **+** button can also be tapped with another ScratchPad currently open.)
2. Select one of the nine available templates from the Choose A Template menu to open a new ScratchPad. The available templates include:
    - **Draw:** A blank canvas.
    - **Type:** A text document that uses the keyboard instead of the Pen tool.
    - **Grid:** A square grid.
    - **CRAFT:** A form to record a clearance (Cleared to, Route, Altitude, Frequency, Transponder code).
    - **ATIS:** A form to record an Automatic Terminal Information Service (ATIS) broadcast.
    - **PIREP:** A form to record a Pilot Report (PIREP).
    - **Takeoff:** Has fields for V-speeds, departure clearance, and runway details.
    - **Landing:** Has fields for V-speeds, local conditions, and clearance information.
    - **Holding:** Has fields for location, direction, and altitude of the hold, and Expect Further Clearance (EFC) time.



Available ScratchPads Templates

22.3 Creating ScratchPads

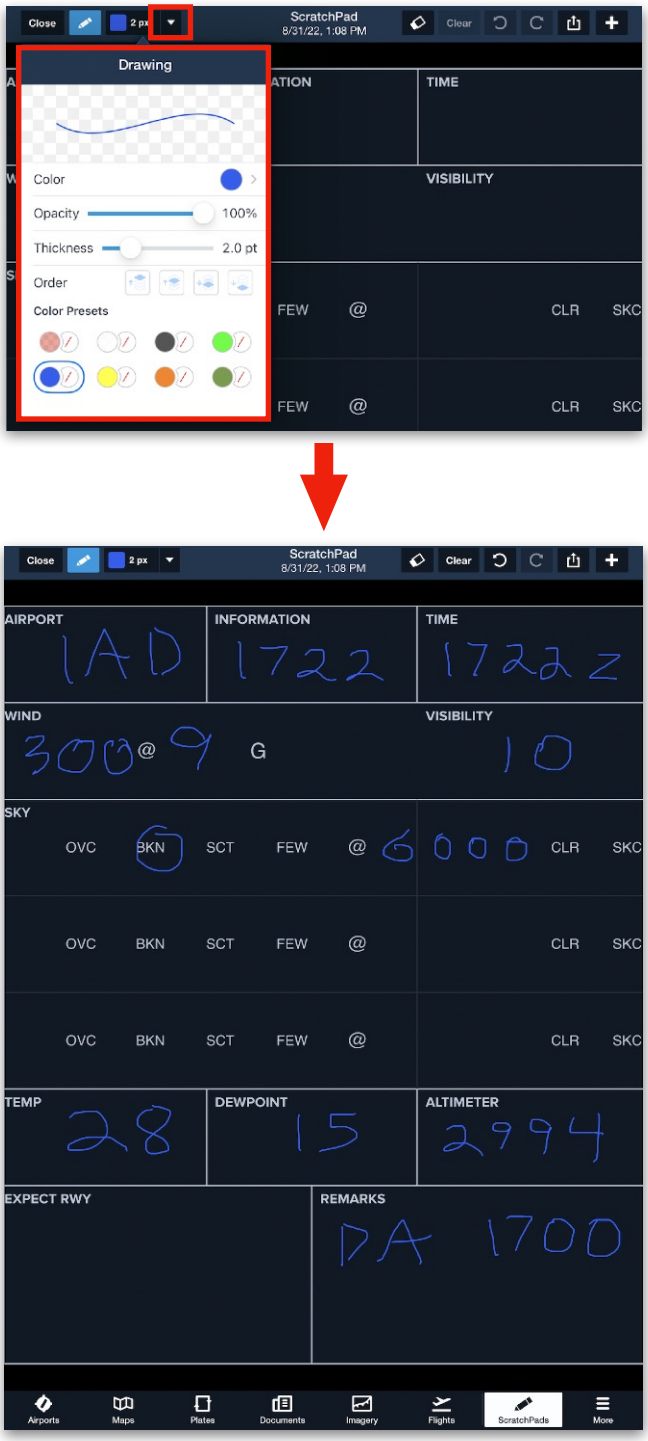
ScratchPads can be written in one of two ways depending on the template selected.

22.3.1 Using the Pen Tool

The majority of templates use the Pen tool (or a finger) to draw annotations as if it were handwriting on a paper form. When using the pen tool, the color, thickness, and opacity can be edited.

To configure and use the Pen tool, follow these steps:

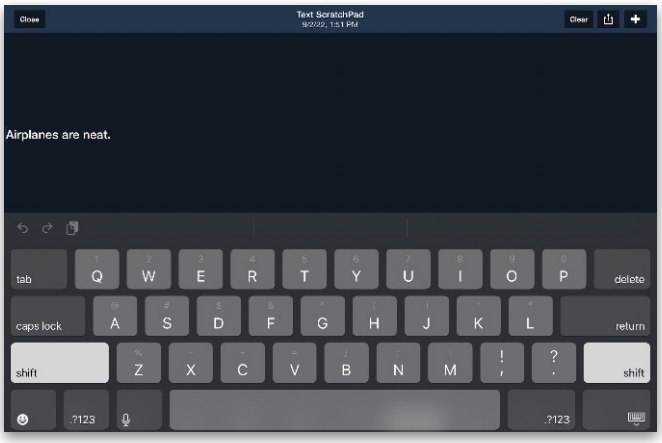
1. With a new ScratchPad open, tap the ScratchPad Drawing settings icon in the upper-left corner to open the Drawing settings menu.
2. In the Drawing settings menu, adjust the line controls as follows:
   - **Color:** Use a color grid, spectrum, sliders, or eye dropper tool.
   - **Opacity:** Use the slider to adjust from 10–100%.
   - **Thickness:** Use a slider to adjust from 0.1–40 pt.
   - **Order:** Configure the most recent marking to overlap above or below previous markings.
   - **Color Presets:** ScratchPads saves the most-recently set color and opacity values in the active (selected) preset. Tap a preset to reuse its saved values or to store another color/opacity combination for future use.



Drawing on the ATIS Template

22.3.2 Using Text

In the Type template, the keyboard is used to write plain-text annotations. Tap anywhere in the template to bring up the keyboard and start typing.

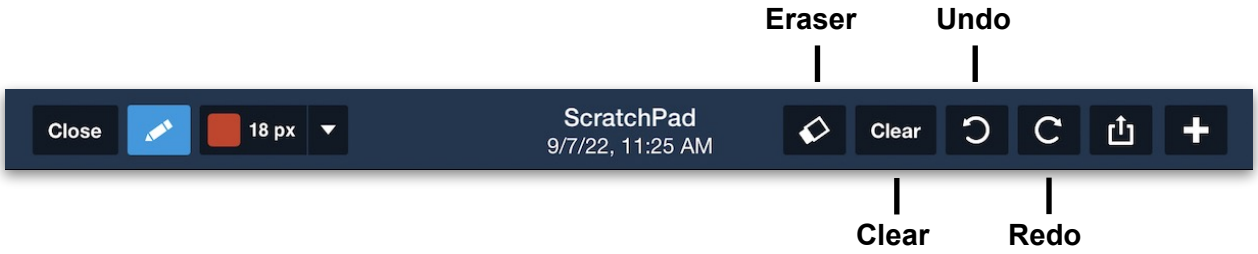


Writing on the Type Template

22.4 Editing ScratchPads

To edit Scratchpad annotations:

- Tap the **Eraser** button to turn the Pen cursor into an eraser. Drag a finger over annotations to erase. To disable the eraser, tap the Pen button. If using an Apple 2 Pencil, double tap the flat side near the tip to switch between Pen and eraser modes.
- Tap **Clear** to erase all annotations from the ScratchPad.
- Tap the **Undo** button once or more to undo recent annotations.
- Tap the **Redo** button once or more to redo changes that were recently undone.



NOTE: The Type template only supports the Clear operation. Undo and Redo only work on changes made since the ScratchPad was last opened. The Eraser button does not toggle on and off, the Pen button must be tapped to disable the eraser.

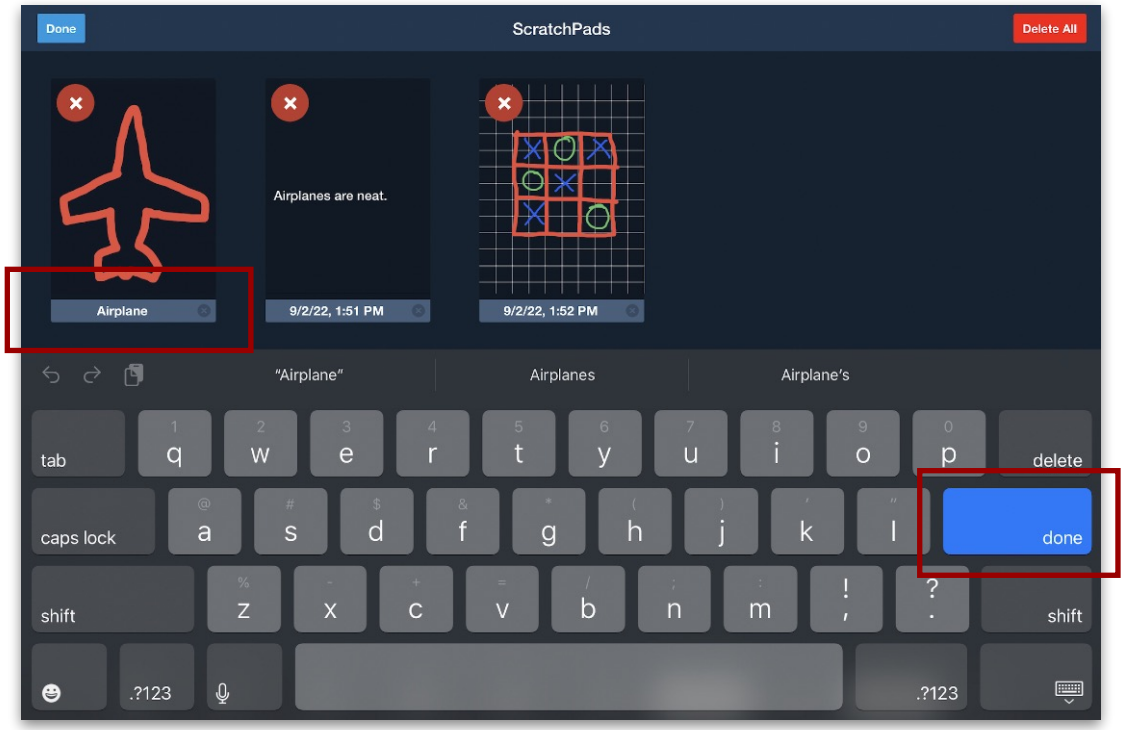
22.5 Saving ScratchPads

After adding annotations to a ScratchPad, tap **Close** to save it. The new ScratchPad is listed as a thumbnail on the ScratchPads View, and it is synced automatically to all user devices.

22.6 Renaming ScratchPads

The default name for each ScratchPad is the date and time that it was created or last edited. To rename the ScratchPad:

1. On the ScratchPads view, tap **Edit**.
2. Tap the blue name label at the bottom of the ScratchPad thumbnail.
3. Using the keyboard, type a new name.
4. Tap **Done** (either on the keyboard or the top-left corner of the ScratchPads View).



Renaming a ScratchPad

22.7 Deleting ScratchPads

To delete ScratchPads, tap **Edit** on the ScratchPads view and perform one of the following operations:

- To delete an individual ScratchPad, tap the **X** icon at the top-left corner of its thumbnail, and then tap **Done**.
- To delete all ScratchPads at once, tap **Delete All** in the upper-right corner, and then tap **Delete All** again in the confirmation prompt.

22.8 Reordering ScratchPads

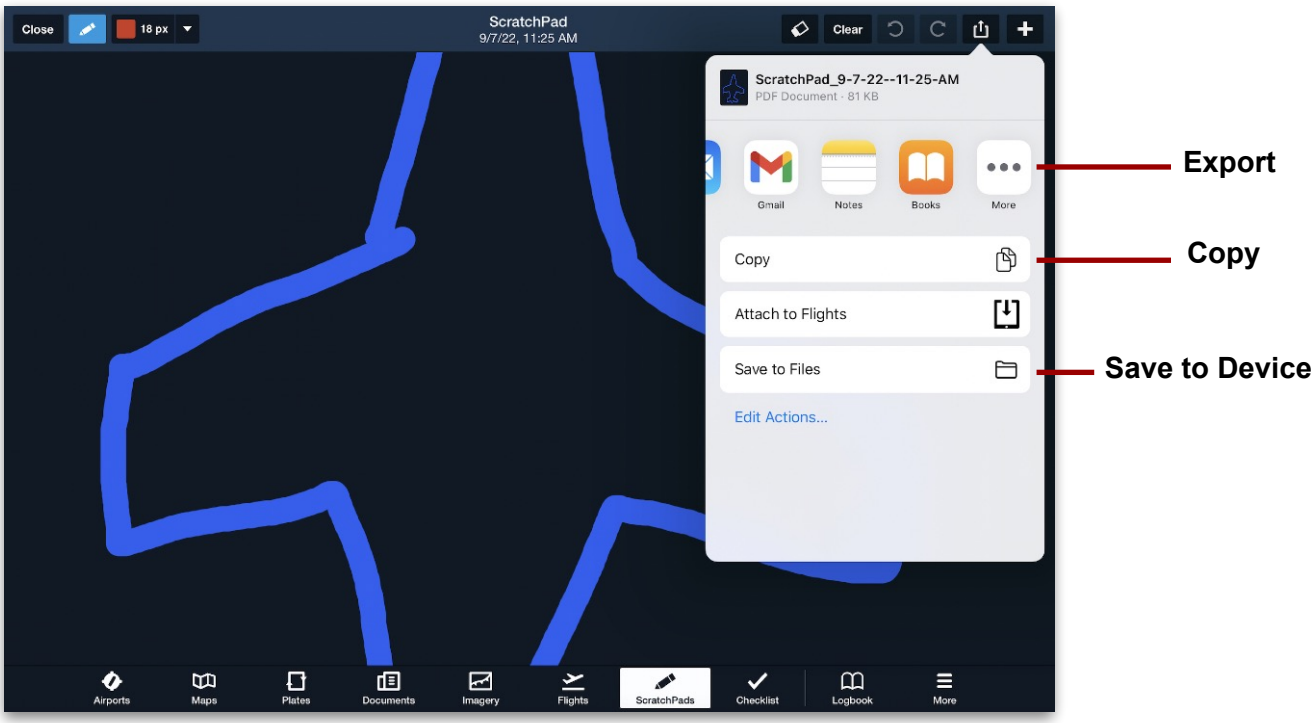
Individual ScratchPads are listed in order of their creation dates. To change this order:

1. On the ScratchPads View, tap **Edit**.
2. Tap and hold a finger on a ScratchPad thumbnail and then drag it to a new position.
3. When finished, tap **Done**.

22.9 Exporting ScratchPads

ScratchPads can be exported as a PDF to other locations on a device. To do so, follow these steps:

1. Open the ScratchPad to be shared.
2. Tap the **Send-To** button in the top-right corner.
3. Perform one of the following operations:
    - **Export to another iOS app**: Tap an app icon and follow its instructions. If the desired app icon is not seen, tap **More** to see the whole list.
    - **Attach to Flights**: See the next section.
    - **Copy as PDF image**: Tap **Copy**.
    - **Save to device directory**: Tap **Save to Files** and select or create the destination directory.



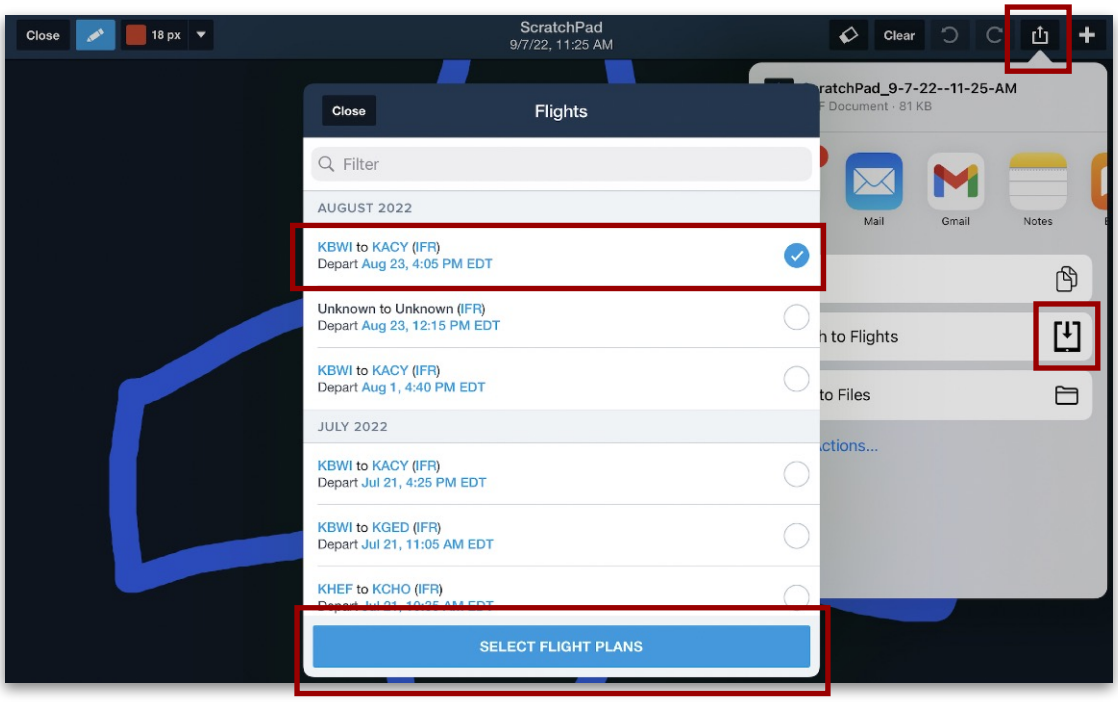
Sharing ScratchPads Externally

22.10 Attaching ScratchPads to Flights

Performance tier subscribers can attach ScratchPads to one or more **flights**. To do so, follow these steps:

1. Open the ScratchPad to be attached.
2. Tap the **Send-To** button in the top-right corner.
3. In the Send-To menu, tap **Attach to Flights**.
4. In the Flights window, tap the Flight(s) to attach the ScratchPad to.
5. Tap **Select Flight Plans**.

The ScratchPad now appears as a PDF attachment on the flight(s). View it by clicking the file attachment button at the top of the Flight Summary pane.



Attaching ScratchPads to Flights

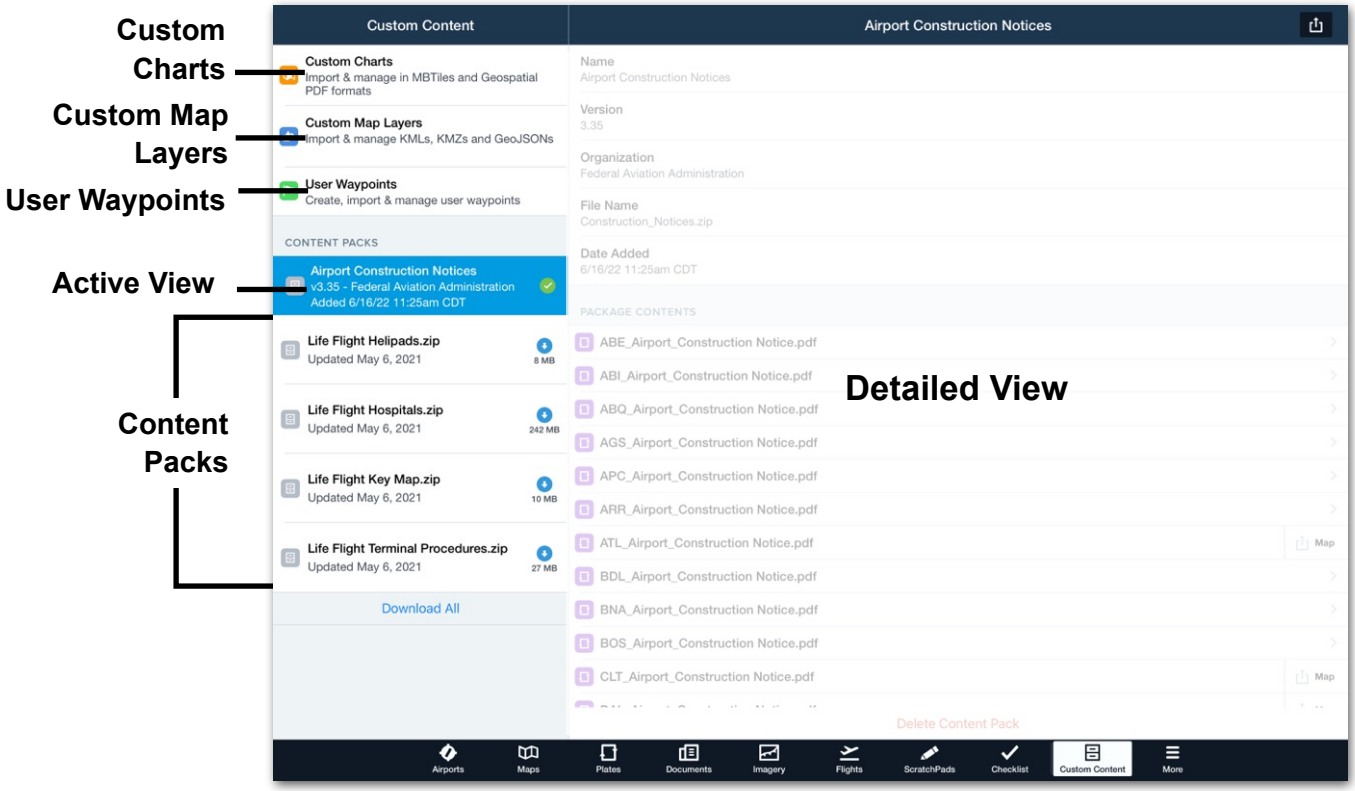
CUSTOM CONTENT

The Custom Content feature allows custom map layers, charts, and user waypoints to be added to ForeFlight. The Custom Content view lists all custom content installed on the device. Select **More** > **Custom Content,** then tap the **Menu** button in the upper left corner to access the view.

The left side of the Custom Content View list four categories of custom content. Tapping a category displays the contents of the category in a detailed view on the right side of the screen. The four types of custom content are listed below.

- Custom Charts
- Custom Map Layers
- User Waypoints
- Content Packs.

The Custom Content view can be used to access custom content, however the typical workflow involves accessing custom content from the Maps, Plates, and Airports views. Custom Charts, Custom Map Layers, and Content Packs do not sync between devices. User Waypoints sync to the devices signed into the account. ForeFlight Web does not support custom content.



Custom Content View

23.1 Creating Custom Content

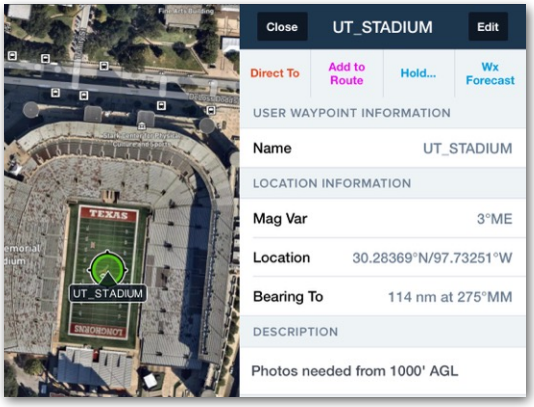
Custom Content cannot be created in ForeFlight (with the exception of user waypoints). Custom content must be created with a third-party program and imported to ForeFlight. This chapter provides a basic overview of creating and importing custom content.

23.2 User Waypoints

User waypoints can be created in ForeFlight Mobile using the Maps or Custom Content pages.

User waypoints are displayed on the map when the **User Waypoint** map layer is selected from the map drop-down menu. The user waypoint icon is customizable. For customizable user waypoints using Google Earth, see **Custom Map Layers**.

User waypoints can be entered in the route editor and used in flight plan filing.



User Waypoint

23.2.1 User Waypoint Fields

User waypoints consist of four fields.

- **Name** - Must be minimum of 3 characters, all one word with no spaces. Names must contain at least one letter and should not duplicate an existing published waypoint's name. Waypoint names can be entered into the flight plan editor for planning purposes.
- **Location -** Location is defined by latitude/longitude, point/radial/distance, or Military Grid Reference System (MGRS). When adding a user waypoint with Maps, the latitude/longitude is automatically populated.
- **Elevation** (optional) - The elevation field provides ForeFlight with elevation data for flight planning purposes. When an elevation is provided, flight planning results are more accurate. Entering an elevation also allows Profile View to display climbs and descents when the destination or departure are a user waypoint.
- **Waypoint Style -** Select type of waypoint icon and color.

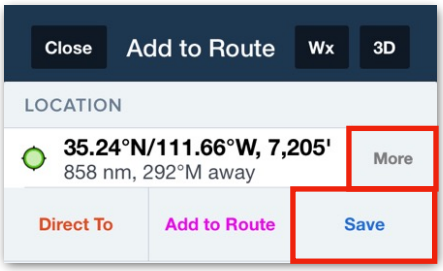
- **Description** (optional) - User waypoint descriptions are displayed in the user waypoint pop-up when tapped. Descriptions support letters, numbers, and special characters.

23.2.2 Creating User Waypoints - Maps View

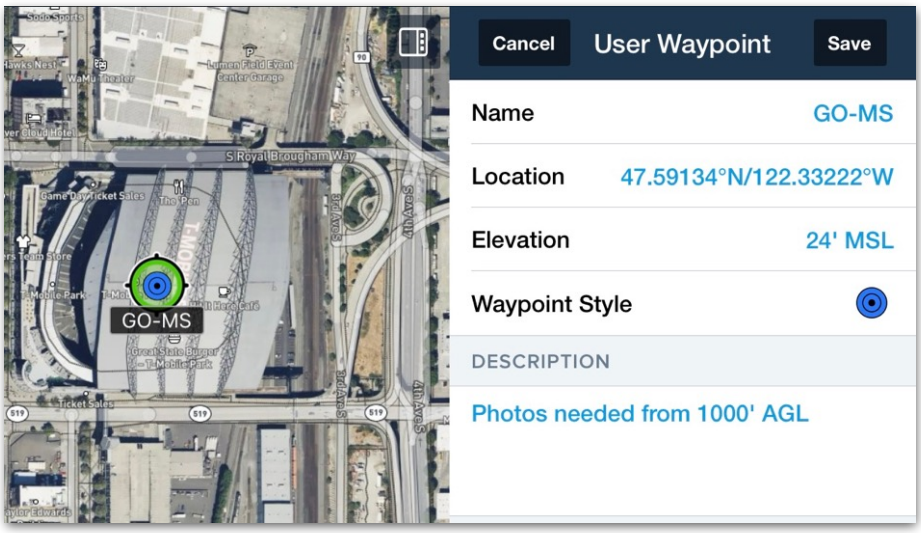
User waypoints can be created on the Maps and Custom Content views. If user waypoint coordinates are unknown, creating the user waypoint with the Maps view is recommended.

To create a user waypoint on the map:

1. Open the Maps view and zoom in to improve waypoint accuracy.
2. Place and hold a finger on the map where the user waypoint will be added.
3. In the sidebar, tap **More** and select **Save**.
4. Enter a name (recommended). If a name is not entered, the coordinates will be used.
5. Verify waypoint location on the map and manually edit coordinates if needed.
6. Enter an elevation in feet MSL (recommended).
7. Tap **Waypoint Style** to select waypoint color and shape (optional).
8. Provide a description (optional).
9. Tap **Save** near the top of the pop-up.



More + Save Buttons

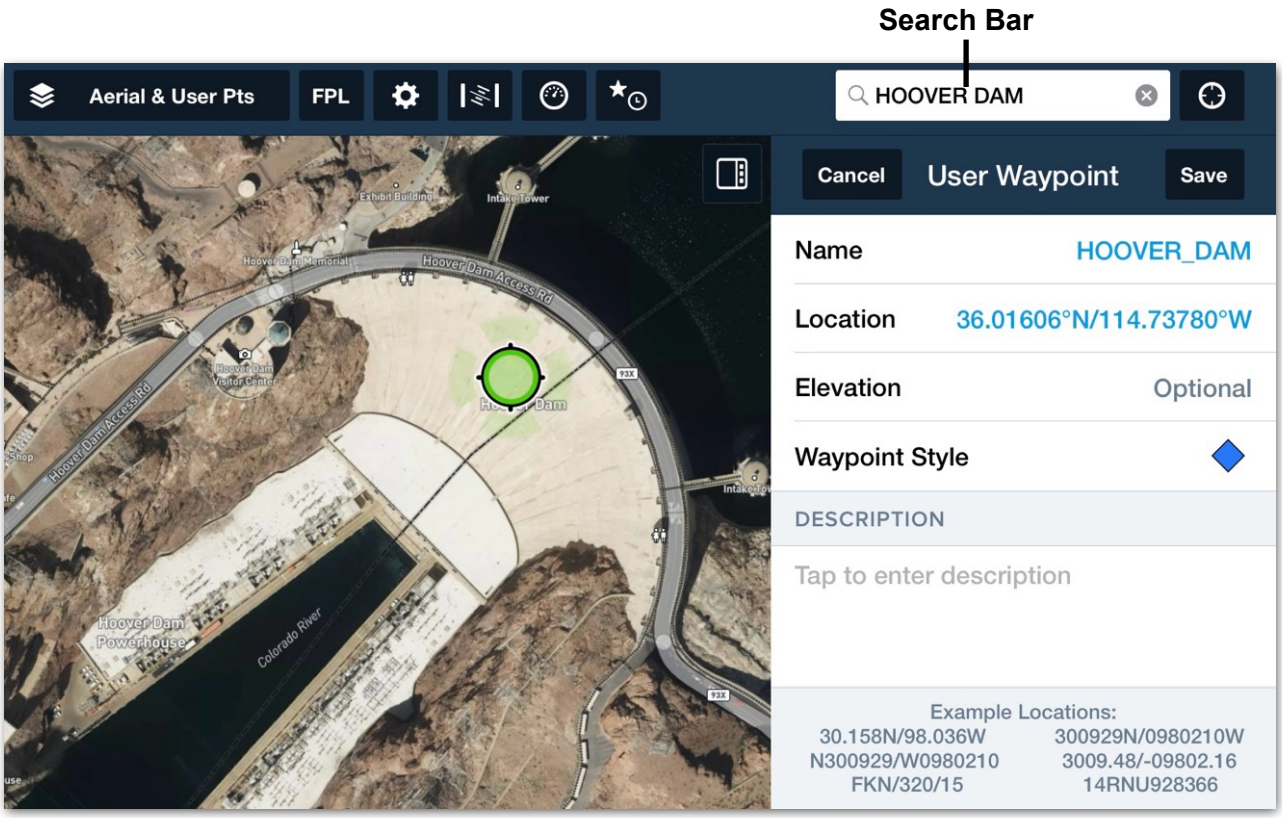


Creating a user waypoint - Maps View

23.2.3 Creating User Waypoints - Map Search

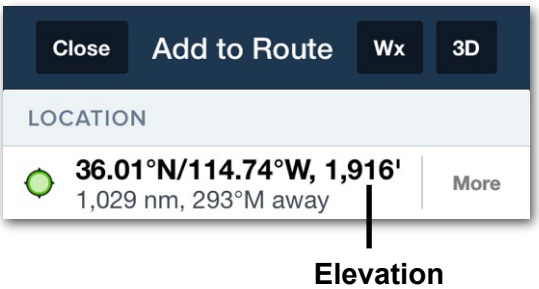
To create a user waypoint with search:

1. Open the Maps view and enter a location or point of interest in the search bar.
2. Locate and tap the location in the list of search results.
3. Tap **Save** near the top of the pop-up.
4. Edit the name if desired.
5. Provide an elevation (recommended).
6. Customize **Waypoint Style** if desired.
7. Provide a description (optional).
8. Tap **Save** near the top of the pop-up.



Creating User Waypoint - Search

NOTE: Tap/Hold the map to display elevation. Elevation is displayed next to the coordinates in the Add to Route menu and is the highest point within a 0.25 NM radius.



23.2.4 Creating User Waypoints - Custom Content View

To create a user waypoint using the Custom Content view:

1. Select **More** > **Custom Content** > **User Waypoints**.
2. Tap the **[+]** button in the upper toolbar.
3. Enter a name and location (required).
4. Enter an elevation (recommended), and provide a description (optional).
5. Customize **Waypoint Style** if desired.
6. Tap **Save** near the top of the pop-up.

The user waypoint location field can be entered in the following formats:

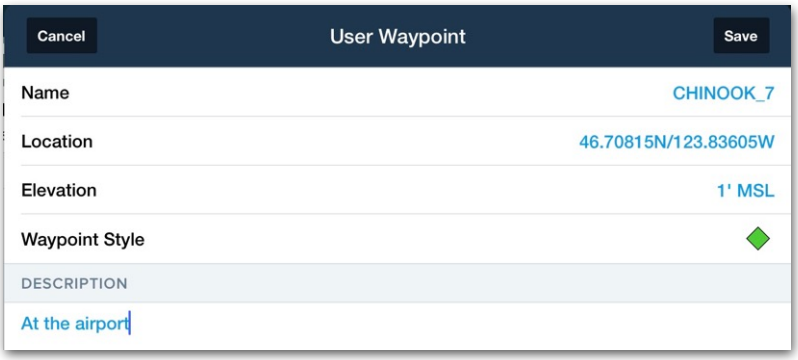
- Place/bearing/distance - IAH/320/15 (IAH VOR, 320 bearing and 15 NM).
- Military Grid Reference System - 14RNU928366.
- Coordinates (see below).

Supported Coordinate Formats

Coordinates can be entered using any of the following formats. ForeFlight will automatically convert coordinates to display them in the format selected in **More** > **Settings** > **Units/Time** > **Coordinates**.

If no hemisphere is specified, ForeFlight defaults to the north and east hemisphere. Specify the southern hemisphere with a “-” prefix or “S” after the latitude. Specify the western hemisphere with a "-" prefix or “W” after the longitude.

- Decimal Degree - 30.158N/98.036W
- Decimal Minute - 3015.89/-9803.62
- Degree Minute Seconds - 301545N/0980355W.



Creating User Waypoints - Custom Content View

23.3 Multiple User Waypoints (Bulk Import)

Multiple user waypoints can be imported in bulk via AirDrop, e-mail, file transfer, or as part of a **content pack**. Bulk user waypoints must be a Comma Separate Value (CSV) file or **Keyhole Markup Language (KML) file.**

CSV files can be created with spreadsheet programs like Microsoft Excel, Google Sheets, or Apple Numbers. KML files can be created with mapping programs like Google Earth or Google My Maps.

23.4 Creating CSV Files

User Waypoint CSV files must follow the formatting defined in this section. CSV files contain a single table with five columns. Each column defines one of the waypoint's fields. CSV files do not need column names. Names in the example below are provided for informational purposes.

NAME	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION

User waypoint CSV file fields

When creating a CSV file, each waypoint is defined on its own row. There's no limit to the number of rows a file can contain. To create a user waypoint CSV file for bulk import, open a new spreadsheet with a preferred program. Add a single table with five columns. Add enough rows for the number of user waypoints in the file. Fill in the table with user waypoint data. Only one table per file is supported.

NORTH_BASE	North Base	29.243	-97.565	450
WD355	West Delta 355	27.443	-98.123	355
WEST_LAKE_FD	West Lake Fire	28.202	-90.788	1276
VFD23	Volunteer Fire Station	26.955	-93.544	2376
HOME	Home Sweet Home	29.512	-94.233	355
CP_23	Check Point 23	27.909	-91.110	2934

Example CSV File

23.4.1 CSV File Field Formatting

Each field of the CSV file must be formatted as described below. If a CSV file does not follow this formatting, it will not import into ForeFlight.

Name Field

The Name field must be formatted with the following properties:

- Minimum of 3 characters, including at least one letter. For example, “12A”.
- All caps, for example, "THE_CABIN", not “The_Cabin”.
- No spaces between words. Use a "_" or "-" between words. For example, "THE_CABIN" or "THE-CABIN", not "THE CABIN”.

Description Field (Optional)

The Description field is optional. User waypoint descriptions are displayed in the user waypoint pop-up when tapped. Descriptions support letters, numbers, and special characters.

Latitude/Longitude Field

The Latitude/Longitude field accepts coordinates written in a specific decimal degrees (DD) notation. To enter coordinates in the southern or western hemisphere, prefix the decimal degrees value with a minus (-) sign, e.g., -97.711. To indicate northern or eastern hemisphere, omit the minus sign, e.g., 29.243.

NOTE: Unlike **manual entry** via the Custom Content view, User Waypoint CSV files cannot accept other variations of decimal degrees notation. Do not use letters (N, S, E, W) to indicate hemispheres or symbols (°) to indicate degrees.

Elevation Field (Optional)

The Elevation field is optional. Enter elevation in feet without any additional notation.

23.4.2 Naming User Waypoint CSV Files

User waypoint CSV files must be named “user_waypoints.csv”. The file name should use lower case letters with no spaces. If a user waypoint file is not named properly, the waypoints will not be added to ForeFlight.

23.5 KML User Waypoints

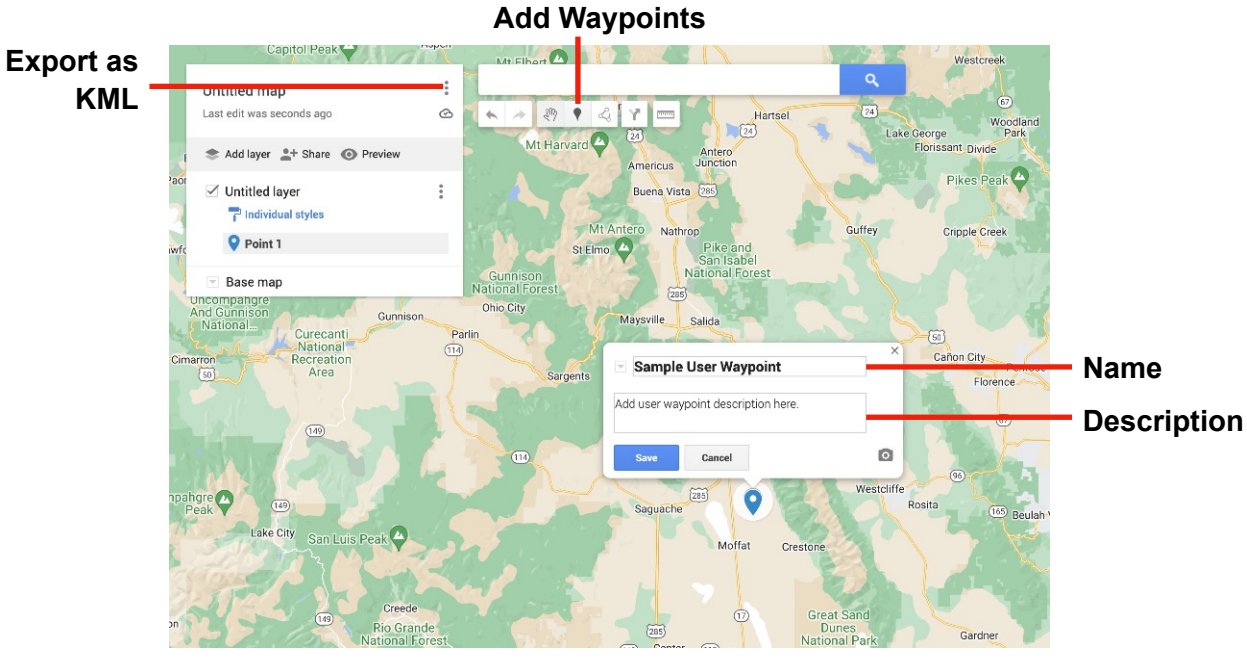
KML is a robust mapping language used to display geographic data in a browser such as Google Earth. For more in-depth information, ForeFlight recommends the **Google KML Tutorial**.

ForeFlight supports basic KML features such as waypoints (placemarks), customizable icons, customizable labels, lines, and shapes. Files which only contain waypoints can be imported as a User Waypoint or Custom Map Layer file. If a file contains features other than just waypoints (lines or shapes), it can only be imported as a Custom Map Layer. This section discusses creating KML files for the purpose of bulk importing user waypoints. Icon and label color, size, and opacity changes are ignored when importing a KML file as user waypoints.

23.5.1 Creating KML User Waypoint Files

To create a KML user waypoint file, ForeFlight recommends using **Google My Maps**.

To create a KML file with My Maps, select the add waypoint button and use the mouse to specify the location of the waypoint. Enter a name and description for the waypoint. Spaces in the name field are automatically replaced by an underscore when imported into ForeFlight. After entering a waypoint name and description, click **Save**.



Adding Waypoints with Google My Maps

Google My Maps does not include elevation data in the KML file. Elevation can be added to user waypoints after they have been imported in **More** > **Custom Content** > **User Waypoints**.

When all user waypoints have been added to the map, click the menu button to export the map layer as a KML/KMZ file. ForeFlight can import KML and KMZ files as user waypoints. It's not necessary to specify a particular format. The format (KML or KMZ) is only applicable when importing a custom map layer with custom icons. See **Custom Map Layers** for additional information.

It's not necessary to rename KML/KMZ files. File names are ignored when importing as a user waypoint file. If there are multiple user waypoint KML/KMZ files, renaming the file is recommended so the contents of the file can be easily identified. Save the file to a computer in preparation for importing it to ForeFlight.

23.6 Importing User Waypoints

User waypoints can be added to ForeFlight by incorporating them in a **content pack** or by importing them as stand-alone files. If user waypoints are added via Content Pack, the date the file was added is listed in **More** > **Custom Content**. Other than the Date Added field, there is no difference in how the waypoints are displayed in ForeFlight Mobile.

When a standalone CSV or KML file is imported, the waypoints are appended to the existing user waypoint list. During the import process, the current user waypoints are compared to the waypoints in the CSV/KML file. Duplicate waypoints are not appended to the waypoint list.

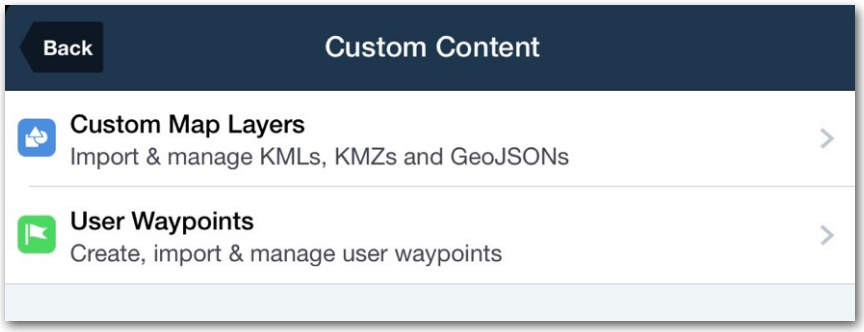
User Waypoints imported via content pack are not appended to the user waypoint list.

23.6.1 Importing a CSV or KML/KMZ file

To import a stand-alone user waypoint file, share the file to an iPad/iPhone via one of the supported methods. ForeFlight supports AirDrop, e-mail, and file transfer.

When opening a CSV or KML/KMZ file on an iPad or iPhone, a list of installed apps which are capable of importing the file are listed. Select **ForeFlight** from the list of installed apps.

After selecting ForeFlight, the app will automatically open and provide prompts for importing. If a KML/KMZ file containing only waypoints is imported, ForeFlight will display a menu for importing the file as a Custom Map Layer or User Waypoint. Select **User Waypoints** to append the waypoints to the current user waypoint list.



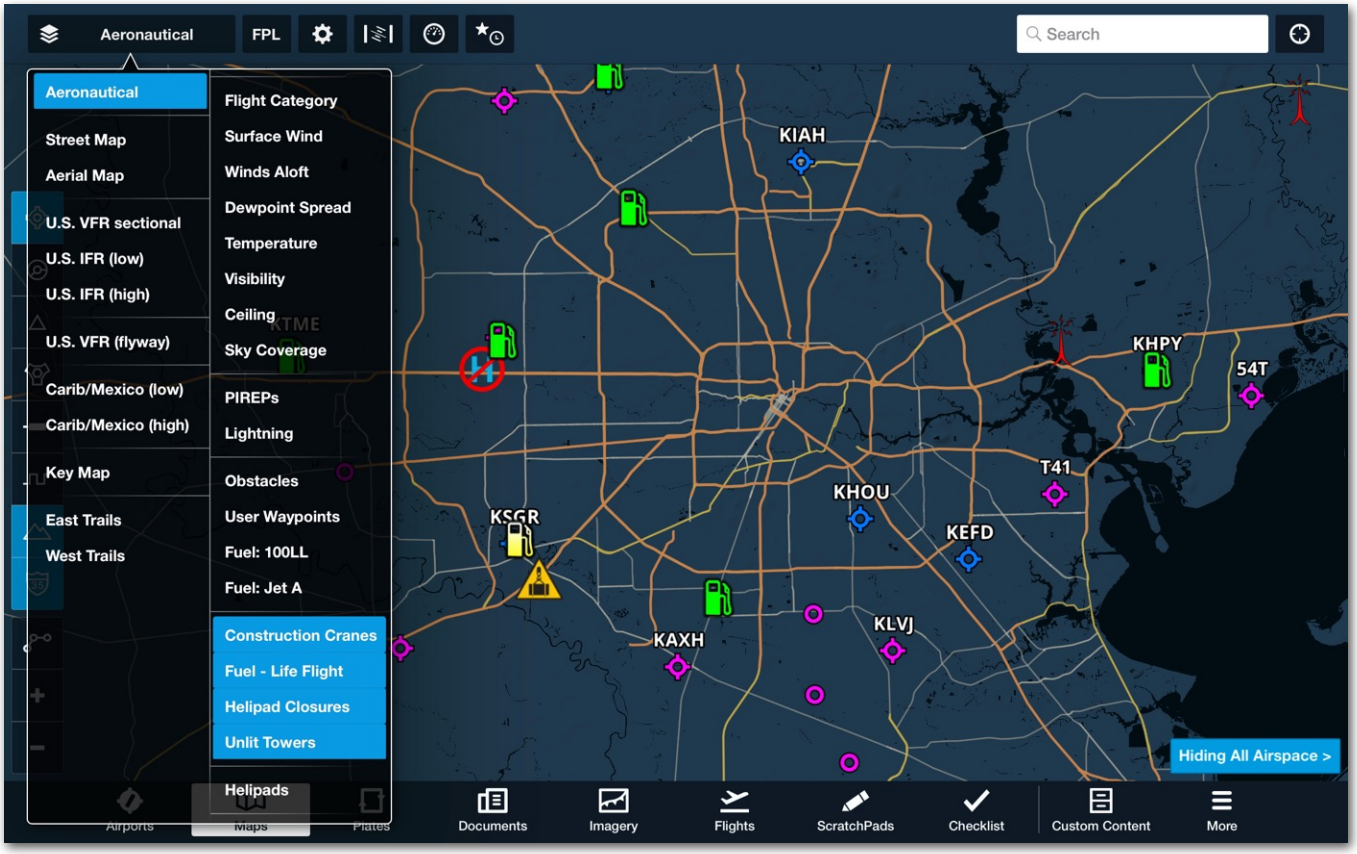
KML/KMZ User Waypoint Import Options

If a KML/KMZ file with lines or shapes is imported, Custom Map Layer will be the only option. If a CSV user waypoint file is imported, User Waypoints will be the only option.

Once the file has been imported, the waypoints can be displayed on the map by selecting **User Waypoints** from the map drop-down menu.

23.7 Custom Map Layers

Custom map layers can display shapes, lines, custom icons, and custom labels. Multiple custom map layers can be installed and displayed simultaneously on a device. Custom map layers are selected from the right column of the map layer drop-down menu. Each map layer can have a unique name. ForeFlight supports KML, KMZ, and geoJSON custom map layers.



Custom Map Layers with Custom Icons

23.7.1 Creating Custom Map Layers

There are various programs that enable building and exporting custom map layers. ForeFlight recommends using the **Google Earth Pro** desktop app. Google Earth Pro can export custom map layers in the KML and KMZ file format. For more in-depth information, ForeFlight recommends the **Google KML Tutorial**.

This section provides basic instruction for creating custom map layers with Google Earth Pro. For detailed instructions, the **Google Earth Learn** website is recommended.

23.7.2 Supported Data Types

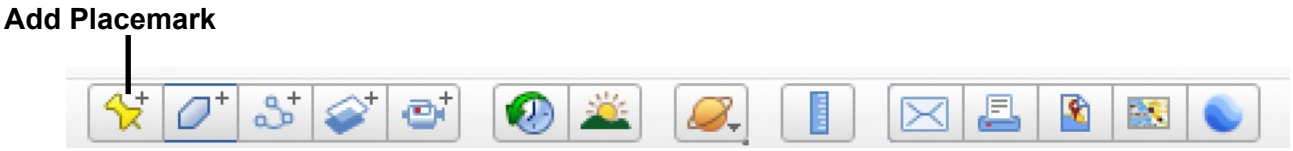
KML is a robust mapping language that supports a large variety of features. For example, KML can specify camera perspectives, time-dependent features, and even guided tours. ForeFlight only supports a small sub-set of all KML features.

If a file is imported that includes a KML feature that is not listed below, the unsupported feature is ignored by ForeFlight. ForeFlight supports the following KML features.

- Waypoint
- LineString
- LinearRing
- Polygon
- MultiGeometry
- Style
- StyleMap (normal)
- LineStyle
- PolyStyle
- IconStyle
- gx:LabelVisibility

23.7.3 Waypoints

One of the more common custom map layer features is the waypoint. Waypoints are displayed as icons on the map. Waypoints can be added to the route editor for planning purposes and used in flight plan filing. To create a custom map layer with waypoints, click the **Add Placemark** button in the Google Earth Pro upper toolbar.



Google Earth Pro Toolbar

After clicking the placemark button, drag the waypoint icon to the appropriate position or manually enter the waypoint's latitude/longitude. Enter a waypoint name and description. Custom map layer names do not have to be a single word.

Select a supported icon for the waypoint or use a custom icon and click **OK**. Waypoint icons are discussed on the following pages.

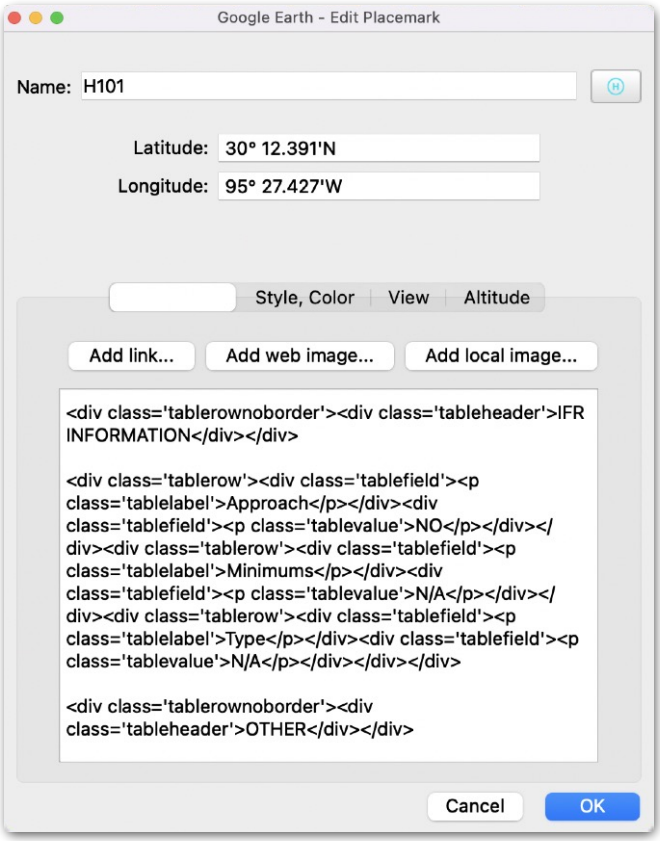
KML/KMZ files exported from Google Earth do not include elevation data.

Waypoint Descriptions

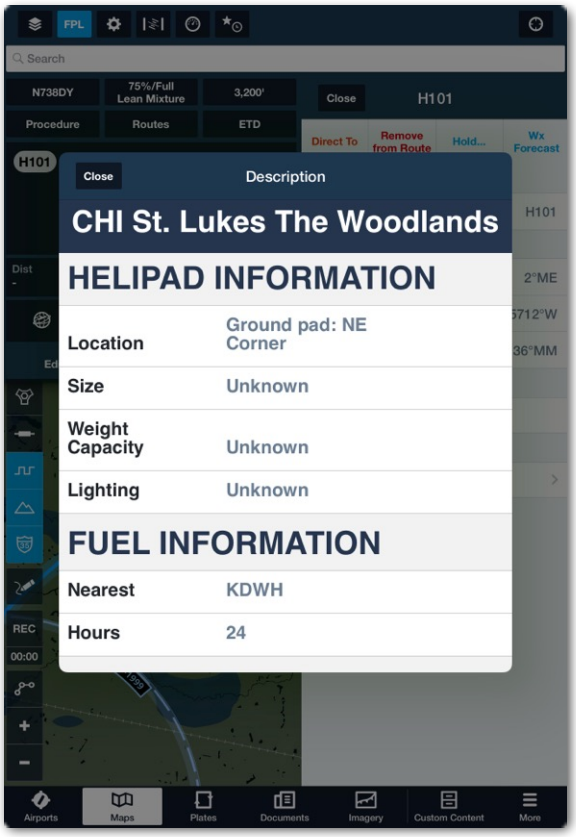
The waypoint description field in ForeFlight supports text and basic HTML formatting. HTML is not required, however when it's used, it allows the look of the description field to be customized. HTML elements such as links, line breaks, headings, font color, and size are supported.

To customize the description section of a waypoint, add the HTML directly to the description field in Google Earth Pro.

To view HTML formatted text in ForeFlight, tap the custom waypoint on the Maps view and tap **More Details** in the Description section of the pop-up.



HTML formatted text in Google Earth Pro



Custom map layer waypoint with HTML formatting

Waypoint Icons

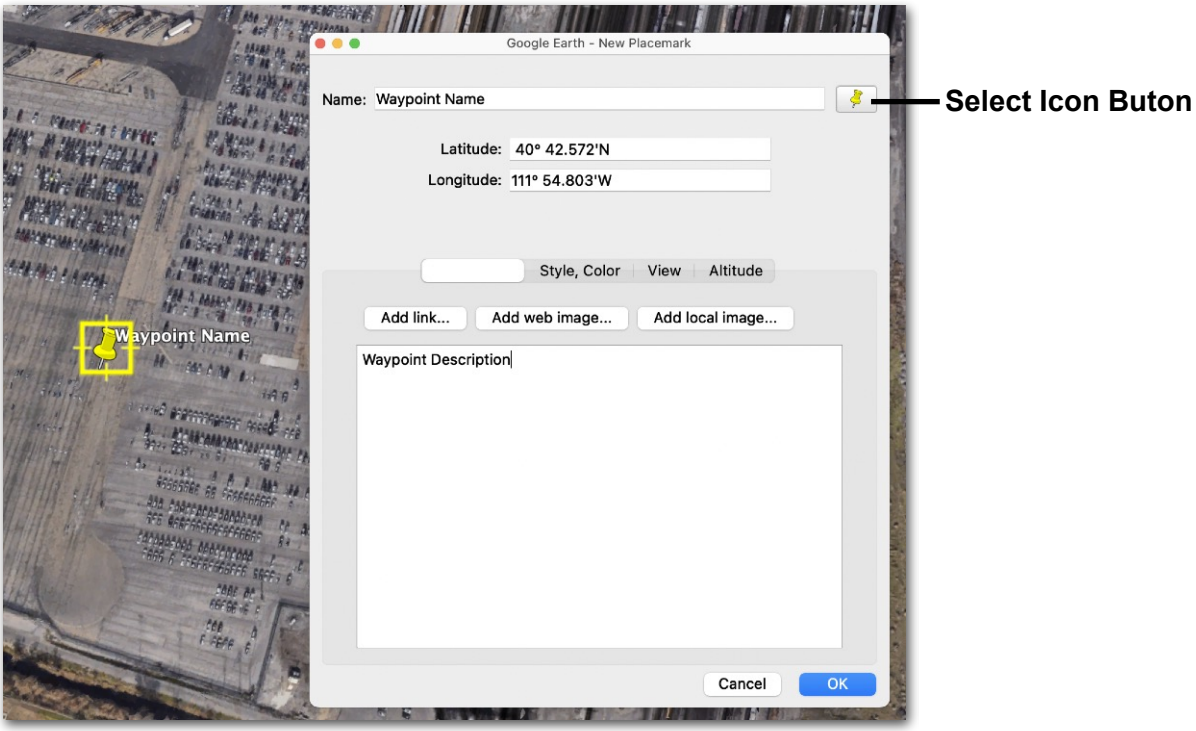
ForeFlight only supports select Google Earth waypoint icons. If an unsupported icon is selected, the default icon is used.



Default Icon

When choosing a waypoint icon, select a supported icon or use the **Add Custom Icon**... option at the bottom of the icon menu.

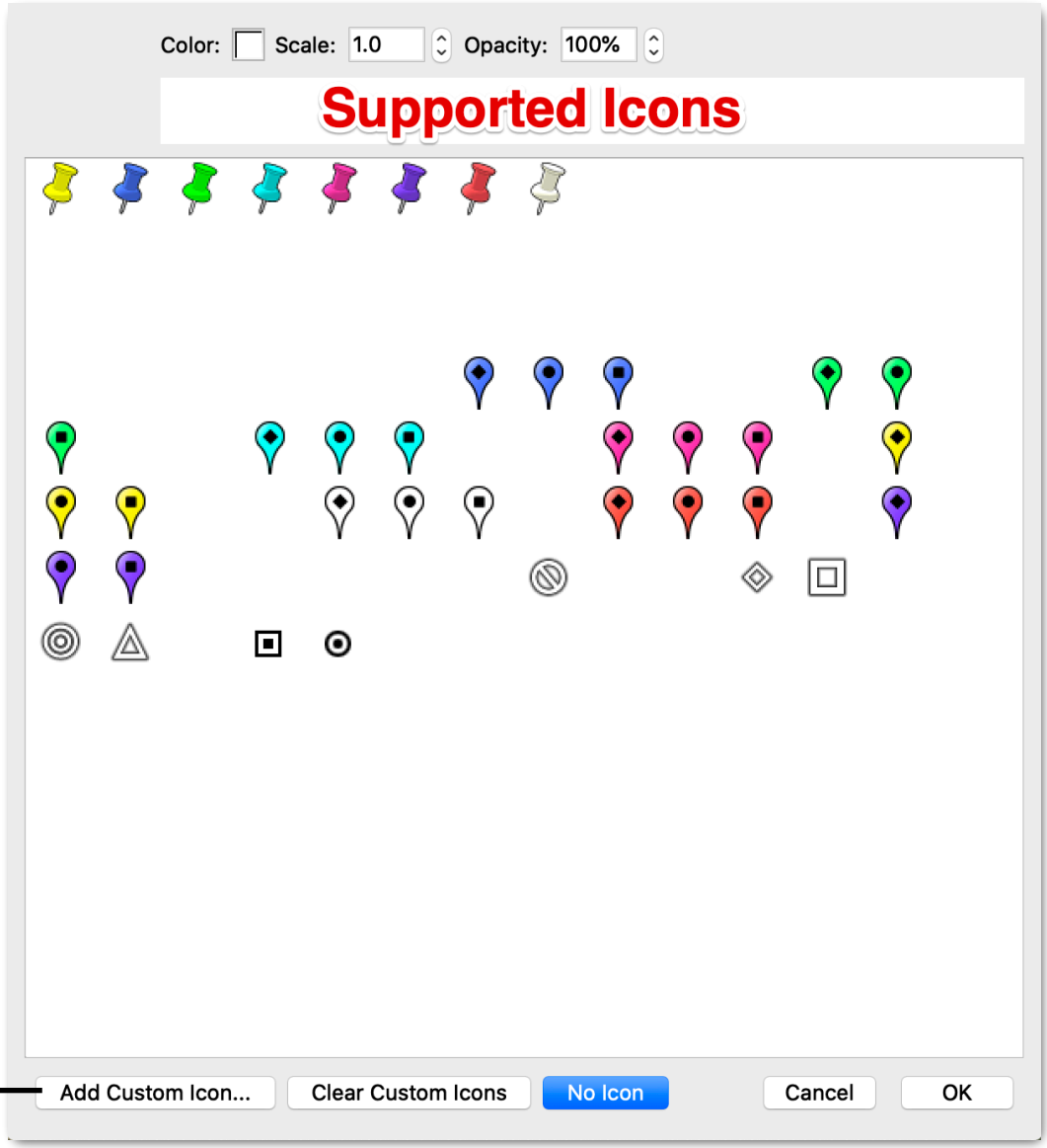
To select a waypoint icon, click the icon button in the upper right corner of the waypoint menu and select an icon from the subsequent page. Once an icon has been selected, click **OK**.



Adding Waypoints with Google Earth Pro

Supported Icons

The image below depicts the icons that are supported in ForeFlight Mobile. Use the **Add Custom Icon** button at the bottom of the menu to use an image from a computer as the waypoint icon.



Custom Icon Button

Supported Icons

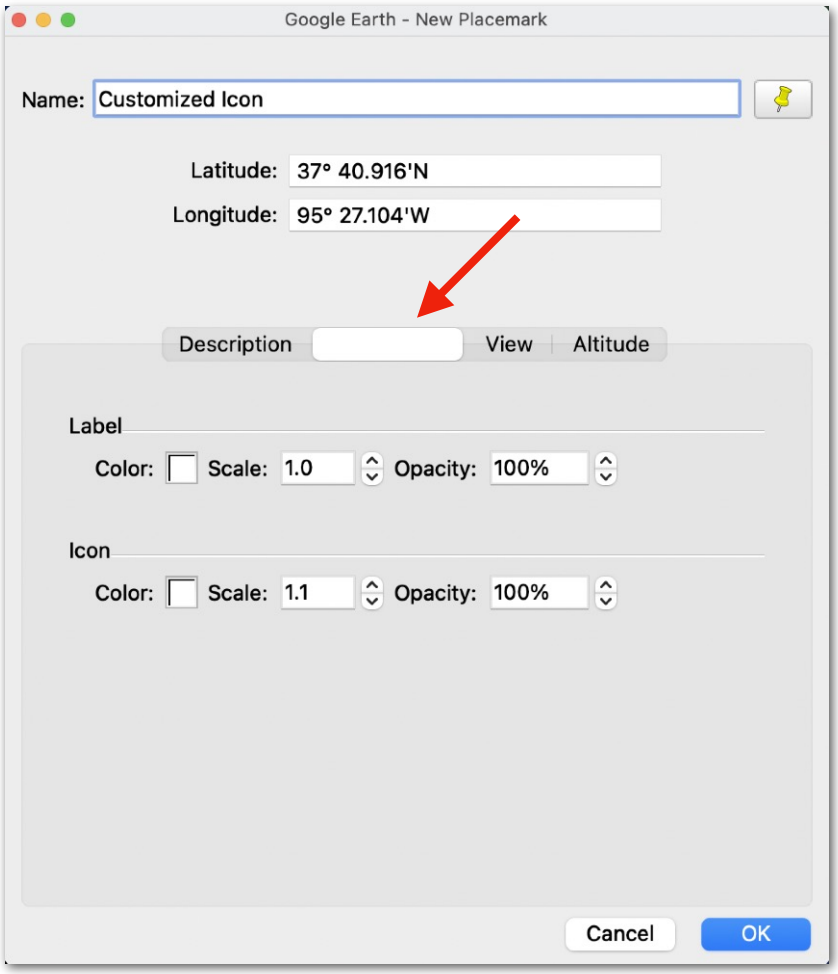
Custom Icons

For best results, custom icons should be PNG image files with transparent backgrounds. The image should be approximately 100 pixels by 100 pixels.

When using a custom icon, the map layer must be saved as a *KMZ file*. KMZ files are zipped files with KML map data and the custom icon image files.

23.7.4 Label and Icon - Style and Color

Label and icon color, size, and opacity can be customized. To make style adjustments, select **Style**, **Color** from the Google Earth waypoint menu. Not all customization fields are supported in ForeFlight. See the following pages for additional information.



Customizing Waypoints

Color and Opacity

Waypoint icons and their associated labels share color and opacity attributes. To adjust the color or opacity of a waypoint, use the *Icon* settings in Google Earth to make adjustments. When using a supported icon, it's not possible to differentiate the color or opacity of the waypoint icon and its label.



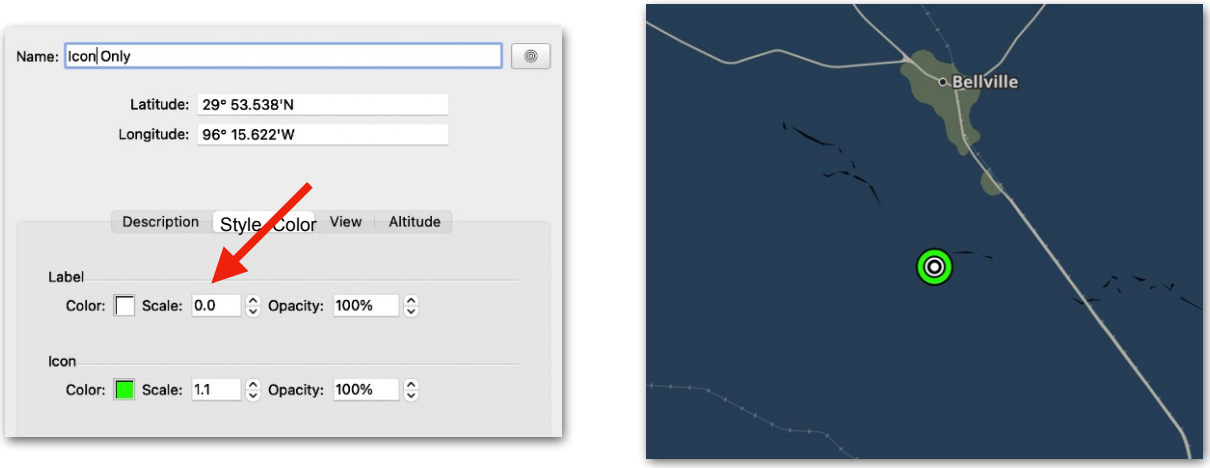
Green icon and label with 50% opacity

Scale

Icon and label scale (size) can be independently adjusted. The maximum label scale is one. A label scale greater than one will not be reflected in ForeFlight.

Specifying a label scale of zero results in the label not being displayed. If the label is not displayed, the waypoint's name can still be used for flight planning purposes. To create a map layer with only icons, set *label scale* to zero as in the image below.

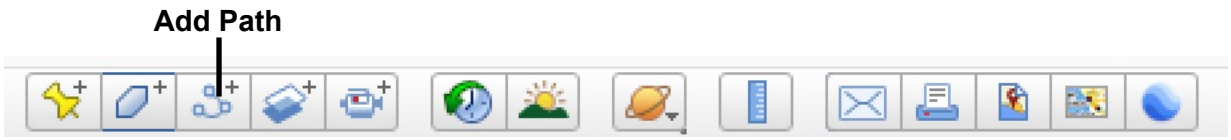
There is no upper limit for *icon* scale. An icon scale greater than one results in a larger icon in ForeFlight. To display a label without an icon, use the **Add Custom Icon** option and use a blank image.



Icon Only Waypoint - Label scale equal to zero

23.7.5 Lines

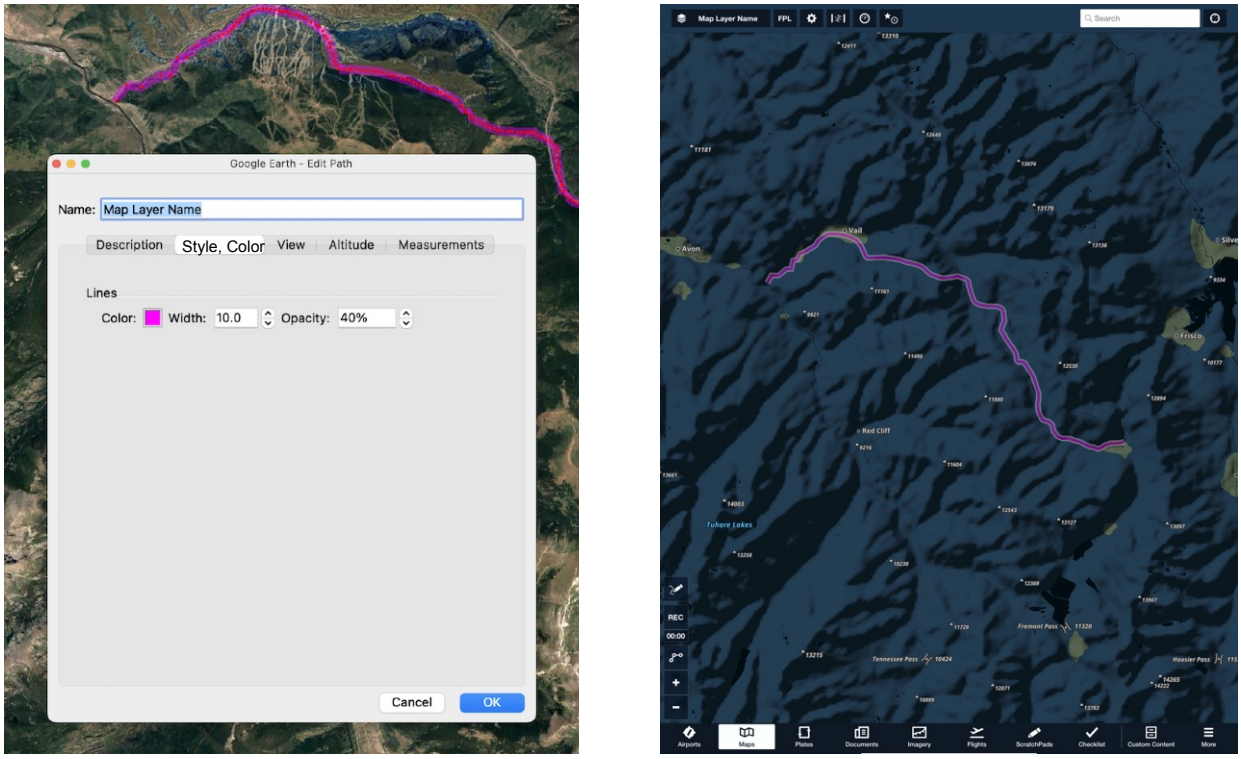
Custom map layers can depict lines. Lines can be included in the same file as waypoints and custom shapes. To add lines to a custom map layer, select the **Add Path** button in the Google Earth Pro upper toolbar.



Google Earth Pro Toolbar

Use the mouse and cursor to add points to the path. Adjust line width and color by selecting **Style, Color**. When all points have been added, click **OK**.

It's not necessary to provide the path with a name as ForeFlight will ignore it. The KML/KMZ file name is what will appear in the map drop-down menu.



Custom Map Layer Line (path) in Google Earth and ForeFlight Mobile

23.7.6 Shapes

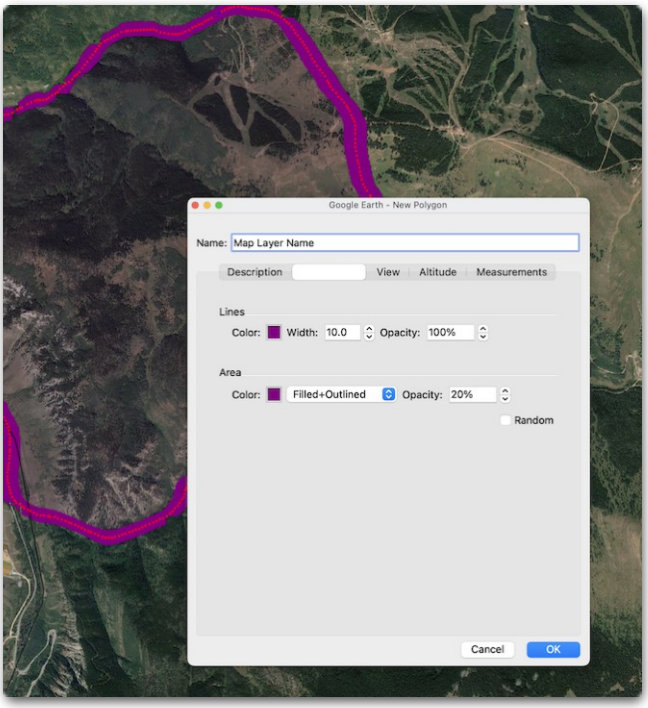
Custom map layers can depict shapes. Shapes can be included in the same file as waypoints and lines. To add shapes (Google Earth Polygons), select the **Add Shape** button in the Google Earth Pro upper toolbar.



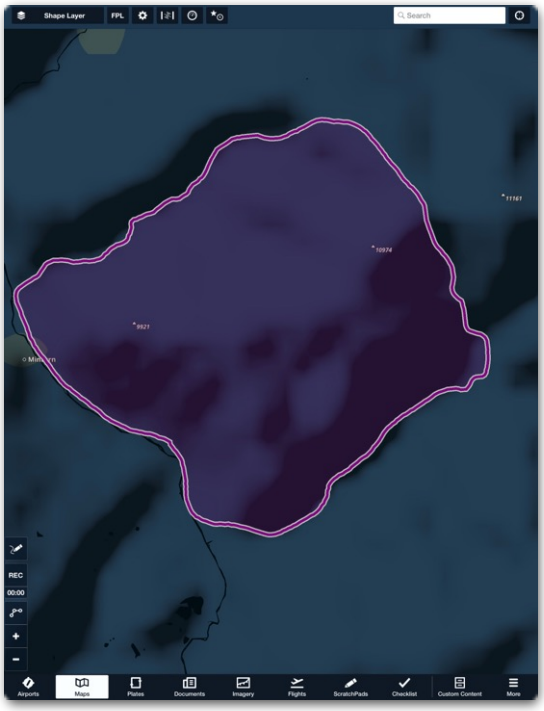
Google Earth Pro Toolbar

Use the mouse and cursor to add points to the shape. Adjust the appearance of the shape with the line and area settings in **Style, Color**. When all points have been added, click **OK**.

ForeFlight does not recognize a shape's name. To display a name over the center of a shape, add a custom waypoint (placemark) with the shape's name.



Google Earth - Polygon

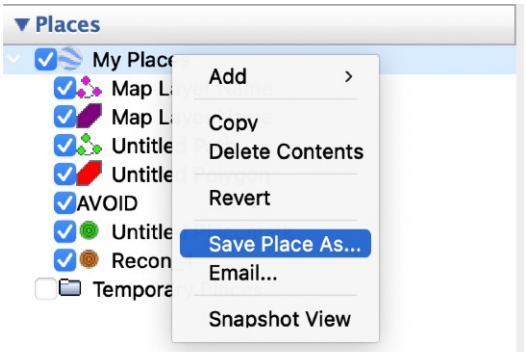


ForeFlight Mobile Custom Map Layer - Shape

23.8 Importing Custom Maps

Custom map layers can be imported via content pack or as a stand-alone file. To import a custom map, it must first be exported. To export a map layer, right-click the folder that contains the custom data.

Map layers and folders are displayed in the left column of Google Earth Pro under the **Places** menu.

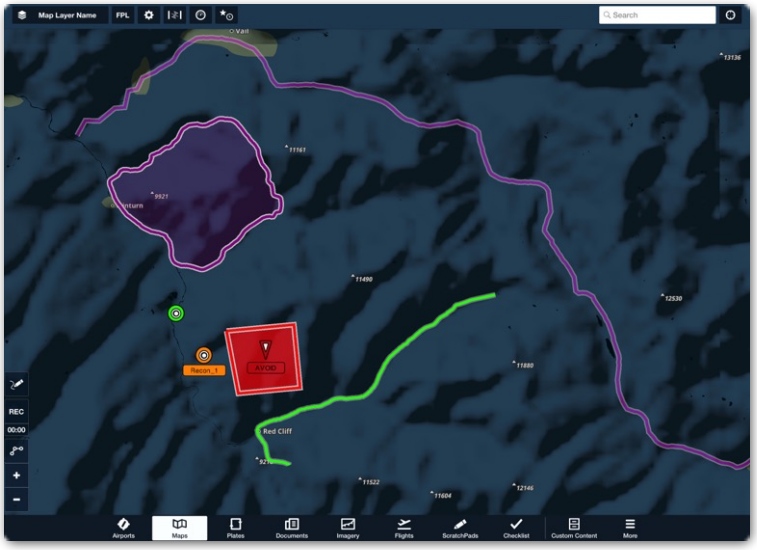


Save Place As….

Select **Save Place As….** and provide a name for the file. The file's name is what will appear in **More** > **Custom Content** > **Custom Map Layers** and in the map layer drop-down menu.

If the file contains custom icons, ensure the KMZ file format is selected. After exporting the file to a computer, share the file to an iPad/iPhone via AirDrop, Email, or File Transfer. When the iPad/iPhone receives the file, a list of installed apps which are capable of importing the file are listed. Select **ForeFlight** from the list of installed apps. ForeFlight will automatically open and provide prompts for importing the custom map.

Once the map has been imported, it can be selected from the map drop-down menu. Select **More** > **Custom Content** > **Custom Map Layer** to share, delete, or show the map layer.



Custom Waypoints, Lines, and Shapes

23.9 Custom Charts

The Custom Charts feature enables importing custom georeferenced charts in MBTiles, Geospatial PDF, or GeoTiff (MFB only) format. Custom charts can be displayed on the Maps view on top of other charts. Multiple custom charts can be displayed simultaneously on the map.



Custom Chart in ForeFlight Mobile

ForeFlight can not create custom charts. If a chart does not contain geospatial information, a third-party program can be used to add the data. ForeFlight recommends Map Tiler for creating MBTile custom charts and QGIS for creating geospatial PDF. For additional information, see our **Custom Content Support Page**.

23.10 Custom Plates (BYOP)

The Bring Your Own Plates (BYOP) feature allows PDF plates to be added to *published* airports, heliports, and private airports. Common BYOP plates include airport diagrams, private terminal procedures, arrivals, departures, or any other plate needing to be associated with a published airport. It is possible to import custom plates via content pack and as stand-alone files. Importing custom plates via content pack is recommended and discussed in this chapter.

Custom plates are accessed from the Plates, Airports, or Maps procedure view similar to published procedures. If the BYOP plate is georeferenced, the plate is able to be sent to the Map with an Essential or higher subscription. If a plate is not georeferenced, geospatial data can be added to the PDF with various mapping programs. For more information, visit the **How do I create a Geospatial PDF** support article.

23.10.1 BYOP Naming Convention

Adding a plate to an airport or heliport is done by renaming the plate according to a specific naming convention. BYOP file names contain three elements separated by underscores. (e.g., *AirportCode_CategoryName_Procedure Name.pdf).* Plates must end with a *.pdf* extension. The three naming elements and examples are listed below.

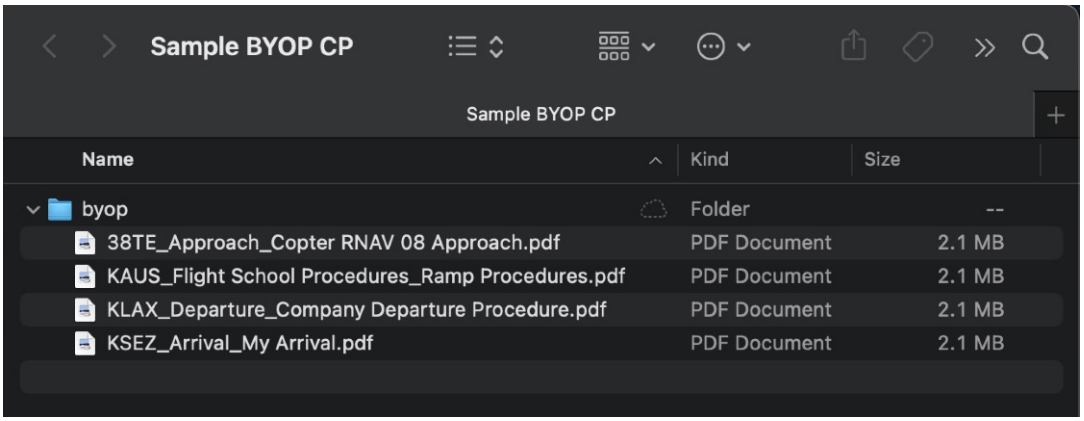
- **Four character ICAO airport/heliport code**: ICAO codes should be all caps with no spaces immediately followed by and underscore. (e.g., KLAX, 38TE)
- **Procedure Category**: Procedures are divided into four categories by default: Airport, Departure, Arrival, and Approach. Custom plates can be added to the existing categories. If the category name is omitted, a fifth category is created by ForeFlight. The fifth category is named *Other* and any plate without a specified category is added to this folder.

  If a category name other than one of the four existing categories is used, a custom procedure category is created in ForeFlight for the airport/heliport. See the example on the following page.
- **Procedure Name**: The procedure name supports letters, numbers, and special characters. The procedure name should be entered exactly as it is to appear in ForeFlight (e.g., COPTER RNAV 09 APPROACH, Ramp Operations).

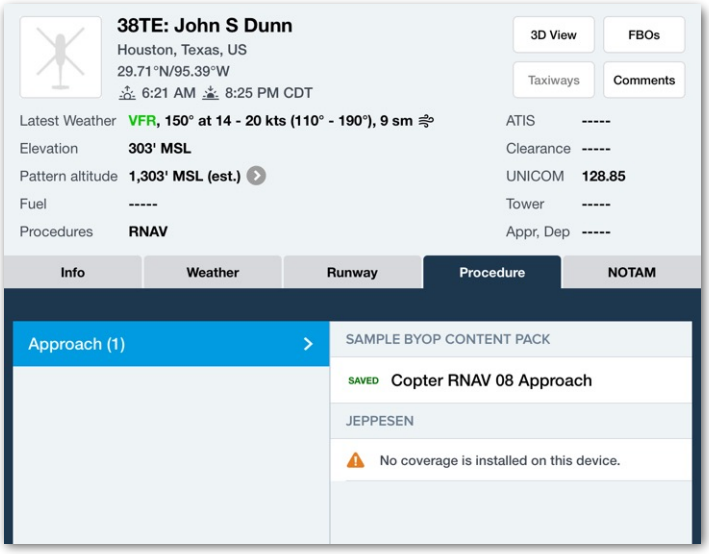
BYOP Examples

In the example below, the first plate (38TE_Approach_Copter RNAV 08 Approach) is added to the existing *Approach* category (left image).

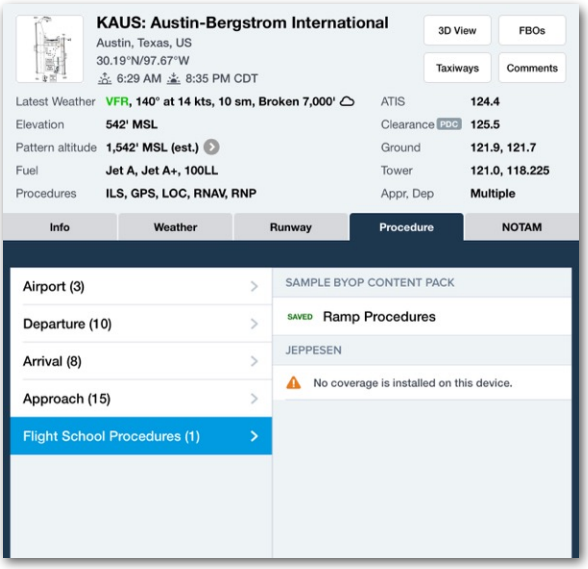
The second plate (KAUS_Flight School Procedures_Ramp Procedures) creates a custom category for Austin International Airport (right page) and adds the Ramp Procedures plate to the category.



BYOP Subfolder



38TE Copter Approach



KAUS Flight School Procedures

23.10.2 Importing Plates (BYOP)

Standalone BYOP files can only be imported via wired connection, using Finder (MacOS Catalina 10.15 or later) or iTunes (MacOS Mojave 10.14 or earlier).

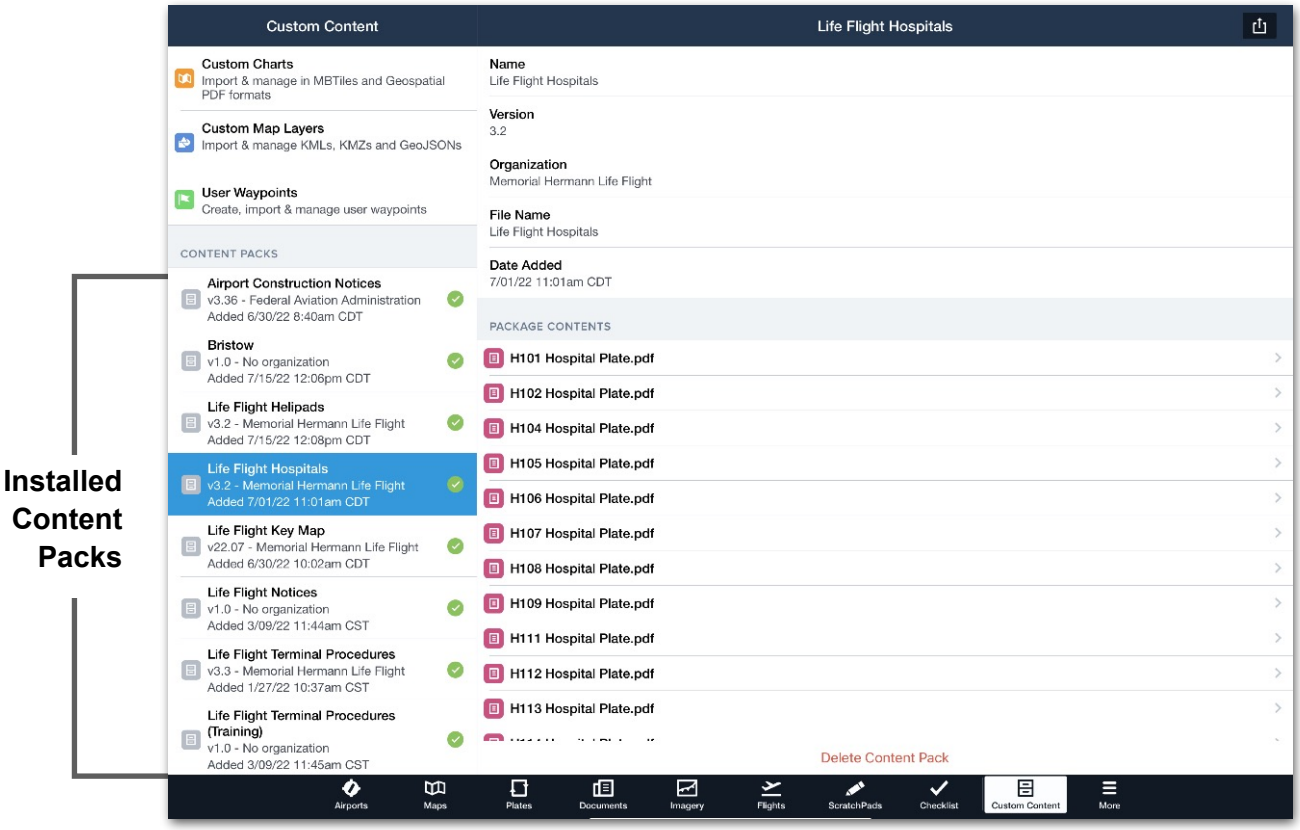
To import BYOP files without using Finder or iTunes, the files must be imported via **content pack**. For information on importing standalone BYOP files, refer to the **BYOP Support Page**.

23.11 Content Packs

A content pack is a single file that can contain various types of custom content. Content packs are easy to create, install, share, manage, and delete. Content packs add additional capabilities to the custom content features, including the ability to associate files with the waypoints in custom map layers.

Content packs can range from a basic list of user waypoints to complex bundles of geo-referenced charts, plates, map layers, and linked files. Content packs are listed in the left column of the Custom Content view. When tapped, the contents of a pack are listed in the detail view.

Multiple content packs can be installed on a device. Content packs are available to all individual subscribers and Performance level or above Business and MFB subscribers. Example content packs can be found at **foreflight.com/support/content-packs**.



Custom Content View - Content Packs

23.11.1 Package Contents

Content packs can contain multiple types of custom content. There's no limit to how many custom content types a content pack can have. Content packs must contain at least one type of custom content. The following custom content can be added to a content pack.

- Custom Charts
- User Waypoints
- Plates (BYOP)
- Map Layers
- Associated Files

23.11.2 Creating Content Packs

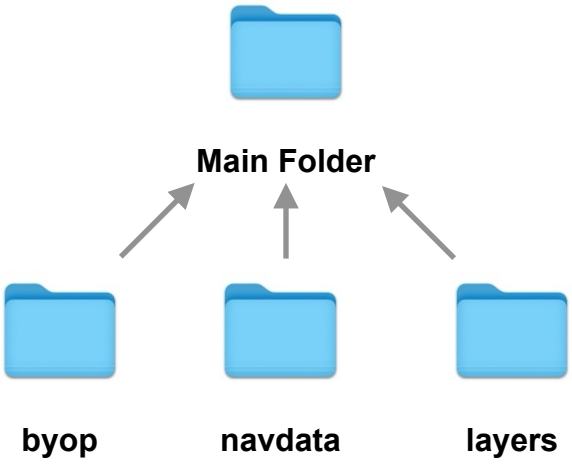
Content packs require the use of a computer and cannot be created with ForeFlight mobile. Begin by dragging and dropping custom content to the appropriate subfolder as described in this section.

Content Pack Structure

Content packs have a main folder and up to three subfolders. The subfolders are placed into the main folder and must be named exactly as depicted below. If a subfolder is empty, it is not necessary to include it in the content pack.

The main folder becomes a user content pack once all custom content is added. The main folder does not have a specific naming requirement. Assign the main folder a name that is easily recognizable. The main folder (content pack) name is displayed in ForeFlight.

Content Pack Folder Structure



23.11.3 Adding Content to Subfolders

The type of custom content determines which subfolder it's placed in. Add custom content to subfolders per the image below. Each subfolder that contains custom content should be placed in the main content pack folder.



byop

- **Custom Plates**



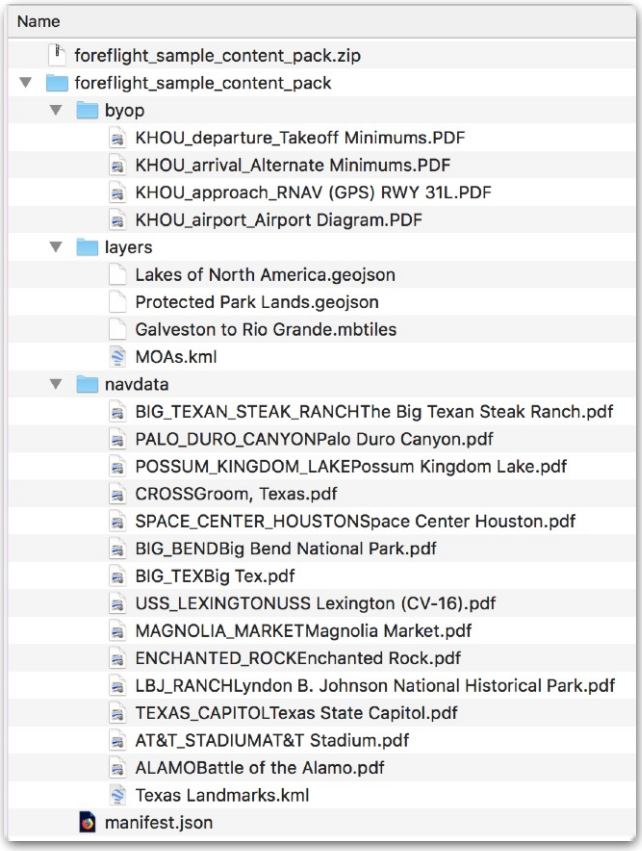
layers

- **MBTile Custom Charts**
- **GeoPDF Custom Charts**
- **GeoJson Custom Charts**



navdata

- **Map Layers (KML/KMZ)**
- **GeoJson Map Layers**
- **Associated Files**
- **User Waypoints**



Content Pack Folder Structure

23.11.4 Manifest

Content packs can also include an optional manifest. The manifest provides information about the content pack to help distinguish it from other content packs. It can also establish effective and expiration dates and specify if the content pack can be shared after being imported.

Information specified in the manifest is displayed at the top of the content pack details view in **More** > **Custom Content**. Manifests are placed in the main content pack folder. If a manifest is not included, ForeFlight will use the content pack file name by default.

Manifest Structure

The manifest must be a JSON file and has the following structure.

{

"name": "Sample content pack",
"abbreviation": "FFCP.V2",
"version": 2.0,
"expirationDate": "20230101T00:00:00",
"effectiveDate": "20220101T00:00:00",
"organizationName": “ForeFlight”,
“noShare”: “true”

}

23.11.5 Effective & Expiration Dates

Effective and expiration dates are an optional element of a content pack's manifest. The dates are depicted in the content pack's detail view. ForeFlight will also display red warning text in both the expiration date field and the content pack's summary in the left-hand list for any content pack that has passed its expiration date.

If the content pack includes plates within the **byop** folder, expired plates will display a red "EXPIRED" banner at the top of the Plates view. Expired content packs remain fully functional. The red banners only serve as a notice to the user that the content pack expiration date has passed.

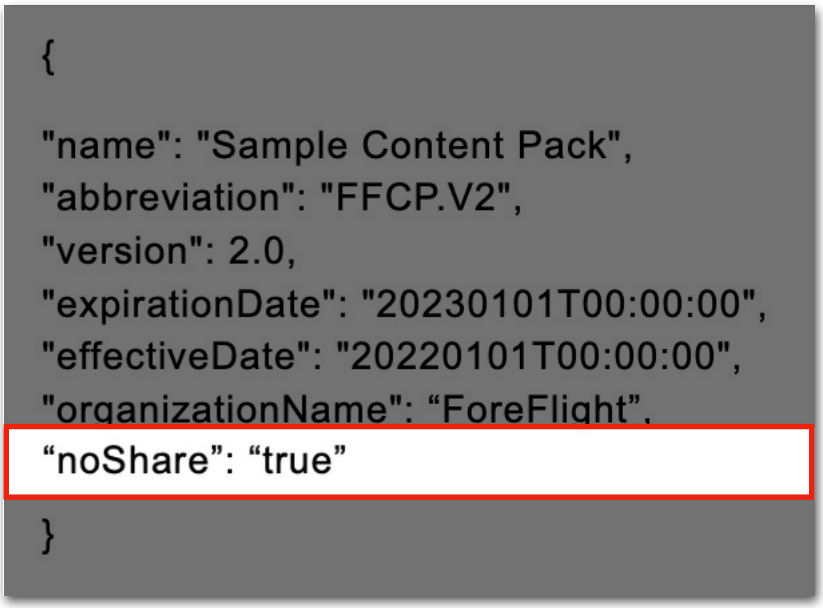
Dates must be specified using the format "YYYYMMDDThh:mm:ss", where Y=year, M=month, D=day, h=hour, m=minute, and s=seconds. Single digit months, days, hours, minutes, and seconds should be preceded by a single 0 character. The "T" in the string date is required, and is a delimiter that separates the date portion from the time portion (see the example manifest JSON above). Both times are interpreted in relation to the device’s local time setting, *unless* a "**Z**" suffix is added to indicate Zulu time, as in: "YYYMMDDThh:mm:ss**Z**"

For ForeFlight Military Flight Bag customers, special logic has been implemented to impose an expiration date on *Giant Report* zip files downloaded from the NGA aerodata website. Any content pack with a file name formatted as “Giant_Reports-YYYY-MM-DD” will automatically be assigned an expiration date corresponding to 8 days after the publication date identified in the file name.

23.11.6 Disable Content Pack Sharing

To prevent users from **sharing a content pack** from within ForeFlight, add the line “noShare”: “true" to the manifest.json file. This hides the Send To button whenever the content pack is being viewed in ForeFlight’s Custom Content view.

Adding “noShare”: “true” to one content pack does not disable sharing of other content packs installed on the same device. The code must be added to the manifest for each content pack not desired to be shared.



Disable Content Pack Sharing

Once content pack sharing is disabled, the Send To button will be hidden regardless of how the content pack was imported. For instance, whether imported it via AirDrop or downloaded it via an integrated cloud drive, the Send To button will remain hidden when the content pack from the Custom Content view is selected.

To enable sharing, remove “noShare”: “true” from the manifest.

23.11.7 NavData

The navdata subfolder contains **custom map layers**, **user waypoints**, and files that are associated with map layer waypoints.

Content Pack Map Layers

Custom map layers imported via content pack behave similar to map layers imported as standalone files. The exception is that map layers imported via content pack can have waypoints that are linked to supporting files (associated information).

Content Pack User Waypoints

User waypoints imported via content pack are not appended to the user waypoint list. As a result, user waypoints imported via content pack are not synced to the account. A user waypoint file added via content pack is selectable from the map layer dropdown menu. The CSV file name appears in the map layer dropdown menu.

Associated Information

Files that are related to a waypoint in a KML, KMZ, or geojson map layers can be added to the navdata subfolder. Associated files can be image or PDF documents. Adding a file to the navdata subfolder allows viewing the selected file from the Maps page.

Associated files are linked to waypoints by their naming convention. To link a file to a waypoint, use the following file naming convention: “Waypoint _Name Document Description”.

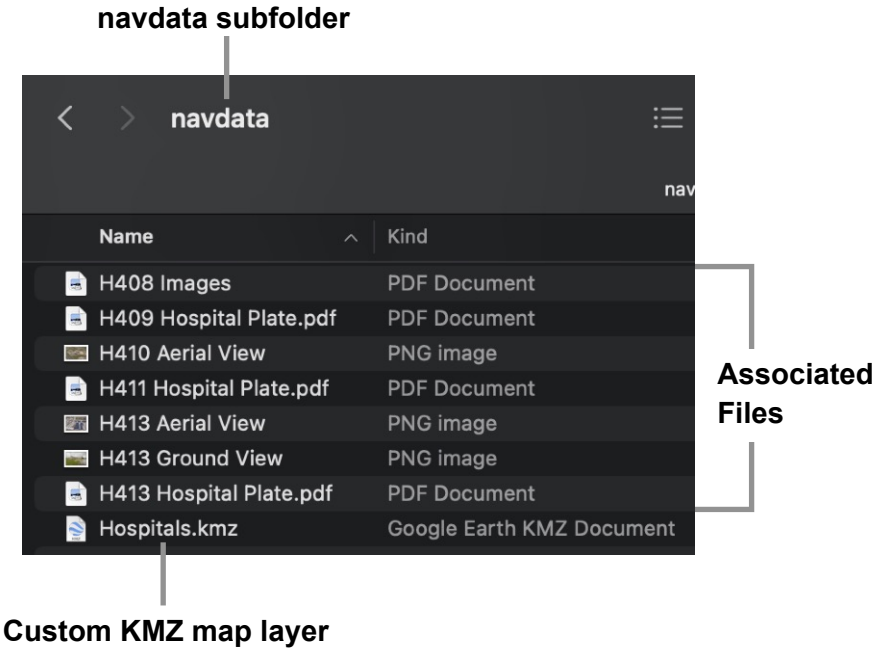
The waypoint name and document description are separated by a space. For example, a document named “H413 Aerial View” links the “Aerial View” file to the H413 waypoint.

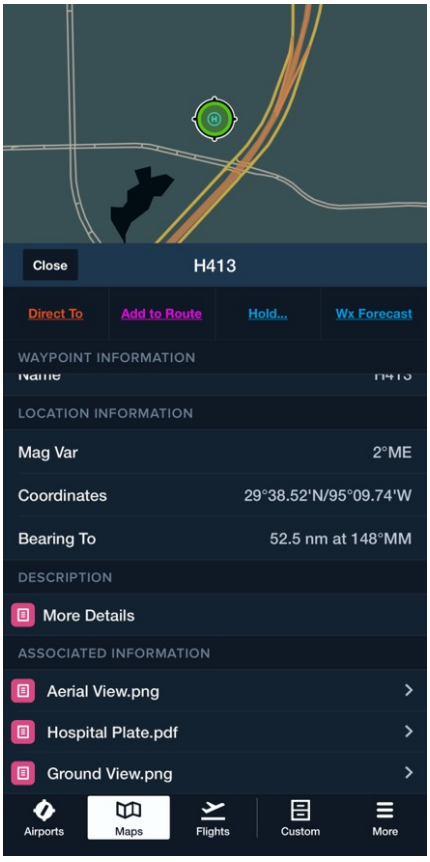
23. CUSTOM CONTENT

The first component of a document's name (H413) links the document to the waypoint in the custom map layer. The waypoint name in the associated file should match the waypoint name in the custom map layer.

The second component of the file's name is what will be displayed in the waypoint's slide-over menu. In the image below, note how multiple associated files are linked to the waypoint H413. Each file is accessible by tapping the waypoint on the map. The document description is displayed in ForeFlight exactly as the file is named (e.g. Aerial View, Hospital Plate, Ground View).

Associated PDF, PNG, and IMG files can be accessed from the map by tapping the custom map layer waypoint icon and selecting an associated file. Tapping an associated file opens the file in the Documents view.





H413 Waypoint with Associated Information

23.11.8 Layers

The layers subfolder contains custom charts. Custom charts in content packs operate the same as they do on their own. Content packs support the following types of map layer files: MBtiles, FBtiles, geospatial PDF, KML, and GeoJSON.

MBtiles, FBtiles, and geospatial PDFs appear at the bottom of the left column in the Maps layer selector, and KML and GeoJSON files appear in the bottom of the right column.

23.11.9 Importing Content Packs

Before a content pack can be imported, it must be compressed (zipped). Compress the main folder of the content pack and share the zipped file to the device via one of the supported methods. Files can be compressed by right-clicking the content pack's main folder and selecting **compress** from the menu.

Content packs can be imported via AirDrop, Mail, web browser, hyperlink, and cloud document drive (DropBox, Box, S3). Once a content pack has been shared with the device, a menu appears that lists all installed apps capable of importing the content pack. Select **ForeFlight** from the list of installed apps.

After selecting ForeFlight, the app will automatically open and import the content pack. Once the content pack is installed, a confirmation message will appear with options to dismiss the message or view the content pack. Selecting **View** in the pop-up menu displays the content pack in **More** > **Custom Content**.

Importing/Hosting via Hyperlink

If a content pack is hosted somewhere that is desired to be made available for download in ForeFlight, configure a hyperlink to make the content pack download through ForeFlight using this URL scheme: "https://foreflight.com/content?downloadURL=<The URL to the content pack location>".

Users can install the content pack to a device with ForeFlight installed by tapping or long-pressing the link and selecting **Open in ForeFlight**. Opening the link with ForeFlight adds the content pack as an available download. If Automatic Downloads are enabled on the device, the content pack will automatically download.

To see this in action, long-press on **this link** using a device with ForeFlight installed and tap **Open in ForeFlight**. Or, tap on the link and swipe down on the next page (a 404 page) to find the Open in ForeFlight banner at the top of the page.

23.11.10 Content Pack Cloud Drive Integration

With an Essential, Premium, Business Performance or MFB Performance plan, content packs can be imported into ForeFlight using a linked cloud storage account (Dropbox, Box, OneDrive, or Amazon S3). Importing via cloud drive is the recommended method for multi-pilot accounts.

To import content packs using a cloud drive, add a folder named “contentpack” to the root ForeFlight folder of the cloud drive.

Content Pack Folder Naming Convention

The content pack folder is not case-sensitive and supports various conventions. For example, “content-pack”, “content_pack”, “content pack”, “content-packs”, and “Content Packs” are all acceptable Content Pack folder names.

Content Pack Folder Location

The content pack subfolder must be located in the cloud drive’s root folder as depicted below:

- **Dropbox**: ~/Dropbox/Apps/ForeFlight/contentpack/
- **Box**: ~/Box Sync/ForeFlight/contentpack/
- **Amazon S3**: Add the “contentpack” subfolder to the drive used to import ForeFlight documents.
- **OneDrive**: Add the “contentpack” subfolder to the drive used to import ForeFlight documents.

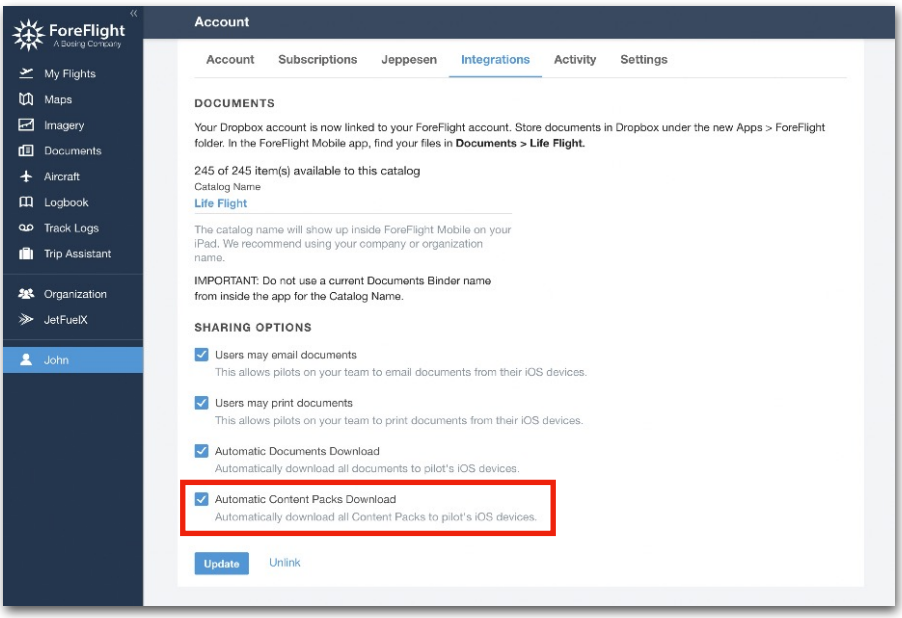
Content Packs Size Limits

Once the content pack folder is created, add zipped content packs to the folder.

ForeFlight does not limit the size of content packs. However, content packs imported via a cloud service (OneDrive, Dropbox, Box, or Amazon S3) may be limited by the service provider. Content packs that meet the cloud provider's criteria can be imported into ForeFlight. Check provider criteria for current size limits.

23.11.11 Automatic Content Pack Download

Content packs imported via cloud drive can be installed automatically or manually. To specify how content packs should be installed, log into **ForeFlight Web** from an administrator account and select **Documents** (left sidebar) > **Add a Cloud Drive**.



Automatic Content Pack Download Setting

When automatic content pack downloads are enabled, users are prompted and required to download content packs. A red download badge is displayed for content packs that are uploaded to the document drive and not yet downloaded to the device. When deleting a content pack from ForeFlight Mobile, a prompt to reinstall the content pack is immediately displayed.

If automatic content pack downloads are enabled and **Automatic Downloads** are enabled on the device, content packs uploaded to the cloud drive will be automatically installed on the device when connected to the internet.

If automatic content pack downloads are disabled, users are not required to download content packs. Content packs uploaded to the cloud drive appear as available for download in the **Custom Content** view but a badge is not depicted when new content packs are available.

23.11.12 Updating Content Packs

Content packs can be updated by replacing the content pack in the cloud drive with a file with the same name. When content packs are replaced in cloud drives, ForeFlight installs the updated content pack and automatically removes the old one.

The old content pack is *not* removed if an updated content pack is installed with a different name. If updating a content pack via a method other than integrated cloud drive, ForeFlight does not automatically remove the old content pack.

23.11.13 Content Pack Sharing

By default, content packs can be shared from within ForeFlight Mobile. To share a content pack:

1. Tap **More** > **Custom Content**.
2. Tap the content pack to be shared.
3. Tap the **Send To** button in the upper toolbar.
4. Use the standard iOS sharing options to share the content pack.

To prevent a content pack from being shared from within ForeFlight Mobile, see **Disable Content Pack Sharing**.

TRACK LOGS

Track Logs is an optional feature included with all ForeFlight subscriptions that allows pilots to record flights using the iPad or iPhone's built-in GPS or a compatible external GPS. Track Logs is a useful, integrated debriefing tool that syncs to an account.

A track log recording can be **shared**, viewed in other apps, and associated with logbook entries. Recordings capture GPS position, altitude, and groundspeed data at a rate of once per second and are less than 300 KB in size per hour. If connected to a supported **external AHRS device**, Track Logs records the flight's pitch and bank at the same rate.

To access the Track Logs view, tap the **Track Logs** button in the navigation toolbar at the bottom of the screen or select **More** > **Track Logs**. To configure how track logs are recorded, tap **More** > **Settings** and scroll to the **Track Log section**.

The Maps view can display a button for **manually recording track logs** and a timer to indicate when a track log is being recorded.



Track Logs View

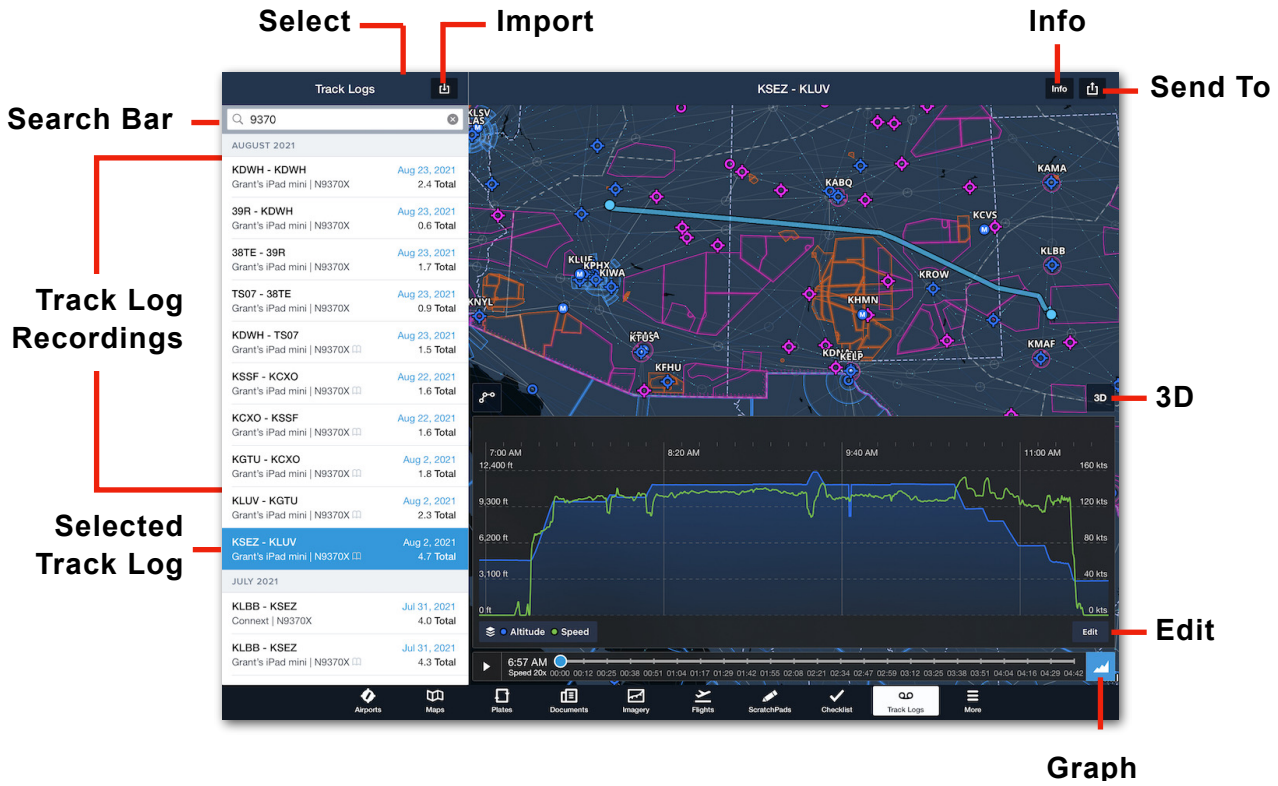
24.1 Design

The Track Logs view lists **Track Log Summaries** on the left, sorted by date. In portrait mode, tap the **Track Logs** / **Close** button in the upper toolbar to show or hide the summaries.

A search bar at the top of the list allows track logs to be filtered by departure, destination, aircraft, or GPS data source.

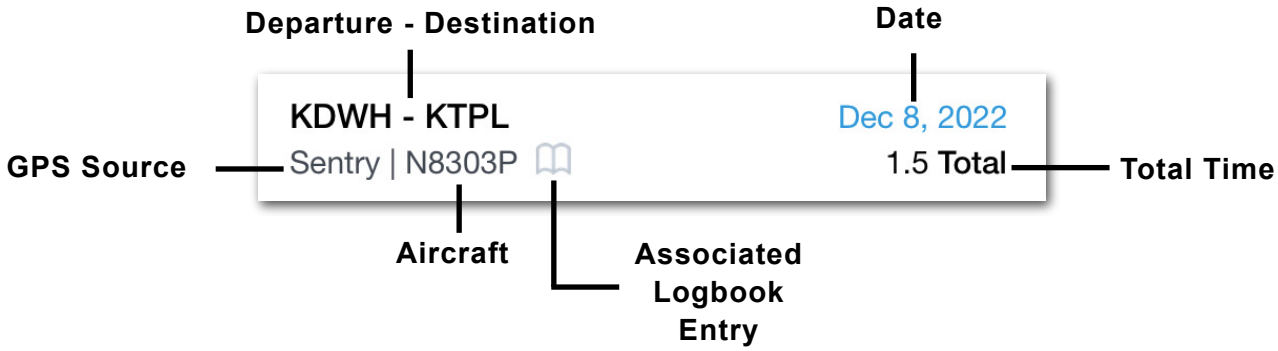
The selected track log is highlighted in blue and is displayed on the interactive map and graph to the right. Buttons along the perimeter serve the following functions:

- The **Select** button allows multiple track logs to be **deleted** at once.
- The **Import** button allows **G1000** and **Sentry Plus** track logs to be imported.
- The **Info** button reveals a pop-up with additional **Track Log Information**.
- The **Send To** button allows the selected track log to be sent to Logbook or shared outside of ForeFlight Mobile.
- The **3D** button opens **Track Log 3D Review**.
- The **Edit** button enables **Track Log Trimming**.
- The **Graph** button hides and shows the **Track Log Graph**.



24.1.1 Track Log Summary

Each track log contains a summary with the following information.



- **Departure - Destination:** The starting and ending points are automatically derived by comparing the track log's starting and ending coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is within 2 NM, the coordinates are displayed. If the incorrect location is automatically filled, it can be corrected by tapping the **Info** button.
- **GPS Source:** When a track log recording is started, the current GPS data source is captured. The GPS source is the *initial* source, not the source used for most of the recording. For example, if a recording is started and an external device is later connected, the track log will indicate the iPad or iPhone was the initial GPS data source. It is *not* possible to adjust this field.
- **Aircraft:** The tail number is determined by the following logic:
  - If **ADS-B ownship** is detected during the flight, the ownship aircraft is assigned.
  - If no ownship is detected, the track log's start time is compared to planned flights. If a flight with a similar estimated departure time is found, the aircraft from the flight is assigned.
  - If ownship is not detected and no flights are planned, the default aircraft profile is assigned.
- **Date:** The date at the start of the track log.
- **Total Time:** Time between the start and end of the track log. If a track log is trimmed, the Total Time reflects the edits.
- **Associated Logbook Entry**: If the track log has an **associated logbook entry**, a Logbook Badge is displayed.

24.1.2 Track Log Map

The map overlays the selected track log's flight path on top of the **Aeronautical Map**. The Track Log map is similar to the one found on the Maps view, but it cannot be used to interact with or filter the map elements.

When first opened, the flight path is centered on the map. The map is interactive and responds to standard touch gestures. To recenter the map on the flight path after panning or zooming, tap the **Fit To Map** button.

By default, the **Graph** is overlayed on the map. To hide the Graph and display a larger map, tap the **Graph** Button.

If a **Marked Position** was created during the flight, it will appear on the map and can be tapped to edit or review its details.



Flight Path

Fit To Map

Graph Button

24.1.3 Track Log Graph

The Track Log Graph displays two data types along a linear timescale. Altitude and Speed are shown by default, but any two of the following options may be selected depending on how the track log was recorded. Tap the **Data Menu** to select options.

- **Altitude:** GPS altitude data as provided by the GPS data source.
- **Speed:** Groundspeed as determined by ForeFlight.
- **Pitch:** Pitch attitude as provided by an external AHRS source. If no AHRS external device was connected during the flight or if saving a **Breadcrumb** as a track log, this option is not selectable.
- **Bank:** Bank attitude as provided by an external AHRS source. If no AHRS external device was connected during the flight or if saving a **Breadcrumb** as a track log, this option is not selectable.
- **g Load:** Acceleration data as provided by a Sentry Plus. If the flight was conducted without Sentry Plus, this option is not selectable.

Track Log Graph Design

The top data selection (i.e., **Speed** in the screenshot below) is displayed on the left y-axis of the graph. The bottom selection is displayed on the right. The minimum and maximum y-axis values dynamically adjust to reflect the minimum and maximum values recorded during the flight. The track log's local time is displayed across the top of the Graph and a time slider is displayed along the bottom.



24.2 Required Equipment

To create a track log, ForeFlight needs access to GPS data. This data can be obtained from the device's built-in GPS receiver or an external Bluetooth or Wi-Fi GPS receiver.

If multiple GPS sources are available, Track Logs will use GPS data according to the **GPS priority logic**. When recording a track log, the GPS source providing data for the moving map is the same source used to record the track log.

24.2.1 External GPS

Track Logs can use external Bluetooth or Wi-Fi GPS data. Access to *external* GPS data does *not* rely on the **iOS Location Services** setting. When a track log is recorded while connected to an external GPS, the track log is still considered to be recorded by ForeFlight. The external device simply provides ForeFlight with GPS data.

Wi-Fi GPS Devices

GPS data delivered over Wi-Fi can only be accessed when ForeFlight is actively being used. This limitation leads to two possible scenarios if ForeFlight is closed while recording:

- **Wi-Fi only iPad:** If recording a track log with a Wi-Fi only iPad, the track log will stop two minutes after being closed as GPS data is no longer accessible.
- **Cellular-Capable iPad or iPhone:** If recording a track log with a cellular-capable device, the track log will revert to using built-in GPS data after external GPS data is no longer accessible.

IMPORTANT: If recording track logs with an external Wi-Fi GPS, ForeFlight should remain open for the entirety of the flight. GPS data cannot be accessed via Wi-Fi while ForeFlight is inactive.

NOTE: A change to the GPS source can result in erratic GPS data.

Bluetooth GPS Devices

External Bluetooth GPS data can accessed when ForeFlight is in the background. The limitations that apply to Wi-Fi GPS devices do not apply to Bluetooth.

24.2.2 Built-In GPS

Access to the iPhone or iPad's built-in GPS relies on the **iOS Location Services** setting being enabled.

To record track logs while ForeFlight is in the background, ForeFlight's Location Services setting must be set to **Always**. If the Location Services setting is set to **While Using the App**, Track Logs will not be able to access the built-in GPS data while ForeFlight is inactive.

NOTE: Wi-Fi only iPads do not have built-in GPS and cannot use GPS data from a hotspot-enabled iPhone.

24.2.3 Background Recording

Track logs recorded while using the device's built-in GPS or a Bluetooth GPS can record while ForeFlight is in the background. Track logs recorded with a Wi-Fi only iPad and external Wi-Fi GPS cannot be recorded while ForeFlight is inactive.

24.3 Recording Track Logs

There are five methods for recording a track log. The use of one method does not prohibit others. Multiple devices can simultaneously record a track log, which has the potential to generate multiple track logs.

Track log recording methods are listed below and described throughout this section.

- Automatic track log recording with ForeFlight.
- Manual track log recording with ForeFlight.
- Saving a **Breadcrumb** as a track log.
- Recording a track log with a **Flight Data Recorder** (FDR).
- Recording a track log with a **Garmin G1000**.

24.3.1 Automatically Recording Track Logs

Automatically recording a track log is the most common way to record. With this method, ForeFlight automatically starts recording after takeoff and stops after landing. Track logs that are automatically started can be manually stopped and vice versa.

Enabling Automatic Recordings

To enable this feature, tap **More** > **Settings** and scroll to the Track Log section. Verify **Enable Auto Start/Stop** is toggled on.

Auto-Start Criteria

In order to detect a takeoff and start a track log, the following must be met:

- ForeFlight must remain open with available GPS data during the takeoff phase.
- Acceleration must be detected and groundspeed must exceed 60 knots.

NOTE: If ForeFlight is opened *after* takeoff, the auto-start feature will not work.

When started automatically, the track log start time reflects when ForeFlight was opened *prior* to takeoff (up to 30 minutes). This time is intended to account for taxiing.

If the start (or end time) is incorrect as a result of using automatic recording, it can be edited. See **Trimming Track Logs** for additional information.

Verifying Automatic Starts (Flight Timer)

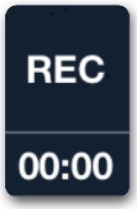
There are no notifications when ForeFlight automatically starts a track log. To verify that a track log recording has started, reference the Flight Timer.

IMPORTANT: If the Flight Timer is not active, ForeFlight is not recording a track log.

Flight Timer

When a track log recording is in progress, either from automatic or manual initiation, the Flight Timer displayed on the Maps view shows the duration of the current recording.

The timer is displayed in the lower left corner of the Maps view below the Track Log **REC** (record) button.



Flight Timer

Auto-Stop Criteria

Track logs are automatically stopped 15 minutes after a landing is detected. This is true for recordings that are started automatically or manually. A landing is defined as the portion of flight where:

- groundspeed slows from above 60 knots to less than 40 knots, and;
- height AGL descends below 250 feet.

In addition to landing auto-stop, track logs also automatically stop when *either* of the following conditions exists:

- ForeFlight is closed and no GPS data is received for 2 minutes, which is a typical scenario when using a Wi-Fi only iPad and Wi-Fi based external GPS. In such a case, GPS data from Wi-Fi cannot be accessed as ForeFlight is inactive.
- A landing is not detected and groundspeed is below 40 knots for two minutes.

NOTE: Once a track log has stopped, it cannot be manually resumed. Additionally, track logs cannot be merged.

Auto-Stop Exceptions

If another takeoff is detected within 15 minutes of a landing, the track log is resumed. This scenario is intended to account for touch-and-go and full-stop taxi back landings.

NOTE: To record multiple legs with stops exceeding 15 minutes as a single track log, disable automatic recording and manually start and stop the track log.

24.3.2 Manually Recording Track Logs

Track logs can be manually started and stopped by tapping the **REC** button on the Maps page.

Enabling the REC Button

The REC button is enabled by tapping **Map Settings** > **Track Log Record Button** or by tapping **More** > **Settings**, scrolling to the Track Log section, and tapping **Enable Start/Stop Control**.

Manual Recordings with Auto Start/Stop Enabled

Manually starting or stopping a track log is not affected by the automatic track log recording feature. Track logs can be manually started and stopped with automatic track log recordings enabled or disabled.

To manually start a track log recording:

1. Open the ForeFlight Maps page.
2. Tap the **REC** button.
3. The timer starts and the REC button is highlighted blue to indicate that the recording is active. Unlike automatic recordings, no time is added to a track log that is manually started or stopped.

To manually stop a track log recording:

1. Open the ForeFlight Maps page.
2. Tap the **REC** button. A new track log is created for every recording in excess of one minute.

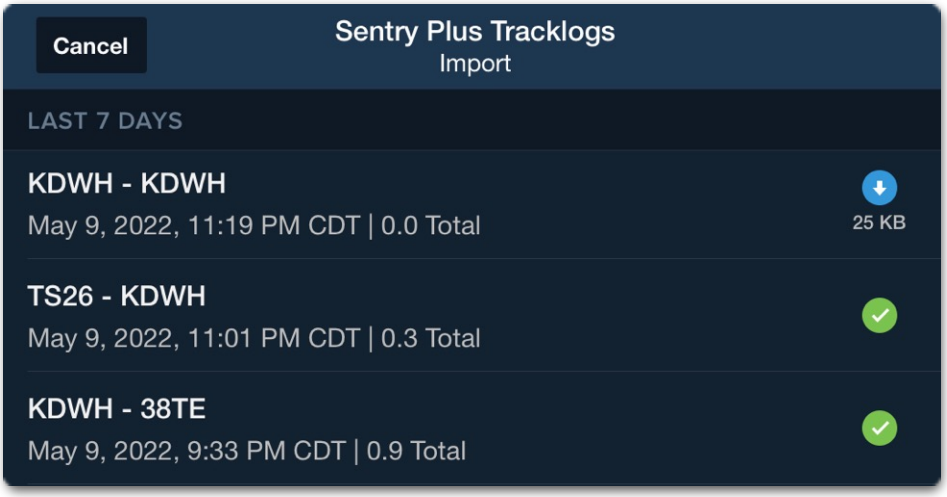
24.3.3 Recording with a Flight Data Recorder

Flight data recorders (FDR)s are external devices that record GPS and AHRS flight data. As depicted in the image below, the ForeFlight **More** > **Devices** view is used to import track logs that were recorded with an FDR.

Recording a flight with an FDR does not prohibit ForeFlight from recording a track log or saving a breadcrumb. As such, the two operate independently and it's possible to record multiple track logs simultaneously for the same flight.

ForeFlight supports the following FDRs:

- **Sentry Plus**
- **Stratus 2/2S/2i/3/3i**.



Sentry Plus FDR Track Logs

24. TRACK LOGS

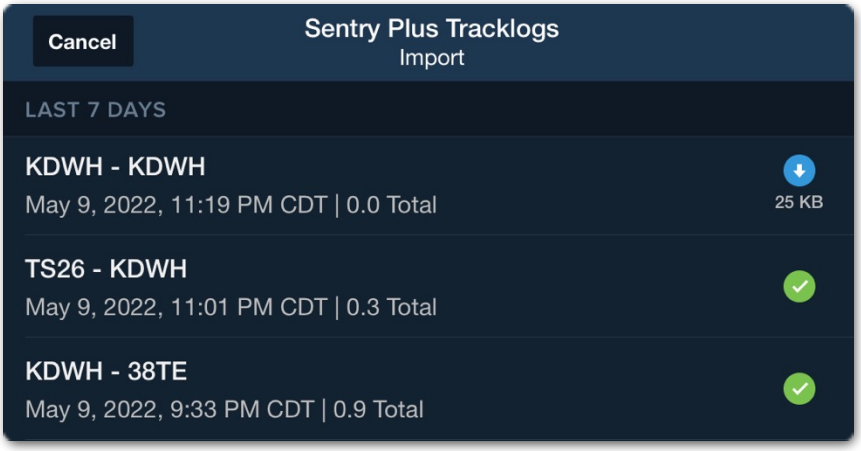
Sentry Plus Flight Data Recorder

The Sentry Plus Flight Data Recorder automatically captures track, altitude, attitude, groundspeed, and g-load data from Sentry Plus every second (1 Hz) for *every* flight.

The flight data recorder automatically starts recording continuously when Sentry Plus is powered on until it is powered off.

To import Sentry Plus Track logs:

1. Open ForeFlight while connected to Sentry Plus and select **More** > **Track Logs**.
2. Tap the **Import** button in the upper toolbar.
3. Tap **From Sentry Plus.**
4. Tap the blue download button next to a track log to import it.



Imported and Available Track Logs

Track logs that have already been imported to ForeFlight display a green checkmark. Track logs that have not been imported display a blue download button and an import file size. Sentry Plus track logs can be imported to multiple ForeFlight accounts.

See **foreflight.com/sentry-guide** for additional information or refer to the Sentry Pilot's Guide in-app by selecting **Documents** > **ForeFlight** > **Sentry** > **Sentry Pilot's Guide**.

Stratus Flight Data Recorder

The Stratus Flight Data Recorder automatically captures up to 20 hours of track, altitude, attitude, and groundspeed data at a rate of five times per second (5 Hz). Flights are automatically recorded any time the unit is powered on and movement is detected. Track logs are stopped when the unit is powered off. Older track logs are automatically overwritten as new flights are completed.

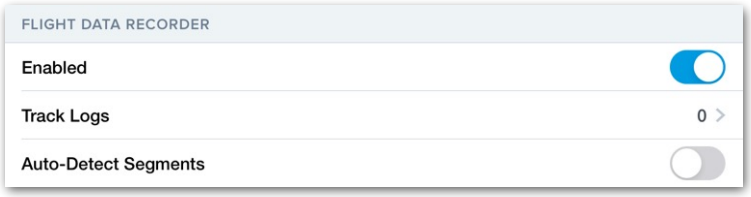
Status Flight Data Recorder Settings

The flight data recorder is enabled by default. To disable the Stratus Flight Data Recorder:

1. Go to **More** > **Devices** and tap the Stratus device tile.
2. Scroll to the Flight Data Recorder section and toggle the **Enabled** switch off.

Auto-Detect Segments

When enabled, the Auto-Detect Segments setting in **More** > **Devices** > **Stratus** stops track log recordings when a full-stop landing is detected. New recordings are started when a takeoff is detected.



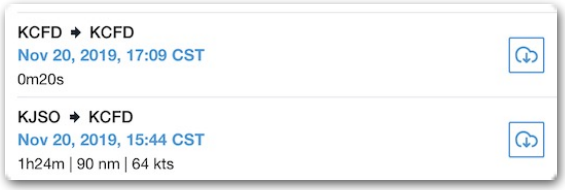
Stratus Flight Data Recorder Settings

NOTE: ForeFlight can record track logs independently of the Stratus Flight Data Recorder. Importing flights from Stratus may results in duplicate track logs.

Viewing Stratus Track Logs

Track logs recorded to Stratus are not automatically downloaded to ForeFlight. To view track logs, they must first be downloaded. To download Stratus track logs:

1. Go to **More** > **Devices** and tap the **Stratus Device Tile**.
2. Scroll to the Flight Data Recorder section and tap **Track Logs**. The number of track logs available for download are displayed on this row.
3. Locate a flight and tap the **Cloud** icon to download it from Stratus. Once downloaded, select **More** > **Track Logs** to view the flight.



Stratus Track Logs

24.3.4 Importing G1000 Track Logs

Properly configured Garmin G1000s can record track logs to a CSV file. These files can be transferred to an SD card using the G1000's top card slot. Track logs that have been saved to an SD card can be imported to ForeFlight by using a computer or an SD card reader. For a video demonstration, see **G1000 Track Log Import**.

Importing G1000 track logs with an SD card reader

To import G1000 track logs using an SD card reader like the one pictured below, follow these steps:

1. Insert the SD card with G1000 track logs into the reader.
2. Plug the reader into the iOS device Lighting or USB-C port.
3. Open ForeFlight Mobile and tap **More** > **Track Logs**.
4. Tap the **Import** button in the upper toolbar.
5. Tap **From G1000 (CSV File)**.
6. Locate and choose the SD card using the iOS Files view.
7. Tap the **Track Logs** folder.
8. Select the track logs to import.



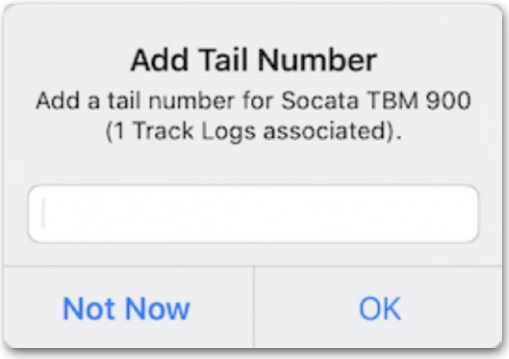
SD Card Reader

Saving G1000 track logs using a computer

Using a computer, track logs can be transferred from the SD card to ForeFlight. This method requires the track logs to be saved to a cloud drive that is accessible from both a computer and an iOS device.

For example, if the computer has access to DropBox, iCloud, or Google Drive, the files can be saved to one of these directories and later accessed and imported with ForeFlight. Follow the steps below to import track logs using a computer:

1. Insert the SD card into a computer that has access to a cloud drive.
2. Copy the track log folder to the drive.
3. Open ForeFlight Mobile and tap **More** > **Track Logs**.
4. Tap the **Import** button in the upper toolbar.
5. Tap **From G1000 (CSV File)**.
6. Locate and tap the cloud drive, folder, or directory where the track logs are saved using the iOS Files view (e.g., DropBox).
7. Tap the **Track Logs** folder and select the track logs to import.
8. If importing a G1000 track log from a new aircraft, a prompt will appear and is used to enter the tail number to associate with the track log. Future imports from the same aircraft will use the same tail number and will not display the prompt.
9. After importing G1000 track logs, a “NEW” flag is displayed until the Track Logs page is navigated away from.

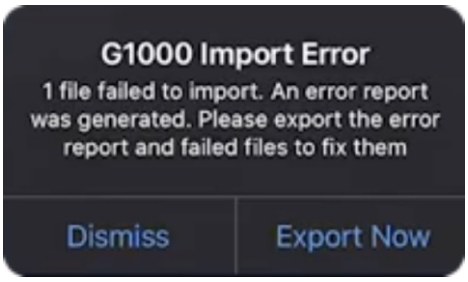


Add Tail Number Prompt

Garmin G1000 Import Errors

If ForeFlight is unable to import a G1000 track log, a pop-up appears with an option to **Dismiss** or **Export** an error report. The error report contains the original CSV file and a text file with an explanation of the errors.

Using a program that is compatible with CSV files (e.g., Microsoft Excel), the track log can be edited according to the error report and an import can be reattempted.



Error Pop-up

24.3.5 Marked Positions in Track Logs

Performance plan holders can record **Marked Positions** as part of track logs. See the Marked Positions **Support Video** for additional information.

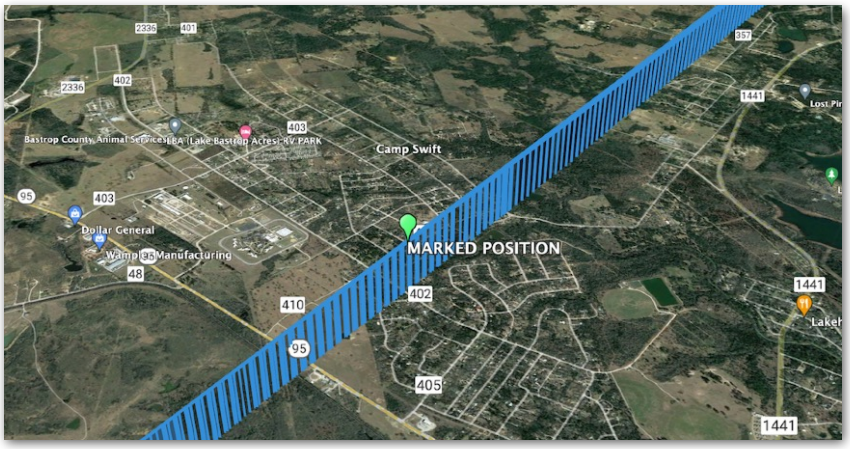
If marked positions are dropped during a flight while a track log is in progress, those marked positions are saved in the track log recording.

Likewise, if marked positions are dropped during a flight with a breadcrumb, and that breadcrumb is converted to a track log, the track log recording will also include the marked positions.



Track Log with Marked Position

When a track log containing marked positions is **exported** as a KML or CSV file, the file includes the marked positions and can be displayed in third-party apps.



KML File with Marked Position in Google Earth

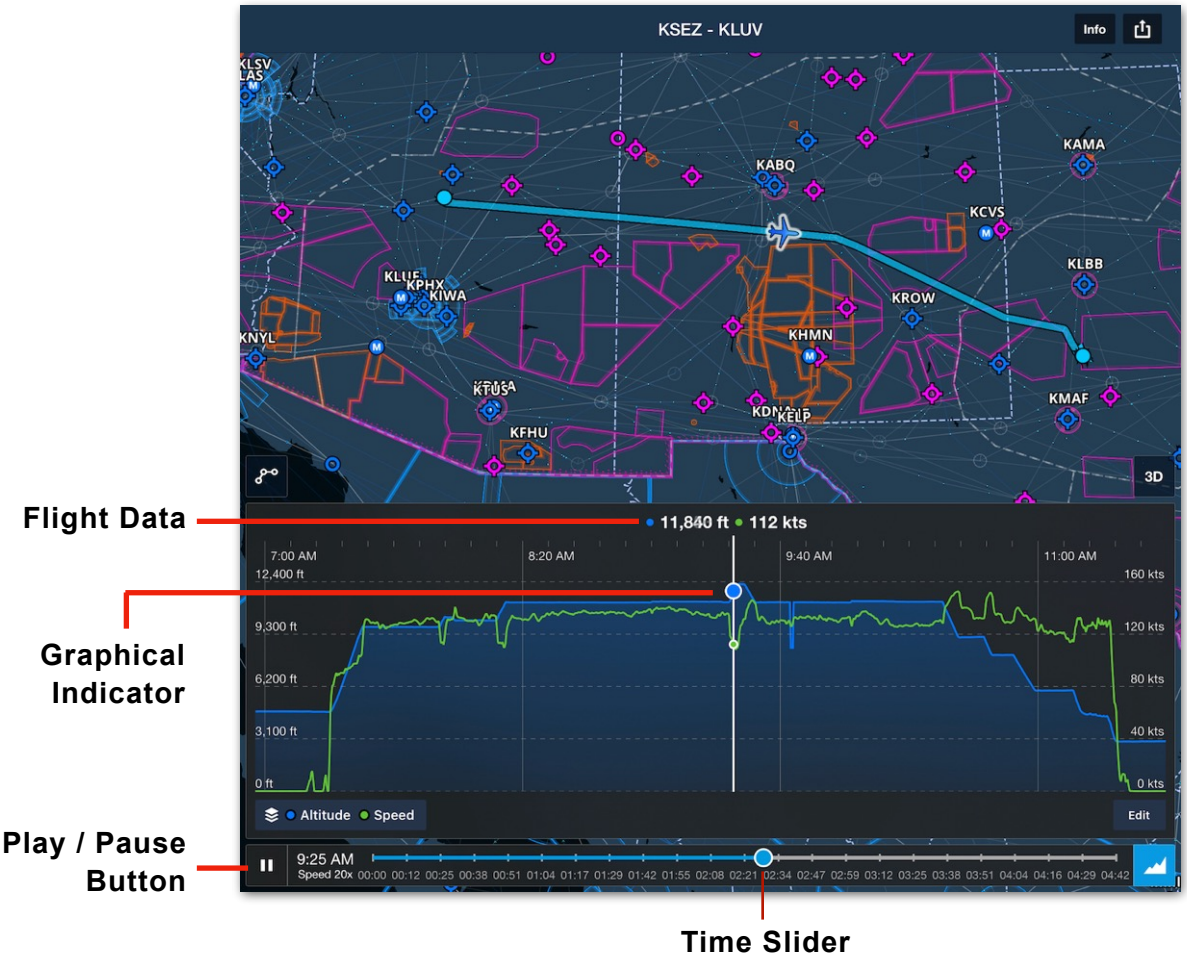
24.4 Track Log Review

Track Log Review is an integrated debriefing tool used to view and compare multiple data types simultaneously. To review a Track log, select **More** > **Track Logs** and tap a **Track Log Summary**. The selected track log's flight path is displayed on the **Interactive Map** and flight data is displayed on the **Track Log Graph**. For a video demonstration, see **Track Log Review**.

24.4.1 Animating Track Logs

Track logs can be reviewed and paused by tapping the **Play / Pause** button. When animating a track log, a thin vertical line appears on the Graph with two color-coded indicators that graphically depict the flight data at that moment. Above the vertical line, the actual flight data readout for that moment is displayed.

The airplane icon, flight data, graph, and flight time are updated dynamically at 20 times (20x) the actual speed of the flight. With the exception of scrubbing, it is not possible to animate track logs at a speed other than 20x.



Track Log Scrubbing

Scrubbing a track log is a method for manually animating across a track log's timeline and can be used to animate the track log at a speed other than 20x.

To scrub the track log, drag the blue dot on the time slider left or right. Alternatively, tap *and hold* a finger on the Graph. Without lifting the finger, slide it left or right.

If a track log is being animated and scrubbing is initiated, the animation will resume at the point where the finger was lifted.

Track Log Graph Zoom

The Graph can be zoomed to reveal more detail. To zoom the Graph, place two fingers on the Graph and separate them.

When zoomed in, not all portions of the flight are visible in the Graph. The portions of the flight path that are not visible are changed to a thin, orange path on the map and marked with Start/End points. To view the hidden portions, drag a finger left or right across the Graph.



Track Log Graph Zoom

24.4.2 Track Log Info

Text-based track log information is available by tapping the **Info** button in the upper toolbar. When tapped, the Info button reveals a pop-up with up to six sections. Some fields within the pop-up can be edited. Track log definitions are found below.

Summary Section

The Summary section contains the following fields, many of which are editable.

- **Name** is an editable field that describes the track log. By default, the Name is the Start and End point separated by hyphen.
- **Tail Number** is an editable field that is automatically populated using the following logic:
    - If **ADS-B ownship** is detected during the flight, the ownship aircraft is assigned.
    - If no ownship is detected, the track log's start time is compared to planned flights. If a flight with a similar estimated departure time is found, the aircraft from the flight is assigned.
    - If ownship is not detected and no flights are planned, the default aircraft profile is assigned.
- **Date** is an automatically populated non-editable field based on the track log's start time.
- **Start** is the track log's starting location and is automatically derived by comparing the starting coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is nearby, the starting coordinates are displayed.
- **End** is the track log's ending location and is automatically derived by comparing the ending coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is nearby, the ending coordinates are displayed.
- **Pilot Name** is an optional, editable field for recording the name of the pilot. The pilot name is not forwarded to associated logbook entries.
- **Recorded On** is a non-editable field that indicates the device that provided the track log with GPS data when the track log was started (e.g., Sentry, Garmin Connext, iPad).
- **Imported From** is a non-editable field that indicates if the track log was imported from a flight data recorder (e.g., Sentry Plus, Stratus, or Garmin G1000).

Metrics

The Metrics section is automatically calculated. Individual fields within this section are not editable. However, if a track log is **trimmed**, the Metrics section reflects the updates. Definitions for the Metrics section are found below.

- **Total Distance** is the flight's actual total distance flown.
- **Total Time** is the total time between the start and end of the track log.
- **Flight Time** is the time between detected takeoffs and landings.
- **Night Time** is the total flight time between the end of evening civil twilight and the beginning of morning civil twilight.
- **All Landings** is the number of day and night landings.
- **Average Ground Speed** is the average groundspeed between takeoffs and landings.

Time

Fields within the Time section are not editable. However, if a Track log is **trimmed**, the times reflect the updates. Definitions for the Time section are found below.

- **Time Out** is the start time of the track log in UTC.
- **Time Off** is the first detected takeoff time of the track log in UTC.
- **Time On** is the last detected landing time of the track log in UTC.
- **Time In** is the ending track log time in UTC.

Logbook Entries

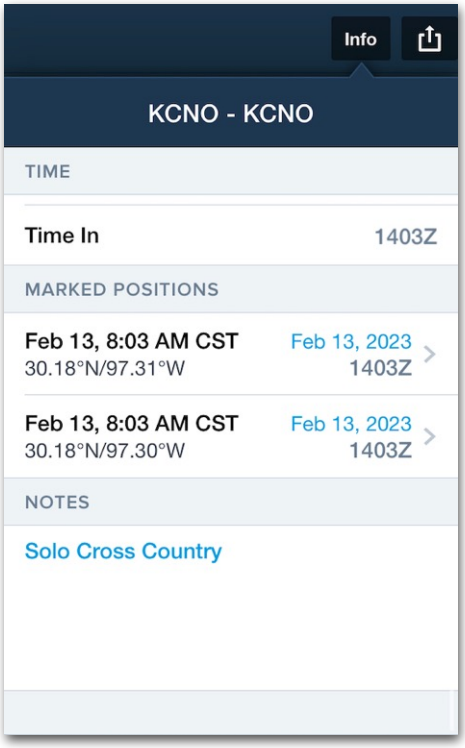
Track logs can be **shared to the Logbook**. Sharing a track log automatically populates fields within the Logbook entry. If a track log is shared to Logbook, the Logbook entries associated with the track log are listed in the Logbook Entries section. If the track log is not associated with a Logbook entry, this field is hidden.

Marked Positions

Marked Positions is an optional section that displays if **Marked Positions** have been added during the flight. Tap the Marked Positions listed in this section to view its details or to make edits.

Notes

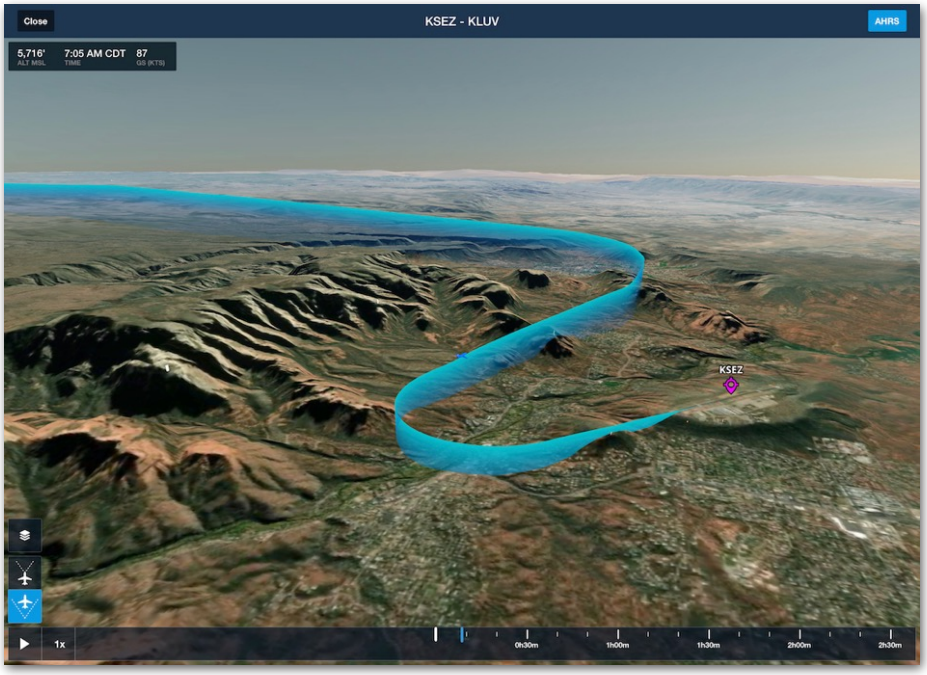
The Notes section shows an optional field for recording comments. Notes are not forwarded to the Logbook if the track log is associated with a logbook entry.



Marked Positions and Notes

24.5 Track Log 3D Review

Track Log 3D Review combines high-resolution terrain, aerial imagery, and track log data to help pilots debrief their flights. 3D Review is included with all Performance plans. To review a flight in 3D, tap the **3D** button on the Track Log Map. For a video demonstration, see **Track Log 3D Review**.



Track Log 3D Review

24.5.1 Design

The view consists of an interactive map, a flight path curtain, buttons for controlling the view, and an interactive time slider. The view supports standard touch gestures, two **viewing modes**, and is always centered on the airplane.

AHRS Button

The **AHRS** button in the upper toolbar is enabled by default and causes the airplane's pitch and bank to reflect what was recorded in flight. When disabled, the 3D airplane remains straight and level when the track log is animated.

If a track log is recorded without an external AHRS device or a breadcrumb is converted to a track log, the track log will not contain pitch and bank data, and the 3D airplane will only show straight and level.

Flight Details

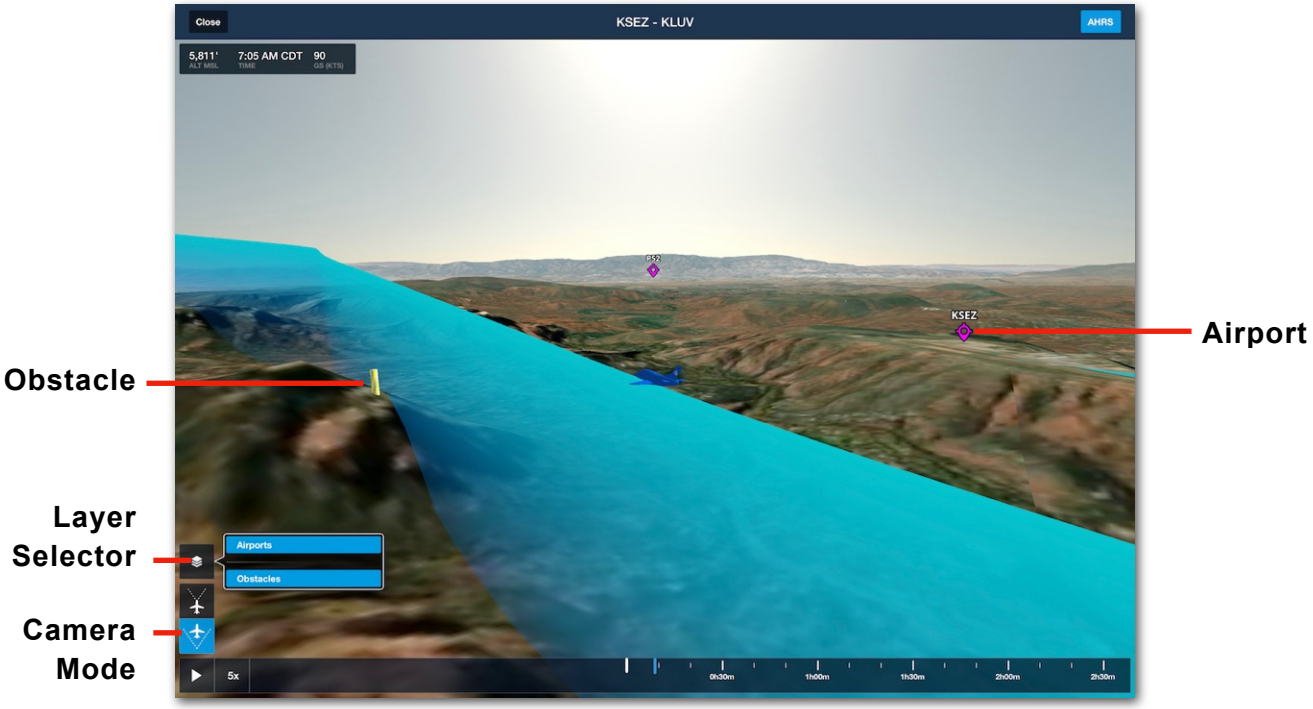
The window in the upper-left corner displays the GPS altitude, groundspeed, and local time of the 3D airplane. As the track log is animated, these values are dynamically updated.



Flight Details

Layer Selector

The Track Log 3D View can display airport and obstacle icons. Tap the **Layer Selector** to toggle these layers on or off. Airport icons can be tapped to reveal the Airport Sidebar. The Airport Sidebar in the Track Log 3D View is similar to the Sidebar available on the Maps view.

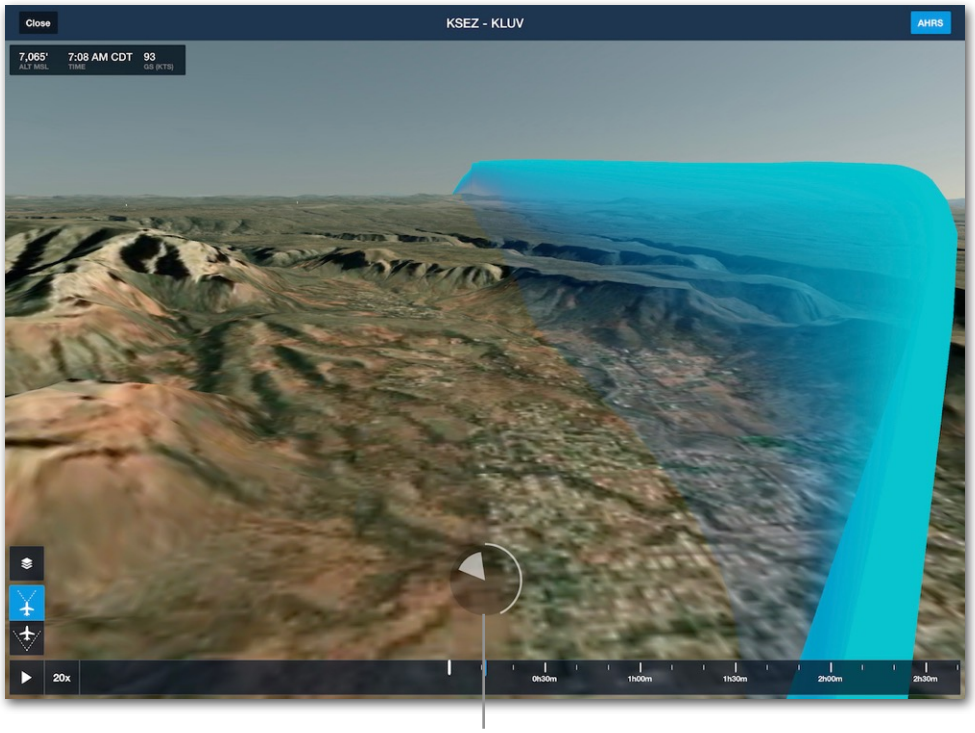


24.5.2 3D Review Camera Modes

Track Log 3D Review supports first- and third-person perspectives. Use the buttons in the lower left corner to change perspectives. When in third-person, touch gestures cause the view to rotate about the airplane.

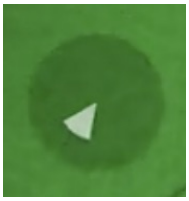
Glance Mode

In first-person perspective, touch gestures enable Glance Mode, a zoomable, 360-degree view from the perspective of the cockpit. Once Glance Mode is enabled, a circular field of **view indicator** appears to show the camera orientation relative to the ground track and horizon.

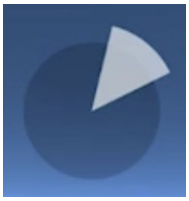


Glance Mode View Indicator

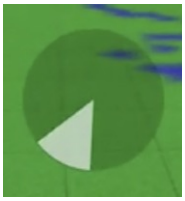
The view indicator “slice” shortens as the view tilts down, lengthens as the view tilts up, narrows as the view zooms in on a point in the distance, and widens as the view zooms back out to normal.



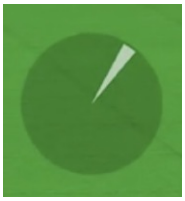
Tilted Down



Tilted Up



Zoomed Out



Zoomed In

Exiting Glance Mode

To exit Glance Mode, tap the view indicator. Glance Mode automatically exits if no touch gestures are made for six seconds, as indicated by a radial timer.



Radial Timer

24.5.3 Time Slider

An interactive time slider at the bottom of the view can be used to locate a specific moment during the flight. Drag the time slider left or right or tap the **Play** / **Pause** button to animate 3D Review.

3D Review can be animated at 1, 3, 5, 10, or 20 times the actual speed by tapping the current speed selection next to the Play / Pause button.



Time Slider

24.6 Trimming Track Logs

Track logs that are **automatically** started and stopped add time at both ends of the recording to serve as an estimate of taxi time. Because the estimate may not accurately reflect the actual taxi time, the beginning and end of the track log can be trimmed. For a video demonstration, see **Trimming Track Logs**.

Trimming a track log is non-destructive. If a track log is trimmed, the data is not deleted. Trimming can be undone by editing the track log and restoring the trimmed portions. Track logs edited on one device are edited on all other devices signed into the same account.

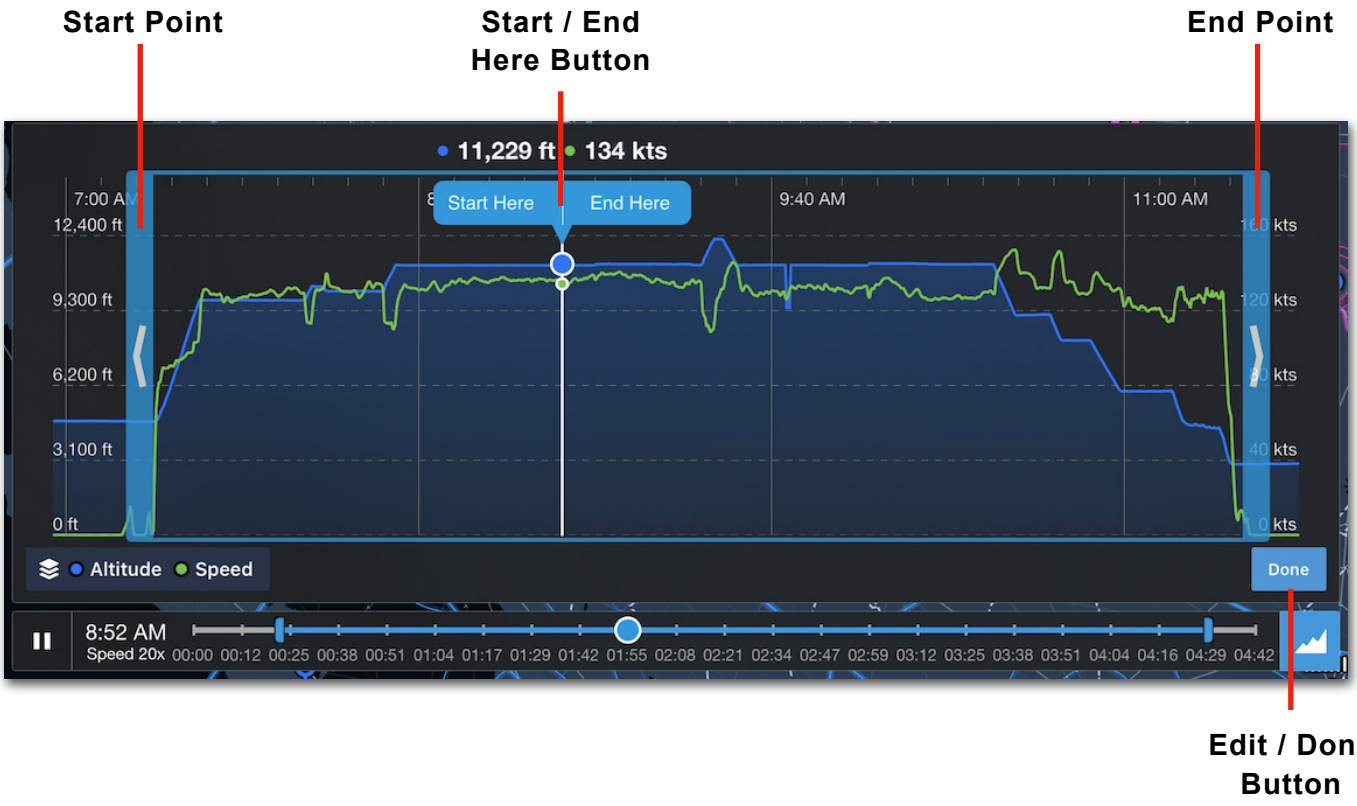


Track Log Trimming

Trimming Track Logs

To trim a track log, follow the steps below:

1. Select the track log to be edited and ensure the **Graph** is displayed.
2. Tap the **Edit** button. When in Edit Mode, the graph responds to standard touch gestures.
3. In Edit Mode, perform one or more of the following:
   - Tap and drag the blue bars to set new start and end points.
   - Animate the track log. Tap the **Start Here** or **End Here** button as appropriate.
   - Using the time slider, locate a start or end point. Tap the **Start Here** or **End Here** button as appropriate.
   - Tap and Hold the Graph. Drag a finger to locate a start or end point. Tap the **Start Here** or **End Here** button as appropriate.
4. When the correct start and end points have been set, tap the **Done** button.



In Edit mode, the trimmed portion of the map flight path is colored gray, and a blue bar denotes the new start or end point. After tapping **Done**, the trimmed portion is removed from the map and graph.



Edited Track Logs

After a track log has been trimmed, the fields within **Track Log Info** are automatically updated. If a track log is associated with a Logbook Draft Entry, trimming the track log automatically updates the auto-filled fields in the Logbook entry. Sending a trimmed track log to Logbook will adjust the auto-filled fields to match the new start and end times.

24.7 Combining Track Logs

Track logs cannot be combined, however multiple track logs can be added to a single logbook entry. Pilots wanting to record multiple legs as a single track log should follow one of the recommended practices.

Manually Record Track Logs

When the Track Log Auto Start/Stop setting is enabled, track logs stop recording when a landing is detected and no takeoff occurs within the next 15 minutes. Once a track log has stopped, it is not possible to resume the recording.

To record a flight with stops that exceed 15 minutes, pilots should disable the Track Log Auto Start/Stop setting and manually start and stop their flights using the REC button.

Save Breadcrumbs as Track Logs

For flights with extended stops between legs, saving a breadcrumb as a track log is a recommended alternative. Unlike track logs that are automatically recorded, breadcrumbs persist on the map for up to four hours after a flight. For more information, see **Breadcrumbs**.

24.8 Deleting Track Logs

To delete a single track log, swipe from right to left across the **Track Log Summary**.

To delete multiple track logs at once:

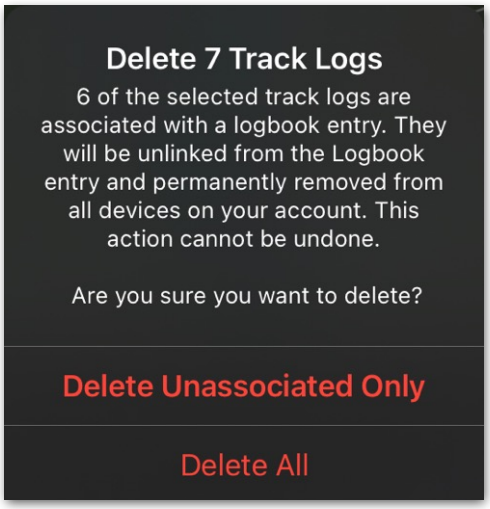
1. Tap **Select** in the upper toolbar.
2. Select the track logs to be deleted or tap **Select All**.
3. Tap **Delete**.

Track Logs with Associated Logbook Entires

If a track log with an associated logbook entry is selected, a pop-up warns that the track log will be removed from the logbook entry. Deleting a track log does not also delete the associated logbook entry.

If multiple track logs are selected and some are associated with logbook entries and others are not, a popup provides two options (see image below).

- **Delete Unassociated Only** deletes the track logs that are *not* associated with a logbook entry.
- **Delete All** deletes all selected track logs.



WARNING: When a track log is deleted, it cannot be restored. Track logs deleted on one device will be removed from the other devices on the account.

24.9 Sharing Track Logs

Track logs can be shared with a Logbook, friends and family, and third-party apps. Track log recipients do not need a ForeFlight account to view shared track logs. Track logs can be shared as a KML, GPX, CSV, or web links.

NOTE: Track logs cannot be shared in a format that will allow them to be imported to another ForeFlight account.

24.9.1 Logbook

Sharing a track log with **Logbook** creates a new logbook entry with the track log info fields (e.g., Total Time, Night Time, Time Out, Time In) automatically populated in the Logbook. Additionally, the track log becomes associated with the Logbook entry and can be accessed from the Logbook view. Editing a field that was automatically populated by a track log (e.g., Total Time) does not edit the original track log.

When a track log is associated with a logbook entry, a Logbook Badge is displayed in the track log summary. If the track log is associated with more than one logbook entry, a number indicating the number of associations is displayed next to the badge.

24.9.2 Mail

There are two options when sharing a track log via Mail:

- **KML file** shares an attachment that can be opened with mapping apps, including ForeFlight. For more information about KML files, see **Custom Content**.
- **Web link** shares a link to open the track log on ForeFlight Web. The track log webpage can overlay the track log on the Aerial or Street Map. When viewing a track log in ForeFlight Web, the download options in the upper toolbar allow the track log to be downloaded as a KML or GPX file.

24.9.3 ForeFlight.com

Sharing a track log to ForeFlight.com opens the ForeFlight Web Track Log view using the iOS device's default web browser. The ForeFlight Track Log webpage can overlay the track log on the Aerial or Street Map. The download options in the upper toolbar allow the Track log to be downloaded as a KML or GPX file.

24.9.4 OPEN KML IN …

The OPEN KML IN … sharing option opens the Apple share menu. Apps that are installed on the device and capable of importing a KML file are displayed. Tap the app to import the KML file. ForeFlight does not appear in the list of apps as it is the app sharing the file.

Sending a track log to the Maps view

Track logs cannot be sent directly to the ForeFlight Maps view. To see a track log on the Maps view, it must first be shared as a KML file then imported with ForeFlight Mobile as a **Custom Map Layer**. To view a track log on the map, follow the steps below.

1. Open ForeFlight Mobile and select **More** > **Track Logs**.
2. Select the desired track log from the list to view it on the map.
3. Tap the **Send To** button in the upper toolbar and select one of the following:
   - **Mail** > **KML file**
   - **OPEN KML IN…**

If Mail was selected, follow the steps below:

1. Email the KML file to an address accessible from the iOS device.
2. Open the Mail app, select the email, and tap the KML attachment.
3. After tapping the attachment, the KML text is opened in a new window. Tap the **Send To** button at the top of this view.
4. Select **ForeFlight** from the list of apps capable of importing KML files.
5. Select **Custom Content** > **Custom Map Layer** from the Import menu. Once a KML file has been imported, it can be viewed from the Maps view layer menu.

If OPEN KML IN… was selected, follow the steps below:

1. Select where to save the KML file (e.g., Files, Dropbox, Google Drive).
2. Open the file using the app where the file was saved.
3. Tap the share button.
4. Select **ForeFlight** from the list of apps capable of importing KML files.
5. Select **Custom Content** > **Custom Map Layer** from the Import menu. Once a KML file has been imported, it can be viewed from the Maps view layer menu.

24.10 Track Logs on ForeFlight Web

ForeFlight on the Web can be used to review and share track logs. Much of the same functionality exists as with ForeFlight Mobile with the exception of the items discussed below.

NOTE: Administrators of ForeFlight multi-pilot accounts have access to the track logs of all child accounts when using ForeFlight Web.

24.10.1 ForeFlight Web Track Log Map

The ForeFlight Web Track Log map overlays the selected track log flight path on top of the selected map. The Track Log map supports **Quick Filters**. The Track Log graph is not displayed with ForeFlight Web.

Click the button to open the **Charts & Layers** and **Map Settings** menu. See **Charts**, **Map Layers**, and **Map Settings** for more information.

24.10.2 Track Log Download

ForeFlight Web can be used to download four types of track log files.

- **KML (Filtered)** files graphically depict track logs. Track log recorded with a Status Flight Data Recorder record five points per second. The KML (Filtered) download filters the data to one point per second so that the file can be displayed in common mapping files such as Google Earth. If the track log was recorded with a device other than a Stratus Flight Data Recorder, only one point per second is recorded and the file does not get filtered.
- **KML (Full)** files graphically depict track logs. With the exception of the Stratus FDR, all track logs record one data point per second. If the track log was recorded with a Stratus Flight Data Recorder, the KML (Full) file will include higher-resolution five points per second data.
- **GPX** is a widely used file format used to store and share GPS data. Many GPS-enabled devices and apps such as Google Maps can read GPX files.
- **CSV** is a text file with data points separated by commas. Spreadsheet programs, e.g., Microsoft Excel, can open this file type. A CSV file is useful for analyzing track log data. For additional information, see this **support article**.

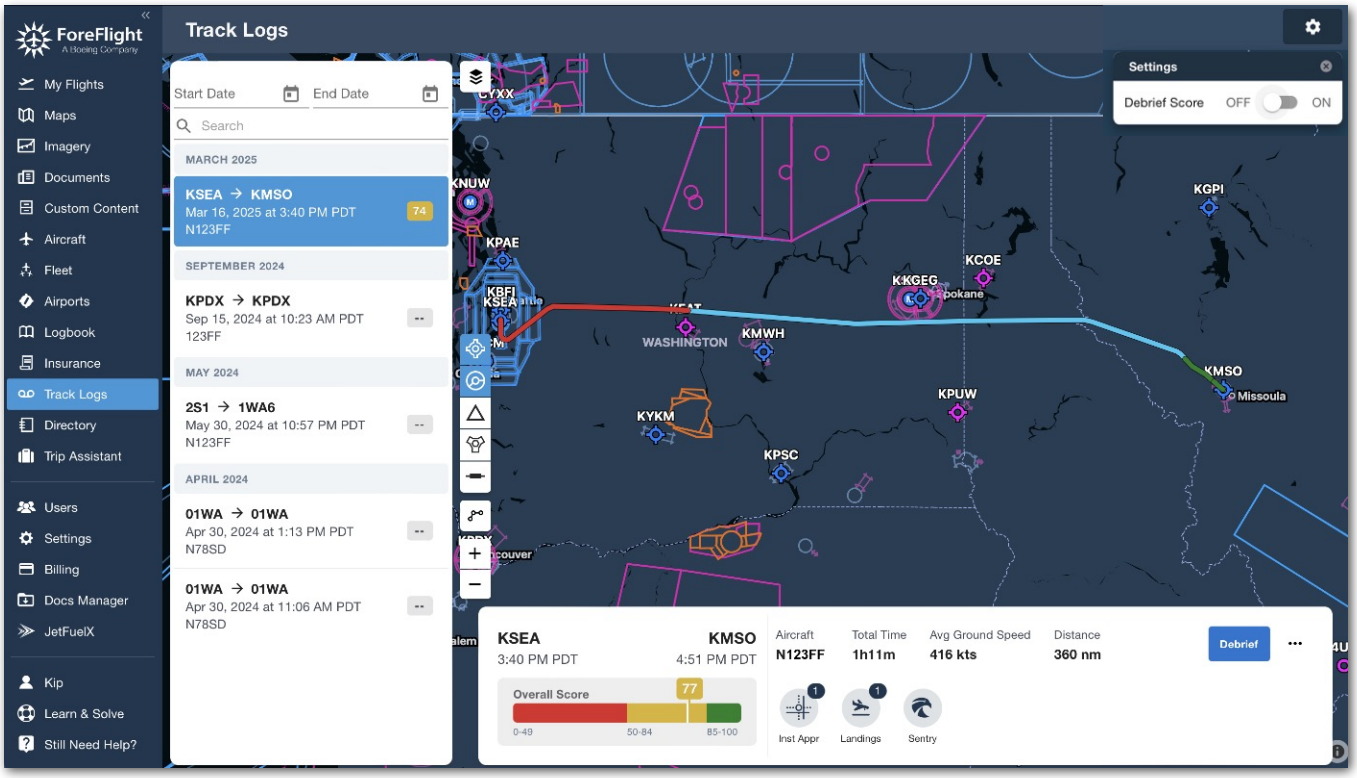
24.10.3 ForeFlight Debrief

ForeFlight Debrief enhances Track Logs on the web with additional data and capabilities to provide a robust and interactive debriefing experience. ForeFlight Debrief requires a Premium subscription. Debrief adds:

- Flight segmentation
- Scoring
- Enhanced flight data and graphs
- Segment decluttering
- V-Speed and aircraft selection
- Approach V_{REF} and approach-type selection
- Debrief sharing.

To open Debrief, select a Track Log and click **Debrief**.

To toggle Debrief Score, click the gear icon, and then click the OFF/ON slider.

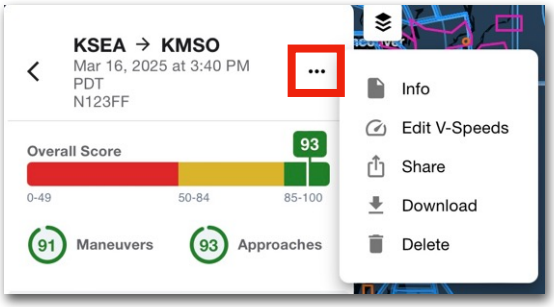


ForeFlight Debrief

24.10.3.1 Debrief Editor Menu

To open the Debrief Editor menu, click the **...** button in the Track Logs title bar.

- **Info** - Display and edit the flight information
- **Edit V-Speeds** - Edit aircraft type and set V-Speeds
- **Share** - Create a shareable link for the Debrief
- **Make Private** - Cancel a shared Debrief
- **Download** - Download KML, GPX, or CSV files
- **Delete** - Delete the track log across all devices.



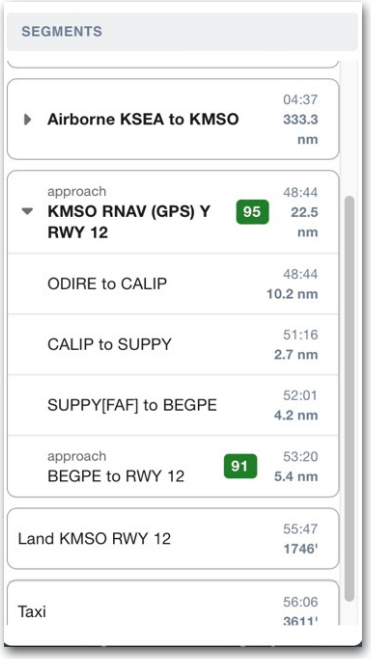
Debrief Editor Menu

24.10.3.2 Flight Segmentation

ForeFlight will automatically break down a Track Log into maneuvers, departures, approaches, and more, and are displayed in a segment list.

To expand or condense a segment, click the triangle to the left of the segment heading.

To jump to a segment or portion of a segment click on it.



Segments

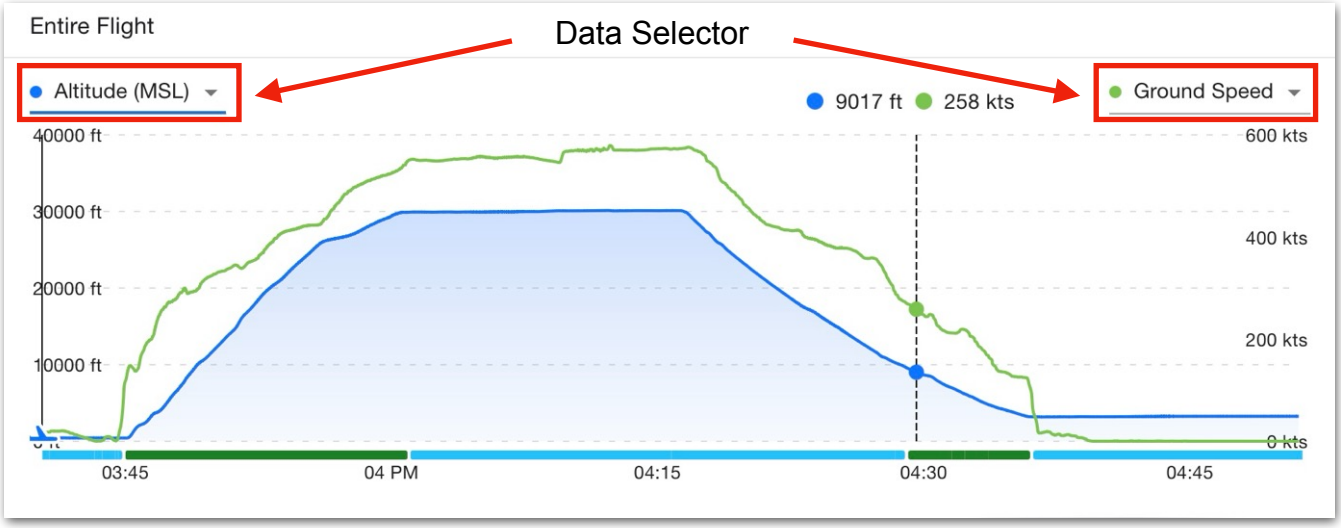
24.10.3.3 Enhanced Flight Data Graphs

A dual-axis profile graph is available that can be used to view

- Altitude (AGL) or (MSL)
- Airspeed (derived IAS)
- Ground speed
- Bank
- Pitch
- G Load.

To select the data displayed on an axis, click the desired data selector and then click a parameter from the drop-down menu.

To view the specific values at any point in the flight, drag the mouse over the graph.



Flight Data Graph

24.10.3.4 Approach Segment

The approach type and V_{REF} can be set in the approach segment view. Click on the **Approach** segment in flight segmentation to display the approach details. Click **Edit** to change the target V_{REF}. Click the Approach drop-down and select the desired approach.



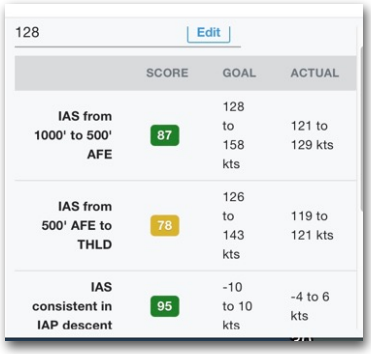
Approach Segment

24.10.3.5 Scoring

Certain maneuvers will be scored on a 0-100 scale. Each type of scored maneuvers has its own grading criteria. A score is assigned to the overall flight, to the individual score maneuvers, and to the individual graders that comprise the maneuver.

To show Score Details, click a segment with a score attached. Score Details will open next to the profile view.

Scoring can be toggled OFF/ON by clicking the gear button on the map and then the OFF/ON slider.



Score Details



FOREFLIGHT CONNECT

ForeFlight Connect is a platform that allows portable and installed avionics to send **weather**, **traffic**, **attitude**, **GPS position**, barometric pressure, SiriusXM Aviation weather, and two-way flight plan information to ForeFlight Mobile.

Data from connected devices is used to display the position on the map, show weather and traffic without an internet connection, and to transfer flight plans between supported navigators. ForeFlight Connect is included with all subscriptions and is intended to be used in flight.

25.1 Supported Devices

ForeFlight Connect supports various devices from a number of manufacturers. Supported devices are tested by ForeFlight and are supported by the Pilot Support Team. Supported manufacturers, compatible devices, and their capabilities are listed in tables on the following pages. If a device is not listed in the tables, it is not supported.

25.1.1 Supported Portable Devices

The table below lists supported portable devices and their capabilities.

uAvionix	GPS	Attitude (AHARS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
Sentry Mini	✓			✓			
Sentry	✓	✓	✓	✓			
Sentry Plus	✓	✓	✓	✓		✓	✓
SkyEcho 2	✓		✓	✓			✓
Garmin							
GDL 39	✓		✓	✓			
GDL 39 3D	✓	✓	✓	✓			
GDL 50	✓	✓	✓	✓			
GDL 51	✓	✓	✓		✓		
GDL 52	✓	✓	✓	✓	✓		
GLO	✓						
Appareo							
Stratus 2S	✓	✓	✓	✓		✓	
Stratus 3	✓	✓	✓	✓		✓	
Bad Elf							
GPS Pro	✓		✓				
GPS Pro +	✓		✓				
Lightning	✓		✓				
Dual							
XGPS 150	✓						
XGPS 160	✓						
XGPS 170	✓			✓			
XGPS 190	✓	✓		✓			

25.1.2 Supported Garmin Avionics

The tables below lists supported Garmin panel avionics and their capabilities.

Garmin	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
GTX 345	✓	✓	✓	✓	
GNX 375	✓	✓	✓	✓	✓
GPS 175	✓	✓	✓		✓
GNC 355	✓	✓	NOTE 1	NOTE 1	✓
G3X Touch	✓	✓	✓	NOTE 2	✓
Flight Stream 110	✓				
with GTX 345	✓	✓	✓	✓	
with GDL 84/88	✓			✓	
Flight Stream 210	✓	✓	✓		
with GTX 345	✓	✓	✓	✓	
with GDL 84/88	✓	✓	✓	✓	
with GNS 430W	✓	✓	✓		✓
with GNS 530W	✓	✓	✓		✓
with GTN 650 / 750	✓	✓	✓		✓
with G1000	✓	✓	✓		✓

[1] *Requires a seperate source to be connected, such as a GTX 345*

[2] *Garmin G3X requires GDL39R*

Supported Garmin Avionics (continued)

Garmin	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Flight Stream 510					
with GTX 345	✓	✓	✓	✓	
with GDL 84/88	✓			✓	
with GTN 650 / 750	✓		✓		✓
with G500 / G600		✓			
with G1000 NXi	✓	✓	✓		✓
with G3000	✓	✓	✓		✓
with G5000	✓	✓	✓		✓

GDL 60					
with GTX 345	✓	✓	✓	✓	
with GDL 88	✓			✓	
with GTN 650Xi / 750Xi	✓		✓		✓
with G500TXi / G600TXi		✓			
with G3000	✓	✓	✓		✓

25.1.3 Other Supported Panel Avionics

The tables below lists supported panel avionics and their capabilities.

Appareo	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
ESG / ESGi [1]	✓	✓	✓	✓	
Avidyne					
IFD 440 / 540 [2]	✓			✓	✓
IFD 550*	✓	✓		✓	✓
Dynon					
Skyview [3]	✓	✓	✓	✓	✓
FreeFlight					
Rangr	✓			✓	
L3 Harris					
Lynx NGT-2000/2500/9000	✓			✓	
uAvionix					
AV-30 with AV Link [4]	✓	✓	✓	✓	✓
echoUAT				✓	
SkySensor	✓		✓	✓	

[1] Appareo ESG and ESGi require a Stratus 2, 2S, or 3 for attitude (AHRS).

[2] Weather and traffic requires firmware 10.2.3.1 or later and a compatible ADS-B receiver. See Avidyne Remote Wi-Fi Pairing for additional information.

[3] Weather and traffic requires firmware version 15.4.7 and higher.

[4] Weather and traffic requires Sentry Receiver.

Supported Panel Avionics (continued)

Baron	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	Flight Plan Transfer
WxWorx XM Receiver					✓	
DAC International						
GDC64	✓			✓		
Gogo						
gogo ATG [5]	✓					
gogo AVANCE [5]	✓					
Golze Engineering						
ADL 140 / 150B [6]	✓			Weather Only		
ADL 180 / 190 / 200 [6]	✓	✓		✓		
ADL Connect for Iridium Go [6]				Weather Only		

[5] Gogo customers must have one of the following systems: AVANCE L5, AVANCE L3, ATG 5000/4000/2000/1000 w/CTR, SCS Elite w/ATG, SCS Media w/ATG

[6] Golze uses weather downloaded via Iridium or LTE.

Supported Panel Avionics (continued)

Honeywell [7]	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	Flight Plan Transfer
Apex FMS with Aspen CG						✓
Aircraft Data Gateway [8]						✓
Satcom Direct						
Satcom Direct SDR [9]	✓	✓	✓			

[7] Honeywell devices require a Premium or Business Performance subscription.

[8] Honeywell Aircraft Data Gateway requires SSL certificate and a unique profile installed per device to access the network. Contact Honeywell for SSL certificate and profile information.

[9] All customers can connect to Satcom Direct Router or SDR Gateway to receive internet data in ForeFlight. Premium and Business Performance customers can also receive SDR GPS, indicated altitude, and pressure altitude data.

25.1.4 GDL 90 Data Interface

ForeFlight Connect can be used by third-party devices that are not explicitly supported by ForeFlight. These devices can transmit data to and from ForeFlight using the industry standard GDL 90 data interface.

Devices that use the GDL 90 interface to connect to ForeFlight are not supported by the Pilot Support Team. For additional information, visit **foreflight.com/connect/spec**.

25.2 Connecting to External Devices

ForeFlight can connect to Wi-Fi and Bluetooth devices. Only one Wi-Fi device can be connected at a time. Multiple simultaneous Bluetooth connections are supported.

Once ForeFlight has connected to an external device (via Wi-Fi or Bluetooth) it can display the device's data (e.g., GPS, Attitude, Weather, and Traffic) in-app.

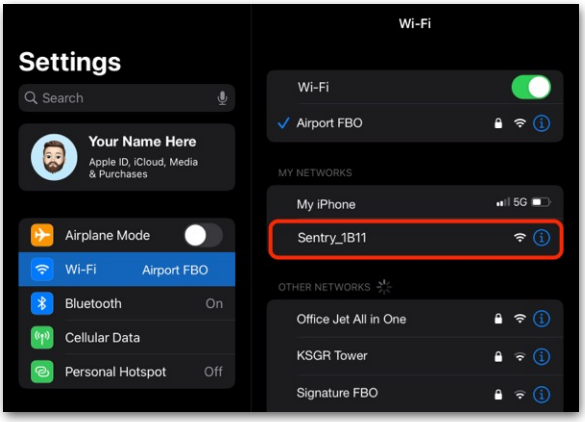
25.2.1 Wi-Fi Devices

Connecting ForeFlight to an external Wi-Fi device is similar to connecting to a Wi-Fi router.

Connecting via Wi-Fi

To connect to portable or installed avionics via Wi-Fi:

1. Power the device on and verify it is transmitting a Wi-Fi signal. Most devices automatically transmit a Wi-Fi signal when powered on.
2. Open the iPad or iPhone's Settings app and select **Wi-Fi.**
3. Locate and tap the Wi-Fi device (e.g., Sentry, Stratus, gogo, or SDR).
4. Ensure the device connects to an iPad or iPhone. A checkmark is displayed to the left of the device's name when connected.
5. Open ForeFlight Mobile and select **More** > **Devices**. If a **tile** is present for the device, it has successfully paired with ForeFlight and can display data from the device in-app.
6. Tap the **Device Tile** to view additional information.



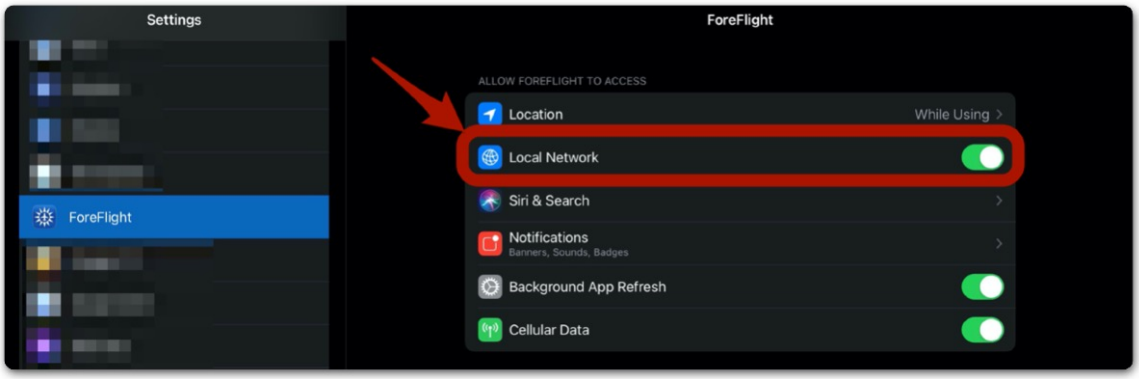
iOS Wi-Fi Settings

NOTE: The Local Network setting must also be enabled when using a device with iOS 14 or later. See the next page for additional information.

iOS 14 Local Network Setting

Devices with iOS 14 or later installed must enable the Local Network setting when connecting to external devices via Wi-Fi. To enable this setting:

1. Open the iPad or iPhone's Settings app and select **ForeFlight**.
2. Toggle the **Local Network** setting on.



iOS Local Network Setting Enabled

25.2.2 Bluetooth Devices

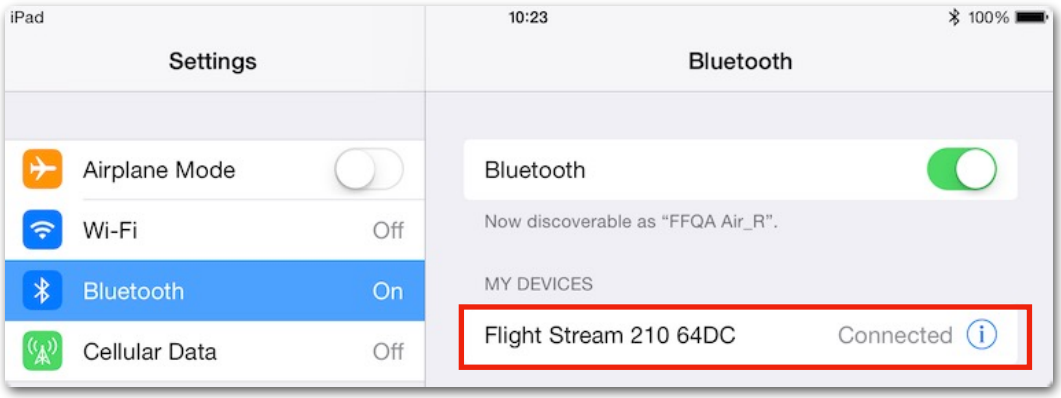
ForeFlight can pair simultaneously to multiple Bluetooth devices. Bluetooth devices can also be paired while simultaneously connected to a Wi-Fi device.

Unlike Wi-Fi, most Bluetooth devices do not pair automatically when powered on. If the Bluetooth device does not automatically pair when powered on, it may be necessary to select it from a list of Bluetooth devices.

Pairing a Bluetooth Device

To pair a Bluetooth device:

1. Power the device on.
2. Enable Bluetooth pairing on the device (see note below).
3. Open the iPad or iPhone's Settings app and select **Bluetooth.**
4. Locate and tap the device in the My Devices or Other Devices section.
5. Ensure the device indicates "Connected".
6. Open ForeFlight Mobile and select **More** > **Devices**. If a **tile** is present for the device, it has successfully paired with ForeFlight.
7. Tap the **Device Tile** to view additional information.



iOS Bluetooth Settings Page

NOTE: When pairing to a device for the first time or if the device does not appear in the list of Bluetooth devices, it may be necessary to manually enable the device's Bluetooth pairing mode. Instructions for enabling Bluetooth pairing vary by device. Refer to the Bluetooth device's manual for additional instructions.

25.2.3 Garmin Avionics

Garmin devices pair via Bluetooth and can simultaneously connect to a maximum of two devices (e.g., two iPads).

There is not a practical limit for the number of Garmin avionics ForeFlight can connect to. For example, a GTX-345 transponder it is limited to two device pairings. However, an iPad can simultaneously connect to a GTX-345, GDL52, and GNC355.

Garmin Flight Stream

If the aircraft is equipped with a Garmin Flight Stream, ForeFlight should only pair with the Flight Stream. All other installed avionics should be wired to the Flight Stream so that their data is passed through to the portable devices. When configured in this manner, the Flight Stream is the *access point* for all Garmin data.

If a device is not wired to a Flight Stream, it must be paired directly. When paired to a Flight Stream, information about the devices that are wired to it are listed on the **Garmin Connext Information page**.

25.2.4 Multiple Device Connections

When connected to multiple devices that provide the same data, ForeFlight displays the data from the most appropriate source. See below for additional information.

Multiple Sources of Weather, Traffic, and NOTAM Data

When receiving weather, traffic, and NOTAM data from multiple external sources (e.g., Sentry and Garmin GTX-345), the most *recent* information is displayed. It is not possible to manually select weather, traffic, or NOTAM data from a specific device.

When receiving ADS-B and SiriusXM data, unique map layers exist for radar, turbulence, icing, and clouds allowing selection of a particular data type (e.g., Radar ADSB).

Multiple Sources of Barometric Pressure Data

When connecting to multiple devices, ForeFlight uses barometric data from a single device according to the following logic.

1. If an installed device is connected, the data from it is used.
2. If an installed device is not connected, the portable data source is used.
3. If installed and portable devices are not connected, the iOS device's integrated data is used.

This logic ensures that data from the *installed* device is prioritized, as it is presumed to be superior to a portable device.

NOTE: If connected to a device that normally provides a type of data (e.g., Attitude, GPS, or Barometric Pressure), ForeFlight will *not* automatically revert to the next source should that data type be unavailable. For example, if connected to both a GTX-345 transponder and Sentry and the GTX-345 is not providing attitude data, ForeFlight will not automatically revert to use the attitude data from Sentry. In this scenario, ForeFlight's Attitude Indicator would display No Attitude Data unless the **Use As AHRS** setting was disabled for the GTX-345. See the next page for additional information.

Multiple Sources of GPS and AHRS Data

When connected to an external device or multiple external devices, the barometric data source used by ForeFlight is determined by the multiple-device connection logic discussed earlier. The barometric data source cannot be manually selected.

GPS and AHRS use the same multi-device connection logic as barometric data but can be manually selected by disabling sources of higher priority.

For example, if connected to a transponder that provides GPS data, the transponder's GPS data is used by default since it is an installed device. However, if the transponder's GPS is inoperative, ForeFlight will not be able to display GPS data.

To resolve this issue, the use of the transponder's GPS data should be disabled. To disable a GPS data source:

1. Go to **More** > **Devices** and tap the **Device Tile** of the source to be disabled.
2. Scroll to the device settings at the bottom of the view.
3. Toggle **Use as GPS** off.

Similarly, if the transponder normally provides AHRS data, ForeFlight will use it for the Attitude Indicator. However, if the transponder's AHRS is inoperative, ForeFlight will not be able to display pitch and bank data.

To resolve this issue, the use of the transponder's AHRS data should be disabled. To disable an AHRS data source:

1. Go to **More** > **Devices** and tap the **Device Tile** of the source to be disabled.
2. Scroll to the device settings at the bottom of the view.
3. Toggle **Use as AHRS** off.

In the above examples, once the GPS or AHRS source is disabled, ForeFlight will use the data from the next source.

Connecting to multiple devices of the same type

When connecting to multiple devices of the same type, installed or portable, ForeFlight uses the GPS, Attitude, and Barometric data from those devices in this order:

- Garmin
- Dynon
- Avidyne
- SkyEcho
- Sentry
- Stratus
- Dual, Bad Elf
- FreeFlight
- Lynx
- SXAR1
- Baron MobileLink
- Gogo
- Satcom Direct Router (SDR)
- iOS internal GPS data.

NOTE: SDR supplies latitude, longitude, and groundspeed data. GPS altitude and track data delivery are dependent on the router's firmware.

Multiple Device Connection Example

When connected to portable and installed devices, ForeFlight uses the GPS, attitude, and barometric data from the installed device by default. If connected to Garmin and Dynon installed avionics simultaneously, the Garmin's GPS, attitude, and barometric data are used.

If the installed device does not provide one of the data types, for example, attitude data, the Attitude Indicator in ForeFlight will not automatically revert to using the portable device. To display attitude data from the portable device, either disable the Use as AHRS setting or disconnect from the installed device.

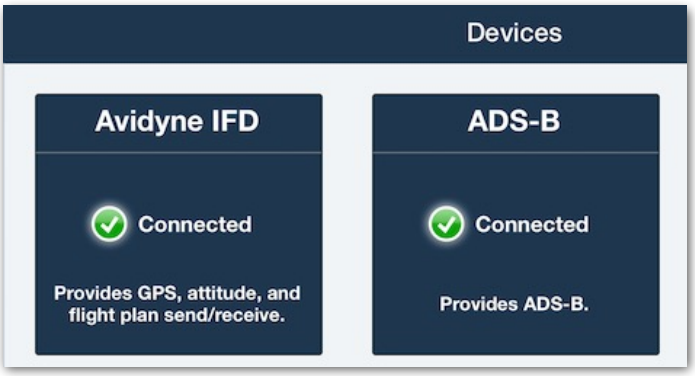
25.2.5 Avidyne Remote Wi-Fi Pairing

The Avidyne IFD 440/540/550 navigators support remote Wi-Fi pairing which allows them to connect to supported ADS-B receivers so that flight plan data can be passed through the ADS-B receiver to ForeFlight. This configuration permits flight plan transfers and ADS-B weather and traffic while being connected to the ADS-B receiver.

For detailed setup instructions, see the appropriate IFD 440/540/550 manual or this **support article**. Abbreviated IFD 440/540/550 setup instructions can be found below:

1. Enable maintenance mode on the IFD 440/540/550.
2. Navigate to the Wi-Fi configuration page.
3. Enter the SSID (network name) of the supported ADS-B receiver.
4. Change the navigator's Wi-Fi mode to **Remote**.
5. Connect ForeFlight to the ADS-B receiver.

When properly configured, ForeFlight will display two **Devices Tiles**. One tile for the IFD navigator and another for the ADS-B receiver.



Avidyne Remote Wi-Fi Pairing Device Tiles

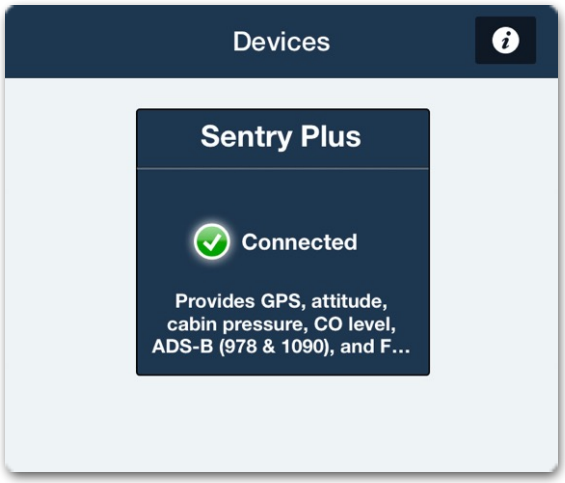
25.3 Device Tiles

Tiles are displayed on the Devices page for each connected device. To access Devices, tap **More** > **Devices**. The tile indicates connection status and features (e.g., GPS, attitude, and ADS-B data). When connected to multiple Garmin devices, a single Garmin Connext device tile is displayed.

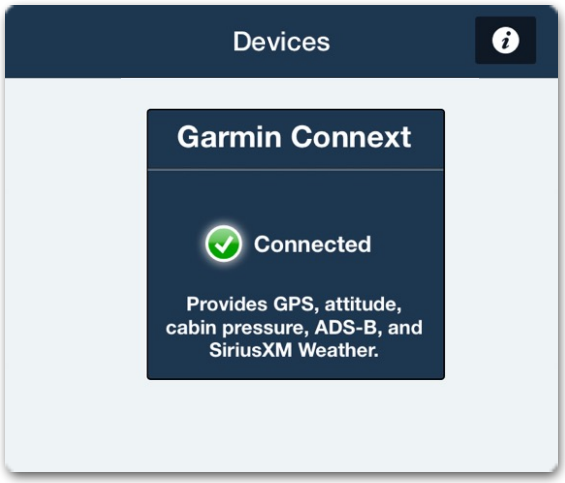
25.3.1 Device Capabilities

The device's capabilities are listed at the bottom of the tile. If a capability is not listed, the device is not providing that data type to ForeFlight. For example, if connected to a Garmin GTX345 and attitude is not listed, the transponder likely has not been **calibrated** and is not transmitting attitude data to ForeFlight.

Bluetooth GPS devices such as the Bad Elf GPS Pro, DUAL XGPS 150, and Garmin GLO indicate their connection status, but no additional information is displayed.



Sentry Plus Device Tile

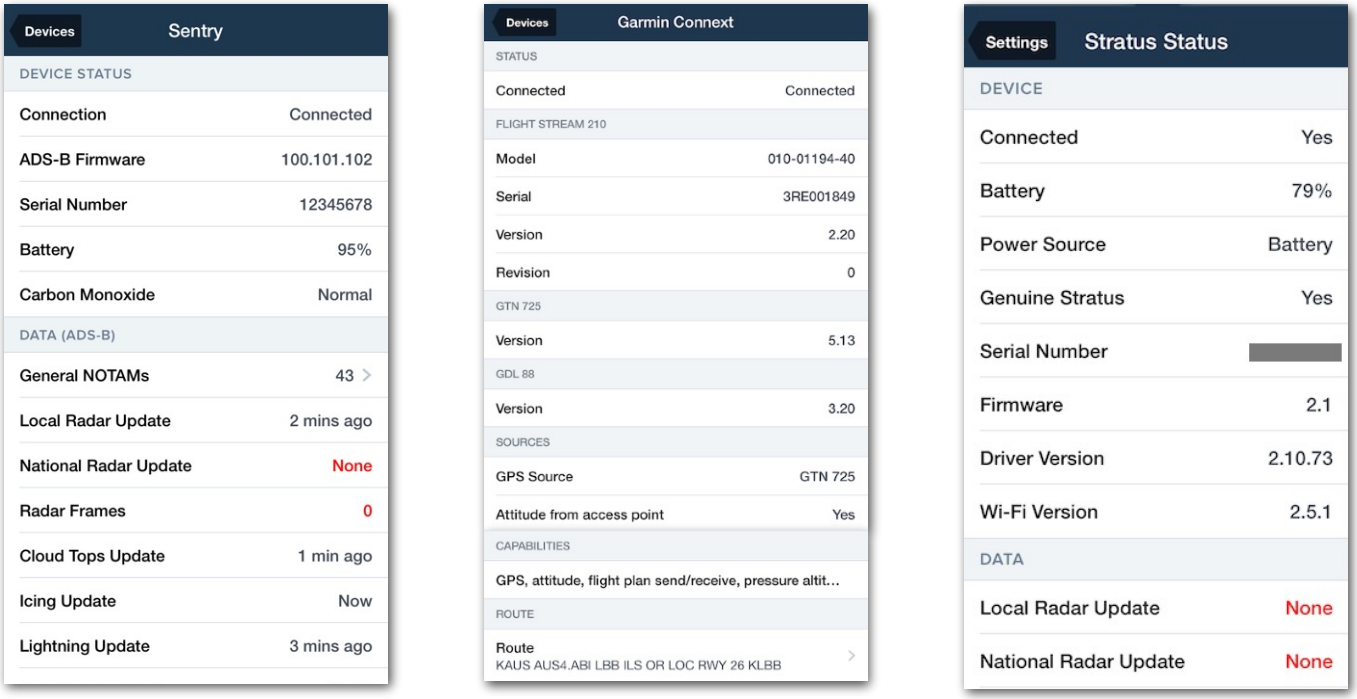


Garmin Connext Device Tile

25.4 Device Information

The Device Information view displays device status, identifying information, device capabilities, and device settings. To access the view, go to **More** > **Devices** and tap the **Device Tile**.

The Device Information view is grouped into sections. Each section only appears if the device provides that type of information (e.g., ADS-B and SiriusXM data). **Device Settings** are discussed later in this chapter.



Sentry, Garmin, and Stratus Device Information Pages

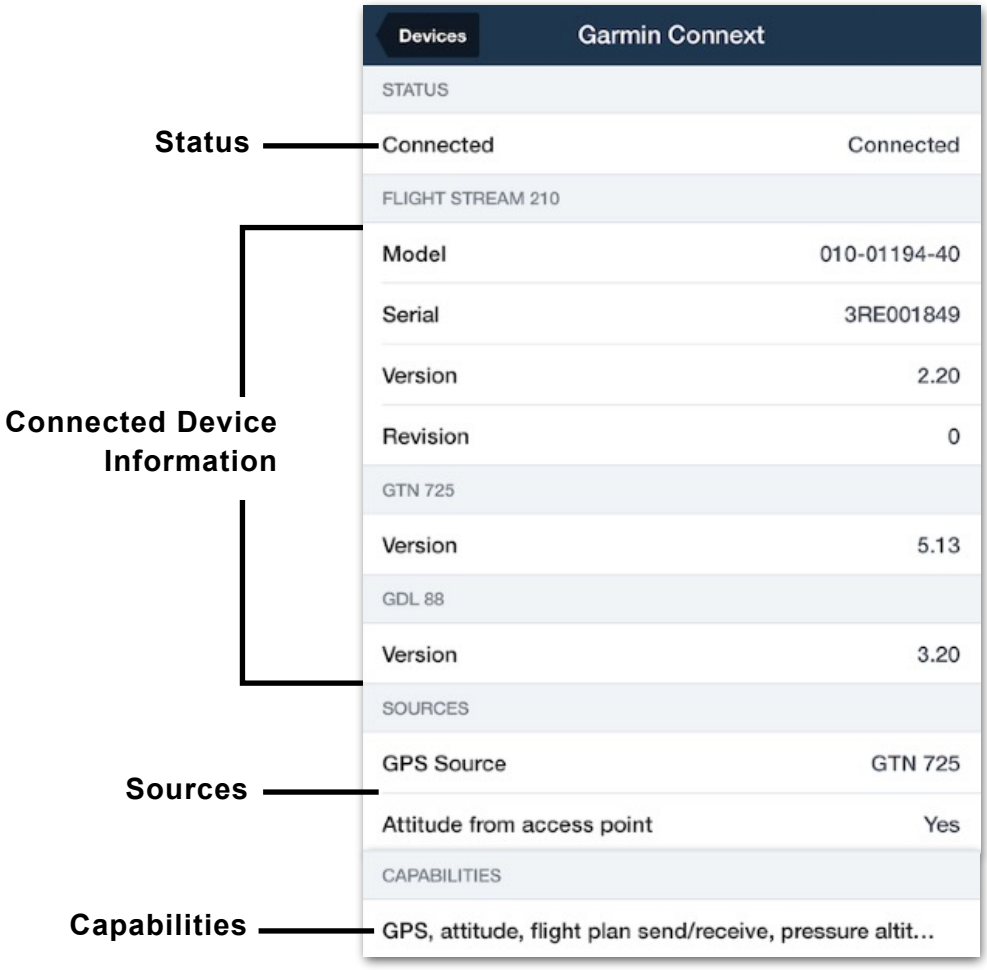
25.4.1 General Device Information

The top of the Device Information view lists general information about the device, such as its connection status, battery state, temperature, serial number, firmware, and more. This section is dynamic and varies by device.

When connected to Garmin devices, the view lists each connected device. When multiple Garmin devices can provide the same data (e.g., GPS or attitude), the data source being used by ForeFlight is listed in the Sources section. In this scenario, it is not possible to manually select a different data source.

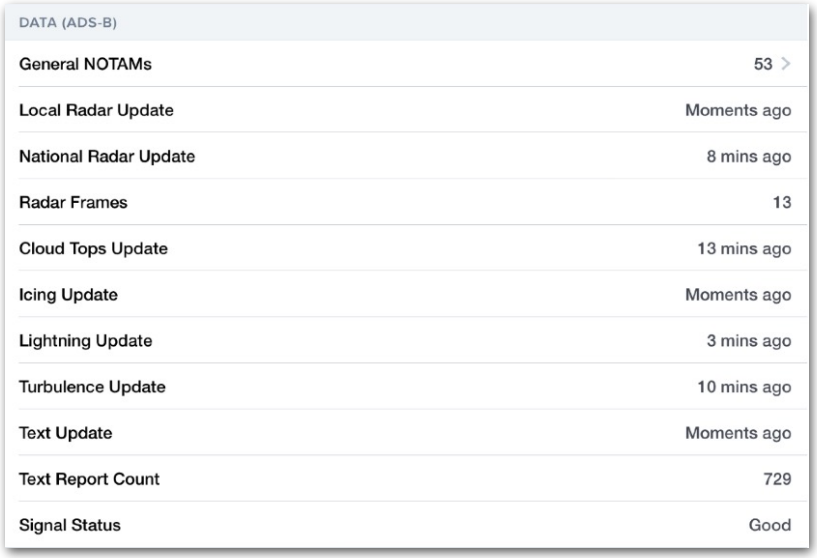
When connected to a device that supports **flight plan transfer**, the route row displays the route currently loaded in the navigator. Tap the route to load it into the route editor.

The capabilities row displays the cumulative capabilities of all connected devices.



25.4.2 ADS-B Data

If connected to an ADS-B device, an ADS-B data section is displayed below the general information. This section lists NOTAM, weather, and ADS-B signal status details.

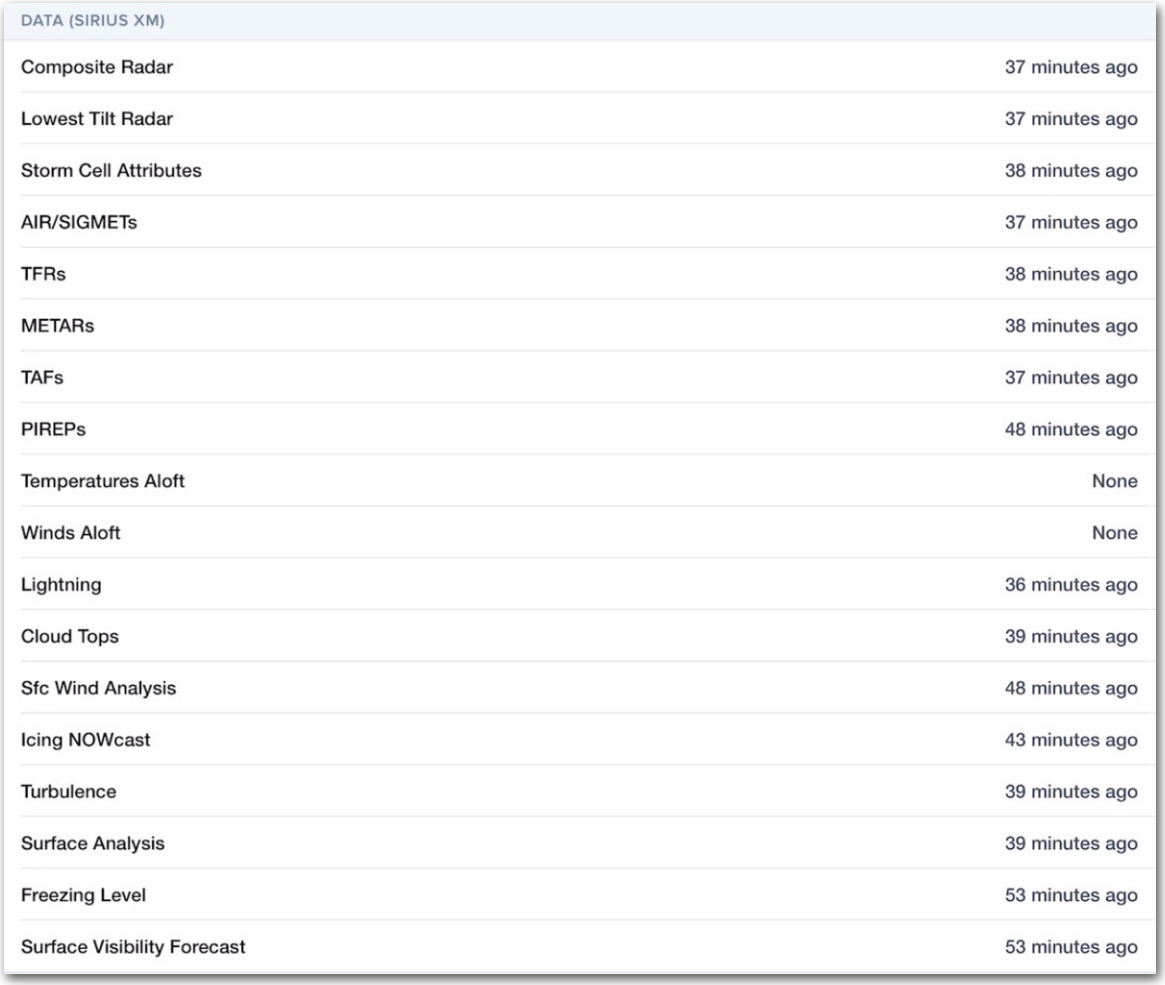


ADS-B Data Section

- **General NOTAMs** are displayed once NOTAM data has been received by the ADS-B receiver (may take up to ten minutes). The row displays the NOTAM count and can be tapped to display FIS-B textual NOTAMs.
- **Local Radar Update** indicates the last time **Regional NEXRAD** data was received.
- **National Radar Update** indicates the last time **CONUS NEXRAD** data was received.
- **Radar Frames** indicate how many radar frames have been received.
- **Cloud Tops Update i**ndicates the last time **Cloud Top** data was received.
- **Icing Update** indicates the last time **Icing** data was received.
- **Lightning Update** depicts the last time **Lightning** data was received.
- **Turbulence Update** depicts the last time **Turbulence** data was received.
- **Text Update** indicates when **METAR** and **TAF** data was last received.
- **Text Report Count** indicates the amount of individual METAR and TAF reports.
- **Signal Status** represents the number of **ADS-B towers** that are being received. This information is also displayed in the upper left corner of the Map when a dynamic map layer is selected.

25.4.3 SiriusXM Information

If connected to a device that provides **SiriusXM** data, the Data (SiriusXM) section displays the last time weather products were received. See **SiriusXM Weather** for additional information.

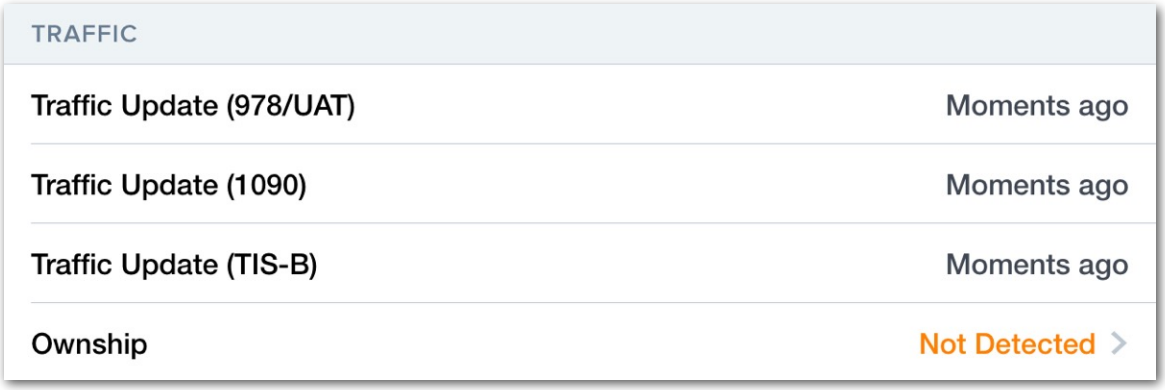


SiriusXM Data Information

25.4.4 Traffic Information

If connected to an ADS-B receiver, the Traffic section displays the last time ADS-B traffic data was received on the 978 MHz (UAT), 1090 MHz, and **TIS-B** (978 MHz) frequencies.

If ForeFlight is able to determine **Ownship**, additional information can be found by tapping the aircraft in the Ownship row. If Ownship is not detected, **Not Detected** is displayed.



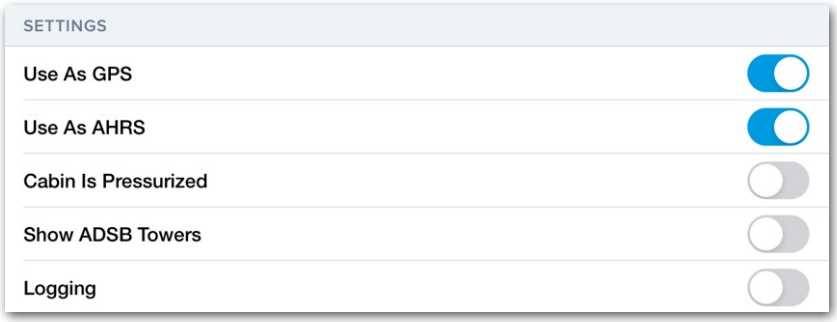
Traffic Information Section

25.4.5 Device Settings

The bottom of the Device Information Page is where device-specific settings are found.

Universal Settings

The following settings are universal and appear when connected to any device equipped with the corresponding feature.



Universal Device Settings (Sentry)

- **Use As GPS** allows ForeFlight to receive GPS data from the connected device. When disabled, ForeFlight ignores the GPS data and uses the next source according to **GPS source logic** (if available). If no alternative GPS source is available, ForeFlight will not show position on the map.
- **Use As AHRS** allows ForeFlight to receive the device pitch and bank data and is enabled by default. When disabled, ForeFlight ignores the AHRS data from the external device and uses the next source according to **AHRS source logic** (if available). If no alternative AHRS source is available, ForeFlight will not show pitch and bank.
- **Cabin is Pressurized** should be selected when flying with a device inside a pressurized cabin. When this setting is enabled, the **Pressure Altitude** instrument is disabled and the barometric data from the device is used to power the Cabin Pressure instrument. When disabled, the Pressure Altitude and Cabin Pressure instruments display the same (uncorrected) value.
- **Show ADSB Towers** displays towers which ForeFlight is receiving data from on the map.
- **Logging** records the data sent from the device for troubleshooting purposes. This setting should only be enabled when requested by the Pilot Support Team. Device logging can degrade performance and is disabled by default. When connected to an SiriusXM device, the setting is labeled “**Stream Logging**”.

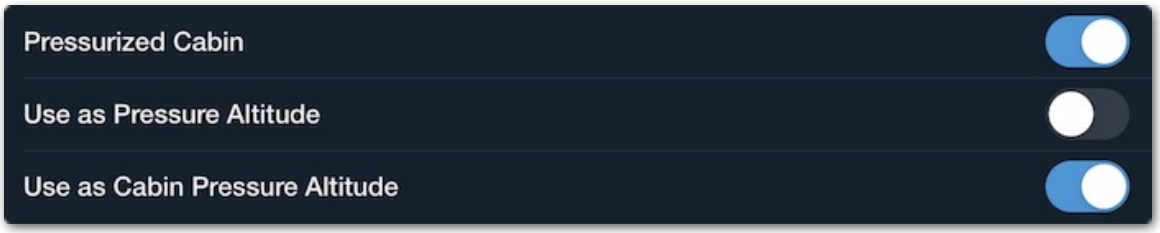
Sentry Settings

Settings are available for testing and muting Sentry's CO alarm. For additional information, refer to the Sentry Pilot's Guide available in-app by selecting **Documents** > **ForeFlight** > **Sentry** > **Sentry Pilot's Guide** or online at **foreflight.com/sentry-guide**.

Garmin Settings

When connected to certain Garmin devices, additional settings allow the barometric data source to be specified. There are three potential settings:

- **Pressurized Cabin** should be enabled when flying a pressurized aircraft.
- **Use as Pressure Altitude** should be enabled when the barometric data comes from outside ambient air. For example, when flying a pressurized aircraft and connected to a transponder that derives pressure data from the pitot system, enable this setting.
- **Use as Cabin Pressure Altitude** should be enabled when the device is inside the pressurized cabin.



Garmin Connext Pressure Settings

Garmin Reset AHRS

The Garmin Flight Stream 210 is able to receive a *Reset AHRS* message from ForeFlight. When connected to the Flight Stream 210, a **Reset AHRS** button is displayed near the bottom of the Device Information page.

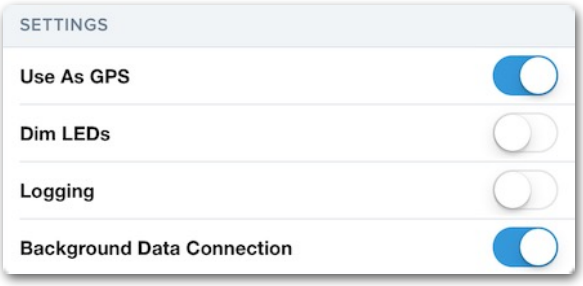
The Reset AHRS button sends a message to the Flight Stream 210 to reset the pitch and bank values to zero. When this message is received, the device's pitch and bank values are reset to zero and reflected on *any display* that uses the AHRS data. For additional information, see **Calibrating AHRS**.

CAUTION: Do not press the **Reset AHRS** button unless the current pitch and bank are level.

SXAR1 Settings

There are two unique SXAR1 settings:

- **Dim LEDs** turn ON to dim the SXAR1's status lights, which helps preserve battery life and reduces brightness when flying at night.
- **Background Data Connection** sends updated weather data to ForeFlight even when it is in the background. We recommend leaving this ON, because turning it OFF can result in the loss of Bluetooth connection to SXAR1 if ForeFlight is kept in the background.



Stratus Settings

When connected to a Stratus, additional settings may be displayed to include:

- **Turn on When Plugged In** will turn Stratus on when power is provided over a USB cable and turn off after two minutes when power is removed and speed is less than five knots.
- **Wi-Fi Settings** implements security for the Stratus local network. **Disabling the SSID** broadcast hides the Stratus network name from devices that have not already joined the network.

CAUTION: WPA2 security should **not** be enabled when using ForeFlight as the Wi-Fi connection can become unreliable.

- **Ignore Mfg. AHRS Settings** reinitializes Stratus AHRS every time the unit is powered on. This setting should remain disabled unless Stratus has been dropped or has been subjected to large temperature variations.
- **Save AHRS Calibration** stores manual **AHRS calibration** data between power cycles. This setting is useful for aircraft that cannot be calibrated on the ground due to not sitting level. If this setting is enabled, Stratus should not be moved between power cycles. If Stratus is moved, it may need to be recalibrated.
- **Power-Saving Mode** reduces the Wi-Fi transmission power to increase battery life.
- **Auto Shutoff Mode** (Stratus 3 only) turns off Stratus after groundspeed is less than five knots for 30 minutes or if no GPS data is received for 30 minutes after being powered on.
- **Cabin is Pressurized** (Stratus 3 and 2S) should be selected when flying with a device inside a pressurized cabin. When this setting is enabled, the **Pressure Altitude Instrument** is disabled and the barometric data from the device is used to power the Cabin Pressure Instrument. When disabled, the Pressure Altitude and Cabin Pressure instruments display the same (uncorrected) value.

NOTE: To perform a factory reset, hold the Stratus power button for 30 seconds. A factory reset disables WPA2 security and enables the device SSID broadcast.

- **LED Brightness** is used to adjust the brightness of the Stratus LEDs.
- **Flight Data Recorder** is discussed in the **Track Logs** chapter.

Satcom Direct and Gogo Settings

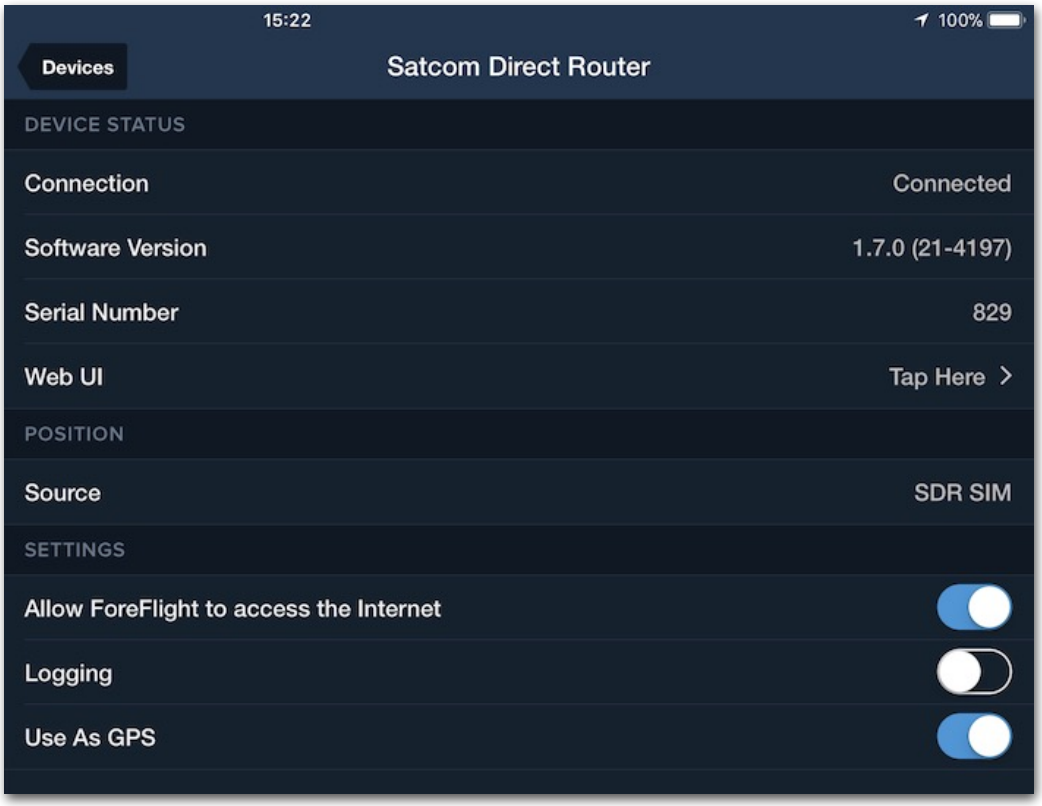
All customers can connect to a Satcom Direct or Gogo Router to receive in-flight internet data. A Premium or Business Performance subscription is required to receive GPS and pressure altitude data from each device. Satcom Direct routers can also provide ForeFlight with track information when properly configured.

Internet Access Settings

When connected to a Satcom Direct or Gogo router, the **Allow ForeFlight to access the Internet** setting can be used to allow or prevent ForeFlight from using internet data. This setting is enabled by default.

Local Area Network Administrator Settings

To access the Satcom Direct Router's Local Area Network administrator page, tap the **Web UI** row.



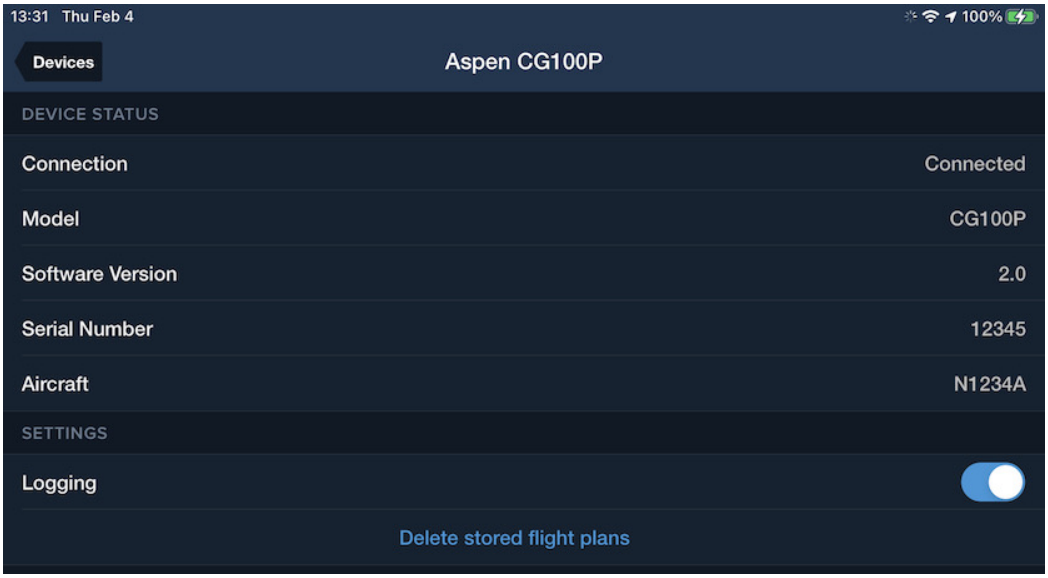
Satcom Direct Route Device Information Page

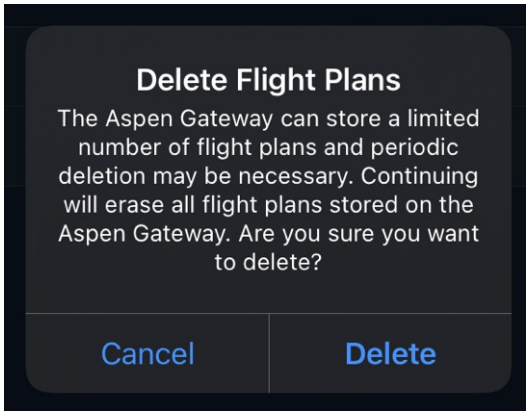
Aspen CG100P/CG200P

The Aspen Connected Gateway can store transferred routes on an SD card. When the SD card is full, new routes cannot be transferred until the SD card is cleared.

To clear the routes, tap the CG100P/GC200P Device Tile, then tap **Delete stored flight plans**.

Deleting stored flight plans will clear ALL routes that have been sent to the Connected Gateway.





25.5 GPS

ForeFlight can only display GPS position and altitude data from a single source at a time. The source of GPS data is used across all aspects of the app, including:

- **Ownship** - GPS data is used to display the current position on the map.
- **Track Logs** record GPS position.
- **GPS Accuracy Instrument** displays the reported accuracy of the GPS source.

25.5.1 Multiple GPS Data Sources

When GPS data is available from multiple sources, the highest priority source is used. See **multiple-device connection logic** for additional information.

Source of GPS Data

The GPS source is displayed above the Accuracy Instrument. If no source is displayed, GPS data is provided by the internal iOS GPS processor.



Garmin, Avidyne, uAvionix, SkyView, FreeFlight GPS Source Labels

25.5.2 GPS Accuracy

The GPS Accuracy Instrument displays the accuracy of position data. GPS accuracy is reported to ForeFlight and displayed in the Instrument Panel rounded to the nearest meter.

Accuracy is calculated by the device's GPS processor by measuring its distance from multiple GPS satellites. GPS accuracy refers to how close the device's calculated position is from the truth, expressed as a radius.

GPS Accuracy Color-Coding

The Accuracy instrument is color-coded based on the reported GPS accuracy. The lower the number, the more accurate the position data.

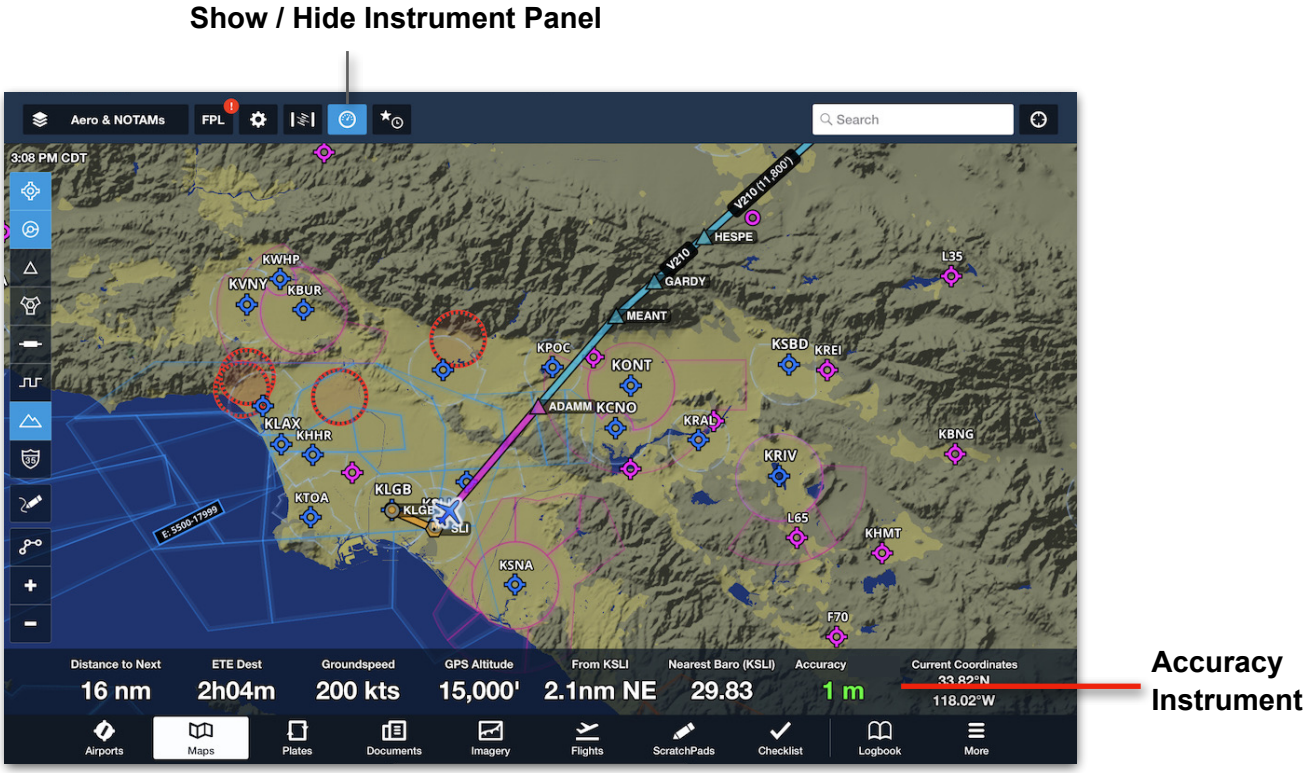
Green - 20 meters or less. **Orange** - 20 to 60 meters. **Red** - Greater than 60 meters.

NOTE: See **Ownship** for additional GPS accuracy implications.

Displaying GPS Accuracy

To display GPS Accuracy:

1. Tap the Instrument Panel button in the upper toolbar.
2. If the Accuracy instrument is missing, tap any instrument in the panel and select **Accuracy** from the list.



NOTE: When GPS data is being sent from Satcom Direct to ForeFlight, the Accuracy instrument will show “Accuracy (A429)”.

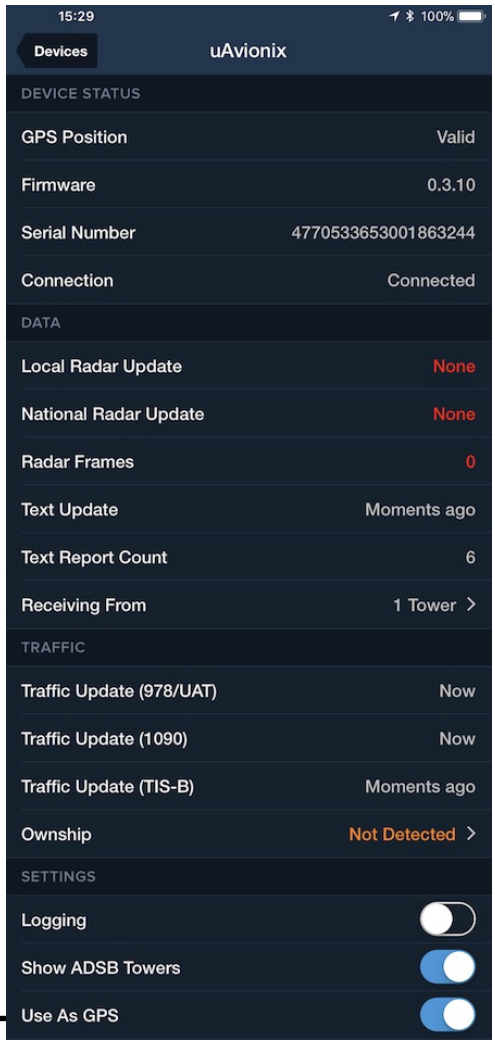
NOTE: Lynx reports GPS accuracy as a range (e.g., between 10 and 30 meters). ForeFlight displays the highest value within the reported range (30m).

25.5.3 Use As GPS Setting

When connected to a device, GPS data from the device is enabled by default.

To block GPS data from an external device (for troubleshooting purposes or to **prioritize a different GPS source**) follow the steps below:

1. Tap **More** > **Devices**.
2. Tap the external **Device Tile** to access its settings.
3. Scroll to the Settings section.
4. Tap the **Use As GPS** toggle switch to enable or disable the GPS data flow between the external device and ForeFlight Mobile.



Use As GPS Setting

25.5.4 iOS Location Services

To display current position on the map, using the built-in GPS, ForeFlight needs permission to access location data. These settings are configured when ForeFlight is used for the first time.

To adjust Location Services permission settings after the initial launch:

1. Open the iPad or iPhone's Settings app.
2. Select **Privacy** > **Location Services**.
3. Enable Location Services at the top of the page.
4. Locate and tap **ForeFlight** from the list of installed apps.
5. Verify the ForeFlight Location Services setting is set to **Always** or **While Using the App**.
6. Enable **Precise Location**.

Selecting a setting other than Always may result in ForeFlight not being able to perform as designed. Displaying position on the map also requires ForeFlight's Enable Ownship setting to be set to Always (or Limited). Access the Enable Ownship setting by selecting **More** > **Settings** and scrolling to the bottom of the view.

If using an external GPS, the Location Services permission settings do not apply.

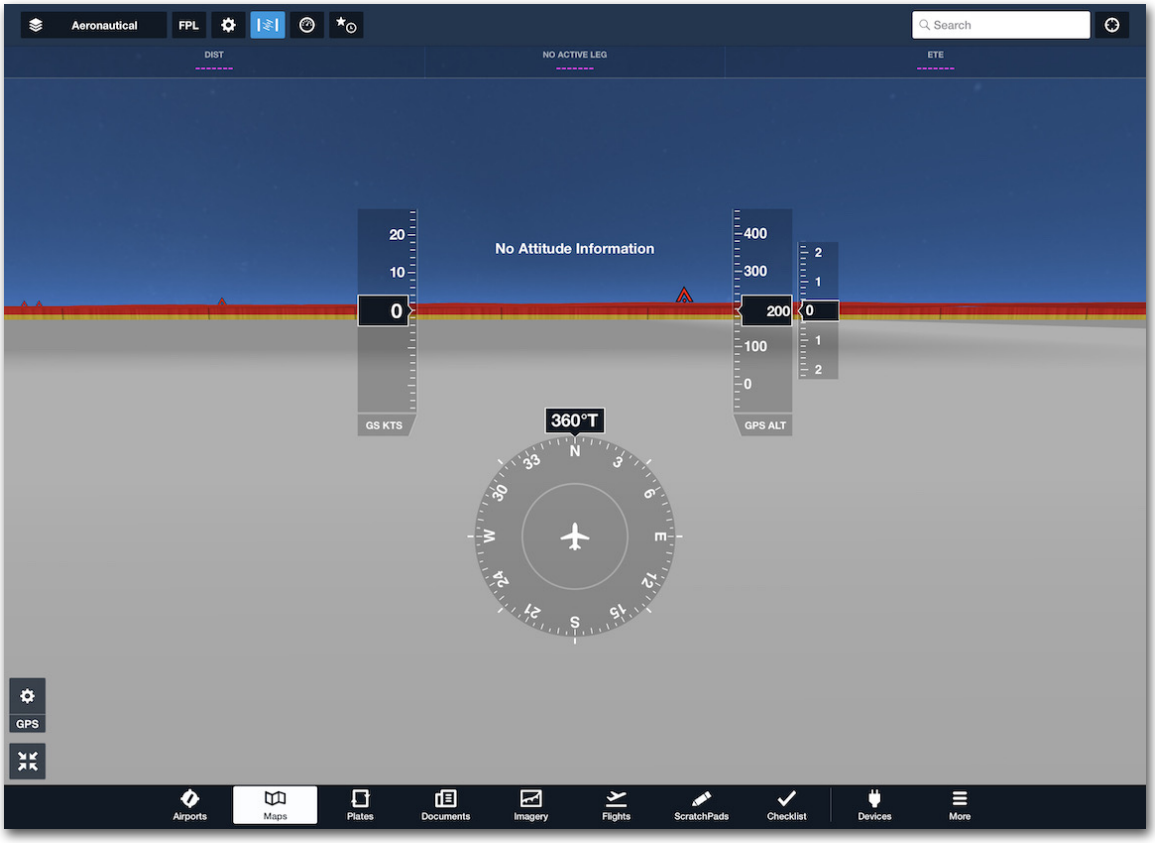
25.6 Attitude Indicator (AHRS)

iPad and iPhone are not equipped with an attitude and heading reference sensor (AHRS). As a result, when ForeFlight is *not* connected to an external device, or the **Use As AHRS** setting is disabled, the Attitude Indicator is inoperative and displays wings level with a *No Attitude Information* label.

All ForeFlight Mobile subscriptions can display attitude information when connected to a supported AHRS device. It's important to note, the Attitude Indicator only displays pitch and bank data provided by the source.

If the Attitude Indicator is inaccurate, the erroneous information originates at the source. As a preliminary troubleshooting step, AHRS should be calibrated as discussed on the following pages.

WARNING: Attitude information in ForeFlight is an aid to situational awareness and shall not be used as a primary source of attitude information during IFR flight.



Attitude Indicator - No External Devices

25.6.1 Calibrating AHRS

Calibrating AHRS establishes the reference point from which changes to pitch and bank are reflected. For example, an aircraft with a 3 degree nose high calibration will indicate 8 degrees nose up when the aircraft is pitched up 5 degrees.

The process for calibrating AHRS varies by device type and can be done as often as necessary. There are three unique calibration methods:

- **(Source)** AHRS can be calibrated at the source using the device's interface. This method is used by most installed avionics and should be the first step when calibrating AHRS. See **Calibrating the Source** for additional information.
- **(ForeFlight)** AHRS can be calibrated after being received by ForeFlight. This method is supported by all portable devices and some installed avionics. See **Calibrating with ForeFlight** for additional information.
- **(Reset) ARHS** - The Flight Stream 210 supports a remote Reset AHRS message. See **Resetting AHRS with ForeFlight** for additional information.

The table on the next page list supported AHRS calibration methods per device.

IMPORTANT: AHRS should be calibrated on the ground or in unaccelerated flight when the aircraft is straight and level. AHRS calibration should begin at the source if applicable.

Supported AHRS Calibration Methods

The table below lists the calibration methods supported per device.

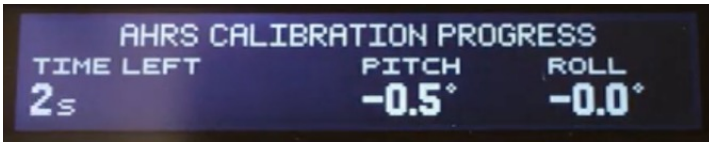
uAvionix	Source	ForeFlight	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
Sentry		✓	✓	
Sentry Plus		✓	✓	
Garmin				
GDL 39 3D		✓		
GDL 50		✓		
GDL 52		✓		
GTX 345	✓	✓		
GNX 375	✓	✓		
GPS 175	✓	✓		
G3X Touch	✓	✓		
Flight Stream 210		✓		✓
Flight Stream 510	✓	✓		
Appareo				
Stratus		✓		
Dual				
XGPS 190		✓		
Avidyne				
IFD 550	✓			
Dynon				
Skyview	✓			
Golze				
ADL 180/190/200	✓	✓		

Supported AHRS Calibration Methods

25.6.2 Calibrating the Source (Installed Devices)

Most installed avionics are calibrated using their own interface. Installed avionics should be calibrated by a certified avionics shop during installation. If calibration was not completed, AHRS data may not be broadcast by the device.

If using a device for the first time or troubleshooting an AHRS issue, the first step should be to ensure the device is accurately calibrated. Pilots may be able to calibrate an installed device AHRS using the device interface. This generally involves setting the current pitch and bank through the use of various menus. Refer to the device documentation for additional information.



Example Garmin AHRS Calibration Interface

IMPORTANT: AHRS must be calibrated at the source before pitch and bank data can be broadcast to ForeFlight.

NOTE: The Avidyne IFD 500 and Dynon SkyView can only be calibrated with their interface. The Garmin GTX345 will only transmit AHRS data after the unit has been calibrated using the device interface.

25.6.3 Calibrating with ForeFlight

Portable AHRS devices can *only* be calibrated using ForeFlight. Once a portable device is calibrated, it should not be moved. If moved, the device should be recalibrated.

Certain installed avionics can also be calibrated using ForeFlight. Calibrating an installed device with ForeFlight should not take the place of calibrating the device at the source. Additional information is located later in this section. See **Calibrating AHRS with ForeFlight** for additional instructions.

25.6.4 Resetting AHRS with ForeFlight

The Flight Stream 210 can accept a Reset AHRS message from portable devices. Unlike using an interface that permits pitch and bank to be manually specified, this method sends a Reset AHRS message which resets the device's pitch and bank to zero degrees.

The reset message is delivered with the **Reset AHRS** button found at the bottom of the **Device Information** page. When this message is received, the device's pitch and bank are reset to zero and reflected on any integrated or portable display that uses the AHRS data.

CAUTION: Do not press the **Reset AHRS** button unless the aircraft pitch and bank is level.

25.6.5 Auto Zero Pitch and Bank

Sentry provides an Auto Zero Pitch & Bank setting. When Auto Zero Pitch & Bank is enabled, ForeFlight evaluates pitch, bank, and acceleration. When it is determined that the aircraft has been straight and level with no acceleration for more than ten seconds, the AHRS is reset to display zero degrees of pitch and bank.

To access the Auto Zero Pitch & Bank setting, select the Maps view and display the Attitude Indicator. Tap the AHRS settings (gear) button in the lower-left corner of the display. Toggle the **Auto Zero Pitch & Bank** setting on or off as needed.

25.6.6 Multiple AHRS Sources

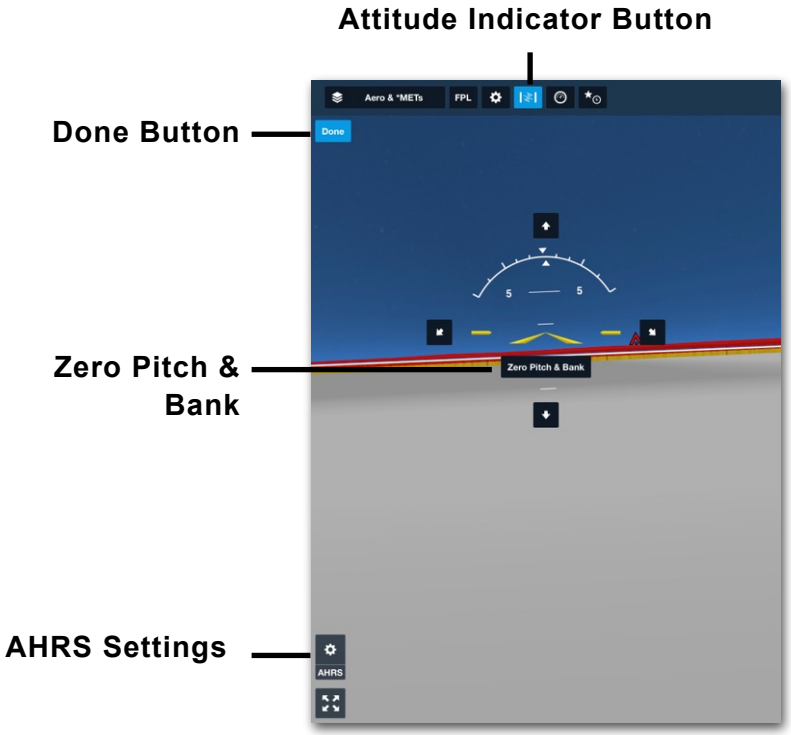
If connected to multiple AHRS devices, ForeFlight uses the AHRS data according to its **multiple-device connection logic**. Higher priority AHRS signals can be ignored with the **Use As AHRS** setting found on the **Device Information** page.

Calibrating AHRS with ForeFlight

Portable and certain installed AHRS devices can be calibrated using ForeFlight. Calibrating devices with ForeFlight using the steps below applies pitch and bank correction values to the AHRS data after it has been received by ForeFlight.

To calibrate AHRS with ForeFlight:

1. Ensure *installed* avionics are calibrated **using their interface** (if applicable).
2. In ForeFlight Mobile, open the **Maps** view.
3. Tap the **Attitude Indicator** button to display its view.
4. Tap the **AHRS (gear) Settings** button to reveal calibration options.
   a. If the **Zero Pitch & Bank** button is displayed, tap it to set the reference point.
   b. If an AHRS setup menu is displayed, tap **Calibrate AHRS**, then tap **Zero Pitch & Bank**. If applicable, tap the arrows to make minor adjustments to the device's pitch and bank wings level reference point.
5. Tap **Done** (or **Save**).



Sentry AHRS Calibration

25.7 ADS-B Traffic

ForeFlight displays ADS-B traffic on the map when connected to an ADS-B receiver and the **Traffic** layer is selected. It is not possible to display traffic from the internet when connected to an ADS-B device.



WARNING: ADS-B traffic data from ForeFlight is an aid to situational awareness. Traffic from ForeFlight should not be used as the sole means of traffic avoidance. Always follow see and avoid techniques or direct instructions from ATC.

CAUTION: Any ADS-B traffic target within 500’ vertically should be considered as potentially being at the same altitude.

25.7.1 Types of ADS-B Traffic

ADS-B traffic consists of two components:

- **Air-to-Air traffic** is ADS-B Out equipped aircraft whose broadcast can be directly received by an ADS-B receiver.
- **TIS-B traffic** is non ADS-B Out equipped air traffic whose information is received via the **TIS-B broadcast**.

25.7.2 ADS-B Frequency Bands

All ADS-B traffic is transmitted on either the 978 MHz or 1090 MHz frequency (1090 MHz is required internationally and above FL180). Most ADS-B receivers are dual-band and capable of receiving traffic from both frequencies.

25.7.3 Requirements and Limitations

The aircraft does not need to be ADS-B Out equipped to receive traffic information. However, if it is not not equipped, ForeFlight may show fewer traffic targets and significant relative altitude discrepancies. See **ADS-B Ownship** and **Traffic Information Service Broadcast (TIS-B)** for additional information.

25.7.4 ADS-B Traffic Symbology

A traffic target's color and symbol depend on its location, proximity, and movement.

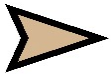
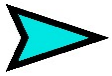
25.7.4.1 ADS-B Traffic Movement

Moving targets are displayed as arrowheads pointing in their direction of travel. A TrafficTrend™ vector is displayed in front of the arrowhead to indicate the target's expected position in the next 60 seconds (longer vector = faster speed).

Stationary targets and targets with no direction or speed information are depicted as diamonds.

25.7.4.2 ADS-B Traffic Coloration

Traffic symbol colors indicate alert status as follows:

Traffic Icon Color	Meaning
	Traffic target is on the **ground**
	Traffic target is **airborne**
	Traffic **caution** when a traffic target is within 2.0 NM horizontally and +/- 1,200 feet vertically, or will be within 45 seconds. Both aircraft must be moving at a speed greater than 40 knots.
	Traffic **warning** when traffic target is within 1.3 NM horizontally and +/- 1,200 feet vertically of current position, or will be within 25 seconds. Traffic targets that are no longer an immediate hazard remain red for 15 seconds.

25.7.4.3 Relative Altitude Symbols

Relative altitude of a traffic target is depicted with a plus **[+]** (height above) or minus **[-]** symbol (height below). Relative altitude is given in hundreds of feet. For example, a traffic target with a +9 relative altitude is 900’ above.

An up or down arrow next to a traffic target indicates that the traffic is climbing or descending greater than 500 feet per minute.

NOTE: In the unlikely event ForeFlight is connected to an ADS-B receiver and ownship is not detected, traffic evaluations will performed using pressure altitude corrected for local barometric pressure in order to provide a better comparison with the target.

25.7.4.4 Traffic Cautions and Warnings

Cautions and warnings are issued for traffic targets that pose a risk. Multiple cautions and warnings can be issued simultaneously. Ownship groundspeed and the groundspeed of the traffic target must be greater than 40 knots for a caution or warning to be issued.

Traffic Cautions are issued for targets that are less than 45 seconds from being within 2.0 NM and +/- 1,200’ of ownship position. When a caution is issued, the target icon is highlighted YELLOW.



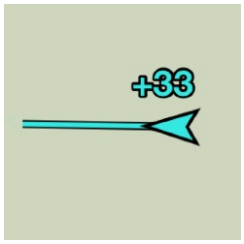
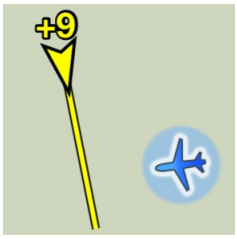
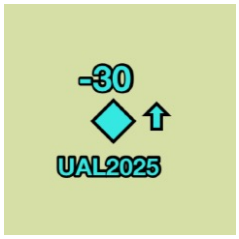
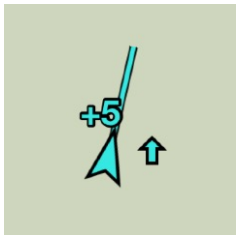
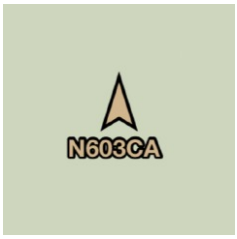
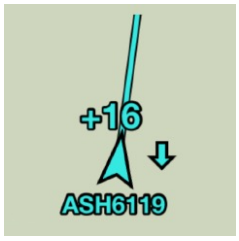
Traffic Warnings are issued for targets that are less than 25 seconds from being within 1.3 NM and +/- 1,200’ of ownship position. When a warning is issued, the target icon is highlighted **RED**, and a **Traffic Alert** is activated if the setting is enabled.

Traffic targets remain highlighted for 15 seconds after they no longer exceed the thresholds.



25.7.4.5 Example Traffic Symbols (ADS-B)

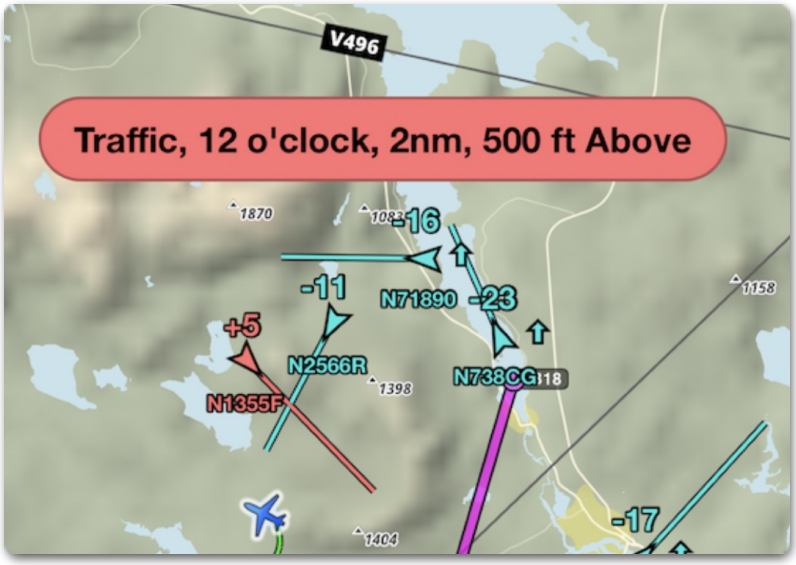
The following examples illustrate how to interpret ADS-B traffic symbols and understand their visual representation in ForeFlight.

	**Moving Traffic** +33 means the target is 3,300 feet above current altitude		**Caution Target** Within 2.0 NM and +/- 1,200 feet, or will be within 45 seconds (+9 is 900 feet above)
	**Stationary Traffic or Unknown Direction/ Speed** -30 means the target is 3,000 feet below current position		**Warning Target** Within 1.2 NM and +/- 1,200 feet, or will be within 25 seconds (+7 is 700 feet above)
	**Climbing Traffic** >500 feet/minute (+5 is 500 feet above)		**Ground Traffic** Target is not known to be airborne
	**Descending Traffic** >500 feet/minute (+16 is 1,600 feet above)		

25.7.5 Traffic Alerts

Traffic alerts are enabled by default across all views and map layers. To disable traffic alerts, go to **More** > **Settings** > **Alerts**.

An audible alert may accompany the visual alert if the **Speak All Alerts** setting is enabled. These alerts convey the nearby target's relative (clock) direction, distance, and altitude.



Traffic Alert

25.7.5.1 Activation Criteria for Traffic Alerts

Traffic alerts are activated only when all of the following conditions are met:

- Ownship has been determined.
- Ownship and the traffic target are both moving at ground speeds greater than 40 knots.
- The traffic target is expected to be within 25 seconds of the warning range, defined as being closer than 1.3 NM horizontally and within ±1,200 feet vertically.
- For audio alerts, Ownship must be at or above 250 feet AGL. This helps avoid nuisance alarms during near-ground operations.

25.7.6 Traffic in Synthetic Vision

Traffic within 11 NM of current position is depicted in the Attitude Indicator, also referred to as Synthetic Vision.

As traffic moves more than 11 NM away, the traffic target fades out of view. Traffic moving closer grows in size. Tapping on a traffic target in Synthetic Vision does *not* display a traffic information pop-up.



Traffic in Synthetic Vision

25.7.7 Hide Distant Traffic

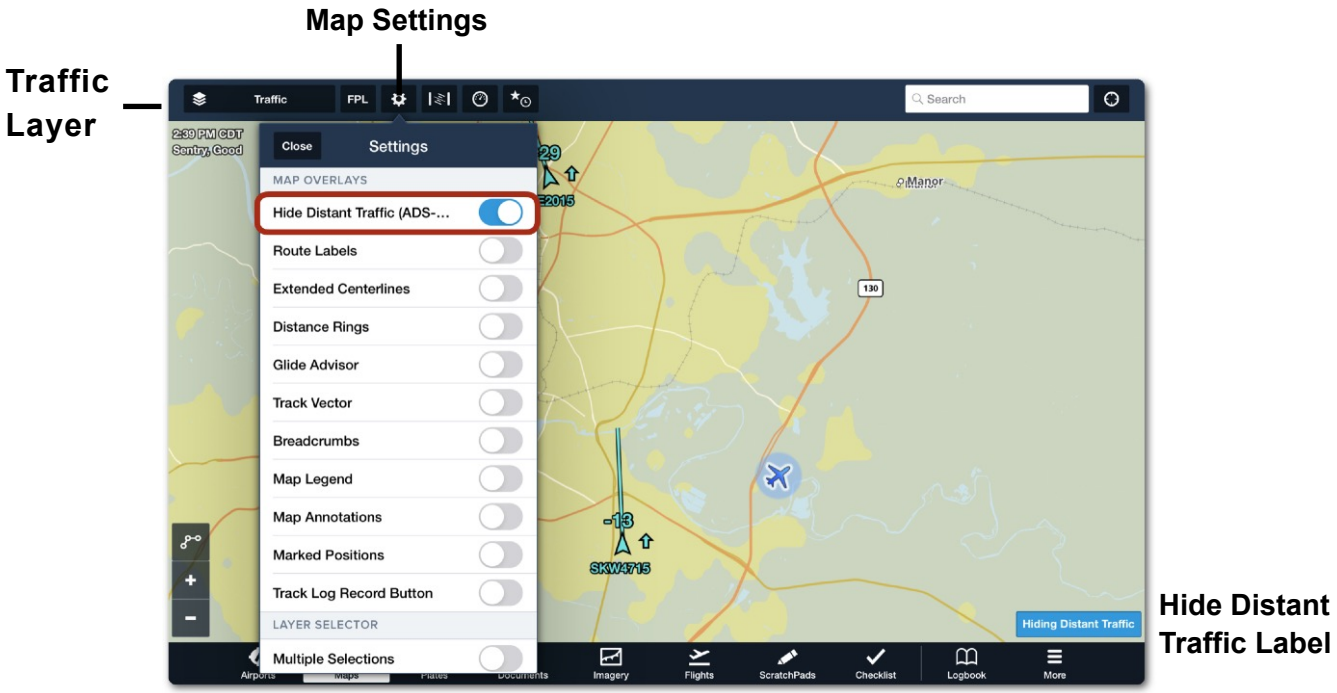
All ADS-B traffic that is detected by the receiver is displayed on the map when the **Traffic** layer is selected. To reduce the amount of traffic displayed on the map, enable the **Hide Distant Traffic** setting.

The Hide Distant Traffic setting is only available when connected to an ADS-B receiver and hides traffic that is more than 15 NM or more than 3,500 feet above or below ownship position. To enable this setting:

1. Open the Map setting menu.
2. Enable **Hide Distant Traffic (ADS-B)**.

When Hide Distant Traffic is enabled, a label appears in the lower right corner of the map, indicating that distant traffic is hidden.

To remove all traffic from the map, deselect the Traffic layer from the map layer menu.



Hide Distant Traffic (ADS-B) Enabled

NOTE: The Hide Distant Traffic setting does not affect traffic alerts.

25.7.8 Traffic Information Service Broadcast (TIS-B)

The Traffic Information Service Broadcast (TIS-B) is a component of **ADS-B traffic**. It is continuously broadcast on the 978 MHz frequency by **ADS-B towers** and exclusively contains information about air traffic not equipped with ADS-B Out.

25.7.8.1 Client aircraft

The TIS-B broadcast provides a more complete picture of the traffic around the present position. ADS-B Out equipped aircraft (also referred to as client aircraft) benefit the most from the TIS-B broadcast.

25.7.8.2 Traffic is included in the Broadcast

To be included in the TIS-B broadcast, air traffic must meet the following requirements:

- Within 15 NM and 3,500 feet (vertically) of any client aircraft.
- Equipped with an altitude encoding (Mode C) transponder (Not ADS-B Out equipped).
- Operating within the service volume of surveillance radar.

25.7.8.3 Traffic Excluded From the Broadcast

The following aircraft are *excluded* from the TIS-B broadcast:

- Aircraft operating outside 15 NM and 3,500 feet (vertically) of any client aircraft.
- Aircraft without transponders.
- Aircraft operating outside of surveillance radar.
- ADS-B Out equipped aircraft.

25.7.8.4 How TIS-B is received

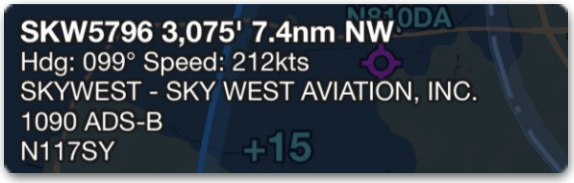
Pilots can receive the TIS-B broadcast by operating within the ADS-B service volume while connected to an ADS-B (978 MHz) receiver. All traffic targets that are included in the TIS-B broadcast can be received by aircraft equipped with an ADS-B receiver for display in ForeFlight.

In other words, the ownship does not need to be ADS-B Out equipped to receive TIS-B traffic. However, TIS-B traffic will only be included in the broadcast and thus displayed in ForeFlight if the traffic target operates within 15 NM and 3,500 feet of an ADS-B Out equipped client aircraft.

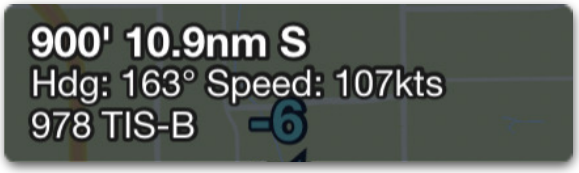
25.7.9 ADS-B and TIS-B Differences

The **icons** used to depict air-to-air (ADS-B) and TIS-B traffic targets are the same. Differences exist when the traffic target is tapped. Unlike ADS-B traffic targets, TIS-B targets often lack identifying information (e.g., tail number or call sign).

When a traffic target is tapped, a pop-up displays information about the target to include whether the target originated from an air-to-air or TIS-B broadcast.



1090 MHz ADS-B Traffic Pop-up



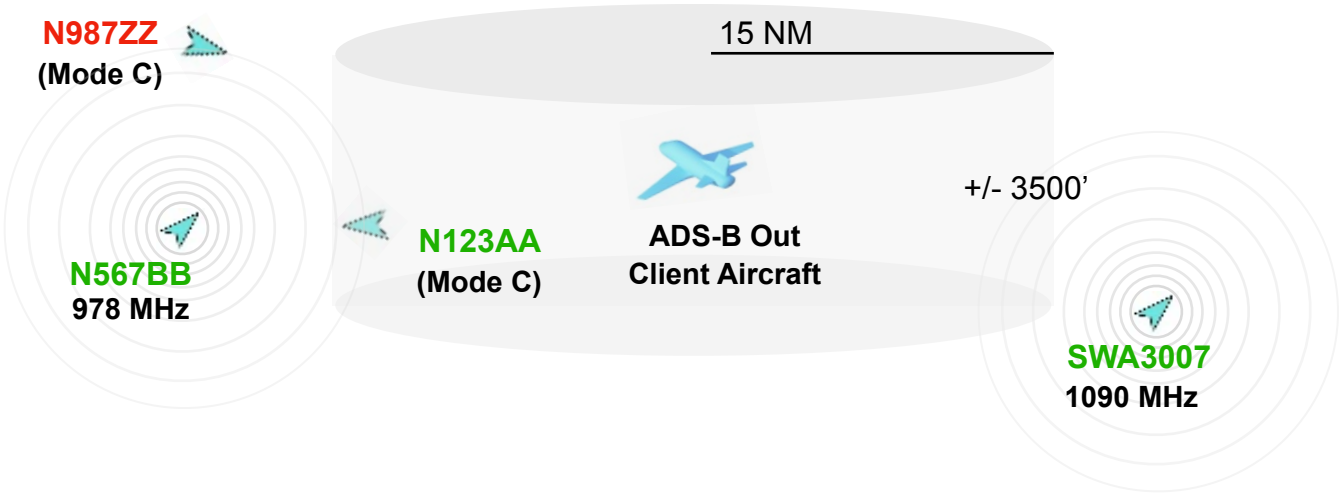
978 MHz TIS-B Traffic Pop-up

NOTE: Garmin receivers do not indicate which frequency traffic was detected on.

ADS-B and TIS-B Traffic Examples

The image below depicts four traffic targets and an ADS-B (In and Out) equipped airplane in the center of a gray ring. The ring represents the proximity requirements discussed in the **TIS-B section**. Traffic that can be displayed in ForeFlight is depicted in green. Traffic not able to be displayed is red.

- **N123AA** is a Mode C (non-ADS-B Out equipped) traffic target. This traffic target is included in the TIS-B broadcast because it is within 15 NM and 3,500' of a client aircraft. Any aircraft receiving the TIS-B broadcast (including non ADS-B Out equipped aircraft) will receive the N123AA target for display in ForeFlight.
- **N987ZZ** is a Mode C (non-ADS-B Out equipped) traffic target. This traffic target is not available for display in ForeFlight because it is outside the TIS-B client proximity requirement. This traffic target will not be displayed in ForeFlight unless it were to enter the proximity requirements of *any* client aircraft.
- **N567BB** and **SWA3007** are air-to-air ADS-B traffic targets that can be received directly and are available for display in ForeFlight. These traffic targets are not included in the TIS-B broadcast because they are ADS-B Out equipped aircraft.



25.7.10 ADS-B Ownship

ADS-B Ownship is an automated process that identifies a traffic target as belonging to ownship aircraft.

Determining Ownship

To determine ownship, ForeFlight compares the location and movement of nearby traffic targets to the current location and movement. If traffic target movement closely matches current conditions, ForeFlight recognizes the signal is coming from the aircraft and assigns Ownship status.

NOTE: To determine ownship, the ADS-B receiver must be able to detect the ADS-B Out traffic broadcast.

Benefits of Ownship

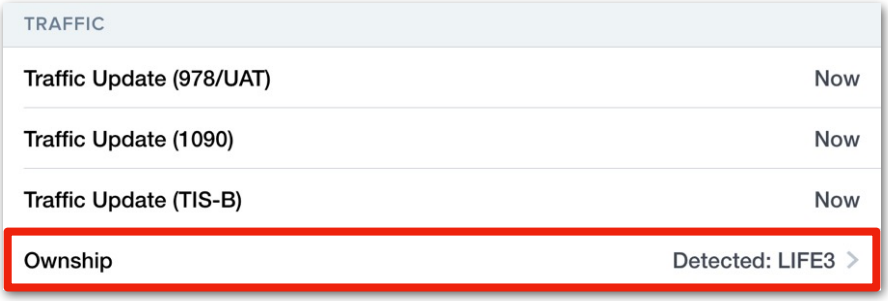
There are a number of benefits to a successful Ownship assignment:

- Ownship traffic target is removed from the map (eliminating **false traffic targets**).
- Information from the transponder is automatically incorporated into other aspects of ForeFlight (e.g., tail number is automatically assigned in Track Logs).
- Pressure altitude from the transponder is used for altitude comparison. When ownship is not detected and pressure altitude data is unavailable, ForeFlight compares GPS altitude with the pressure altitude of nearby traffic.

Checking Ownship Status

To determine if Ownship status has been assigned:

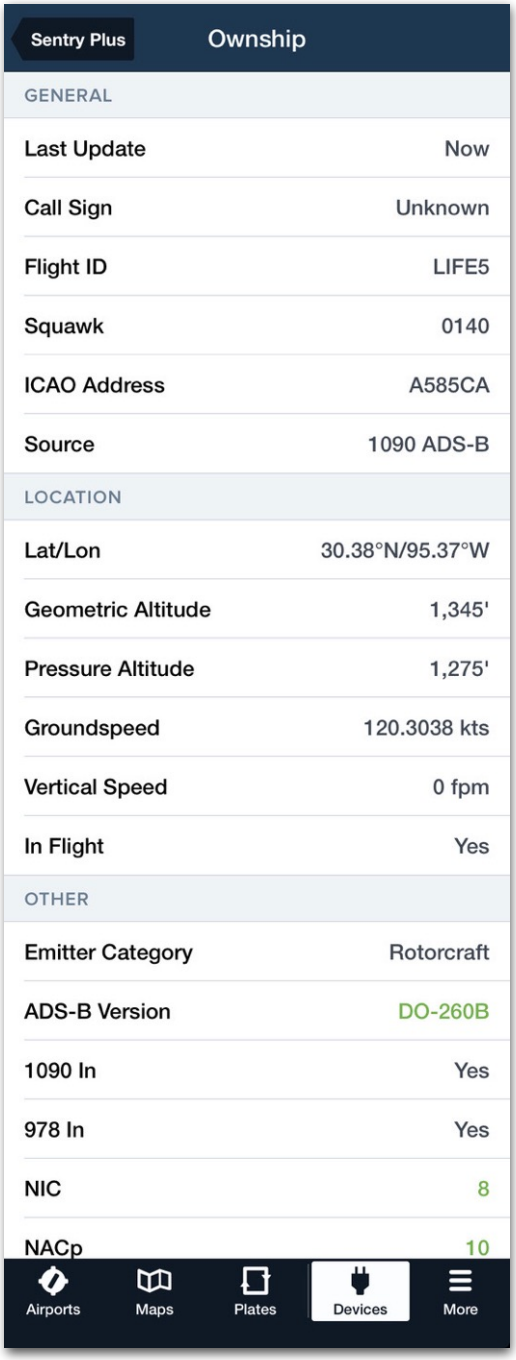
1. Select **More** > **Devices** and tap the ADS-B **Device Tile**.
2. Scroll to the Traffic section and reference the **Ownship** field.
3. If an aircraft is listed, ownship status is assigned. Tap the aircraft to display the **information** from the transponder.



Ownship Information

The Ownship Information view displays information as reported by the transponder. Descriptions of each field can be found below.

- **Last Update** indicates the last time data was received from the transponder.
- **Call Sign** is an optional alphanumeric value used to identify the aircraft (e.g., UAL123).
- **Flight ID** is the identifier for the aircraft and should match the aircraft ID (or call sign) entered on the flight plan.
- **Squawk** displays the current squawk code entered into the transponder.
- **ICAO Address** is a 24-bit code unique to the aircraft assigned by ICAO.
- **Source** displays the frequency of the transponder (978 or 1090 MHz).
- **Lat/Lon** displays the last reported latitude and longitude.
- **Geometric Altitude** displays the last reported GPS altitude.
- **Pressure Altitude** displays the last reported pressure altitude from the transponder. This data is used for altitude comparisons to nearby traffic targets.
- **Groundspeed** displays the last reported groundspeed.
- **Vertical Speed** displays the last reported vertical speed.
- **In Flight** indicates whether the aircraft has been determined to be in flight. When in flight, certain features are disabled (e.g., account changes).



Ownship Information

- **Emitter Category** indicates the aircraft category (e.g., light airplane, small airplane, large airplane, rotorcraft, glider).
- **ADS-B Version** displays the applicable TSO minimum operational performance standard. This value is established when the ADS-B equipment is manufactured.
- **1090 In** specifies if the aircraft is capable of receiving the 1090 MHz frequency.
- **978 In** specifies if the aircraft is capable of receiving the 978 MHz frequency.
- **NIC** (Navigation Integrity Category) specifies an integrity containment radius around the reported position, as defined in TSO-C166b and TSO-C154c.
- **NACp** (Navigation Accuracy Category for Position) specifies the accuracy of a reported position, as defined in TSO-C166b and TSO-C154c.

25.7.11 False Traffic Targets

A false traffic target is a traffic icon or traffic alert for the ownship. Two scenarios can result in false traffic targets. The error depends on the transponder type.

ADS-B Out Equipped False Traffic Targets

If the ADS-B receiver detects an ADS-B Out transponder and the position data does not match between the two, ownship cannot be assigned. If ownship is not assigned to the user aircraft, it may be displayed on the map if detected and can also generate false **traffic alerts**.

False traffic alerts are most likely to occur with rapid maneuvering or poor GPS accuracy. Once position data matches, ownship can be established and false traffic targets will cease.

If ownship is not assigned over the course of an entire flight, this may indicate airframe interference, an issue with the aircraft configuration, or an issue with transponder position reporting.

TIS-B False Traffic Targets (non ADS-B Out equipped)

If Mode C traffic information is broadcast via the **TIS-B** broadcast and the ADS-B receiver detects the traffic target, user aircraft may appear as a traffic target slightly behind and +/- 200' the actual position.

After a short period of time, ForeFlight will recognize the TIS-B target is the user aircraft and will assign it ownship status. Once assigned, the TIS-B target will be suppressed.

If ForeFlight is unable to determine ownship and the user TIS-B target is detected, there is no way to remove the TIS-B target from the map other than by turning off the **Traffic** layer.

25.7.12 Traffic Breadcrumbs

When connected to an ADS-B or FLARM receiver with an Essential or higher account, traffic breadcrumbs can be displayed on the map by tapping the traffic symbol. See **Traffic Breadcrumbs** for more information.

25.8 ADS-B Weather (FIS-B)

The Flight Information Service Broadcast (FIS-B), commonly referred to as ADS-B weather, is a subscription-free, continuous weather and NOTAM broadcast. ADS-B weather is primarily only available in the United States and includes the following products:

- **Regional NEXRAD**
- **CONUS NEXRAD**
- **METARs**
- **TAFs**
- **AIR/SIGMETS**
- **Center Weather Advisories**
- **PIREPs**
- **Special Use Airspace**
- **NOTAMs**
- **Cloud Tops**
- **Icing**
- **Lightning**
- **Turbulence**
- **Winds/Temps Aloft**
- **Freezing Levels**.

To display ADS-B weather, the following criteria must be met:

- Connected to a **supported ADS-B receiver**
- Operating within the FIS-B broadcast service area
- In line-of-sight communication with at least one **ADS-B tower**
- A minimum of one ADS-B weather product or map layer selected.



ADS-B AIRMETs and NEXRAD Map Layers

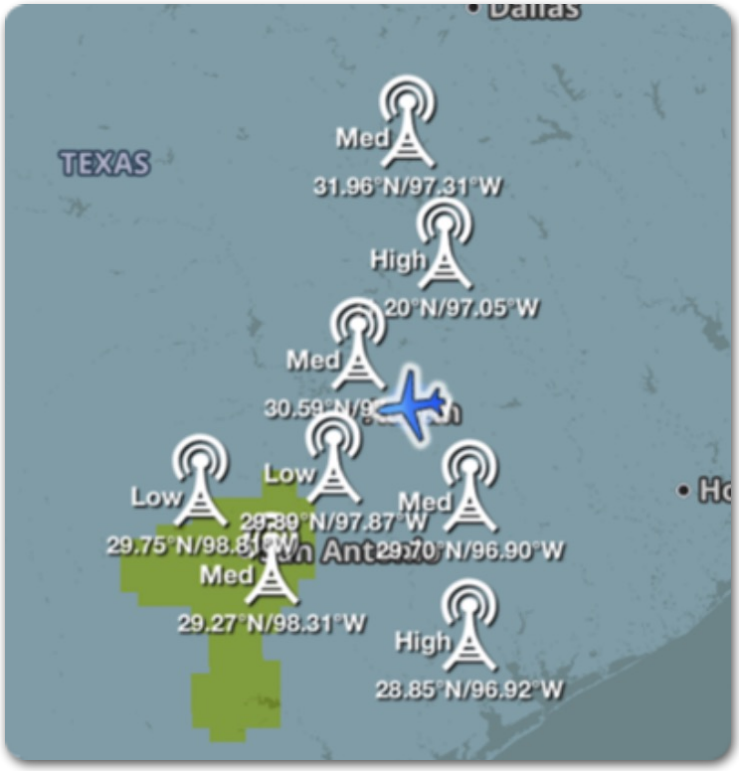
25.8.1 ADS-B Towers

There are hundreds of ADS-B towers throughout the United States. Towers are classified into tiers and are subject to line-of-sight restrictions.

Each type of tower tier (surface, low, medium, and high altitude) offer a range of products with varying coverage areas (see the **table** in this chapter for additional details). Approximately two-thirds of towers in the United States are low-altitude tier towers.

Each tower type has a defined **look-ahead range** for the products it broadcasts. The look-ahead range specifies the coverage area for the broadcasted data. For example, a low-altitude tower broadcasts METARs for airports within 250 NM of the tower. Thus, the METAR look-ahead range for low-altitude towers is 250 NM.

ADS-B receivers are capable of receiving data from multiple towers simultaneously. What is shown in ForeFlight is a combination of data from all the towers being received.



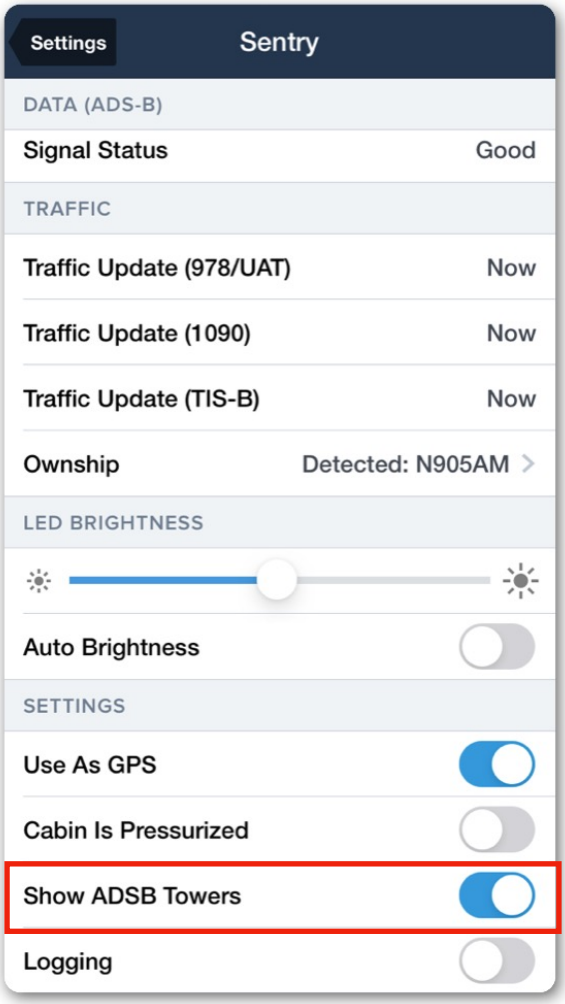
ADS-B Towers on the map

Tower Location on Map

ForeFlight can display the towers it receives data from on the map. When any data is received from a tower, including station data (location, type, and status) the tower is displayed on the map when the **Show ADS-B Towers** setting is enabled. To display ADS-B towers on the map:

1. Select **More** > **Devices**.
2. Tap the **Device Tile.**
3. Enable the **Show ADSB Towers** setting.

Towers are depicted on the map near their exact location. Tower latitude, longitude, and type are shown next to the tower icon. Tapping an ADS-B tower icon does not provide any additional information.



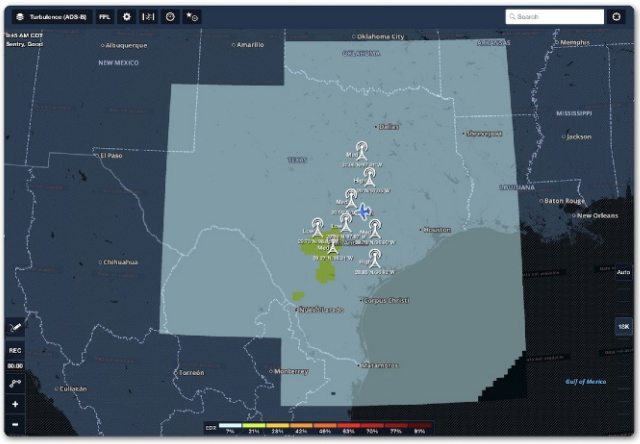
Show ADSB Towers Setting

25.8.2 FIS-B Look-Ahead Range

When viewing an ADS-B map layer, (e.g., radar, turbulence, icing) ForeFlight combines the data from multiple towers (if applicable) into a single map layer.

The image to the right is an example of ADS-B turbulence, the corresponding look ahead ranges, and multiple ADS-B towers.

Areas beyond the look-ahead range do not contain weather data and depict a hashed map layer and “Data not available” labels.



ADS-B Turbulence Look-Ahead Range

Refer to the table below to determine weather product availability and broadcast range.

Weather Product	Surface Towers	Low Altitude Tier	Medium Altitude Tier	High Altitude Tier
CONUS NEXRAD	Not Provided		Entire CONUS	
REGIONAL NEXRAD	150 NM		200 NM	250 NM
METAR	100 NM	250 NM	375 NM	CONUS B & C Airports
TAF	100 NM	250 NM	375 NM	
AIRMET/SIGMET	100 NM	250 NM	375 NM	500 NM
Graphical AIRMETs	Not Provided	250 NM	375 NM	
CWA				
PIREPs				
SUA				
NOTAM	100 NM			
Cloud Tops	Not Provided	150 NM	200 NM	250 NM
Icing				
Lightning				
Turbulence				
Winds & Temp Aloft	500 NM		750 NM	1000 NM

FIS-B Look-Ahead Range by Tower Tier and Weather Product

25.8.3 Dynamic Map Layer Source and Status

When a dynamic map layer is selected (e.g., Traffic or ADS-B Radar), the data source (Sentry), its status (Good), and the last time the data was updated is displayed in the upper left corner of the map. When no map layers are selected, the label is removed.

Timestamp

A color-coded timestamp depicts the age of the oldest active map layer. The timestamp's color changes based on when the map layer was updated and how often the data is refreshed.

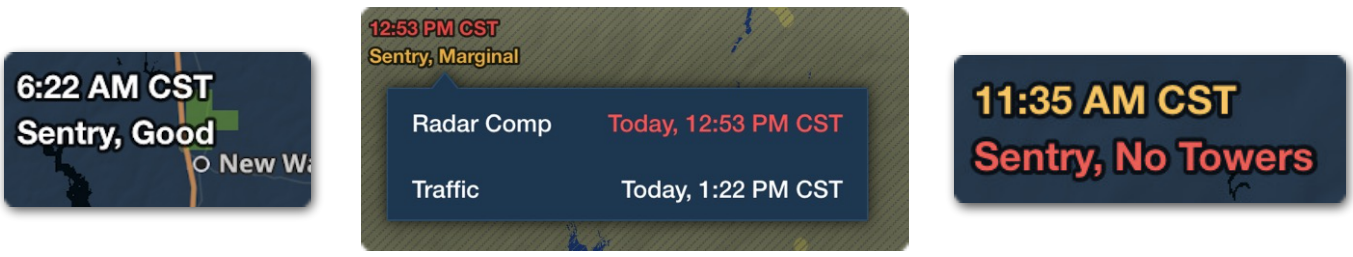
- **White** indicates the latest data is displayed.
- **Orange** indicates the data is nearing expiration.
- **Red** indicates the data is expired and newer data should be available.

When multiple map layers are selected, the timestamp reflects the oldest data. Tap the timestamp to display a popup with the update times of each selected layer.

Signal Source and Status

Below the timestamp is a label that reflects the source of data (e.g., Sentry, Connext, Stratus, etc.). Next to the data source is a status indicator. Signal status represents the *number of towers* the device is receiving data from. Signal status does *not* represent the quality of the signal. There are four potential ADS-B receiver statuses:

- **No Towers** indicates the device is not receiving any tower data.
- **No Data** indicates the device is receiving tower data (tower type or location), but not weather or NOTAM data.
- **Marginal** indicates the device is receiving FIS-B data from one tower.
- **Good** indicates the device is receiving FIS-B data from more than one tower.

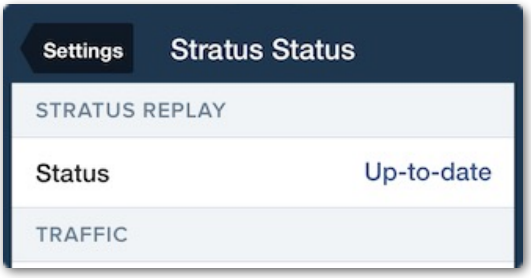


Good, Marginal, and No Towers Map Labels

ADS-B Replay

Sentry and Stratus ADS-B receivers save the last 30 minutes of ASD-B weather information received by the device, including NEXRAD Radar, METARs, TAFs, etc.

ADS-B Replay automatically sends saved data to ForeFlight when the app is reopened after sleeping the device or switching from another app. ADS-B Replay reduces the amount of time required to view ADS-B weather information. Check Replay status on the **Device Information** page.



ADS-B Replay

25.8.4 ADS-B Radar

Next-generation radar data (NEXRAD) is available over ADS-B for the continental United States (CONUS). To display ADS-B NEXRAD data, select the **Radar (ADS-B)** map layer when connected to an ADS-B receiver and within the FIS-B service volume.

NOTE: Radar and **Radar (ADS-B)** are two separate map layers. **Radar** is available with an internet connection and is not available when connected to a Wi-Fi ADS-B receiver.

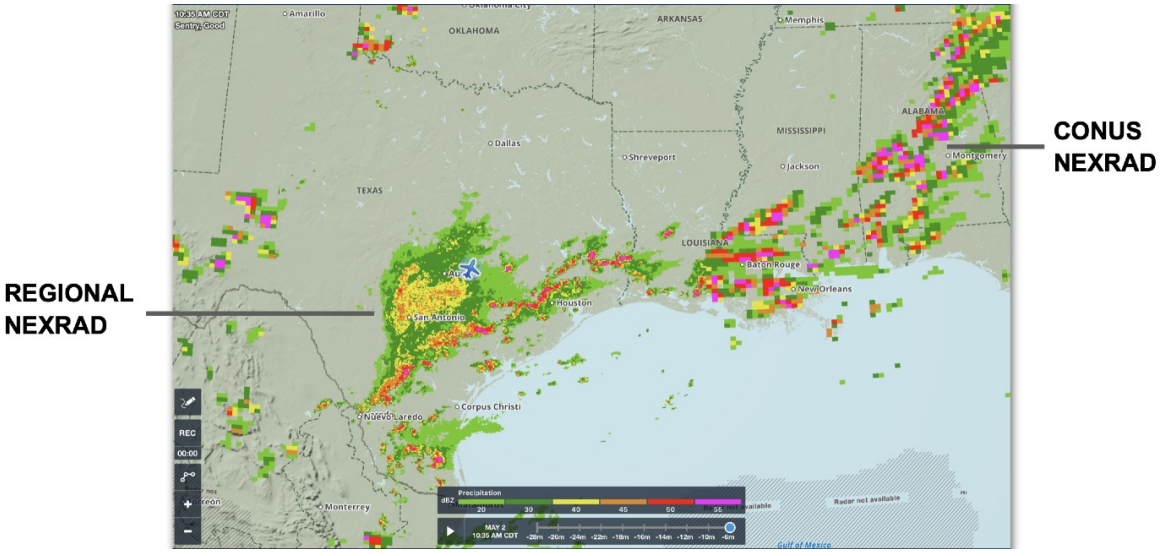
ADS-B Radar consists of two types of data (CONUS and Regional). Both types automatically display when the **Radar (ADS-B)** map layer is selected.

CONUS NEXRAD

CONUS radar is a low-resolution composite radar picture for the continental United States. This data is available from medium and high-altitude FIS-B towers. CONUS NEXRAD data is updated every 15 minutes. ForeFlight checks for new data every 5 minutes.

Regional NEXRAD

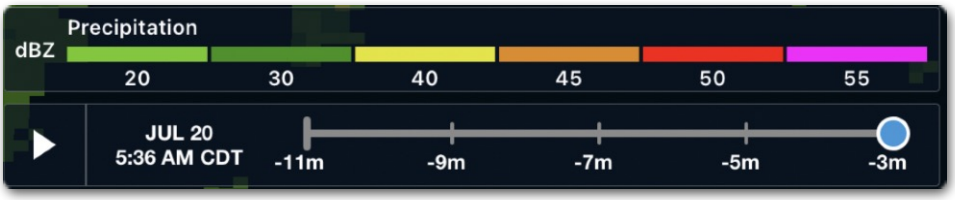
Regional radar is a higher-resolution composite radar picture broadcast by all tower tiers. Regional NEXRAD data is only available for the areas within 150 to 250 NM from the towers data is received from. On clear days when there are no radar returns, Regional NEXRAD is updated every 10 minutes. Otherwise, Regional NEXRAD is updated every 2 minutes.



Regional and CONUS ADS-B Radar

Animated ADS-B Radar

When **Radar (ADS-B)** is selected, radar returns can be animated with the play button left of the time slider at the bottom of the Maps view. The time slider and play button are removed when less than two radar frames are available. ForeFlight can animate (loop) up to 15 frames of ADS-B NEXRAD data.

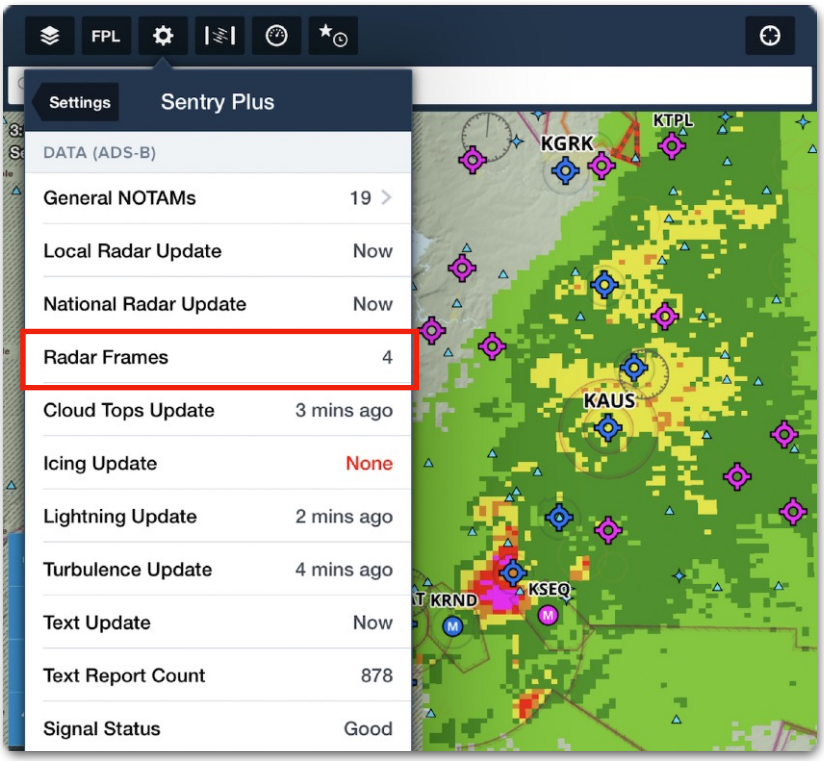


NEXRAD Animation Time Slider with Play Button

Radar Frame Information

To check the number of available radar frames:

1. Open the **Map Settings** (gear button in the Maps upper toolbar).
2. Select the ADS-B receiver (near the bottom of the menu).
3. Reference the Radar Frames field.



ADS-B Radar Frames

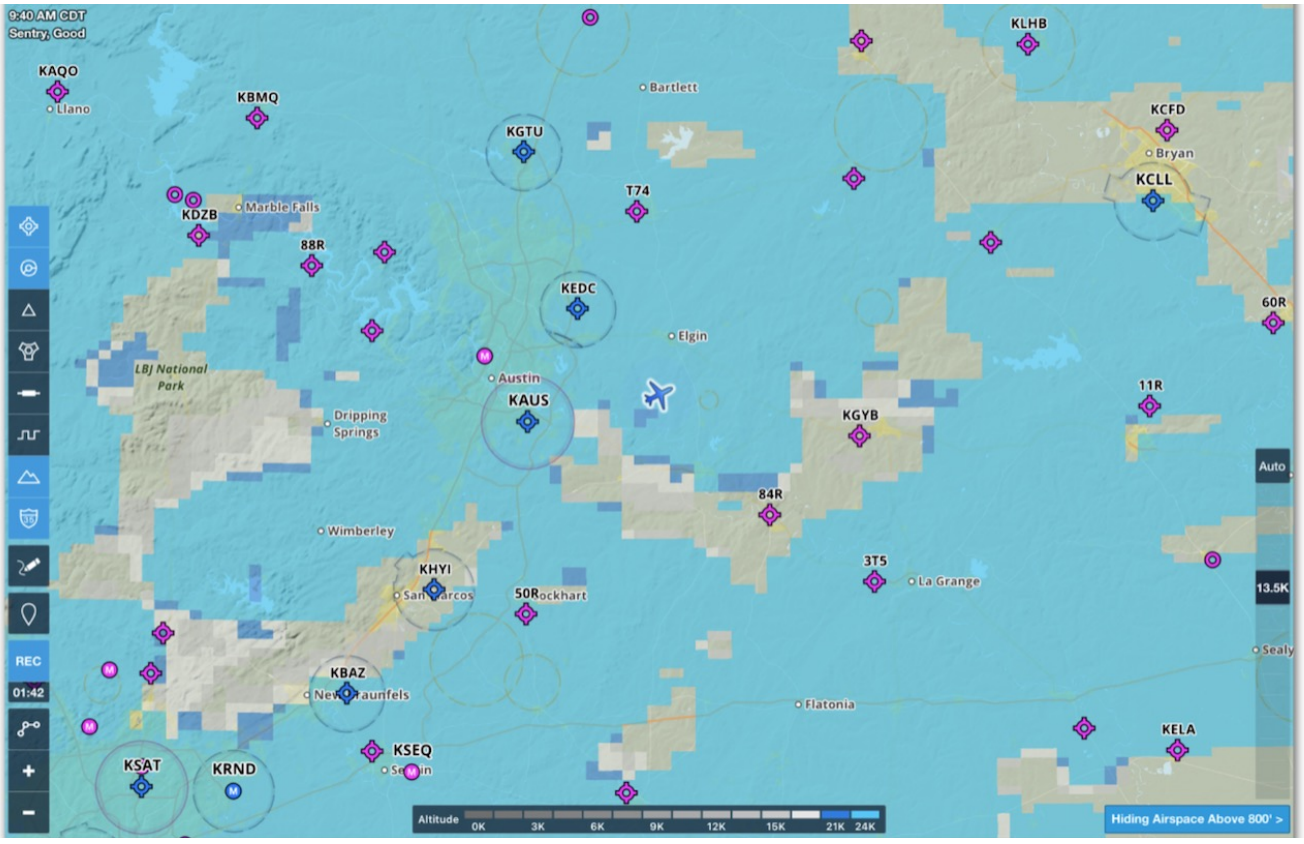
25.8.5 ADS-B Cloud Tops

ADS-B Cloud Tops are available for the continental United States and are a useful tool for determining if flight can be conducted in visual conditions above the clouds.

Cloud tops are a forecast map layer from the National Weather Service (NWS) and is derived from satellite temperature sensors using the High-Resolution Rapid Refresh (HRRR) model. The Cloud Tops forecast is generated every hour and transmitted over ADS-B every 15 minutes.

To view Cloud Tops, select **Cloud Tops (ADS-B)** from the map layer menu and use the **altitude slider** on the right side of the map to filter clouds with tops below the selected altitude.

Forecast Cloud Tops that exist at or above the selected altitude are depicted on the map according to the color-coded scale. Each color represents an MSL altitude in 3,000-foot increments. Tap **Auto** at the top of the altitude slider to automatically display cloud tops at and above the current GPS altitude.

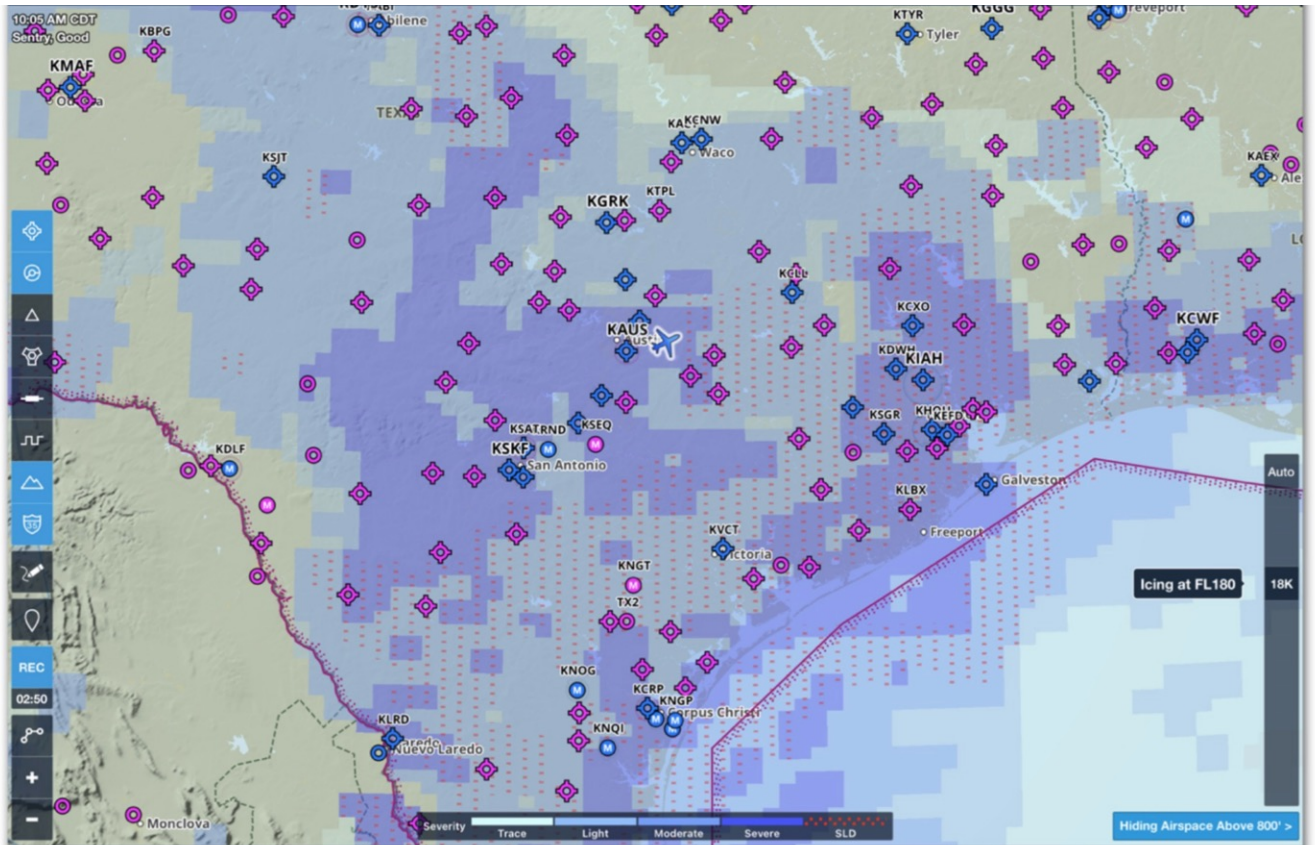


ADS-B Cloud Tops

25.8.6 ADS-B Icing

ADS-B Icing provides continental United States forecasted icing data from the NWS Forecast Icing Potential model. This product has a look-ahead range of 150 to 250 NM and is run on an hourly basis. Forecasted icing data is transmitted over FIS-B at 15-minute intervals.

Forecasted icing severity and anticipated presence of super-cooled large droplets (SLD) are provided from the surface up to 24,000 ft MSL in 2,000 ft increments. Use the altitude slider on the right side of the map to display icing data at various altitudes. Tap **Auto** at the top of the altitude slider to automatically display icing data at the current GPS altitude.

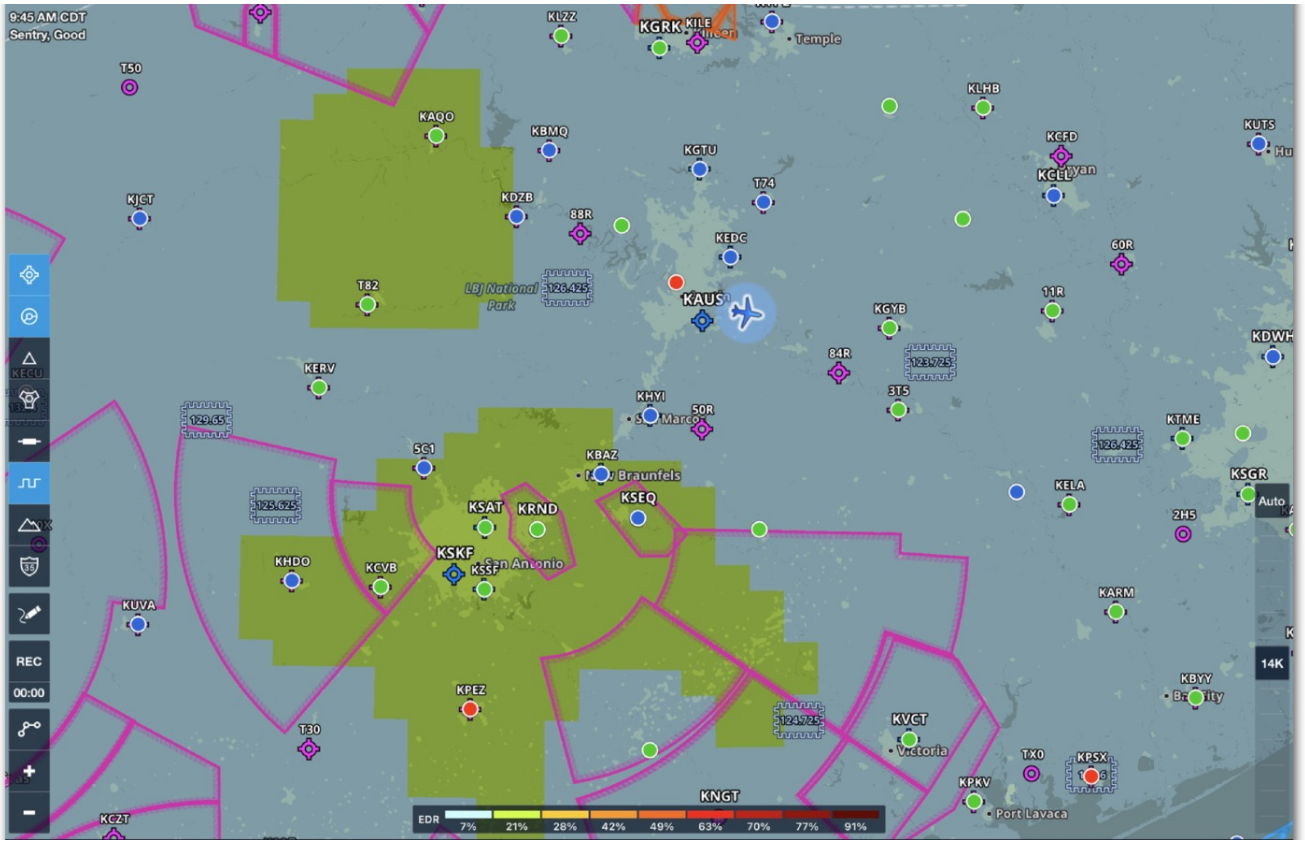


ADS-B Icing

25.8.7 ADS-B Turbulence

The ADS-B Turbulence map layer displays the NWS forecast covering the continental United States with a look-ahead range of 150 to 250 NM. ADS-B Turbulence displays the forecast eddy dissipation rate (EDR) (i.e., turbulence intensity) based on a medium aircraft weight category.

Turbulence data is available from the surface up to 24,000 ft MSL in 2,000 ft increments using the altitude slider on the right side of the map. Tap **Auto** above the altitude slider to automatically display forecast turbulence intensity at the GPS altitude.

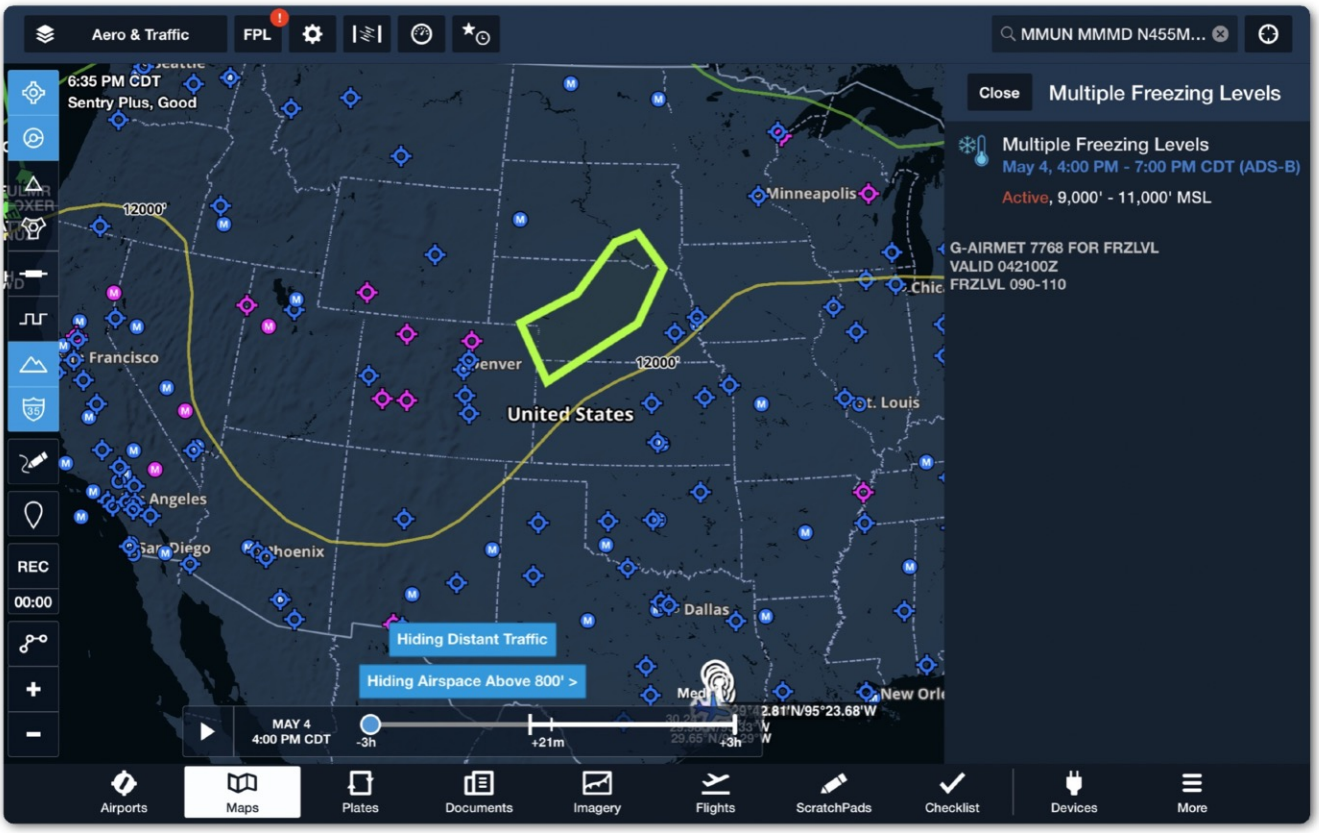


ADS-B Turbulence

25.8.8 ADS-B Freezing Levels

The ADS-B Freezing Level map layer provides a graphical representation of freezing levels across North America. Freezing levels are delineated with color-coded lines at 4,000-foot intervals up to 24,000 feet (MSL).

If there are multiple freezing levels for a region, a shaded polygon is displayed on the map. Tap the polygon to display additional details. Freezing level forecasts are generated every three hours and automatically updated in ForeFlight.



Freezing Lvls (ADS-B)

25.8.9 ADS-B AIRMETs, SIGMETs, CWAs

AIRMETs, SIGMETs, and Center Weather Advisories (CWAs) are issued by meteorological watch offices for weather that is potentially hazardous to low-level aircraft with limited capability. AIRMETs consist of less severe weather than SIGMETs: moderate turbulence & icing, surface winds of 30 knots, or widespread restricted visibility. AIRMETs, SIGMETs, and CWAs are combined into a single map layer.

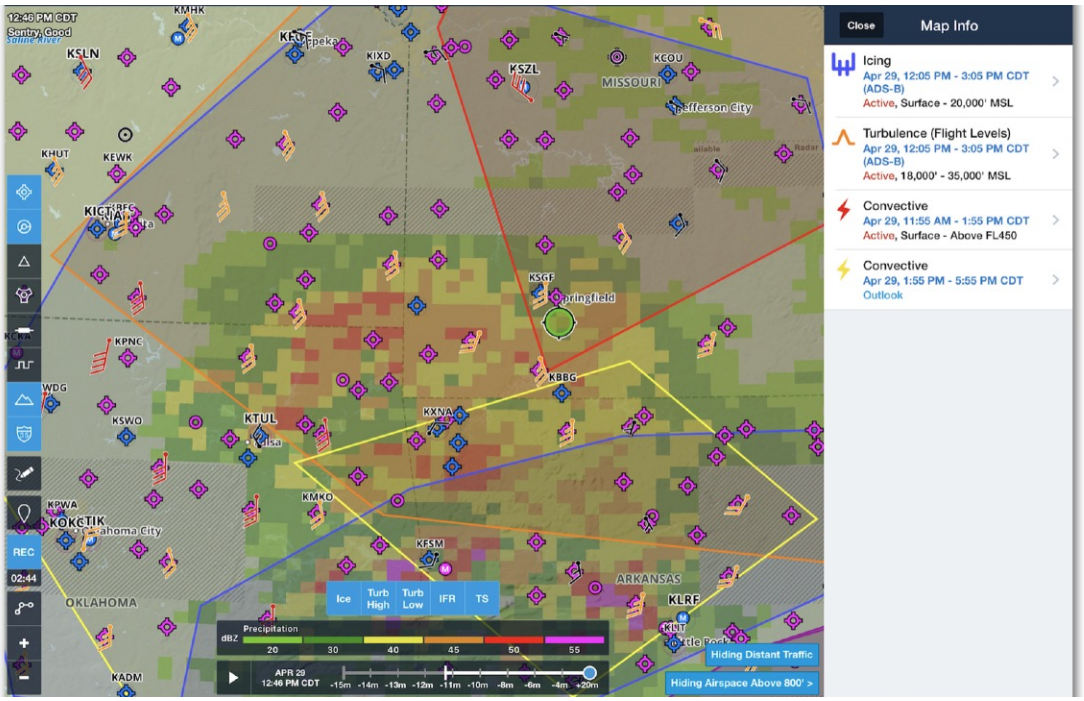
When the **AIR/SIGMET/CWAs** map layer is selected, the individual weather products can be filtered with the buttons near the bottom of the map. Selected types are highlighted blue and the relevant advisories are displayed graphically on the map during their active time.



AIR/SIGMET/CWA Filters

AIRMETs, SIGMETs, and CWA forecasts are generated every six hours. ForeFlight checks for updated data every five minutes. The time slider at the bottom of the map can be used to view future forecast periods.

Tap an AIRMET, SIGMET, or CWA to display additional information in the sidebar. If there is more than one active layer in the location tapped, the advisories are depicted in a list view. Tap an individual advisory to display the advisory's text.

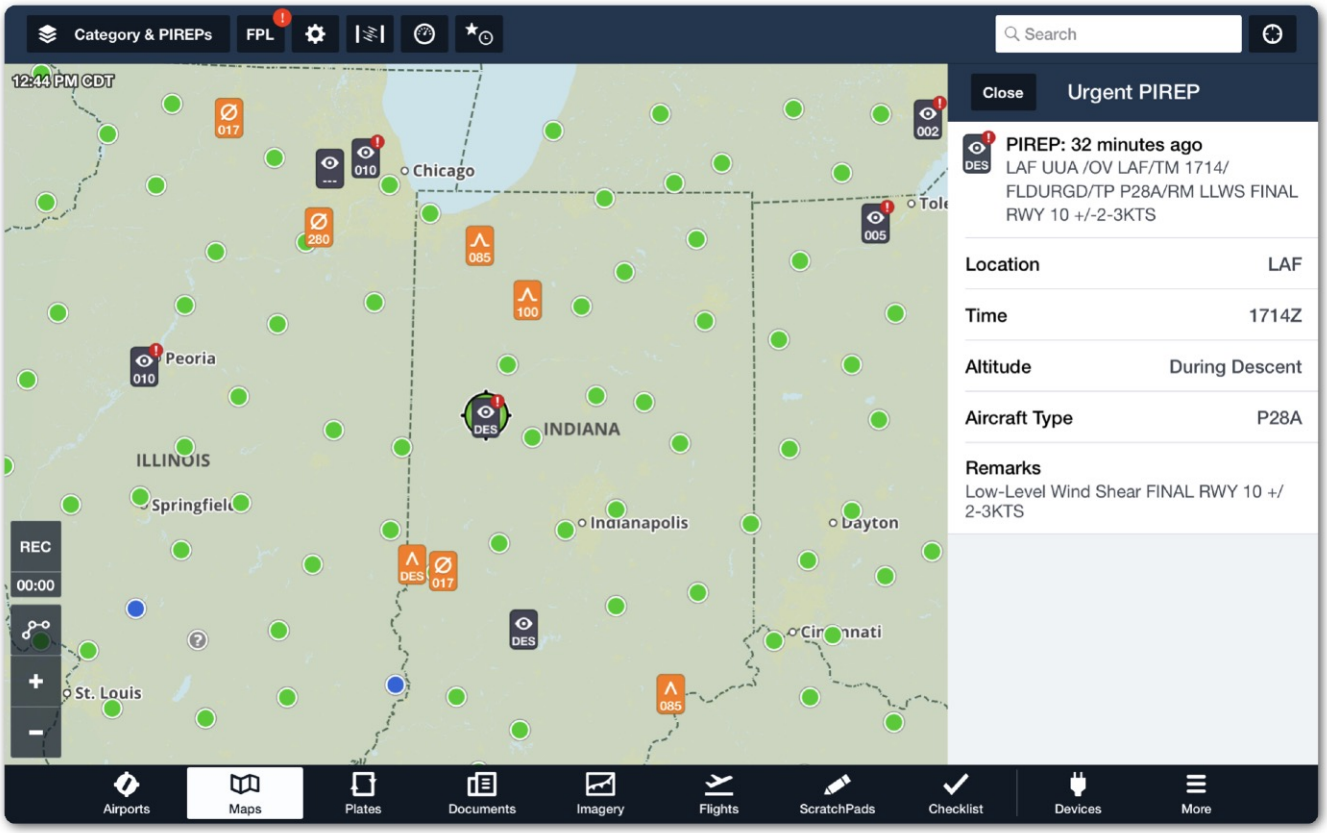


ADS-B AIRMETs, SIGMETs, and CWAs

25.8.10 ADS-B PIREPs

Pilot reports (PIREPs) are broadcast over ADS-B with a range of 250 NM, 375 NM, and 500 NM for low, medium, and high altitude towers respectively. PIREPs are issued by pilots as needed and are automatically refreshed in ForeFlight every ten minutes.

PIREPs are displayed graphically on the map when the **PIREPs** layer is active. Tap a PIREP to display the coded and decoded PIREP text. The age of the PIREP is displayed at the top of the PIREP menu alongside the source (ADS-B).



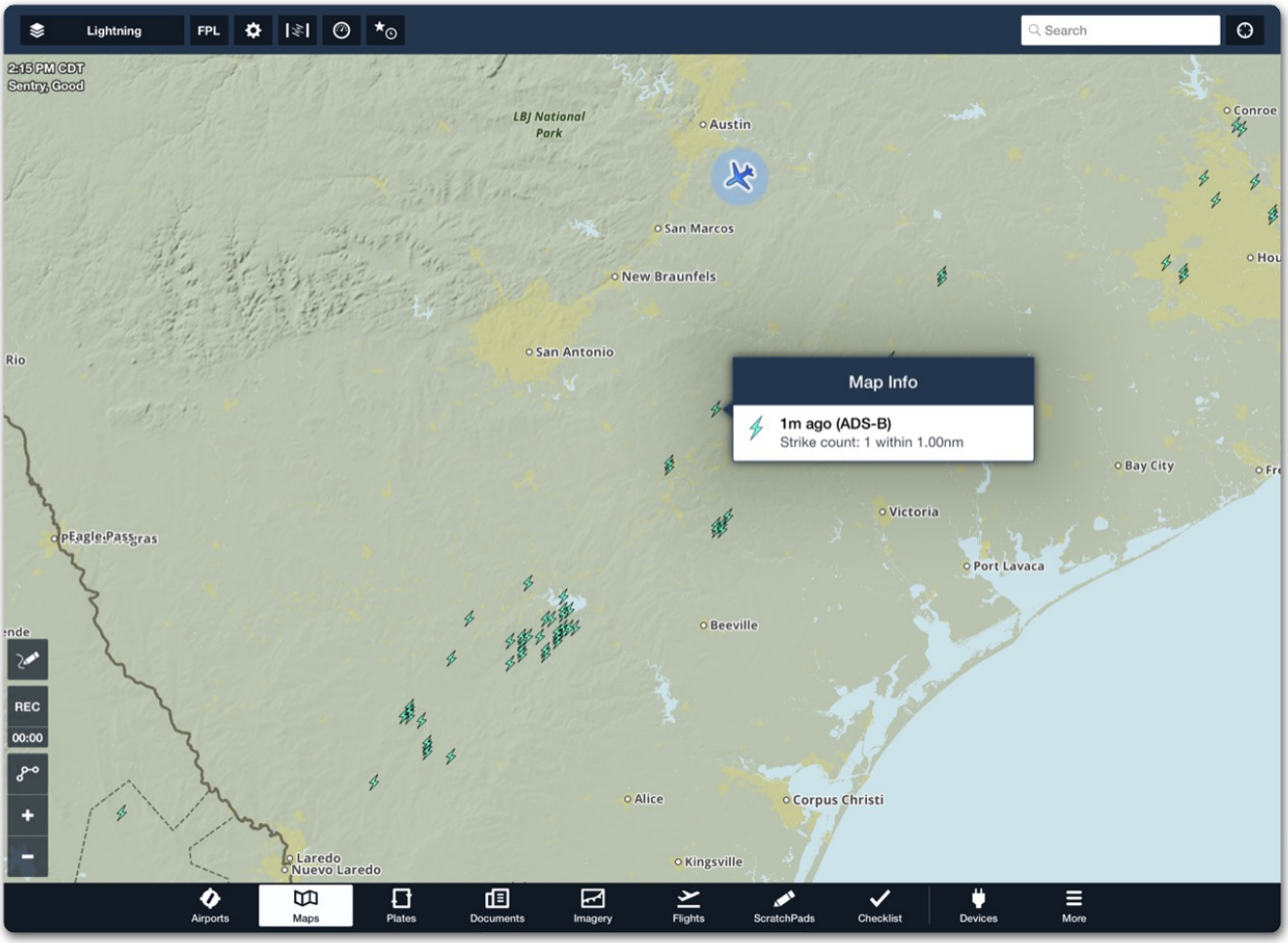
ADS-B PIREPs

Icon	Meaning
	Icing (increasing severity)
	Turbulence (increasing severity)
	Obscuration or other weather

25.8.11 ADS-B Lightning

ADS-B Lightning provides a graphical representation of the observed cloud-to-ground lightning strike density and polarity every five minutes from the U.S. National Lightning Detection Network (NLDN).

Lighting data is transmitted over FIS-B with a 150 to 250 NM look-ahead range. Tap a lightning icon to reveal the number of strikes within the given radius.

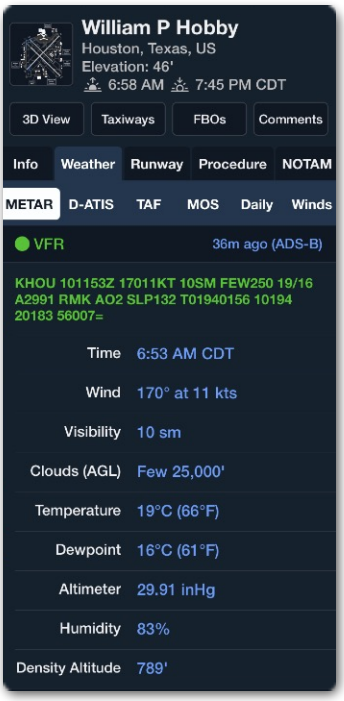


ADS-B Lightning

NOTE: Baron Mobile Link ADS-B Lightning requires firmware version 2.0 or higher.

25.8.12 ADS-B METARs

METARs received via ADS-B are nearly identical to METARs received over the internet and can be viewed using the same techniques as when connected to the internet.



ADS-B METAR

ADS-B METARs differ from internet-based METARs in two ways:

- An (ADS-B) source label is displayed to the right of the METAR's timestamp.
- METARs are only available for the airports within the **look-ahead range** of the towers data is received from.

METARs contain temperature, dewpoint, wind speed, wind direction, precipitation, cloud cover, cloud heights, visibility, and barometric pressure data. METARs are updated every hour unless changing weather conditions dictate more frequent updates. ForeFlight checks for updated ADS-B METARs when the data is first displayed and automatically every five minutes after that.

Graphical METAR Map Layers

Selecting a map layer that uses METAR data (e.g., Flight Category, Surface Winds, Dewpoint Spread, Temperature, Visibility, Ceiling, Sky Coverage) displays the relevant ADS-B METAR data graphically on the map. Tap the weather icon on the map to display the METAR in the sidebar.

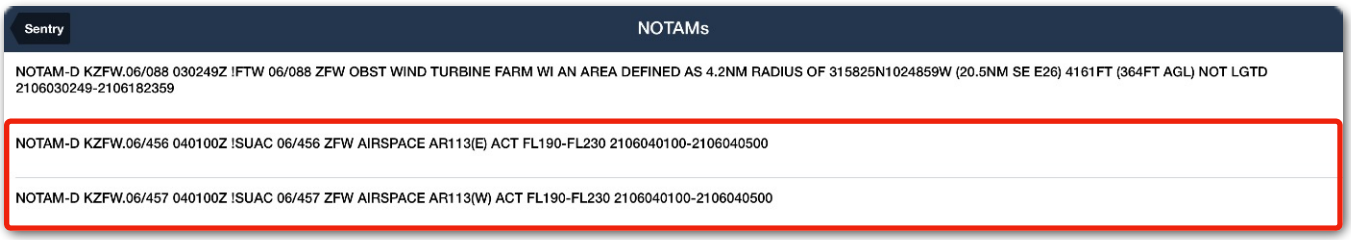
25.8.13 ADS-B TAFs

ADS-B TAFs are broadcast with the same functionality and look-ahead specifications as METARs. TAFs are updated by the National Weather Service every six hours or as unexpected weather occurs. ForeFlight checks for updated TAFs when the layer is first selected and automatically every ten minutes after that. Due to TAF update frequency, it's not uncommon to see TAF update times up to six hours old.

25.8.14 ADS-B Special Use Airspace

Special Use Airspace (SUA) is an area designated for operations that may impose limitations on non-participating aircraft. Examples include Alert Areas, Controlled Firing Areas, Military Operations Areas, Prohibited Areas, Restricted Areas, and Warning Areas.

SUA status is broadcast over the ADS-B NOTAM-D feed and displayed *textually* in ForeFlight. SUA status delivered via ADS-B is only available by selecting **More** > **Devices** > **Device Tile** > **General NOTAMs**. SUA NOTAMs have a 100 NM **look ahead** and are refreshed automatically in ForeFlight every ten minutes.



Special Use Airspace (SUA) Status NOTAMs

NOTE: NOTAMs delivered over ADS-B are not depicted graphically on the map. If NOTAMs are viewed prior to flight, they may be saved to the temporary (cache) storage of the device and be visible on the map during the flight. For best results, ForeFlight recommends Packing before flight.

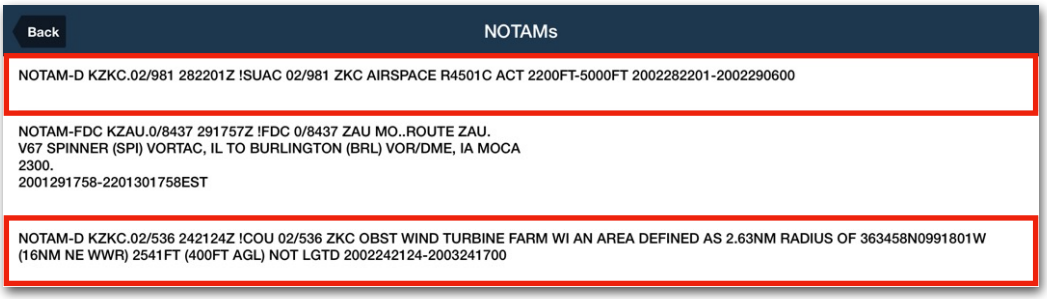
25.8.15 ADS-B NOTAMs

The ADS-B NOTAMs broadcast does not provide all NOTAMs or NOTAM types that a standard preflight briefing would include. Only NOTAMs from the preceding 30 days are broadcast over ADS-B. With the exception of Temporary Flight Restrictions (TFRs), NOTAMs delivered over ADS-B are not depicted graphically on the map.

ADS-B NOTAMs have a 100 NM **look-ahead range** and are updated every ten minutes. The ADS-B NOTAM feed includes two NOTAM types:

Distant (D) NOTAMs

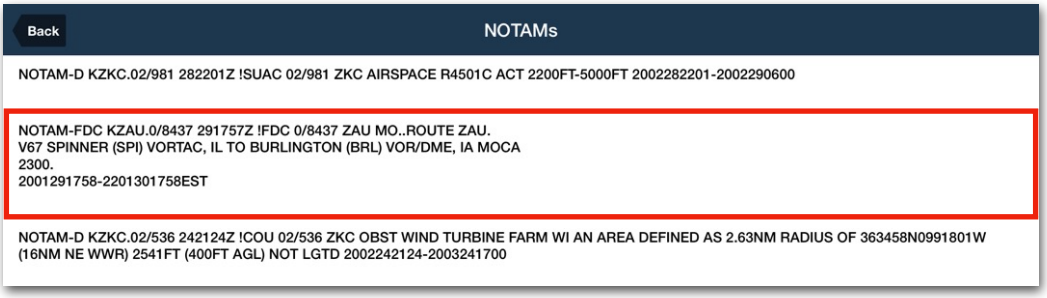
Distant NOTAMs are NOTAMs that are primarily distributed within the United States in the U.S. Domestic NOTAM format. Distant NOTAMs are NOTAMs that require wide dissemination: en route navigational aids, civil public use landing areas and aeronautical data. To view Distant NOTAMs, select **More** > **Devices** > **Device Tile** > **General NOTAMs**.



ADS-B Domestic NOTAMs

Flight Data Center (FDC) NOTAMs

FDC NOTAMs are regulatory in nature. Temporary Flight Restrictions (TFRs) and amendments to published instrument approach procedures are broadcast as FDC NOTAMs over ADS-B. To view FDC NOTAMs, select **More** > **Devices** > **Device Tile** > **General NOTAMs**.



ADS-B FDC NOTAM

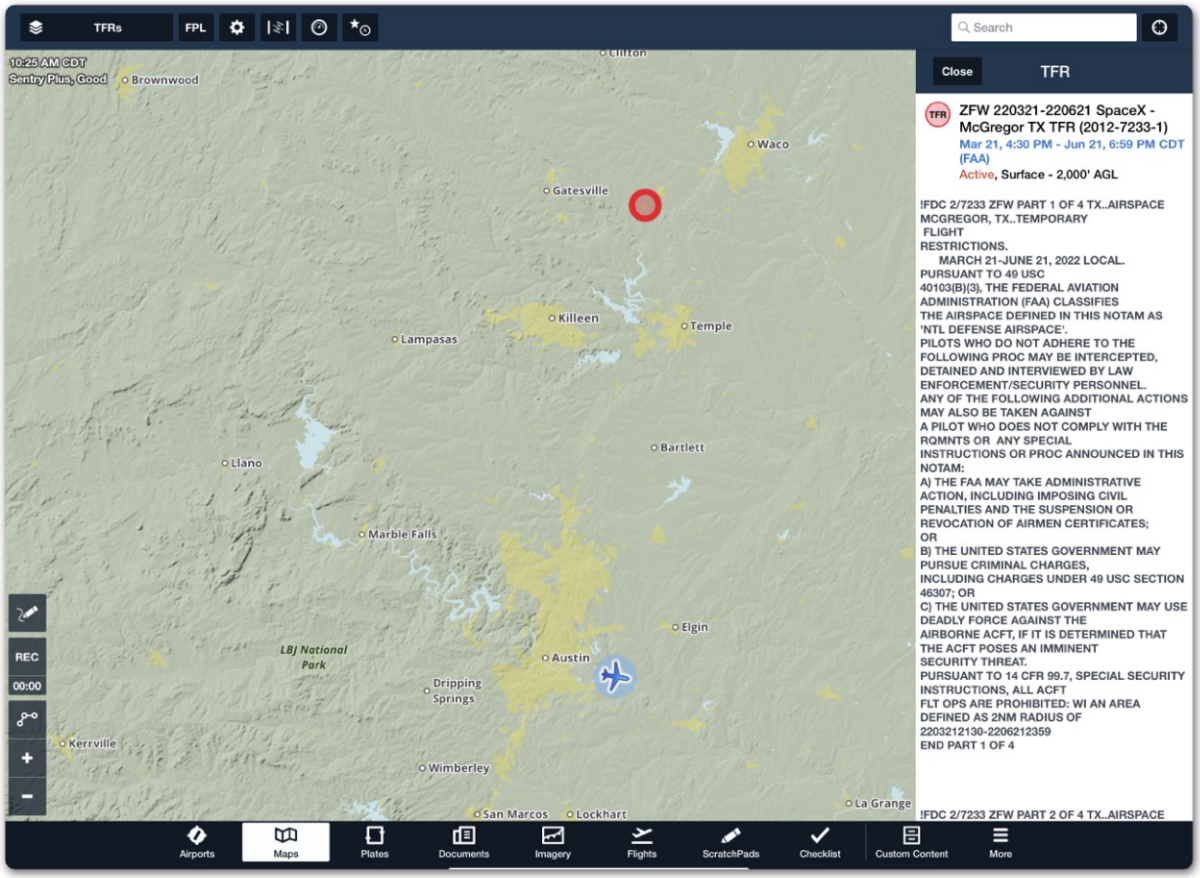
Temporary Flight Restrictions (TFRs)

ADS-B TFRs that contain properly formatted graphical information can be displayed on the map when the **TFRs** map layer selected.

TFRs within 8 hours of becoming active are red. Published TFRs that are more than 8 hours from becoming active are orange. Tap the TFR shape to reveal the raw text associated with the FDC NOTAM.

Stadium TFRs

Individual sporting event TFRs (FDC NOTAM 0/0367) are not broadcast over ADS-B. As a result, stadium TFRs must be Packed to be displayed in flight.



ADS-B Temporary Flight Restriction - NOTAM (FDC)

WARNING: Information obtained *solely* via ADS-B should not be regarded as a thorough preflight briefing. NOTAMs that are not TFRs are not displayed graphically when the only data source is ADS-B.

25.8.16 ADS-B Winds & Temperatures Aloft

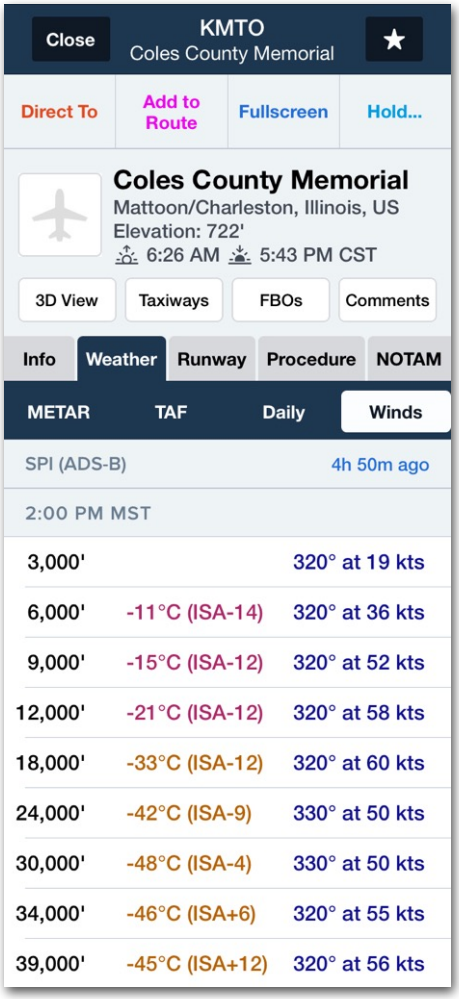
Winds & Temperatures Aloft forecasts are broadcast over ADS-B with various **look-ahead ranges**.

To view Winds & Temperatures Aloft, tap an airport icon on the map or display an airport in the Airports view, and then tap **Weather** > **Winds**.

Wind data is available from the surface up to FL 390 in 3,000 ft increments.

Temperature data is available in 3,000 ft increments up to FL 390 beginning at 6,000 ft MSL. Scroll the Winds Table to view additional forecast periods. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C
- **Tan** below -26° C.



ADS-B Winds and Temps Aloft

25.9 SiriusXM Weather

ForeFlight can display SiriusXM weather when connected to a compatible device with an active SiriusXM subscription. To verify that a SiriusXM subscription is active, visit **siriusxm.com/refresh** to send the device a refresh signal.

25.9.1 Supported Receivers

The following three receivers are the only supported SiriusXM receivers:

- **Garmin GDL 51 and GDL 52** (recommended) are portable **Bluetooth** SiriusXM receivers capable of delivering SiriusXM weather to ForeFlight. ForeFlight does not support SiriusXM Radio with the Garmin GDL 51/52.
- The **WXWorx SiriusXM** weather receiver can deliver SiriusXM weather to ForeFlight via the **Baron Mobile link**. The Baron Mobile link creates a **Wi-Fi** network that supports up to four simultaneous device connections. ForeFlight does not support SiriusXM Radio with the Baron Mobile Link.
- **SXAR1** (discontinued) supports SiriusXM weather and radio. The SXAR1 receiver supports a single **Bluetooth** connection.

NOTE: ForeFlight does not support SiriusXM weather via a Garmin Flight Stream.

25.9.2 SiriusXM Supported Weather Products

SiriusXM weather products are accessed with the same techniques as when connected to the internet. No additional configuration is required beyond ensuring the external device is connected. When connected to a supported SiriusXM weather receiver with an active subscription, the following weather products are available.

- **Composite Radar**
- **Lowest Tilt (Base) Radar**
- **Storm Cell Attributes**
- **METARs**
- **TAFs**
- **TFRs**
- **AIR/SIGMETs**
- **Lightning**
- **Turbulence**
- **Icing**
- **Freezing Levels**
- **PIREPs**
- **Surface Analysis**
- **Winds/Temps Aloft**
- **Cloud Tops**
- **Surface Wind Analysis**
- **Surface Visibility Forecast**.

NOTE: ForeFlight Mobile does not support SiriusXM Satellite Imagery.

25.9.3 SiriusXM Radar

Radar (XM Comp) and Radar (XM Base) map layers are available for the United States, southern Canada, and northern Mexico. SiriusXM radar provides a higher resolution radar picture than ADS-B, but a lower resolution than internet radar. SiriusXM composite and base radar include storm track, hail, echo top, and mesocyclonic indicators.

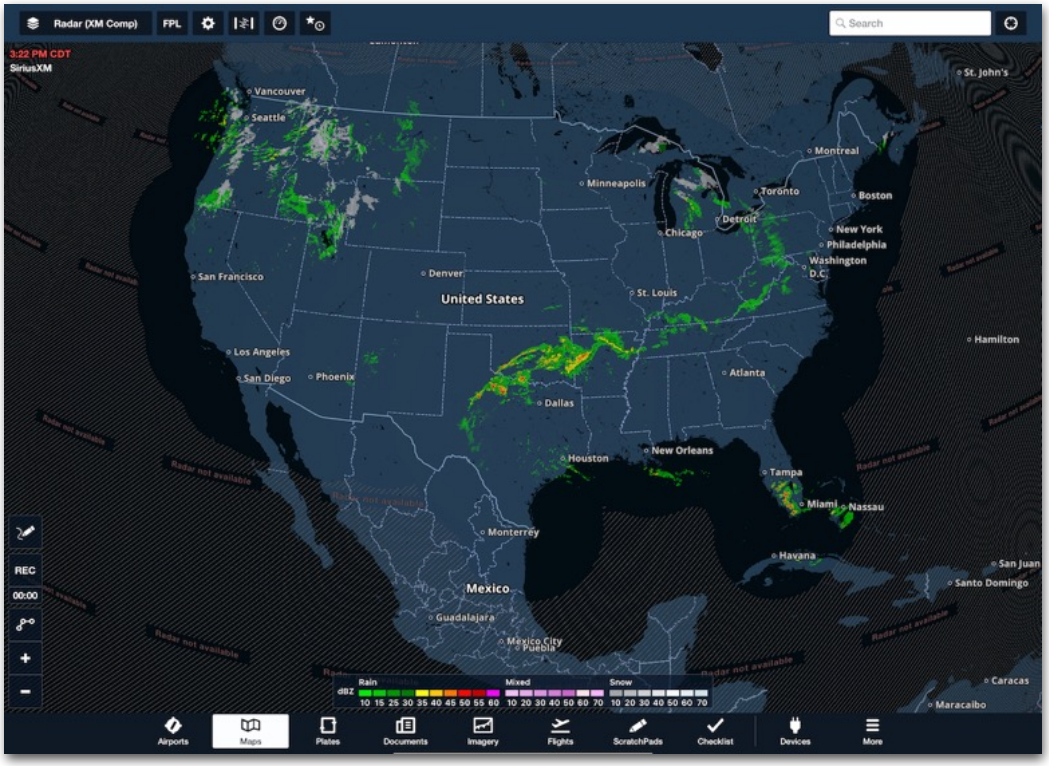
NOTE: The XM Base layer, storm cell attributes, echo tops, and storm track are not supported with the WxWorx Baron Mobile Link.

Radar (XM Comp)

The SiriusXM composite map layer displays the maximum echo reflectivity from *all* radar tilt angles. The Composite layers can reveal important storm structure features and the intensity trends of storms.

Radar (XM Base)

The SiriusXM base radar layer displays the maximum echo reflectivity from only the radar's *lowest tilt* angle. The Lowest Tilt (Base) radar layer reveals where precipitation is likely reaching the ground.

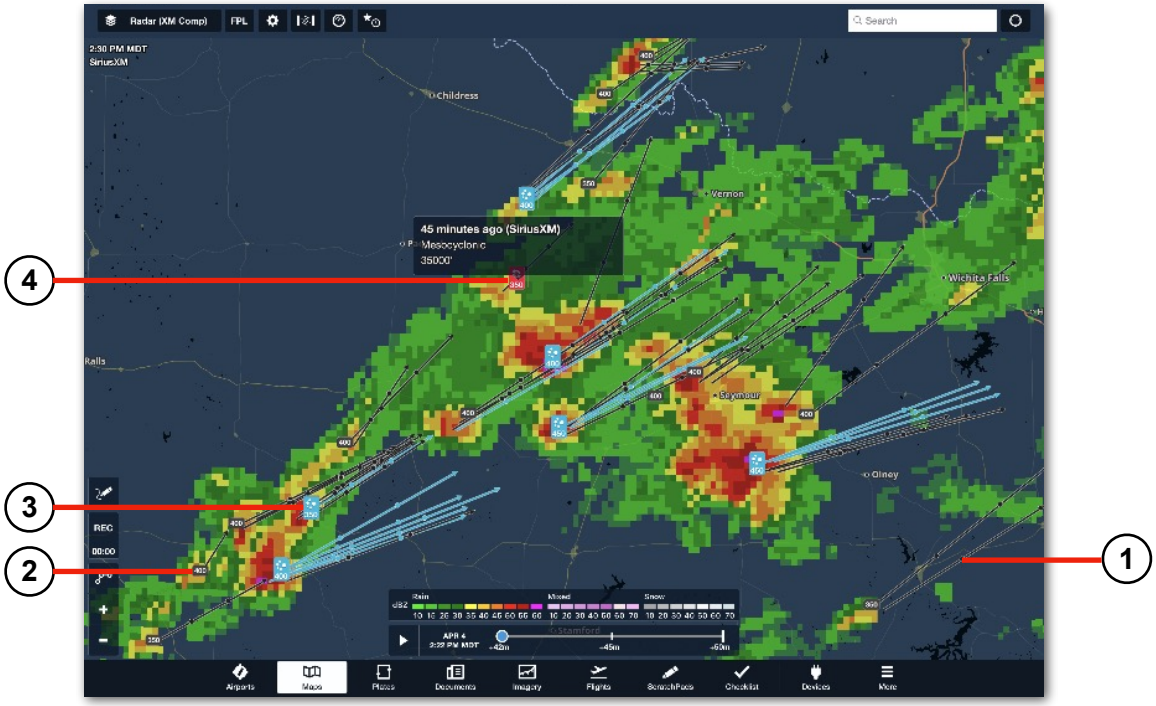


Radar (XM Comp) Coverage Area

SiriusXM Storm Cell Attributes

Storm cell attributes are embedded in the SiriusXM base and composite radar layers. Storm cell attributes include icons that represent the characteristics of a storm. With the exception of storm tracks, each icon can be tapped to reveal additional information.

Storm Cell attributes automatically update with the latest radar frame and cannot be animated. See the image below for additional information.



Radar (XM Comp) Storm Cell Attributes

1. **Storm Tracks** - A thin black line representing the projected 60-minute path of a storm. Dots are depicted at 20 and 40-minute intervals. If a storm cell also contains hazardous weather (e.g., hail), the track is colored to match the hazard.
2. **Echo Tops** - A small gray box with a three-digit value representing the height of a storm (in hundreds of feet). For example, a storm with an echo top of 400 equates to 40,000 ft or FL400.
3. **Hail** - A blue box indicative of a storm containing hail (co-located with the storm's echo top).
4. **Mesocyclonic** - A red box indicative of a storm consisting of rising, rotating air (co-located with the storm's echo top).

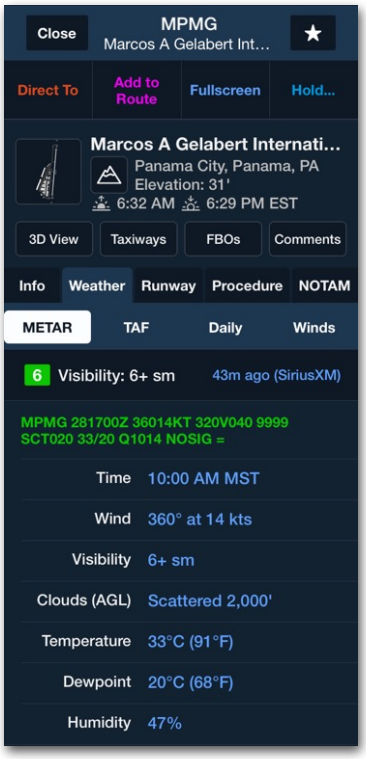
25.9.4 SiriusXM METARs

METARs contain temperature, dewpoint, wind speed, wind direction, precipitation, cloud cover, cloud heights, visibility, and barometric pressure data. METAR reports are generated every hour unless changing weather conditions dictate more frequent updates. METARs are broadcast by SiriusXM every ten minutes. ForeFlight checks for updated SiriusXM METARs when the data is first displayed and automatically every five minutes after that.

SiriusXM METARs can be viewed using the same techniques as when connected to the internet. When viewing a SiriusXM METAR, a SiriusXM label is displayed next to the METAR's timestamp.

SiriusXM METAR Coverage Area

SiriusXM METARs are available for North America, Central America, and the northern portions of South America.



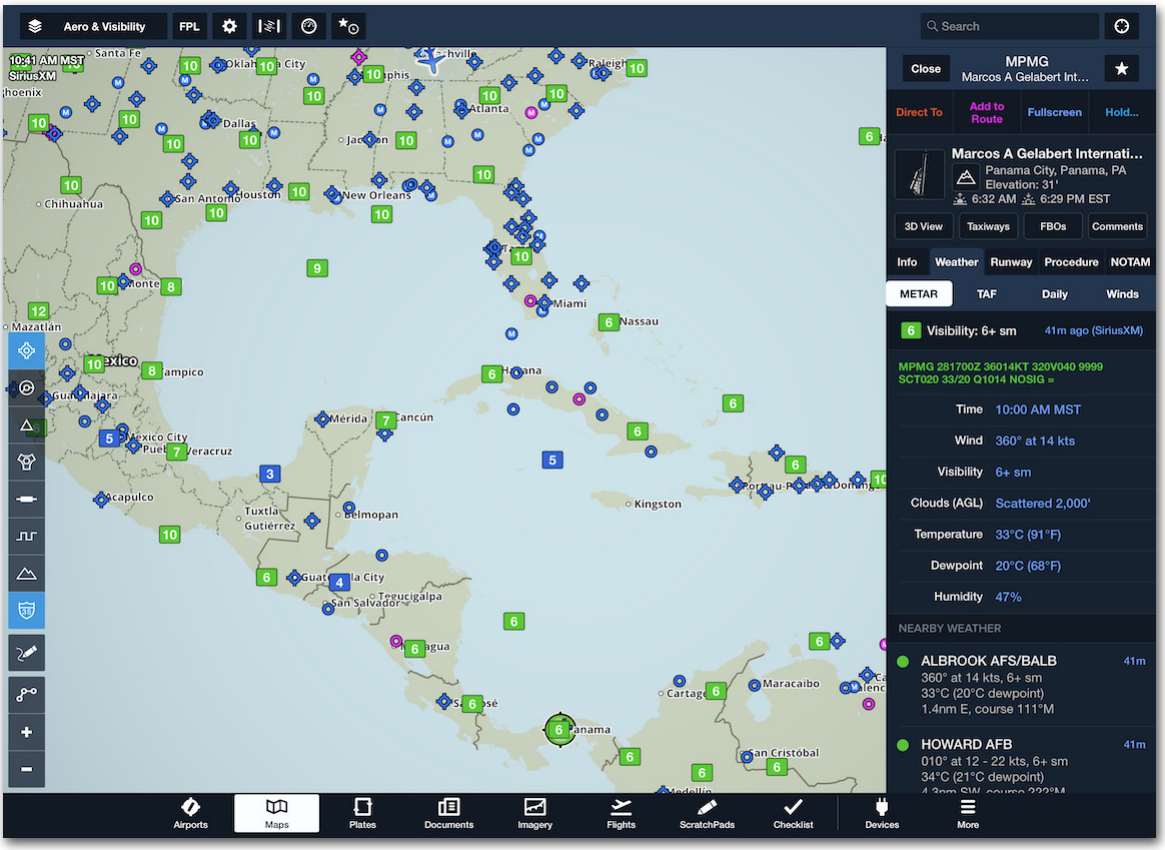
SiriusXM METAR

NOTE: If receiving SiriusXM and ADS-B METAR data, the latest METAR data will be displayed regardless of source.

SiriusXM Graphical METAR Map Layers

The weather information contained in a METAR can be displayed graphically on the map. To graphically display SiriusXM METARs, select one of the following map layers from the map layer menu.

- Flight Category
- Surface Wind
- Winds Aloft
- Dewpoint Spread
- Temperature
- Visibility
- Ceiling
- Sky Coverage



SiriusXM Visibility Layer (METAR Data)

25.9.5 SiriusXM TAFs

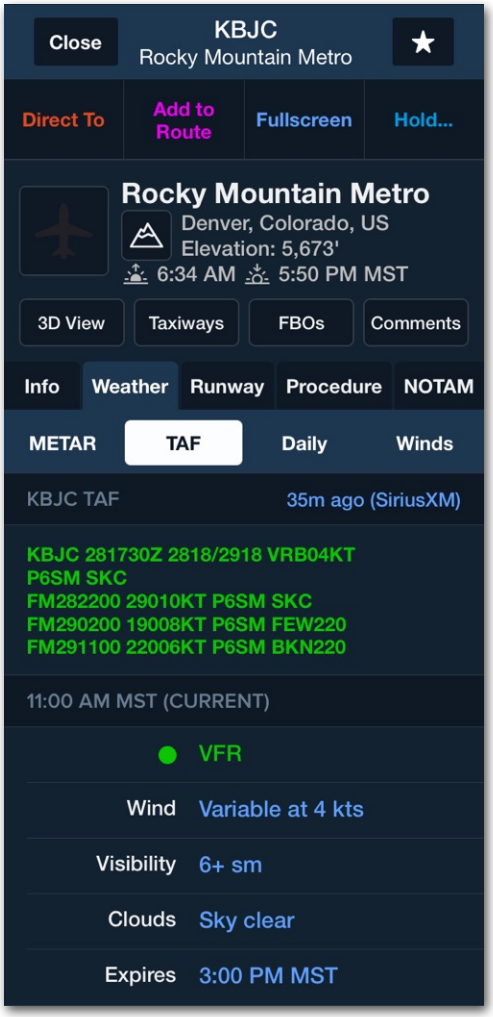
SiriusXM TAFs contain wind speed, wind direction, precipitation, cloud cover, cloud heights and visibility. TAFs are updated by the National Weather Service every six hours or as unexpected weather occurs.

ForeFlight checks for updated TAFs when the information is first displayed and automatically every five minutes after that. Due to the TAF update frequency, it's not uncommon to see TAF timestamps that are six hours old.

SiriusXM TAFs can be viewed using the same techniques as when connected to the internet. When viewing a SiriusXM TAF, a SiriusXM label is displayed next to the timestamp.

Coverage Area

SiriusXM TAFs are available for North America, Central America, and the northern portions of South America.



SiriusXM TAF

NOTE: If receiving SiriusXM and ADS-B TAF data, the latest TAF will be displayed regardless of source.

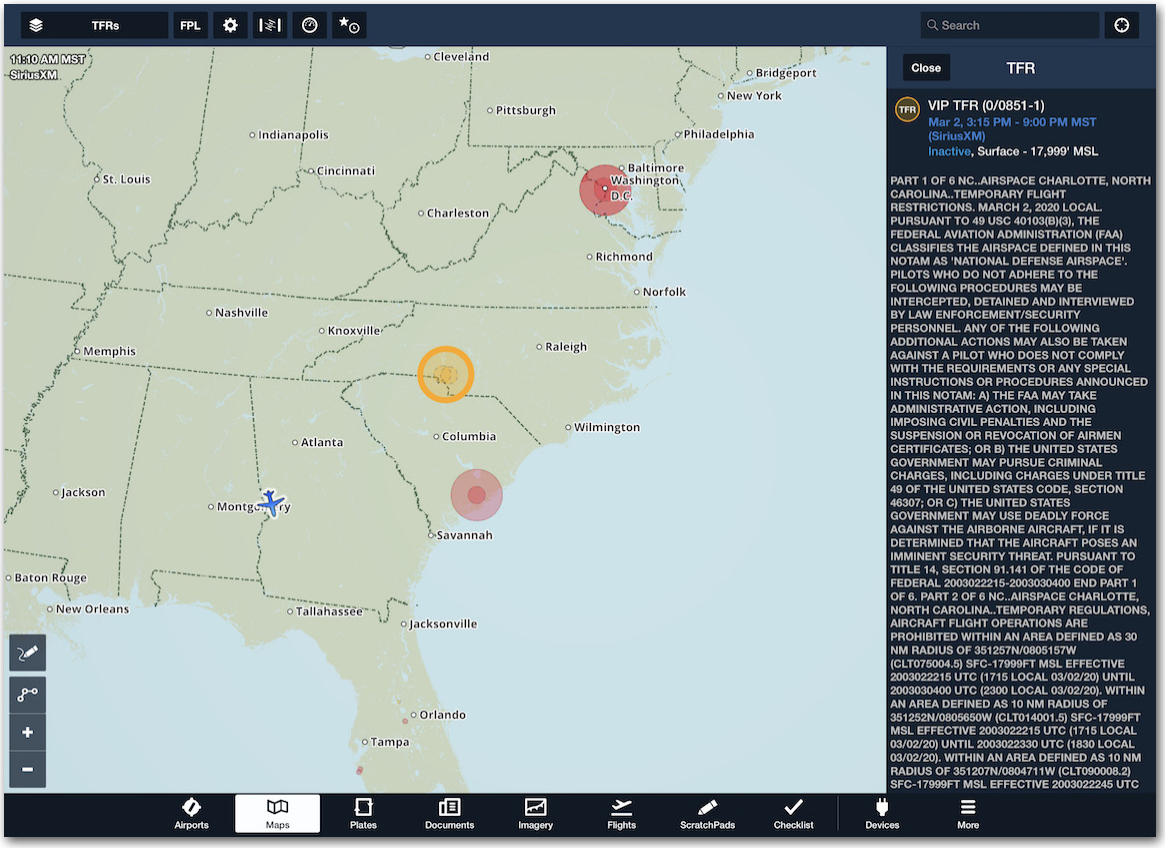
25.9.6 SiriusXM TFRs

SiriusXM TFR data is displayed on the map when the **TFRs** map layer is selected. Tap a TFR on the map to display its details in the sidebar.

TFRs are orange until 8 hours before their scheduled start time. Within 8 hours of a TFR being active, it is shown in **Red** until the end of the TFR.

SiriusXM TFR Coverage Area

SiriusXM TFRs are available for the continental United States.



SiriusXM TFRs

25.9.7 SiriusXM AIR/SIGMET/CWA

SiriusXM AIRMETs, SIGMETs, and Center Weather Advisories are viewed the same way as when connected to the internet.

AIRMETs, SIGMETs, and Center Weather Advisories (CWA) are issued by meteorological watch offices for weather that is potentially hazardous to low-level aircraft with limited capability. AIRMETs consist of less severe weather than SIGMETs: moderate turbulence and icing, surface winds of 30 knots, or widespread restricted visibility.

AIRMETs, SIGMETs, and CWAs are combined into a single map layer. When the **AIR/SIGMET/CWAs** map layer is selected, the individual weather products can be filtered with the buttons near the bottom of the map. Selected types are highlighted in blue and the relevant advisories are displayed graphically on the map during their active time.



AIR/SIGMET/CWA Filters

AIRMET, SIGMET, and CWA forecasts are generated every six hours. ForeFlight checks for updated data every five minutes. The time slider at the bottom of the map can be used to view future forecast periods.

Tap an AIRMET, SIGMET, or CWA to display additional information in the sidebar. If there is more than one active layer in the location tapped, the advisories are depicted in a list view. Tap an individual advisory to display the advisory's text.

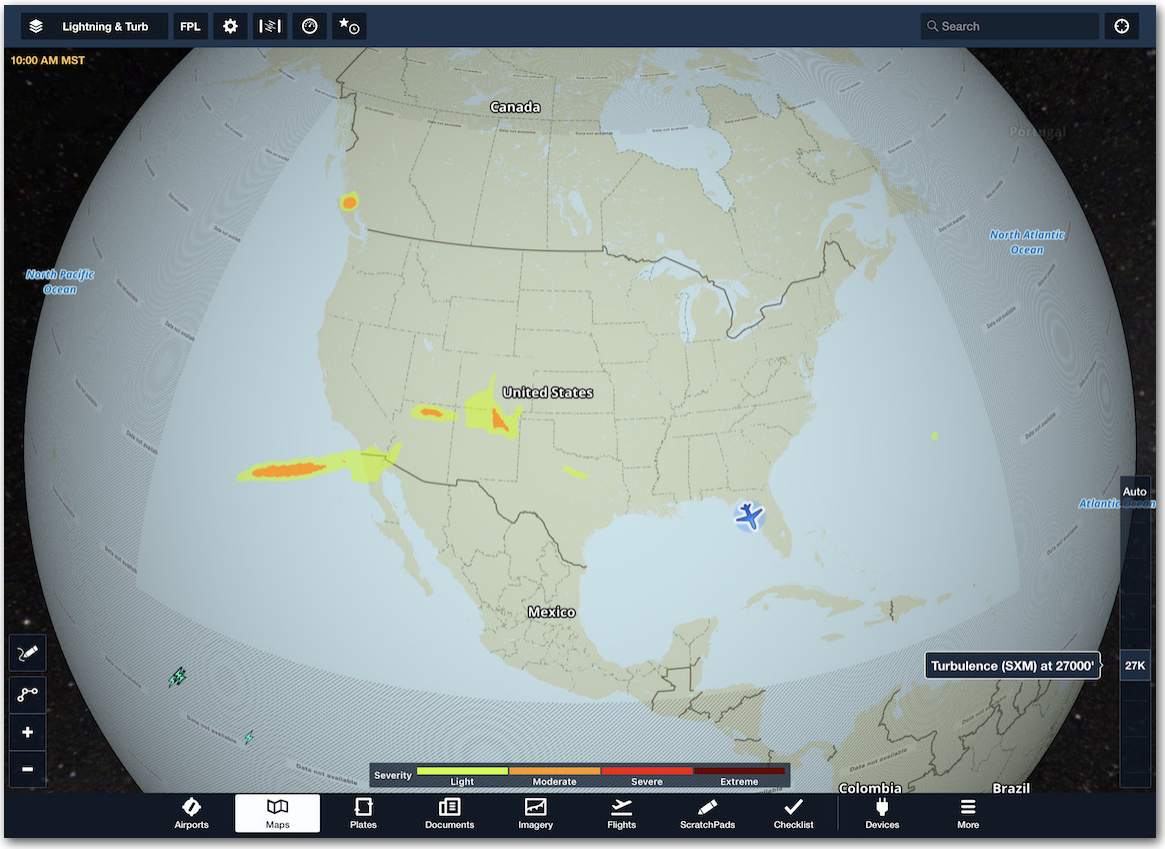
25.9.8 SiriusXM Lightning

SiriusXM provides both cloud-to-cloud and cloud-to-ground lighting and is updated every 2.5 minutes. Display SiriusXM Lightning data by selecting the **Lighting** map layer.

25.9.9 SiriusXM Turbulence

SiriusXM Turbulence is displayed when the **Turbulence (SXM)** map layer is selected. The graphical turbulence product provides forecasted turbulence severity from FL180 to FL390 in 3,000 foot increments. Use the slider on the right side of the screen to display forecasted turbulence at a specific flight level.

Turbulence severity is displayed using a four-color scale representing light, moderate, severe, and extreme turbulence. The turbulence forecast is conducted hourly and updated in ForeFlight when first selected and automatically every 30 minutes after that. Turbulence data is available from 15 degrees north latitude to 59 degrees north and 138 degrees west to 58 degrees west.

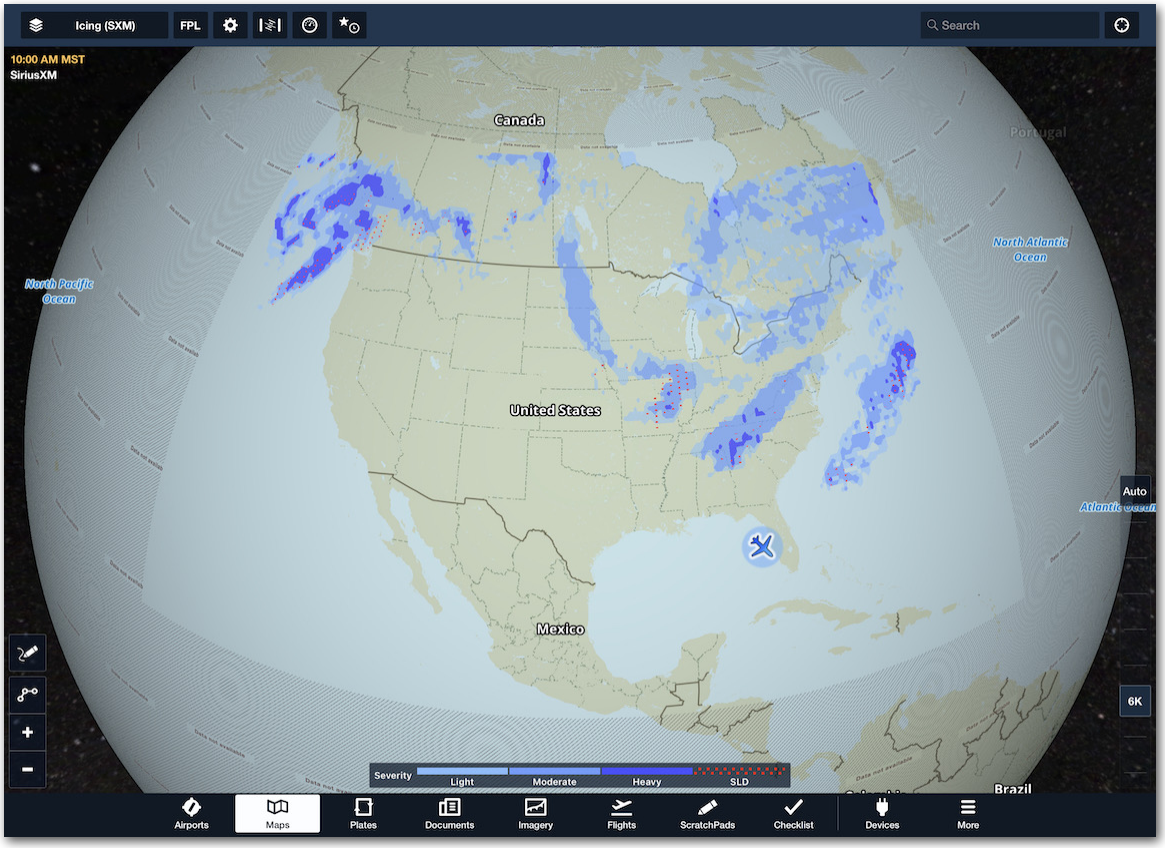


SiriusXM Turbulence

25.9.10 SiriusXM Icing

SiriusXM Icing data is graphically displayed when the **Icing (SXM)** map layer is selected. The map layer provides icing potential, severity, and the probability of Supercooled Large Droplets (SLD) from the surface to FL240 in 3,000 foot increments. Use the slider on the right side of the screen to display icing data at specific altitudes.

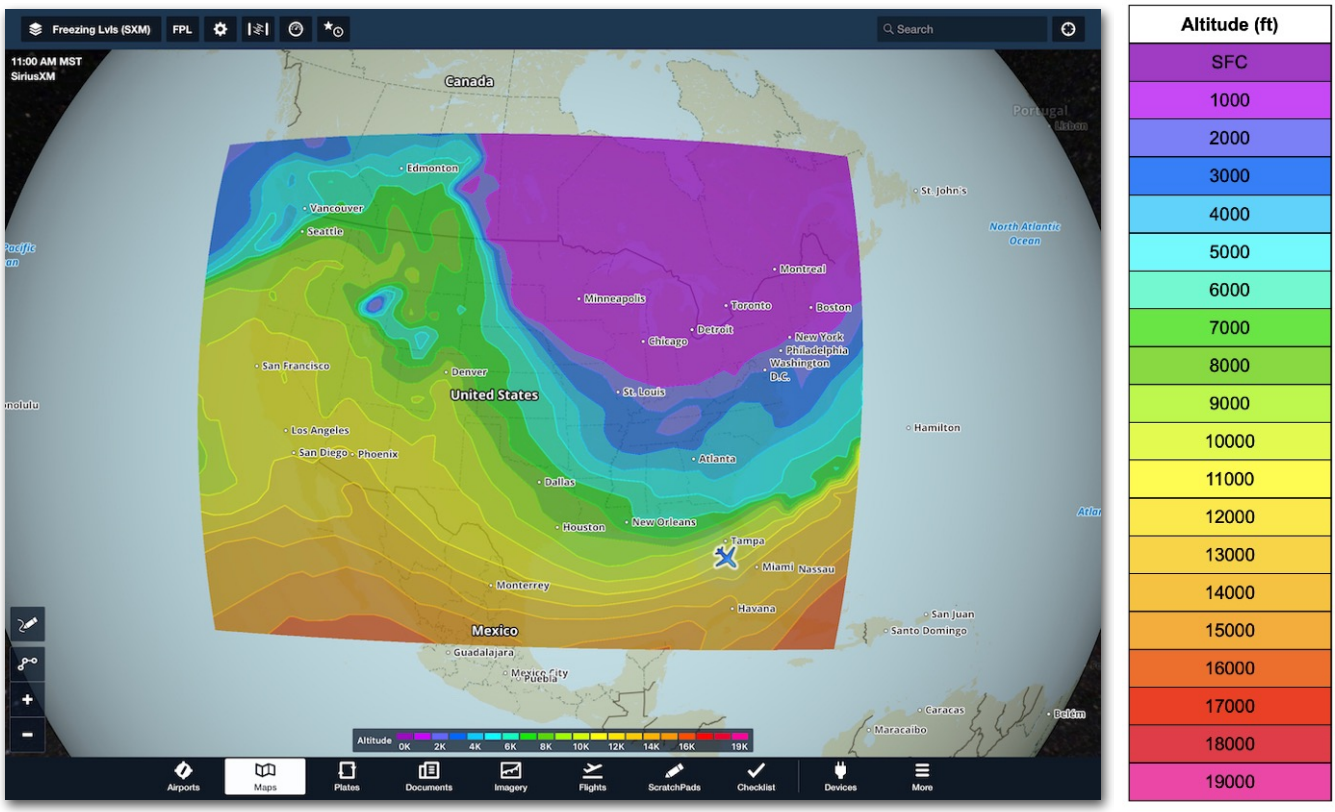
Icing severity is displayed using a three-color scale representing light, moderate, and heavy icing. Supercooled Large Droplets are depicted with red dots. SiriusXM Icing data is updated every fifteen minutes and covers from 16 degrees north latitude to 54 degrees north and 139 degrees west to 58 degrees west.



SiriusXM Icing

25.9.11 SiriusXM Freezing Levels

The **Freezing Lvls (SXM)** map layer uses colored gradient to indicate the altitude at which the air temperature is at or below the freezing level. Freezing levels are delineated with color-coded lines in 1,000 foot intervals up to 20,000 feet and are updated every 30 minutes.

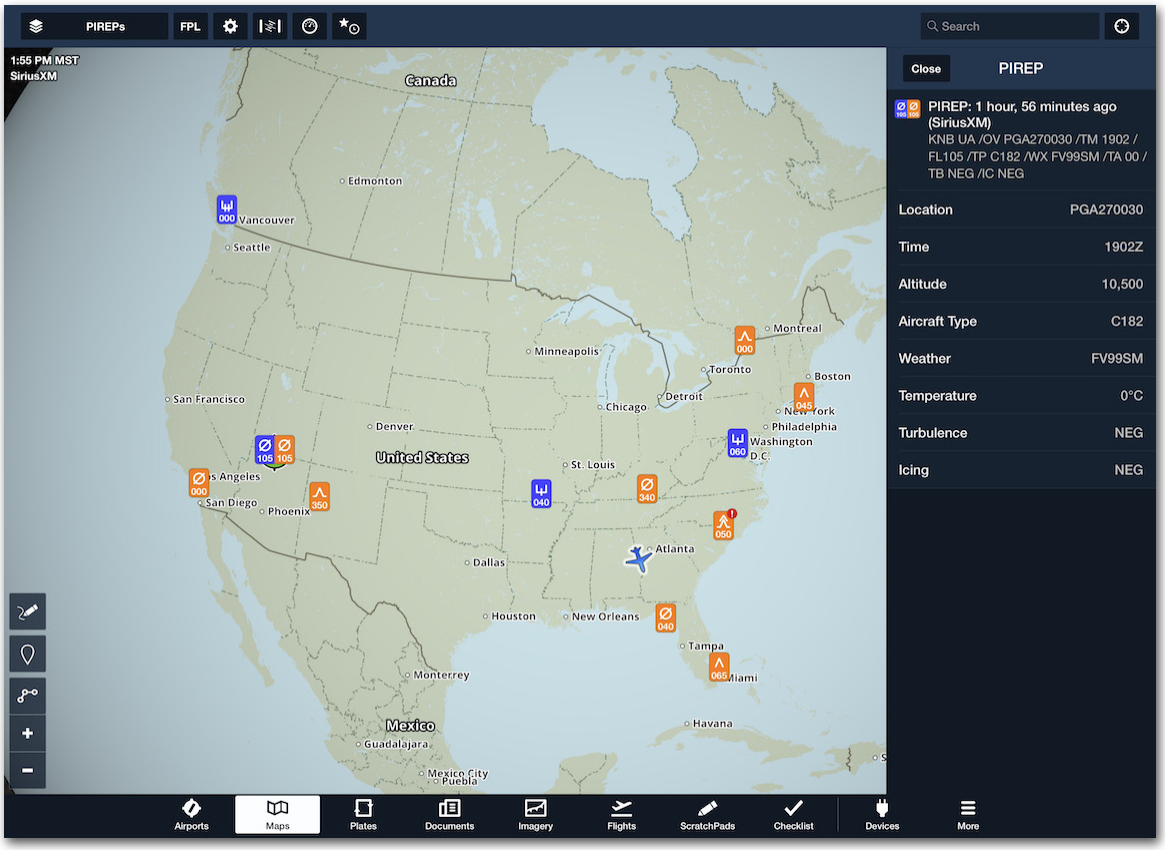


SiriusXM Freezing Levels

25.9.12 SiriusXM PIREPs

SiriusXM PIREPs are displayed on the map by selecting **PIREPs** from the map layer menu. Icons represent the PIREP type, severity, and altitude. Tap an icon to display the coded and decoded PIREP in the sidebar.

PIREPs are issued by pilots as needed and are automatically refreshed in ForeFlight every fifteen minutes. The age of the PIREP is displayed at the top of the PIREP menu alongside the source (SiriusXM). SiriusXM PIREPs cover 5º north latitude to 62º north and 50º west longitude to 160º west.

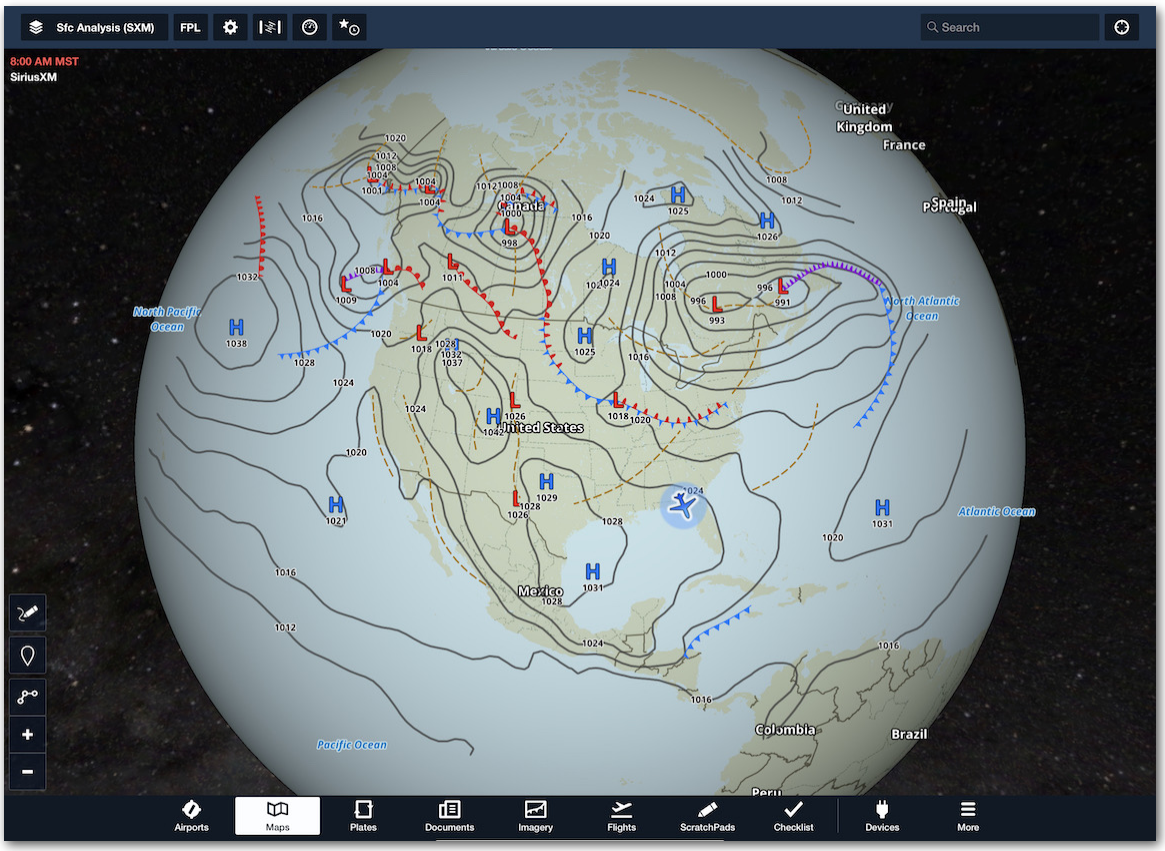


SiriusXM PIREPs

Icon	Meaning
	Icing (increasing severity)
	Turbulence (increasing severity)
	Obscuration or other weather

25.9.13 SiriusXM Surface Analysis

The **Sfc Analysis (SXM)** map layer dynamically displays pressure systems (measured in millibars), frontal boundaries, and isobars (lines of equal pressure). The layer can show current or forecast conditions up to 48 hours in the future. The SiriusXM Surface Analysis map layer covers from 5 degrees north to 62 degrees north and 65 degrees west to 130 degrees west and is updated every twenty minutes.



SiriusXM Surface Analysis

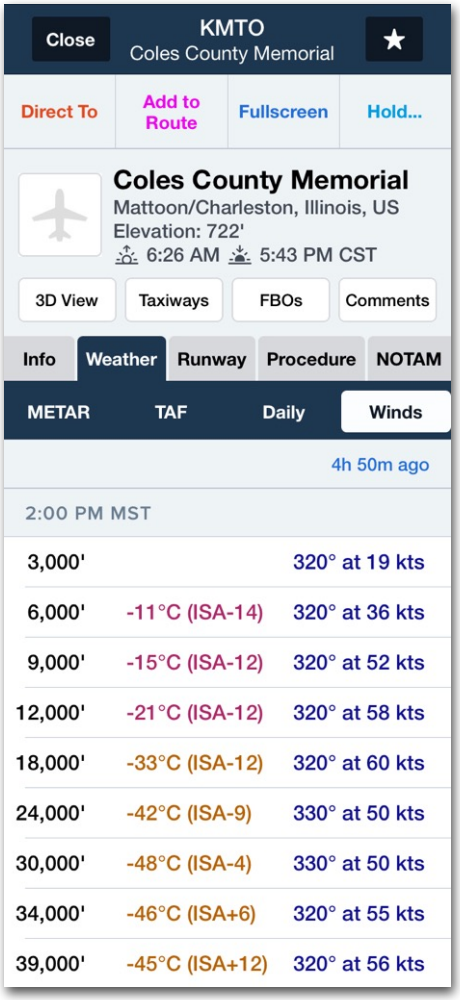
25.9.14 SiriusXM Winds/Temps Aloft

To view Winds & Temperatures Aloft, tap an airport icon on the map or display an airport in the Airports view, and then tap **Weather** > **Winds**.

Wind data is available from the surface up to FL 540 in 3,000 ft increments.

Temperature data is available in 3,000 ft increments up to FL 540 beginning at 6,000 ft MSL. Scroll the Winds Table to view additional forecast periods. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C
- **Tan** below -26° C.



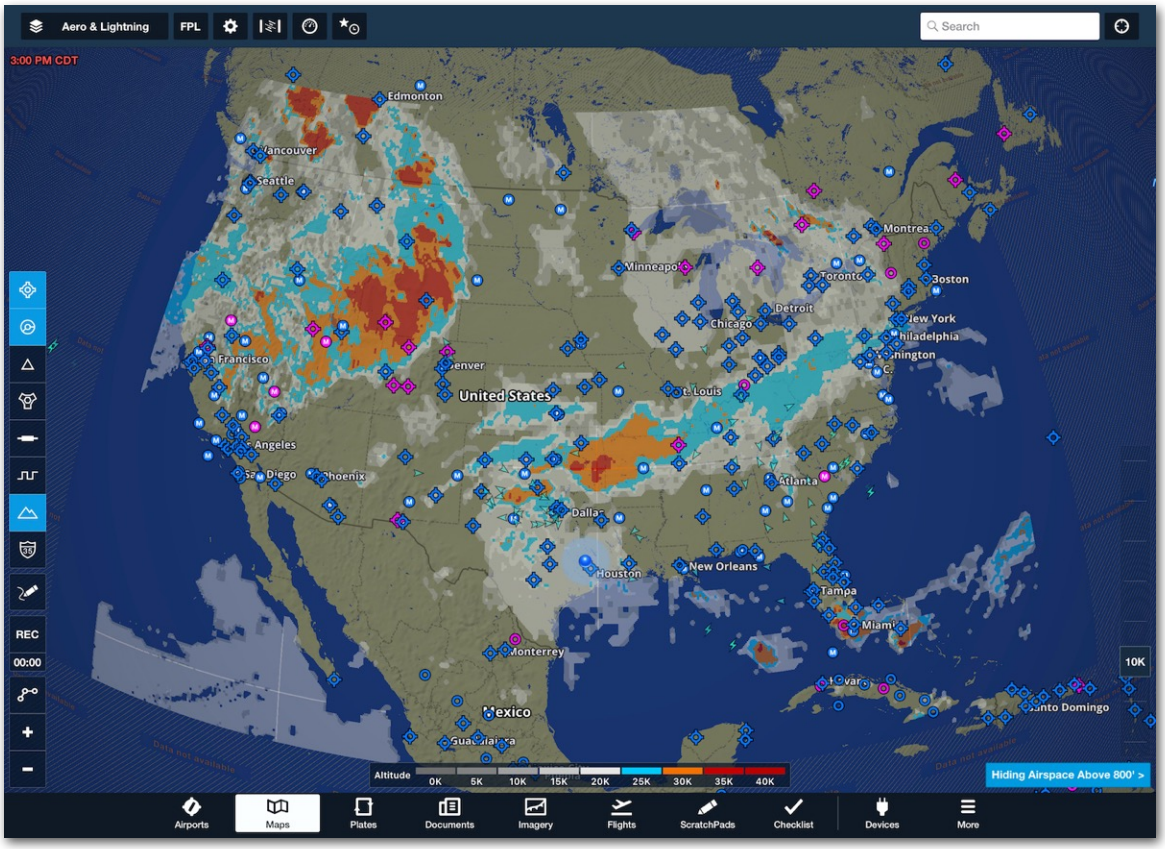
ADS-B Winds and Temps Aloft

25.9.15 SiriusXM Cloud Tops

SiriusXM Cloud Tops are available for the continental United States, southern Canada, and northern Mexico. This map layer is a useful tool for determining if flight can be conducted in visual conditions above the clouds.

Select **Cloud Tops** from the map layer menu and use the **altitude slider** on the right side of the map to filter clouds with tops below the selected altitude.

Forecast Cloud Tops that exist at or above the selected altitude are depicted on the map according to the color-coded scale. Each color represents an MSL altitude in 5,000-foot increments. Tap **Auto** at the top of the altitude slider to automatically display cloud tops at and above the current GPS altitude. SiriusXM Cloud Tops are available from the surface to FL400 in 5,000 foot increments (excluding FL350).

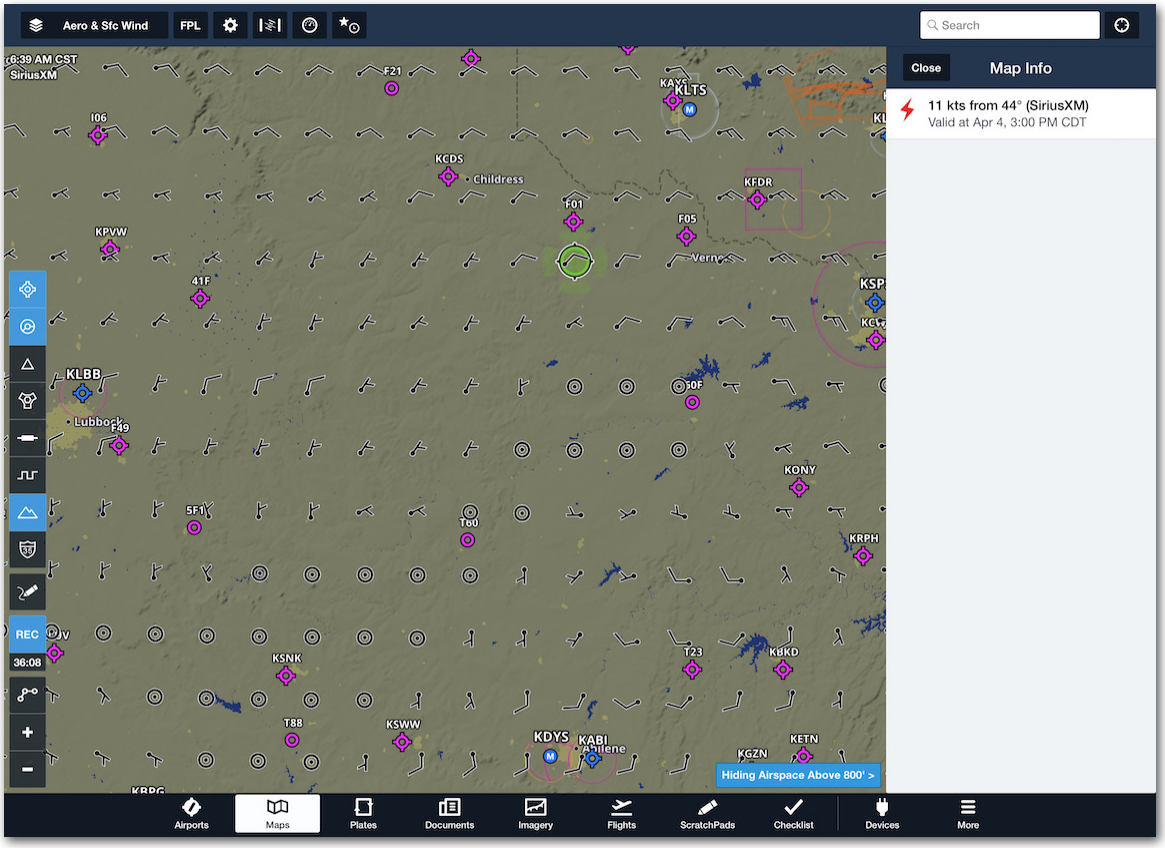


SiriusXM Cloud Tops

25.9.16 SiriusXM Surface Wind Analysis

The Surface Wind Analysis map layer is displayed by selecting **Sfc Wind Analysis** from the map layer selector. This map layer graphically displays current wind data using standard aviation symbology.

The wind data is generated from weather models that predict surface winds and is not tied to specific weather stations. The map layer dynamically adjusts and filters weaker winds as the map is zoomed out. As the map is zoomed in, wind information is included for approximately every 10 miles. Tap a wind icon to display its details in the sidebar.



SiriusXM Surface Wind Analysis

25.9.17 SiriusXM Surface Visibility Forecast

The **SiriusXM Surface Visibility** layer provides a near-term forecast of surface visibility across the U.S., using colors to indicate forecast visibilities from 0 to 10 statute miles.

This layer is updated regularly and is available when connected to a compatible SiriusXM receiver.

Visibility
0 statute miles
0.25 statute miles
0.5 statute miles
0.75 statute miles
1.0 statute miles
1.5 statute miles
2 statute miles
3 statute miles
4 statute miles
5 statute miles
6 statute miles
7 statute miles
8 statute miles
9 statute miles
10 statute miles

SiriusXM Surface Visibility Color Definitions

25.10 SiriusXM Radio

SiriusXM radio is only supported with the SiriusXM SXAR1 receiver. For more information, visit **siriusxm.com/aviation**. With a SiriusXM radio subscription (an add-on to the SiriusXM weather subscription) it is possible to listen to SiriusXM radio in flight via Bluetooth with a single headset or an intercom with a Bluetooth audio interface. The status of the radio subscription is displayed on the SXAR1 **Device Information** page.



SXAR1 Active Audio Subscription

IMPORTANT: SiriusXM satellite radio does not play directly through the iPad or iPhone speaker (or headphone jack). A Bluetooth audio device must be connected.

25.10.1 Setting up SiriusXM Radio

To configure an iOS device to listen to SiriusXM radio:

1. Connect an iPad (or iPhone) to the SXAR1 via **Bluetooth**.
2. Power the Bluetooth headset (or audio interface) on.
3. Ensure the headset (or audio device) is in Bluetooth pairing mode.
4. Do not pair the headset (or audio device) to an iPad (or iPhone).

In ForeFlight Mobile:

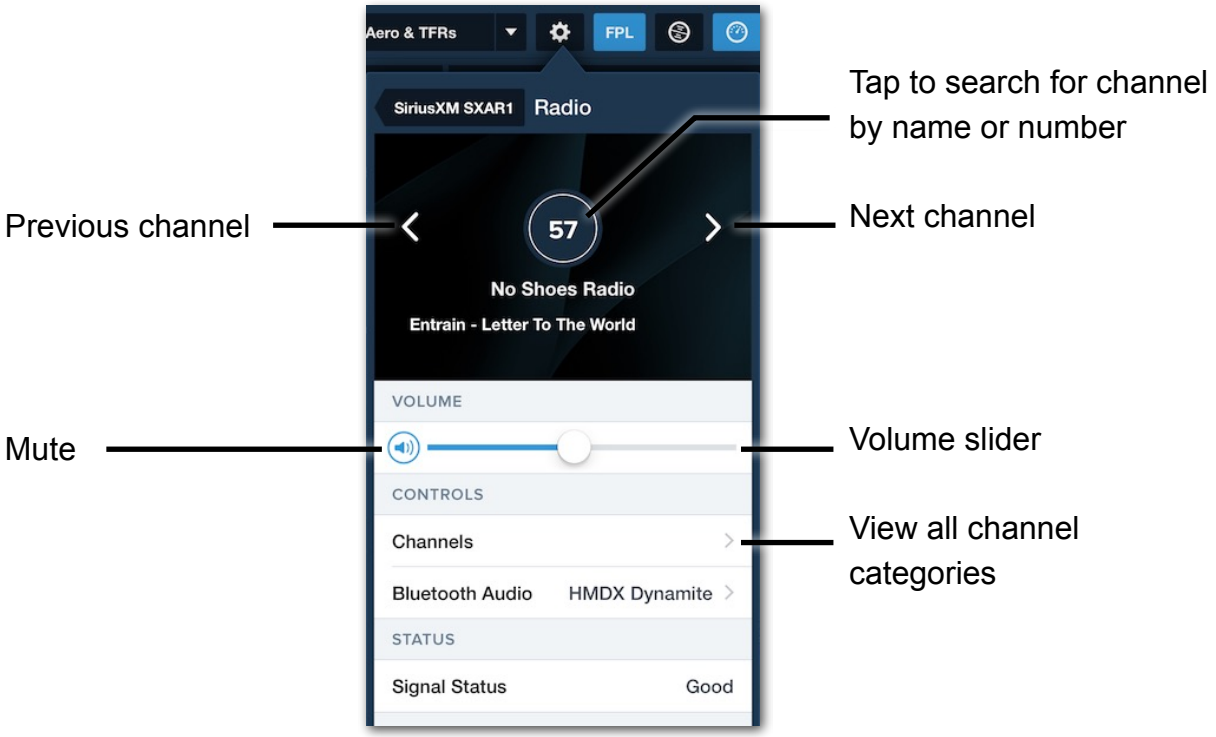
1. Select **More** > **Devices**.
2. Tap the **SXAR1 tile**.
3. Tap the **Audio** row.
4. Tap **Bluetooth Audio** to see a list of available Bluetooth devices.
5. Tap the **headset** (or audio interface) to pair it to the SXAR1.

When pairing is complete, the connected device will show in the My Devices section and audio will begin playing.

25.10.2 Controlling SiriusXM Radio

SiriusXM radio is controlled with ForeFlight Mobile. Audio is sent directly from the SXAR1 to the Bluetooth audio device. See **this video** for additional information.

To change the channel, tap **Category** > **Channel**. Alternatively, type the Channel number or name (full or partial) in the Tune or Search box. A vertical scroll bar shows when there are more Channels or Categories than can be shown, and a blue speaker icon shows in the currently-playing Category and Channel.



25.11 Flight Plan Transfer

ForeFlight Mobile includes two-way flight plan transfer with supported navigators. See the tables in **Supported Devices** for additional information.

25.11.1 Route Elements

Flight Plan Transfer supports various types of route elements for most navigators. Altitude and speed changes are not included in flight plan transfer.

Supported Route Elements

- Airports
- Runways
- Departure and Arrival Procedures
- Navaids
- Waypoints
- Airways
- Approach Procedures
- User Waypoints.

NOTE: If an unrecognized route element is transferred, it will be converted to latitude and longitude.

NOTE: Honeywell devices does not support departure, arrival, or approach procedure transfers. Airways are broken into their individual route elements when transferred. Performance data (winds, temps, weight, and fuel) can be transferred to Honeywell devices from the Flights view.

25.11.2 Maximum Route Elements

The number of elements that can be included in a single transfer varies by navigator. If a route exceeds the navigator's maximum supported route elements, the transfer will be rejected. To reduce the number of elements included in a route transfer:

1. Select **More** > **Settings.**
2. Tap **Airway Decoding** and select **Bends Only**.

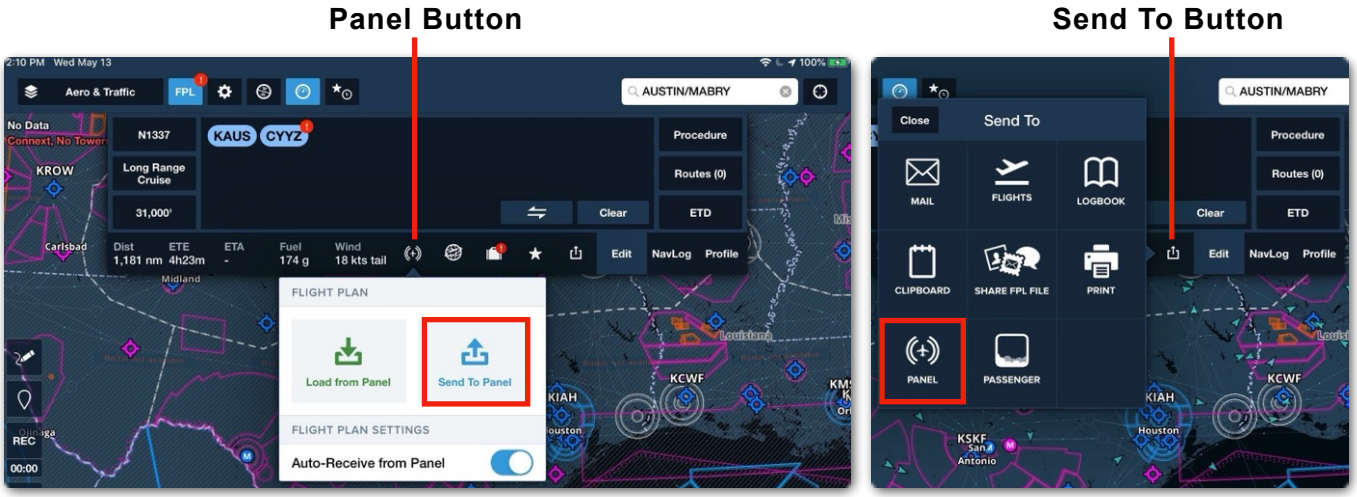
When enabled, the **Bends Only** setting removes waypoints along an airway that do not cause a course change.

25.11.3 Sending Routes

When connected to a supported Navigator, buttons for sending routes are added to the bottom of the FPL Editor and the Maps and Flights Send To menus.

To send a route to a Navigator, follow the steps below:

1. Plan a route in ForeFlight Mobile.
2. Follow one of the steps below.
   - Tap the **Panel** button at the bottom of the FPL Editor. Tap **Send To Panel**.
   - Tap the **Send To** button. Tap **Panel**.
3. Tap **OK** to dismiss the route transfer confirmation popup.



Sending a route to the panel

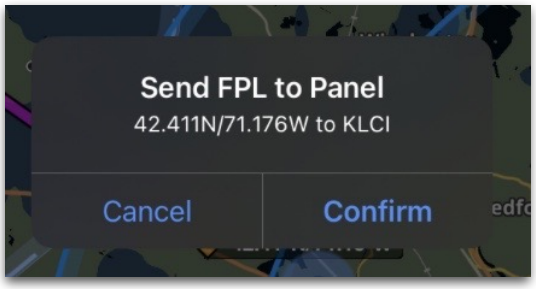
25.11.3.1 Auto Prompt Send To Panel

Upon initial connection to a panel that supports Flight Plan Exchange (FPX), a flight plan can be automatically sent to the panel via an auto prompt. To receive the auto prompt, the following criteria must be met:

- The departure time must be within ± 2 hours of the ETD in the flight plan
- The iPad GPS location must be the same location as the planned departure
- A connection to the avionics must be established
- There is no flight plan already loaded in the avionics.

To send the flight plan to the panel, tap **Confirm** from the auto prompt that appears**.**

Tap **Cancel** to remove the prompt without sending the flight plan.



Auto Prompt

NOTE: Auto prompt will only occur once per app launch.

Flight Plan Transfer Troubleshooting

If routes are unable to be transferred but can be received, check the following items:

- Verify Flight Plan Import is enabled in the navigator settings.
- Ensure the navigator flight plan catalog is not full. Delete unnecessary flights from the catalog if applicable.

NOTE: After sending a route, it may be necessary to manually load the route into the navigator. Refer to the navigator's manual for additional information.

25.11.4 Loading Routes

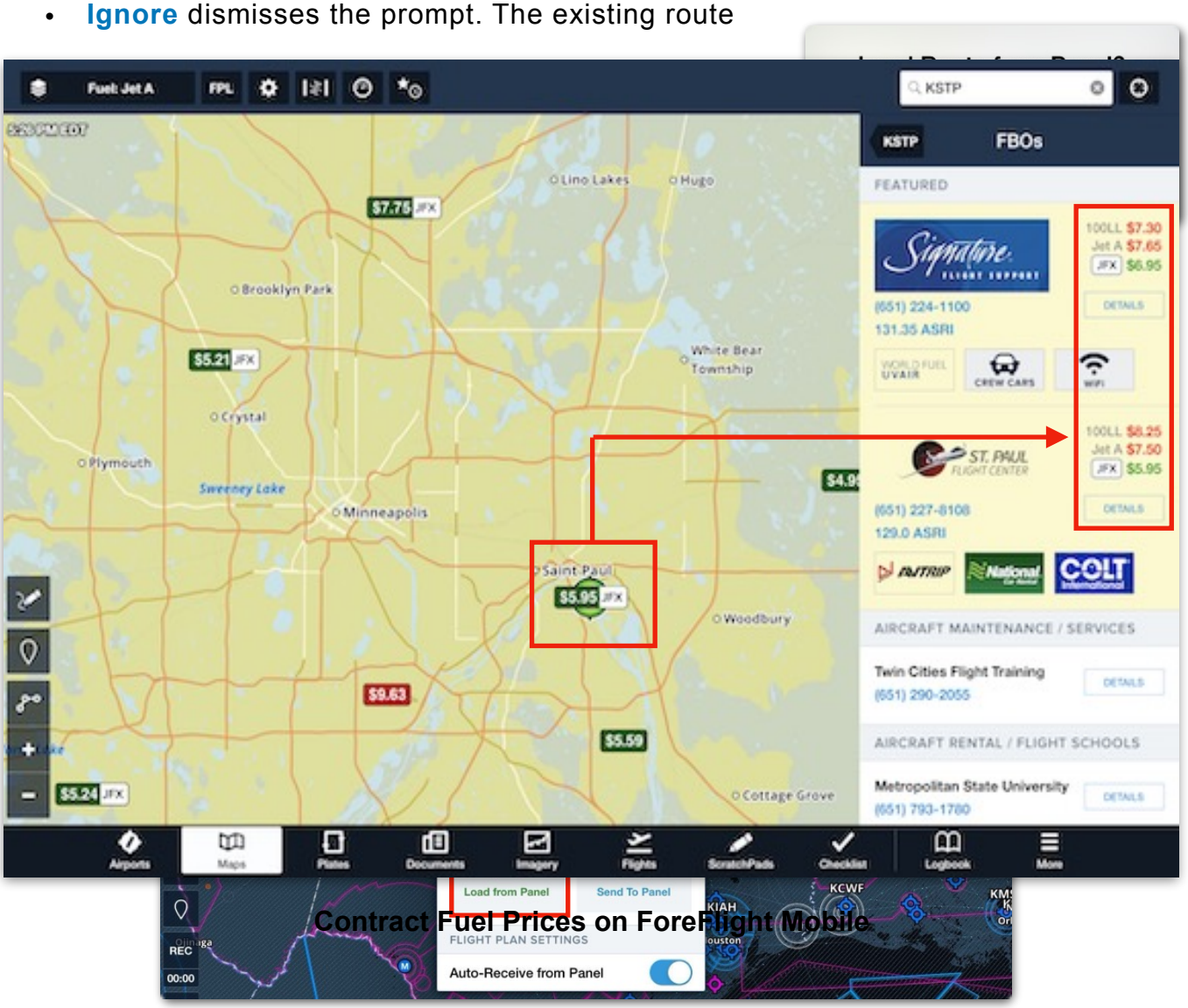
Flight Plans can be loaded from supported navigators automatically and manually.

Automatically Receiving Routes

To automatically receive the new routes that are planned in the GPS navigator, select **More** > **Settings** and enable **Auto-Receive Panel Flight Plans**. This setting is also available at the bottom of the Panel menu (see image below).

When Auto-Receive Panel Flight Plans is enabled, planning a new route with the navigator results in a ForeFlight Mobile prompt.

- **Ignore** dismisses the prompt. The existing route



Contract Fuel Prices on ForeFlight Mobile

Manually Loading Flight Plans

on the ForeFlight Maps view is retained.

- **Load Route** dismisses the prompt and loads the route from the navigator into the ForeFlight Mobile FPL Editor.

Manually Loading Routes

If the **Auto-Receive Panel Flight Plan** setting is disabled or if **Ignore** is selected when prompted, the navigator's active route can be manually loaded into ForeFlight by tapping the **Panel** button at the bottom of the FPL Editor and selecting **Load from Panel**.

25.12 FLARM

FLARM is a collision avoidance technology popular in the glider pilot community (particularly in Europe). FLARM operates on different frequencies in different regions of the world.

To enable FLARM traffic in ForeFlight Mobile, a FLARM decoding license must be purchased. A FLARM decoding license is associated with the ForeFlight account and can be purchased at **foreflight.com/buy**.

FLARM traffic targets can be viewed on the map with the **Traffic** layer enabled while connected to a supported device. If the connected FLARM receiver is also capable of detecting ADS-B traffic, ForeFlight will simultaneously display both types of traffic.

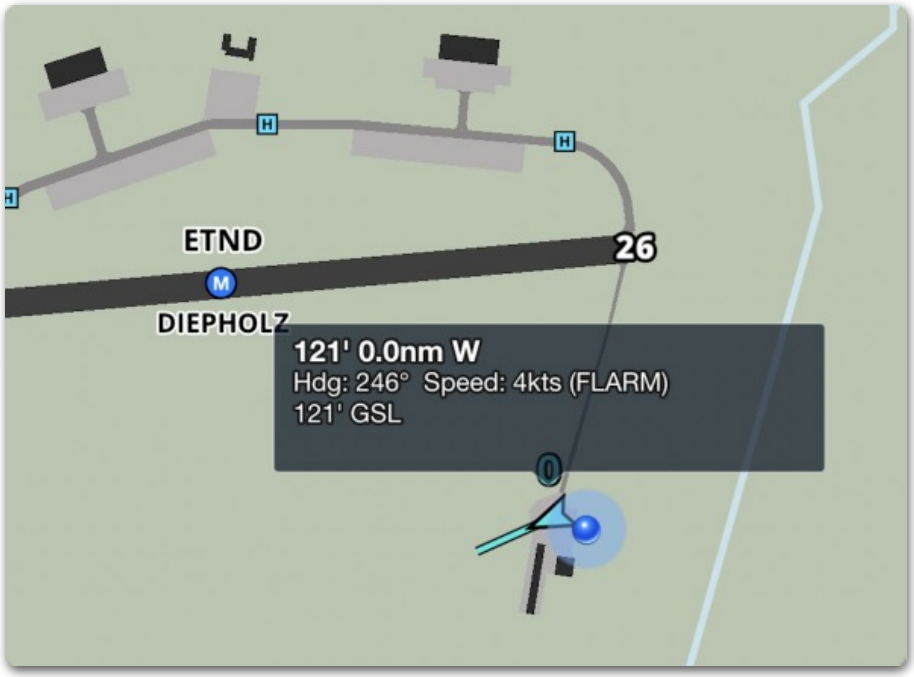
There are no indications that FLARM traffic is being received other than the traffic pop-up which displays (FLARM) as the traffic source.

ForeFlight recommends the Sentry Plus to receive FLARM traffic. Visit **flywithsentry.com** for additional information.

25.12.1 SkyEcho 2 FLARM

If connected to a SkyEcho 2 and activate FLARM mode via the SkyEcho 2 Web UI but ForeFlight Mobile FLARM decoding license is not active, the "License required..." tile on the Device Information page will be displayed.

The next time the iPad connects to the Internet after this tile is displayed, the ForeFlight Mobile app will notify the ForeFlight servers and a personalized email with instructions for adding the FLARM decoding license to the ForeFlight subscription will be received.



FLARM Traffic in ForeFlight

The next time the app is opened while connected to the SkyEcho 2 after the FLARM decoding license is added to the ForeFlight subscription, the updated tile will display. Tap the SkyEcho 2 Device Tile to see details about the SkyEcho 2 device and the data being received.

FLARM via NMEA (Europe-only)

ForeFlight can display FLARM traffic information delivered via the NMEA protocol. An adapter (typically Wi-Fi) is required to convert NMEA data into a format that can be received by the iPad.

ALERTS

ForeFlight Mobile alerts notify pilots of potential hazards and improves situational awareness. Most alerts are available to all ForeFlight users, some require an Essential or Performance tier subscription. This chapter describes the three types of alerts, explains set up, and describes each alert in detail.

IMPORTANT: To ensure visual, audible, and tactile alerts are received, ForeFlight should be open and active on the device screen.

26.1 Alert Types

Alerts can be issued using visual text, audio messages, and tactile vibrations.

Visual Alerts

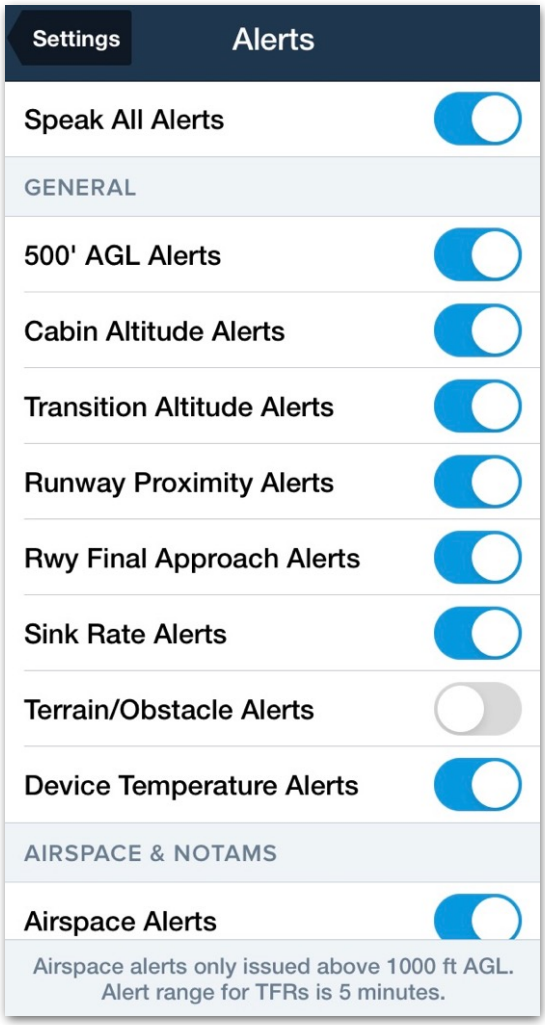
By default, alerts display as a banner near the top of the device screen. Tap the banner to dismiss it immediately. Most alert banners disappear on their own after a short time.

Audible Alerts

Audible alerts are optional messages that play alongside a visual alert and convey the same information. Once enabled, they play through the device speakers or a paired Bluetooth headset.

Tactile Alerts

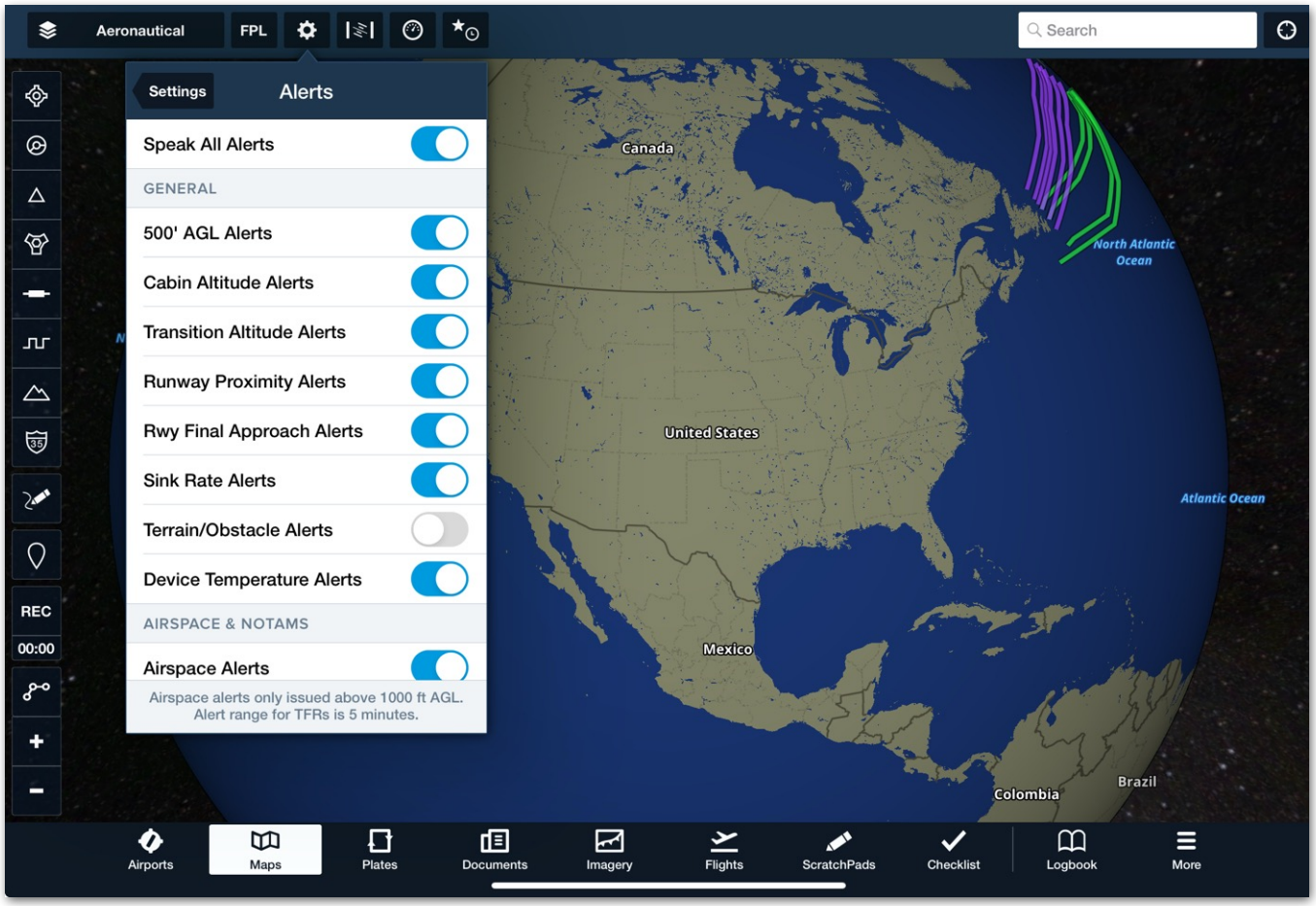
If audible alerts are enabled, ForeFlight also triggers tactile vibrations in any device with that capability (like most iPhones) as soon as an alert is triggered.



Alerts Menu

26.2 Setting Up Alerts

Alerts can be configured with **Map Settings** > **Alerts** or by tapping **More** > **Settings** > **Alerts**. The Alerts menu enables or disables individual alerts and audible alerts, as well as customize how airspace alerts are triggered.



Map Settings - Alerts

26.2.1 Enabling Audible Alerts

To enable *audible* alerts (and tactile vibrations if a device uses them), tap **More > Settings > Alerts** and enable **Speak All Alerts.**

NOTE: When setting the volume of audible alerts, it is helpful to toggle **Speak All Alerts** on and off repeatedly. This plays audio messages that can be used to fine-tune the volume on the device.

26.2.2 Enabling Headset Alerts

Audible alerts can played through a Bluetooth headset when enabled led. To set this up, pair the headset to the device and set the device volume to an appropriate and safe level.

26.2.3 Disabling Individual Alerts

Most alerts are enabled by default. Disable individual alerts on the device by selecting **More** > **Settings** > **Alerts** and disabling the appropriate toggle.

26.2.4 Customizing Airspace Alerts

Airspace Alerts triggers can be customized. This functionality is described in the **Airspace Alerts** description.

26.3 Available Alerts

The following sections describe each alert trigger(s), requirements, and default behavior, along with any conditions that change its behavior. Unless specifically noted, each alert is supported under all ForeFlight subscription plans.

26.4 General Alerts

The following General Alerts are available in the main settings and map settings menus.

26.4.1 500’ AGL Alerts

500’ AGL Alerts are activated when descending through 500 ft AGL after having been above 1,000 ft AGL.



Requirements

500’ AGL Alerts will only trigger once every 60 seconds and are automatically disabled if groundspeed is less than 40 knots.

26.4.2 Cabin Altitude Alerts

Cabin Altitude Alerts notify when the cabin pressure altitudes pertinent to supplemental oxygen requirements are reached (12,000 ft and 25,000 ft MSL).



Requirements

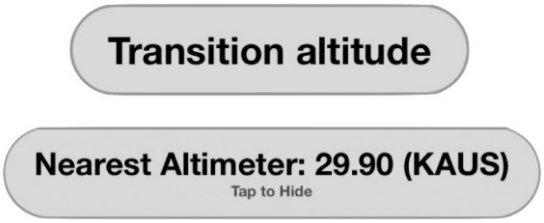
For this alert to trigger, the iPad/iPhone must be equipped with a barometric pressure sensor or be connected to an external device that provides that capability (such as a Sentry or Garmin Flight Stream 210).

Alert Behavior

This alert triggers when cabin pressure altitude exceeds 12,000 ft MSL, and again when it exceeds 25,000 ft MSL. The alert triggers no more than once every 30 minutes for each cabin pressure altitude.

26.4.3 Transition Altitude Alert

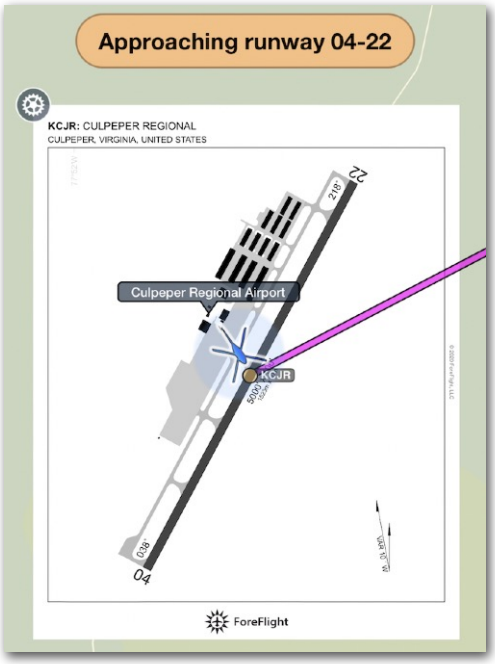
Transition Altitude Alerts trigger when climbing or descending through 18,000 feet MSL in the U.S. or Canada (or local transition altitude in Europe).



Requirements and Behavior

If up-to-date weather data is being received in-flight via ADS-B or SiriusXM, the alert also includes the nearest altimeter setting on descent.

26.4.4 Runway Proximity Alerts



Runway Proximity Alert

Runway Proximity Alerts use GPS and geographic runway safety areas to alert pilots as they approach or enter a runway environment.

Requirements

For this alert to function, ForeFlight Mobile must be active on the device screen, the aircraft must be moving at less than 40 knots, and runway data must be available for the airport.

Alert Behavior

Runway Proximity Alerts can convey one of four message types depending on the proximity to the runway. The following examples are written using a hypothetical runway 04-22:

- **Approaching runway 22:** Notifies when nearing one end of the runway and expected to enter the runway environment.
- **Entered runway 22, 4,500’ remaining:** Notifies when one end of the runway has been crossed onto. ForeFlight predicts which end of the runway will be used to take off and provides runway distance remaining rounded to the nearest hundreds of feet.
- **Approaching runway 04-22:** Notifies when nearing the midpoint of a runway and expected to enter the runway environment.
- **Entered runway 04-22:** Notifies when entered onto the runway near its midpoint. Runway length remaining is omitted because takeoff runway selection is unclear.

NOTE: An alert may show on takeoff if a different runway is crossed before reaching 40 knots during the takeoff roll, or on landing if a different runway is crossed while rolling out.

Runway Proximity Alerts are not provided for the landing runway while landing; the aircraft must be *taxiing* onto or near a runway to get an alert.

26.4.5 Runway Final Approach Alerts

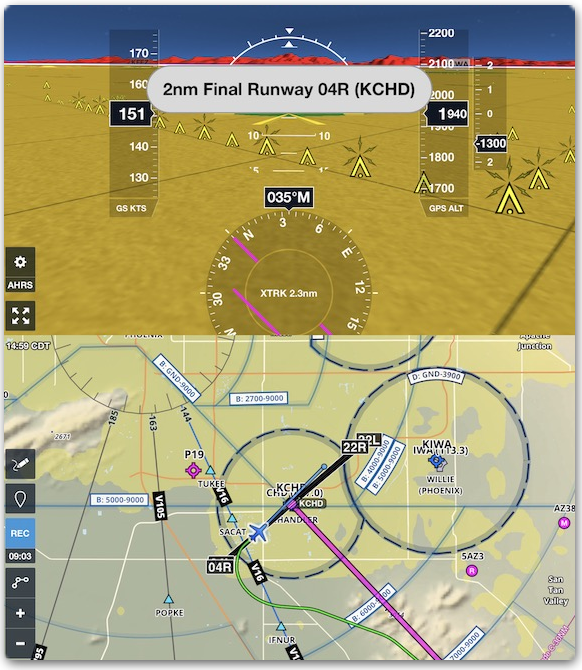
Runway Final Approach Alerts trigger when descending toward a runway.

Requirements

Descending toward a runway and the ground track within 15 degrees of the runway heading will trigger the alert. The destination airport does not need to be included in the route to trigger the runway final approach alert.

Alert Behavior

This alert is only activated once every 10 minutes.



Runway Final Approach Alert

26.4.6 Sink Rate Alerts

Sink Rate Alerts trigger when the descent rate exceeds a predetermined limit.



Requirements

To trigger this alert, groundspeed must be above 40 knots and a given sink rate must maintained (see below) for at least five seconds. Once triggered, this alert will not trigger again for 30 seconds.

Alert Behavior

The descent rate necessary to trigger this alert varies according to height above the ground. Sink Rate Alerts trigger sooner at lower altitudes.

- Above 2,500 ft AGL (or when AGL is not known), the alert is triggered if the descent rate exceeds 3,500 Feet Per Minute (FPM).
- Between 2,500 ft AGL and 500 ft AGL the descent rate required to trigger the alert decreases linearly along with altitude, down to a threshold of 1,500 FPM.
- At 500 ft AGL, the alert is triggered if the descent rate exceeds 1,500 FPM.

26.4.7 Terrain/Obstacle Alerts

Terrain/Obstacle Alerts trigger an app-wide pop-up window when it detects hazardous terrain or obstacles along the flight path. Unlike other alerts, Terrain/Obstacle Alerts are disabled by default.

Requirements

To use, the following requirements must be met:

- A subscription plan other than Starter
- Downloaded obstacle data
- Enable Terrain/Obstacle Alerts in **More** > **Settings** > **Alerts**.

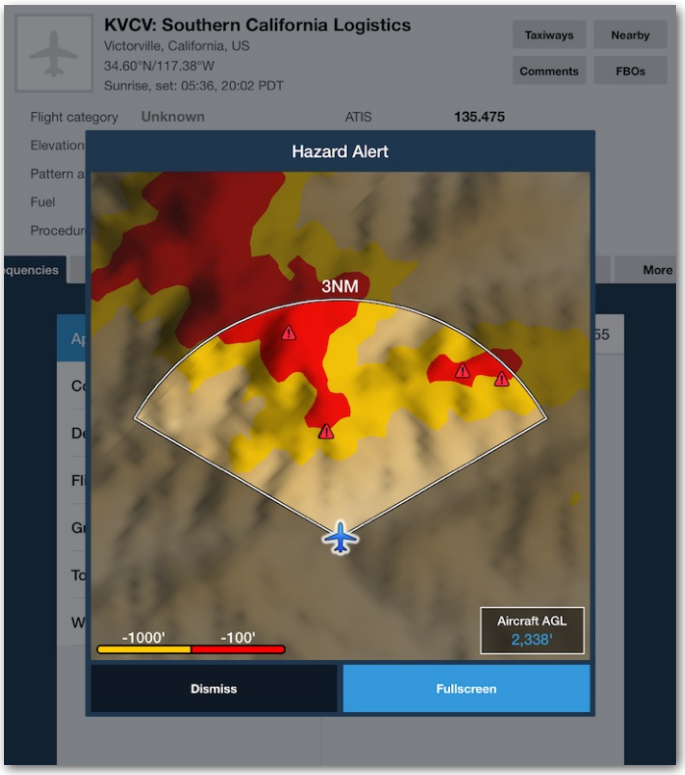
Alert Behavior

ForeFlight monitors the area within 60 seconds and 60 degrees of the flight track. When within two miles of a final approach path, alert sensitivity automatically adjusts to reduce nuisance alerts.

If hazardous terrain or obstacles are detected, a Hazard Alert pop-up window opens over the active screen and displays the following information on a moving map:

- Aircraft location
- Aircraft altitude AGL
- Hazard detection range
- Color-coded terrain elevation (based on the **Hazard Altitudes** setting)
- Nearby obstacles.

Tap **Fullscreen** to switch to the Map view with the Hazard Advisor map layer enabled, or tap **Dismiss** to close the Hazard Alert window. The window closes automatically 10 seconds after the terrain/obstacle is no longer a threat.



Hazard Alert Pop-Up Window

26.4.8 Device Temperature Alerts

This alert indicates that the iPad or iPhone is in danger of overheating and potentially shutting down during a flight.



Recommended Actions

ForeFlight recommends taking the following steps to cool down the device:

- Position the device so it is out of direct sunlight.
- Lower the screen brightness.
- Remove the device from any case.
- Direct a vent or other cooling airflow onto the device.
- Remove the device from a charging source.
- Consider turning off the device.

CAUTION: This alert is not guaranteed to display in time to prevent overheating and shutdown, as it relies on device temperature data supplied by iOS. Additionally, this alert only displays once per hour even if the device returns to a high temperature after initially cooling down.

26.4.9 Unusual Attitudes

The **Attitude Alert** feature provides notification of attitude deviations beyond selected limits. The alert is disabled by default. To enable the alert, tap **More** > **Settings** > **Alerts** > **Unusual Attitudes**.

Pitch limits may be specified for nose high and nose low independently. Bank limits may be specified separately for **Low Alt** (<2000 ft AGL) and **High Alt** (>2000 ft AGL).

Requirements

To receive unusual attitude alerts ForeFlight must be connected to a panel-mounted AHRS source.

Display and Indications

Bank angle limits are displayed on the HUD using colored tick marks on the bank indicator:

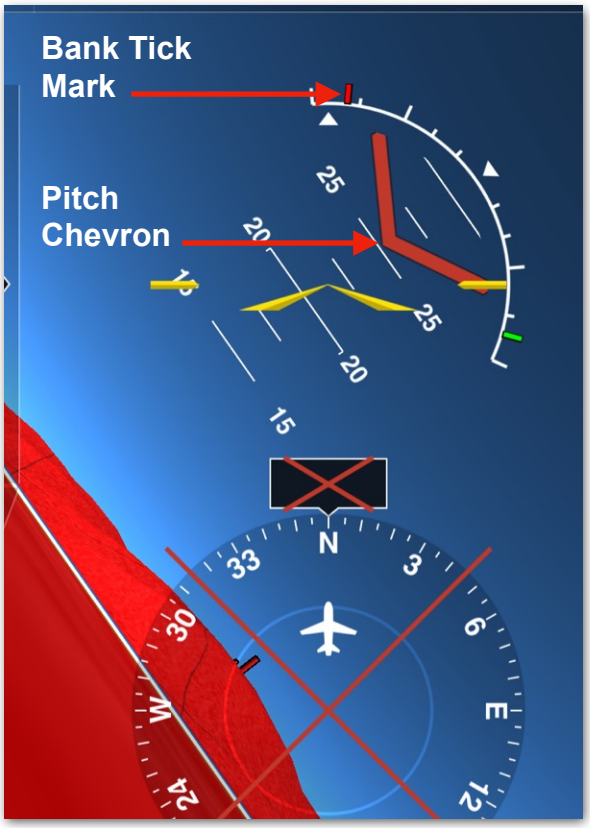
- **Green**: Within limits
- **Amber**: Approaching limit
- **Red**: Exceeds limit.

The pitch limits are displayed on the HUD using red chevrons pointing in the direction of the horizon.

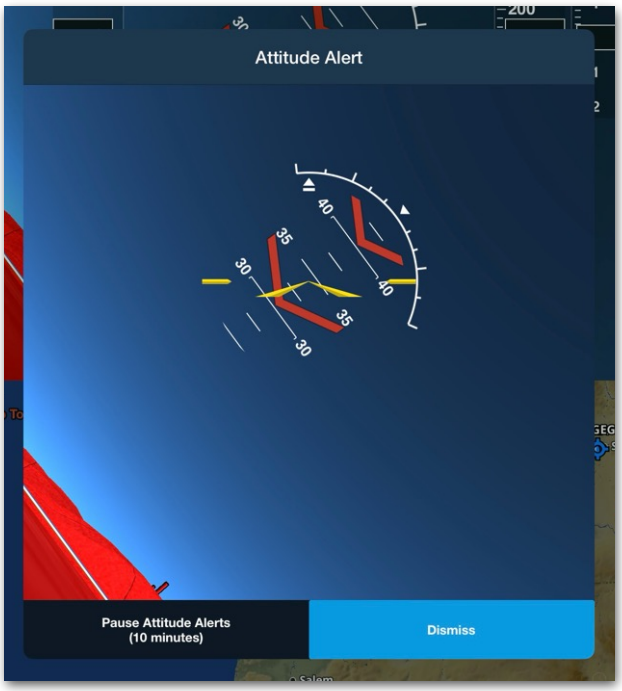
Alert Behavior

The alert is triggered when any pitch or bank limit is exceeded for 2 seconds or more. The alert provides both a visual pop-over attitude indicator and a aural attitude announcement.

If the alert is dismissed, it will re-trigger at the next exceedance. Alternatively, it can be paused for 10 minutes.



Unusual Attitude Indications



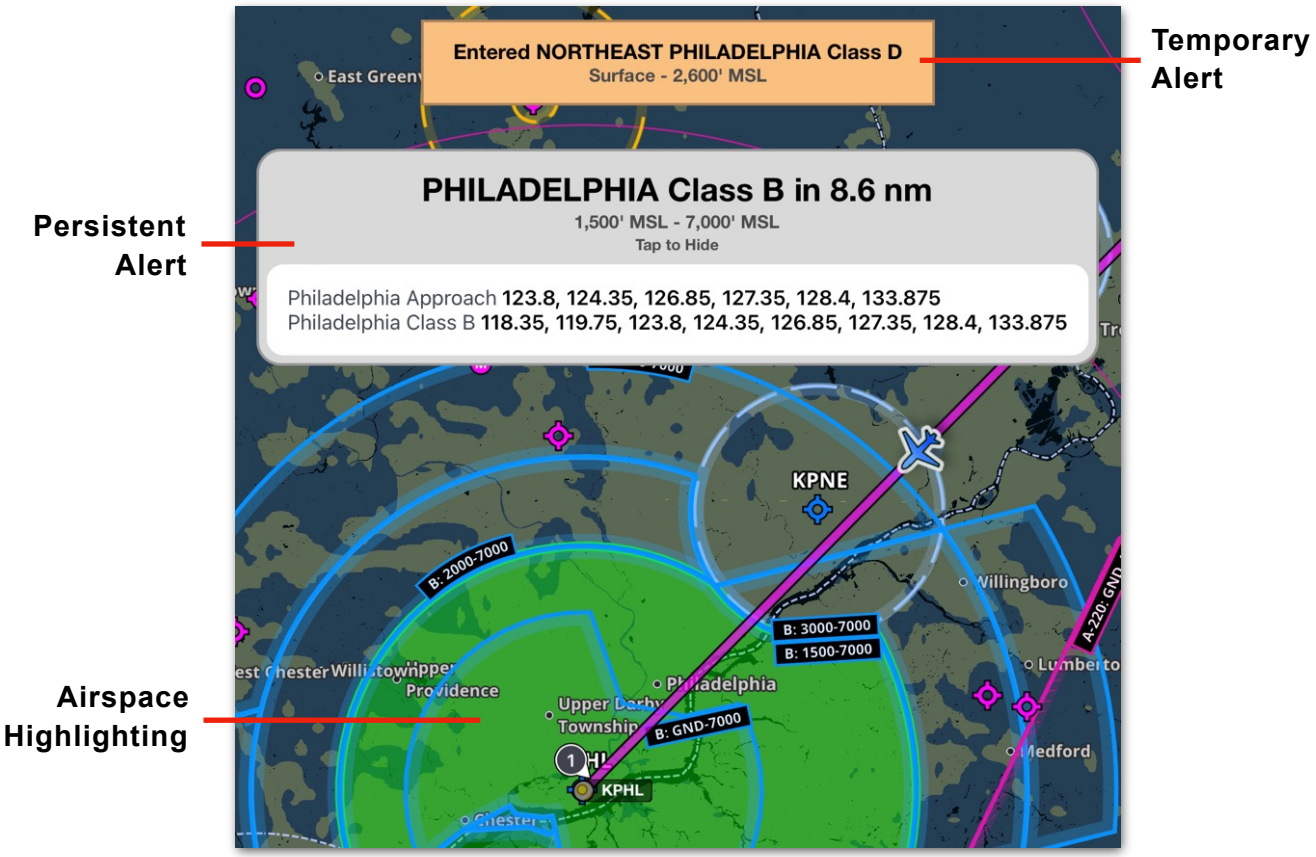
Unusual Attitude Pop-Over

26.5 Airspace & NOTAMS

The following Airspace and NOTAMS alert settings are available in the main settings and map settings menus.

26.5.1 Airspace Alerts

Airspace Alerts is an optional feature that provides app-wide airspace-related alerts, is enabled by default, and is only issued above 1,000 ft AGL. Airspace Alerts is triggered by user-defined parameters (see **Airspace Alert Settings** for additional information).



Airspace Alert Types

As depicted below, there are two types of Airspace Alerts: Persistent and Temporary. These two alert types can be displayed simultaneously.

Persistent Alerts

Persistent alerts are displayed until they're no longer applicable, it is hidden, or another alert replaces it (see next page for additional information). These alerts are issued for approaching airspace and airspace above or below. When an alert is triggered, the corresponding airspace is highlighted (green) and the alert banner

displays the airspace name, class, distance to airspace, vertical limits, and ATC frequencies. The distance to airspace in the alert banner is dynamic and adjusts to reflect the position.

If approaching airspace above or below its vertical limits but within the user-defined Altitude Buffer setting, the alert indicates the airspace is above or below the current position. Once within the lateral boundaries of the airspace, the banner updates to reflect that the airspace is above or below the current position.

Persistent Alerts remain visible until one of the following actions occurs:

- The alert is no longer applicable
- The alert is tapped and hidden
- Another alert replaces it.

NOTE: Airspace Alerts are issued one at a time based on proximity, meaning that if an active persistent alert is displayed and another alert is triggered, the next alert will automatically replace the existing one. Alerts other than Airspace Alerts (e.g., Traffic, Terrain, etc.) automatically replace active Airspace Alerts should they be issued.

Only one alert is issued per airspace class (e.g., B, C, or D). For example, if flying across the shelves of class B airspace, only one alert is issued.

The alert will not trigger if an alert for that airspace was issued within the past minute, e.g. departing and returning to the same airspace.

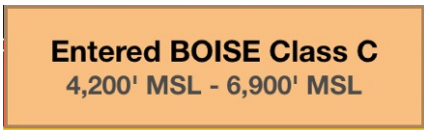
Audio alerts are available in conjunction with persistent alerts, however, they do not contain the airspace name.

Temporary Alerts

Temporary Alerts are issued when entering and exiting controlled airspace's lateral and vertical boundaries. Temporary alerts are issued one at a time and do not contain an audible portion. Temporary alerts are automatically hidden after a few seconds.

If entering airspace sectors with different altitude limits, such as when flying across class B shelves, the Entered Airspace alert is issued for each airspace sector.

When exiting the vertical or lateral airspace boundary, a single temporary alert is depicted.



Entered Airspace Alert

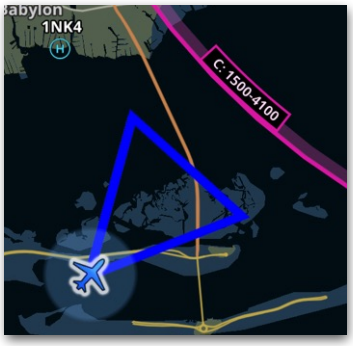


Exited Airspace Alert

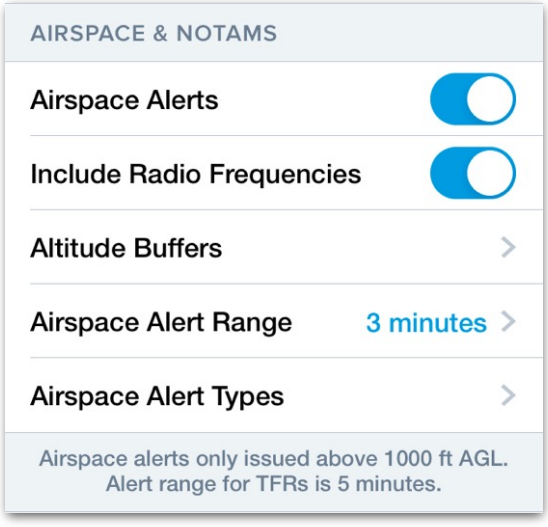
Airspace Alert Settings

Five settings control the behavior of Airspace Alerts.

- **Airspace Alerts** toggles the feature on and off. Approaching, Entering, and Exiting airspace alerts are enabled and disabled with the Airspace Alerts toggle.
- **Include Radio Frequencies** toggled on shows ATC frequencies with the Airspace Alert.
- **Altitude Buffer** specifies the altitude proximity above or below the airspace required to trigger an alert. The default buffer is 500'. Additional options exist for 1000', 2000', and 5000'.
- **Airspace Alert Range** specifies how far in advance an Approaching Airspace Alert is triggered. The alert trigger evaluates airspace 1 NM on either side of the selected time or distance setting. The image to the right is representative of a 2 NM Airspace Alert Range and the 1 NM buffer on either side of the track. The triangle is not a feature that can be enabled. The default Alert Range setting is 3 NM. Additional distance (in NM) and time-based options exist. Time-based settings use current groundspeed to determine when to trigger alerts.
- **Airspace Alert Types** specifies the type of airspace for which to issue alerts. All airspace types are enabled by default. An alert will not be issued if an airspace type is not listed.



Airspace Alert Range



Airspace Alert Settings

26.6 Devices

The following Devices Alerts are available in the main settings and map settings menus.

26.6.1 Device Disconnect



Device Disconnect alerts are triggered if the Bluetooth or Wi-Fi connection to a portable or panel-mounted device that ForeFlight supports is lost. This allows the appropriate action to be taken to restore the connection, to switch to a backup device (if available), or to continue the flight knowing that the previously connected device is no longer available.

Requirements

The alert is only triggered if groundspeed is above 40 knots or if the device does not have a GPS fix.

26.6.2 Flight Plan Auto Update



Flight Plan Auto Update alerts trigger when ForeFlight receives a flight plan from a supported navigator.

Requirements

For this alert to trigger, ForeFlight must be **connected** to supported, installed (or panel) avionics (such as Garmin Connect devices) that can send flight plans.

Alert Behavior

Whenever ForeFlight receives and loads a new flight plan from the panel, it displays a “New Flight Plan Loaded From Panel” message.

26.6.3 Connected Portable Device Low Battery

Device Battery Low alerts display a low-battery message when the portable device's battery level is reduced to 20%.



Requirements

For this alert to trigger, ForeFlight must be connected to a supported portable device such as the Sentry, Stratus, SXAR1 or Garmin portables.

NOTE: This alert does not trigger when the mobile device running ForeFlight (iPad or iPhone) is running low on battery level.

26.7 Route-Based

The following Route-Based alerts are available in the main settings and map settings menus.

26.7.1 Destination WX Frequency Alerts

Destination WX Frequency Alerts provides the destination airport weather frequency (ATIS, AWOS, or ASOS) approaching the airport.



Requirements

For Destination WX Frequency Alerts to trigger, more than one waypoint in must be in the route, the last item in the route must be an airport, and that airport must have a published weather frequency.

Alert Behavior

The Destination WX Frequency Alert occurs at a certain distance from the airport, which is greater at higher altitudes. (At 5,000 feet or below, the alert triggers at 20 NM from the airport.)

This alert does not disappear on its own. It remains on screen until dismissed by tapping on it or until it is replaced by another alert.

The alert will not occur more than once every 20 minutes for the same airport. However, if the destination airport is changed, the alert can occur again in less time.

26.8 Traffic

The following Traffic Alerts are available in the main settings and map settings menus.

26.8.1 Airborne Traffic Alerts

Airborne Traffic Alerts notify when traffic is detected that may intersect the flight path or will be in close proximity.

Requirements

Airborne Traffic Alerts require a connection to an external ADS-B receiver (such as a Sentry) capable of the following:

- Receiving ADS-B Out traffic data.
- Assigning ADS-B Ownship to the aircraft.

For additional details regarding ownship, see **Ownship ADS-B Out Information**.

Audible alerts require ownship at or above 250 ft AGL.

Alert Behavior

An alert is triggered when another aircraft is within or projected to be within:

- 1.3 nautical miles horizontal distance, and
- ±1,200 feet vertical distance,
- Within the next 25 seconds.

Unknown Altitude Alerts

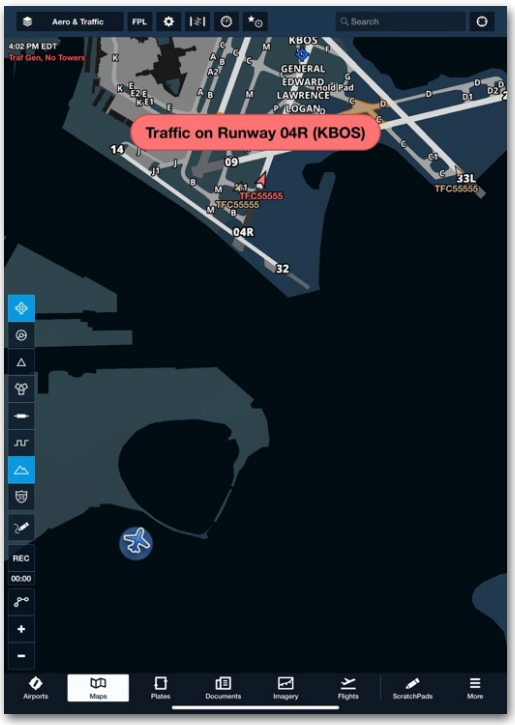
When a traffic target does not broadcast altitude data, ForeFlight assumes the aircraft is at the same altitude. In such cases, an alert is triggered when the target is is within or projected to be within:

- 1.3 nautical miles horizontal distance
- Within the next 25 seconds.

The alert displays and, if enabled, announces the traffic's relative position, distance, and the message "*Altitude Unknown*."

26.8.2 Traffic on Runway Alerts

Traffic on Runway Alerts notify when another aircraft is detected on the runway on which the user's aircraft is landing.



Traffic On Runway Alert

Requirements

To receive Traffic On Runway Alerts:

- ForeFlight must be connected to an external ADS-B device (such as a Sentry).
- **ADS-B Ownship** must be detected.
- Runway data must be available for the airport.
- The user's aircraft must be descending on a short final with a vertical speed of at least 200 ft, at an altitude of between 200 and 1,000 ft AGL, and at a distance within 60 seconds or 2 NM from the runway threshold (whichever is less). The user's aircraft must also have a heading within 15 degrees of the runway alignment and within a 3-degree final envelope extending out from the runway threshold.
- An ADS-B traffic target must currently be on the runway. Aircraft holding short of, or otherwise near to, the runway will not trigger an alert. Aircraft diverging from the user's position (moving away with a greater groundspeed) will not trigger the alert. Internet traffic will not trigger this alert.

Alert Behavior

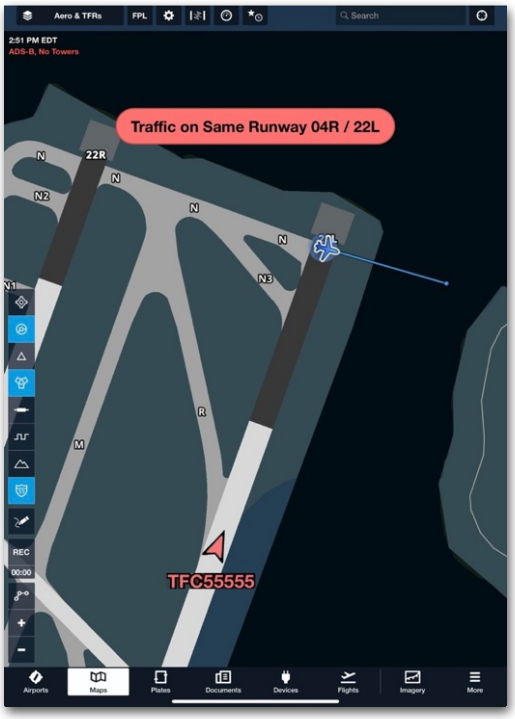
When the above requirements are met, this alert triggers a visual and audible notification of traffic on the runway, including the runway number and airport.

The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until the user's aircraft is no longer within one minute or 2 NM of the runway threshold, whichever is less.

CAUTION: Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are farther apart, the alert may be delayed until ForeFlight can more precisely determine the destination runway.

26.8.3 Traffic on Same Runway Alerts

Traffic on Same Runway Alerts notify when the user's aircraft is either approaching or is currently on a runway and another aircraft or ground vehicle equipped with ADS-B is on that runway.



Traffic on Same Runway

Requirements

To receive Traffic On Runway Alerts:

- ForeFlight must be connected to an external ADS-B device (such as a Sentry).
- **ADS-B Ownship** must be detected.
- Runway data must be available for the airport.
- User aircraft must be on the runway or be approaching the runway.
- An ADS-B traffic target must currently be on the runway. Aircraft holding short of, or otherwise near to, the runway will not trigger an alert. Aircraft diverging from the user's position (moving away with a greater groundspeed) will not trigger the alert. Internet traffic will not trigger this alert.

Alert Behavior

When the above requirements are met, this alert triggers an audible notification of traffic on same runway, and a visual notification including the runway number.

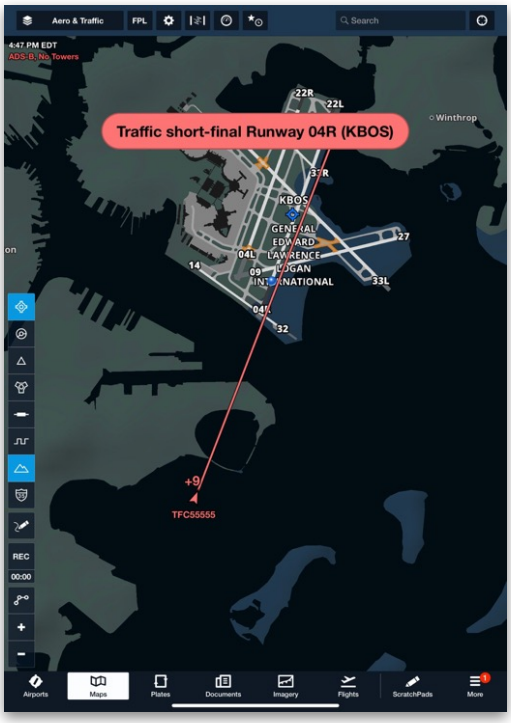
The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until the user's aircraft is no longer within one minute or 2 NM of the runway threshold, whichever is less.

CAUTION: Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are farther apart, the alert may be delayed until ForeFlight can more precisely determine the destination runway.

NOTE: Approaching the runway is calculated by projecting the current position 7 seconds into the future at the current speed/heading when the groundspeed is > 3kts.

26.8.4 Traffic On Short Final Alerts

Traffic On Short Final Alerts notify when an aircraft is on short final to the runway that the user is either on or approaching.



Traffic On Short Final Alert

Requirements

To receive Traffic On Short Final Alerts:

- ForeFlight must be connected to an external ADS-B device (such as a Sentry).
- **ADS-B Ownship** must be detected.
- Runway data must be available for the airport.
- User must be on or approaching the runway.
- A traffic target with ADS-B Out data must be approaching within a 1,000 ft AGL altitude of the user's position and within 60 seconds or 2 NM of the runway threshold (whichever is less). Diverging traffic targets and traffic sourced from the internet will not trigger the alert. The traffic target must also have a heading within 15 degrees of the runway alignment and must be within a 3-degree final envelope extending out from the runway threshold.

Alert Behavior

When the above requirements are met, a visual and audible notification of traffic on a short final to the runway the user is currently on is triggered, including the runway number and airport. Additionally, the traffic target on a short final will turn red.

The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until it is no longer within one minute or 2 NM of the runway threshold, whichever is less.

CAUTION: Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are slightly farther apart, the alert may be delayed until ForeFlight can more precisely determine the destination runway.

NOTE: Approaching the runway is calculated by projecting the current position 7 seconds into the future at the current speed/heading when the groundspeed is > 3kts.

26.8.5 Wake Turbulence Alerts

The wake turbulence alert system calculates and displays possible wake turbulence conditions behind a potentially hazardous wake generated by traffic in the vicinity.



Wake Turbulence Alert

Requirements

To receive wake turbulence alerts:

- ForeFlight must be connected to an external ADS-B device (such as a Sentry)
- Traffic must be in a larger wake-category than ownship
- The predicted time of entering the wake is 30 seconds or less.

Alert Behavior

When the above requirements are met, both visual and aural “Caution Wake Turbulence” alerts are triggered. The alert can be dismissed with a tap, or will disappear after 10 seconds if not acknowledged. The alert will not trigger again for at least one minute.

The visual depiction of the wake provides an aid to situational awareness when approaching wake turbulence. It moves based on the current winds and dissipates overtime removing it from the map display. The wake will show on the map until it has fully dissipated or 60 seconds has gone by since the alert.

The red portion of the wake represents the vertical portion of the wake closest to ownship altitude. The red area is from 100 feet above to 300 feet below ownship altitude. This portion will change as the wake descends or ownship altitude changes.

A white intersection line accompanied by two chevrons will display where the predicted flight path will cross the wake turbulence.

CAUTION: Rotorcraft wake turbulence will not generate alerts.

NOTE: Wake turbulence alerts are inhibited when ownship is below 500 feet AGL.

26.9 TFR Alerts

TFR Alerts display app-wide if ownship will pass inside, over, or under a TFR within the next five minutes. This alert pertains specifically to TFRs issued in the United States and cannot be disabled.

Requirements

For this alert to work, altitude must be at or above 500 ft AGL and either have the ability to receive inflight TFR data, or have downloaded that data recently with the **Pack** feature (see below).

Preflight Data Download

Before the flight, connect to the internet and use the Pack feature to download all relevant TFRs and weather data.

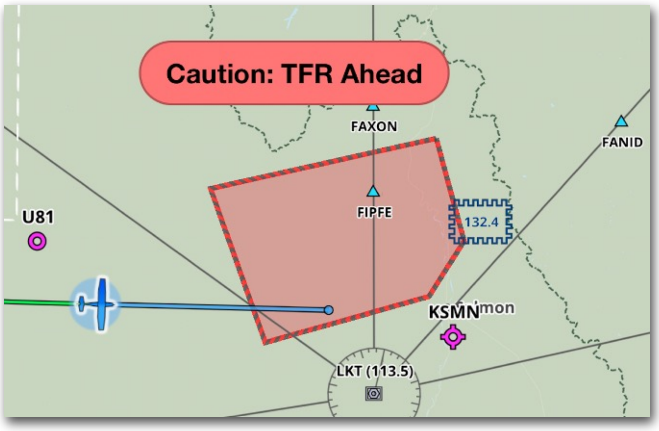
CAUTION: The Pack feature does not provide updated TFR Alerts in flight. ForeFlight can only display TFRs issued *after* Pack is complete if an ADS-B or SiriusXM inflight weather receiver is used.

Setting the Altitude Buffer

To configure the sensitivity of TFR Alerts, tap **Map Settings** > **Alerts** > **Altitude Buffer** and set the TFR buffer to 500', 1000', 2000', or 5000'. This setting determines how far ForeFlight searches for TFRs above or below the flight altitude.

Alert Behavior

TFR Alerts display app-wide even if the TFRs layer is not enabled on the Maps View. TFR Alerts are disabled if flying below 500 ft AGL. There are five possible TFR alert messages depending on position relative to the TFR and its active status:



TFR Ahead Alert

- **Caution: Upcoming TFR Ahead**: Within five minutes, flight will pass within 3 NM of a soon-to-be-active TFR.
- **Caution: TFR Ahead**: Within five minutes, flight will pass within 3 NM of an active TFR.
- **Caution: Inside TFR**: Flight has entered the lateral and vertical boundaries of an active TFR.
- **Caution: TFR Below**: Flight is above an active TFR by a number of feet set by the Altitude Buffer (see below).
- **Caution: TFR Above**: Flight is below an active TFR by a number of feet set by the Altitude Buffer.

CAUTION: TFR Alerts are provided as a supplementary tool for increasing situational awareness and should not replace conventional tools and methods for avoiding TFRs. Failure to use the Pack feature to download relevant weather and TFR data before a flight (see above) can impede ForeFlight's ability to display accurate TFR Alerts. The Pack feature downloads a snapshot of the airspace taken at that specific time. After a fight is packed, TFR alerts will only be issued if an ADS-B or SiriusXM inflight weather receiver is used.

JETFUELX

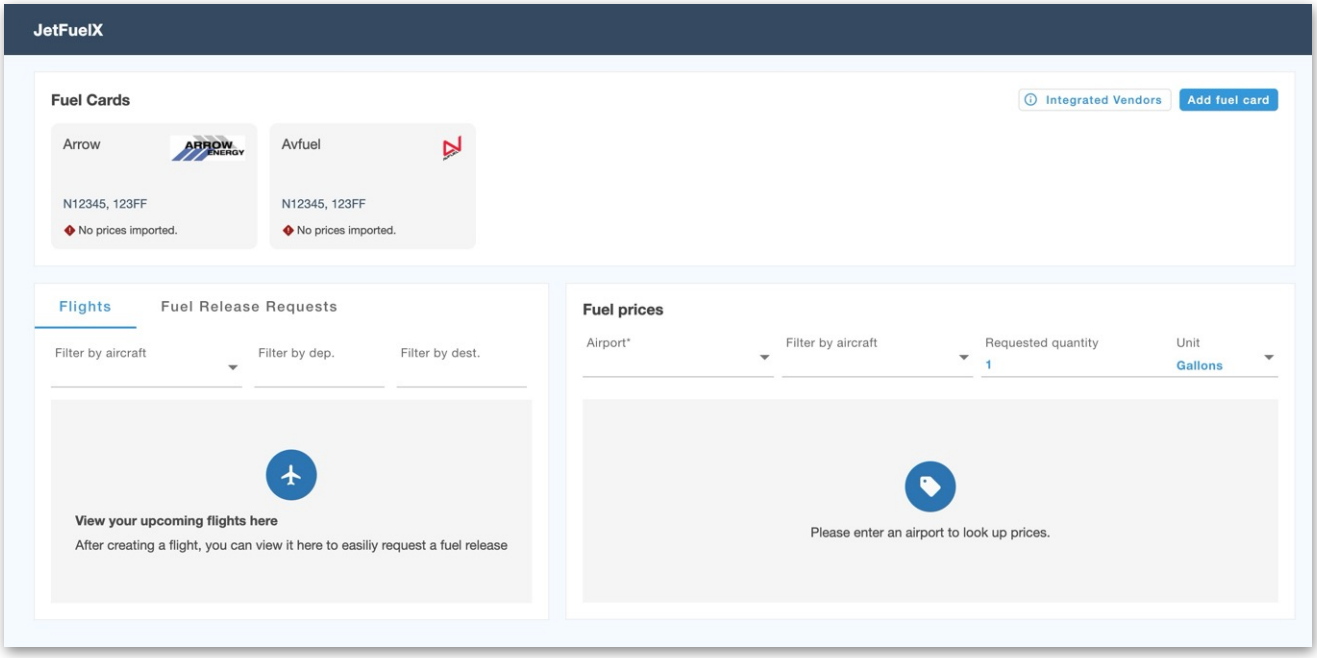
JetFuelX is a feature in ForeFlight that helps operators view and compare contract **Jet-A** fuel prices and request fuel releases. Contract fuel account information is uploaded into JetFuelX and linked to selected aircraft on the account. The JetFuelX feature is available to Essential, Premium, and Business Performance subscribers.

Eligible tier ForeFlight subscribers can apply for new accounts with participating vendors and link contract Jet-A fuel accounts on ForeFlight Web. ForeFlight Mobile then displays contract Jet-A fuel prices on Maps, Airports, Plates, and Flights views. Fuel release requests are supported from within the Flights view. ForeFlight Web also displays contract Jet-A fuel prices in My Flights and Maps views.

27.1 Dashboard Overview

The **dashboard** is the primary landing page for JetFuelX. It provides a comprehensive overview of:

- **Fuel Cards**: Accounts linked to vendors.
- **Fuel Release Requests**: A sortable and searchable table of requested fuel releases.
- **Fuel prices**: A tool for browsing fuel prices associated with the user's cards.



Dashboard

27.2 Fuel Cards

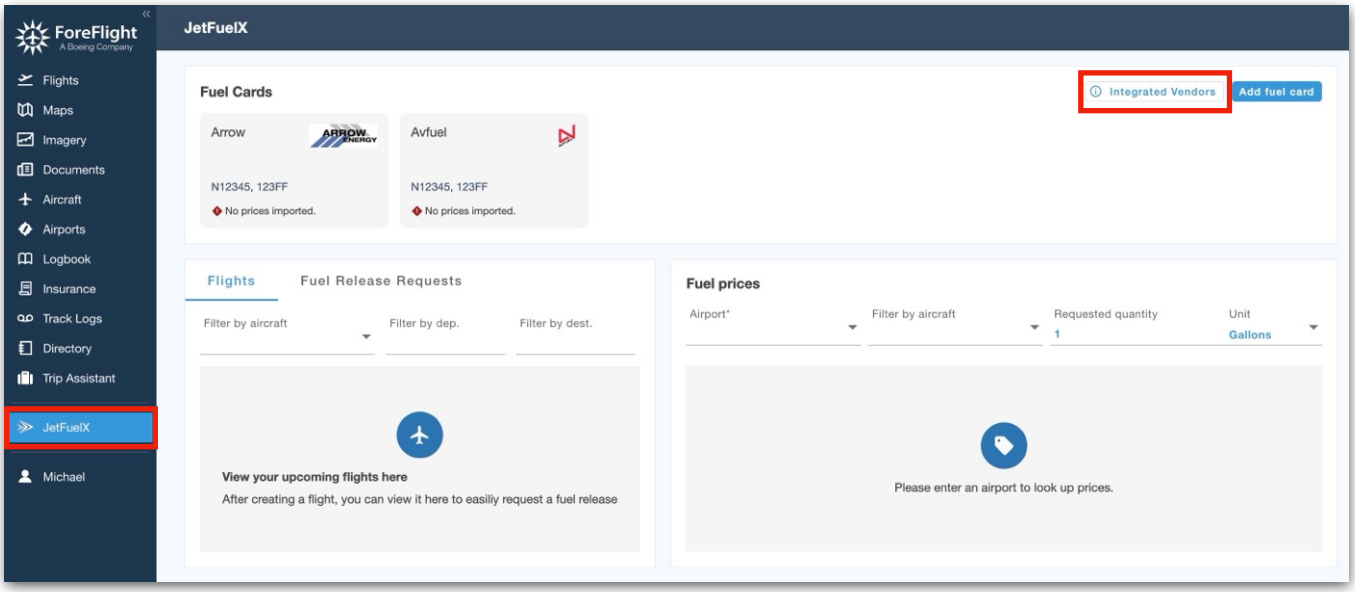
Contract fuel accounts are managed on **ForeFlight Web's JetFuelX page**. Vendors send fuel price data directly to the user's ForeFlight account. Fuel cards can be added, edited, and removed. At least one aircraft profile must be linked to each fuel card. Status indicators on each fuel card show whether an account has prices and the date last updated. Vendor CSV price files can be manually imported.

NOTE: JetFuelX uses the term **cards** to represent all accounts. Vendors may not necessarily issue a physical card.

27.2.1 Applying for Contract Fuel Accounts

Before using the JetFuelX feature, users must have already signed up with one or more participating contract fuel providers. The application process varies by vendor and is outside the scope of ForeFlight guides. Users can access participating fuel vendor websites from within ForeFlight Web.

1. Log into **plan.foreflight.com**.
2. Select **JetFuelX** from the sidebar.
3. Click the **Integrated Vendors** button.
4. Click a vendor icon to navigate to their website.
5. Complete the vendor application process.



Applying for Contract Fuel Account

27.2.2 Linking Fuel Cards

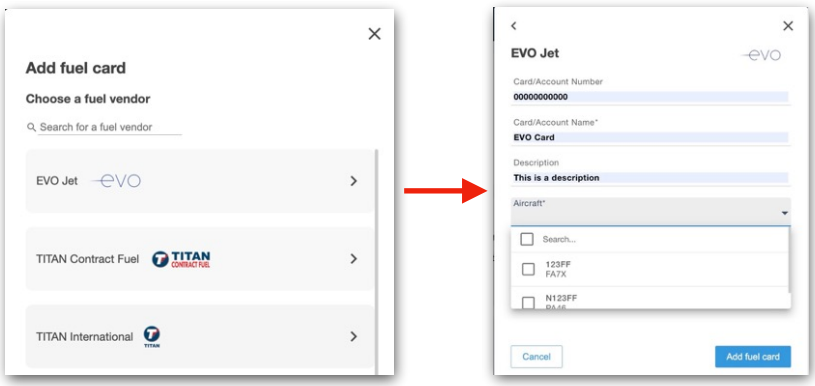
The process to link fuel cards is similar for all users, however:

- Individual account holders can assign fuel cards to any aircraft profile.
- Business account holders can assign fuel cards only to aircraft profiles set up as organization aircraft and published by their organization.

To link a fuel card, follow these steps:

1. Log into **plan.foreflight.com** and select **JetFuelX** from the sidebar.
2. Click **Add fuel card** to open the **Add fuel card** pop-over.
3. Select a vendor or use the search bar to find a vendor.
4. **Card/Account Number** - enter a card or account number if one is listed in the contract fuel account.
5. **Card/Account Name** - enter the name on the contract fuel account.
6. **Description -** enter any other useful information about the card.
7. **Aircraft -** select one or more aircraft profiles.
8. If adding a CAA fuel card, follow these additional steps:
   - For CAA, click **Connect CAA Account**. In the CAA login window, enter the account username and password, and click **Login**. Then, return to the **Add fuel card** pop-over.
9. If adding a Jetex or Everest Fuel card, follow these additional steps:
   - Enter the **Integration ID** or **Customer ID** received from the vendor. The input field contains a yellow email icon button which can be clicked to open an email client with the subject and receiver populated.
10. Click **Add fuel card**.

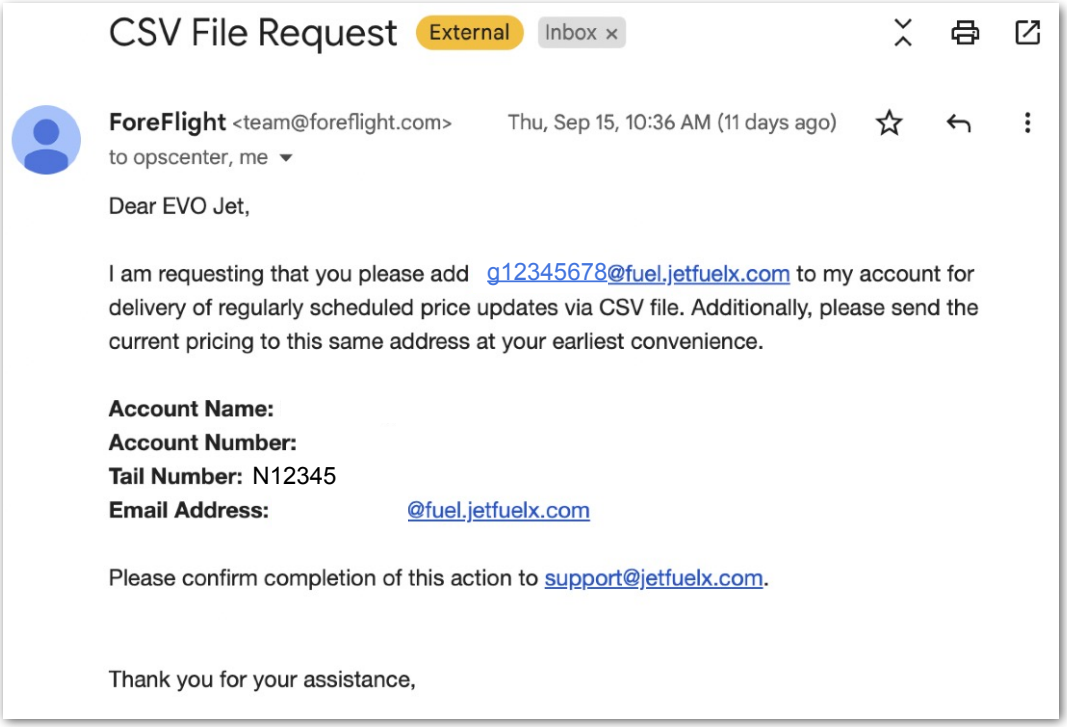
After adding a fuel card, it may take up to a week for some vendors to begin sending fuel price data.



Link Fuel Card

27.2.3 Automatic Price Updates

Adding a contract fuel card triggers an automated email to the fuel vendor requesting they provide regularly scheduled fuel price data to the user's ForeFlight account. This email includes all of the information the vendor needs to send price updates to the account.



Example of ForeFlight's Email to Fuel Vendors

Within one week, the vendor should start sending contract fuel prices to the ForeFlight account, and the fuel card will display a **Prices updated** status message. This message will display the date of the most recent update.

27.2.4 Manual Price Updates

A red status symbol displays on the fuel card along with the message, "No fuel prices imported," if prices have not been received. If the vendor send prices in a CSV file, users may update prices manually by forwarding the fuel price emails or importing the file from the vendor into ForeFlight Web.

Price Updating by Forwarding Emails

To set up forwarding:

1. Log into **plan.foreflight.com** and select **JetFuelX** from the sidebar.
2. Click the fuel card to be updated.
3. Click **Upload fuel prices**.
4. On the **Import prices** pop-over, **Copy** the email address ending in @fuel.jetfuelx.com. This is the unique JetFuelX import email address to be used to forward emails from the contract fuel provider.
5. Locate the vendor email containing the CSV file. This email will most likely be sent to the address listed on the contract fuel membership account. Forward the email to the @fuel.jetfuelx.com account copied in the previous step.
6. Use the process dictated by the email provider to set up auto-forwarding of all future emails from the email address the vendor used above to the @fuel.jetfuelx.com email address.

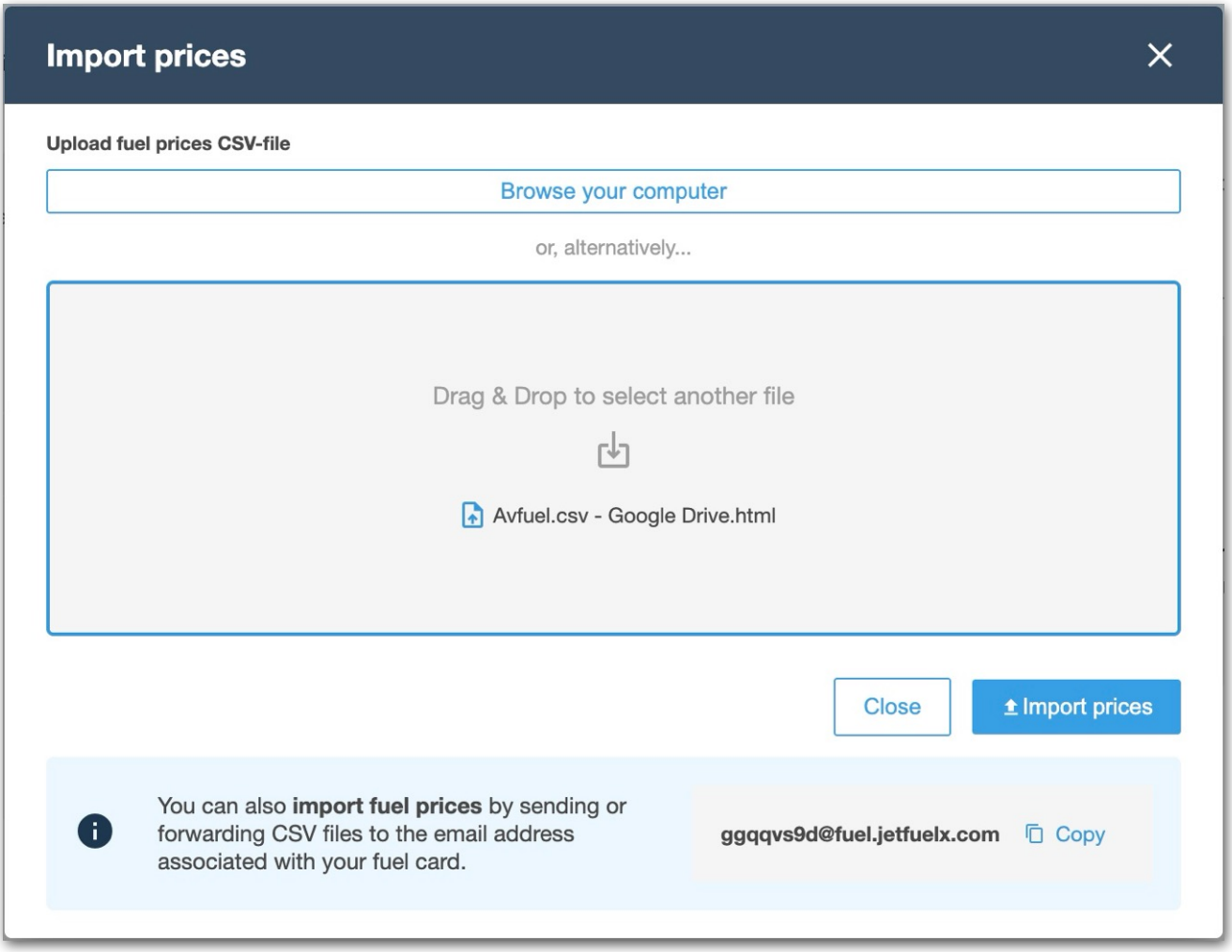
NOTE:@fuel.jetfuelx.com addresses are receive-only and cannot respond to any messages. If an email provider requires a confirmation reply to its request for auto-forwarding, it will be necessary instead to forward the email or manually import the CSV files. This is described below.

Price Updating by Manually Importing CSV Files

To manually import price updates to a JetFuelX account using the vendor CSV file:

1. Locate and download the vendor CSV file (either on the vendor's website or in an email from the vendor).
2. Log into **plan.foreflight.com** and select **JetFuelX** from the sidebar on the left side of the page.
3. Click the fuel card to be updated.
4. Click **Upload fuel prices**.

5. At the top of the Import Prices page, drag and drop the CSV file from the computer to the gray box, or click **Browse your computer** and use the pop-over window to locate and import the CSV file.



Import Prices Pop-Over

27.3 Fuel Card View

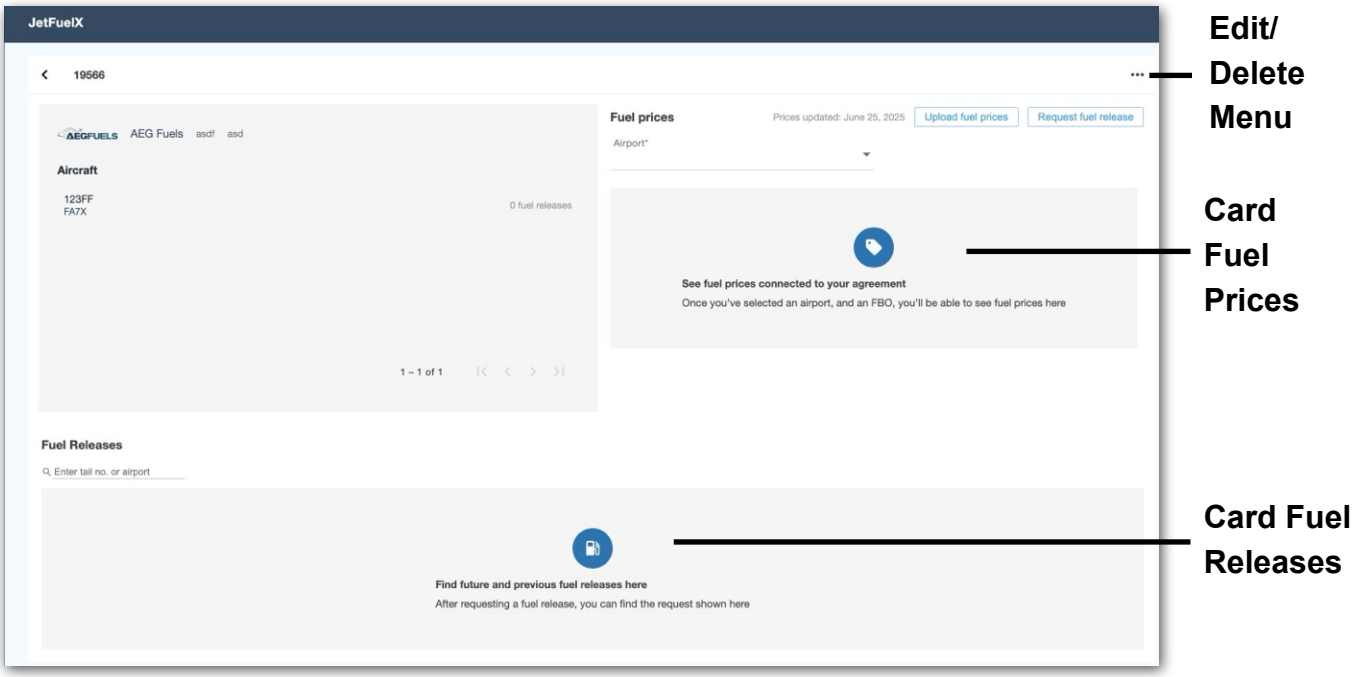
Click a fuel card on the dashboard to see a more detailed view of the fuel card. Fuel prices can be managed and requests for fuel releases can be viewed. The fuel card can be edited or deleted from this view.

27.3.1 Editing Fuel Card

To edit the account information for a fuel card:

1. Log into **plan.foreflight.com** and select **JetFuelX** from the sidebar.
2. Click the fuel card to be edited.
3. Click the **...** at the top right.
4. Click **Edit card.**
5. Edit the account information as necessary.
6. When finished, click **Update fuel card**.

NOTE: For CAA, click **Connect CAA Account**. In the CAA login window, enter the account username and password, and click **Login**. Then, return to the **Update fuel card** pop-over.



Fuel Card View

27.3.2 Delete Fuel Card

Deleting a fuel card will remove existing contract fuel prices from ForeFlight and notify the vendor to stop sending prices to the associated ForeFlight account. To delete a fuel card:

1. Log into **plan.foreflight.com** and select **JetFuelX** from the sidebar.
2. Click the fuel card to be deleted.
3. Click the **...** at the top right.
4. Click **Delete card.**
5. In the Delete fuel card pop-over, click **Delete Fuel Card** to confirm.

27.3.3 Card Details

The upper left section of the fuel card view contains an expanded version of the smaller view displayed the dashboard. It shows a paginated view of all aircraft assigned to the card with information about the number of fuel releases associated with each aircraft.



Fuel Card Details

27.3.3.1 Fuel Prices (Card Specific)

The **Fuel prices** view in the detailed fuel card view shows prices for the specific fuel card. To view prices, select an airport and an FBO. Click the right-pointing arrow to deselect the FBO so another airport or FBO can be chosen.

Click the Request fuel release button to generate a fuel release request form.

NOTE: If the vendor does not support fuel releases, the button will be disabled.

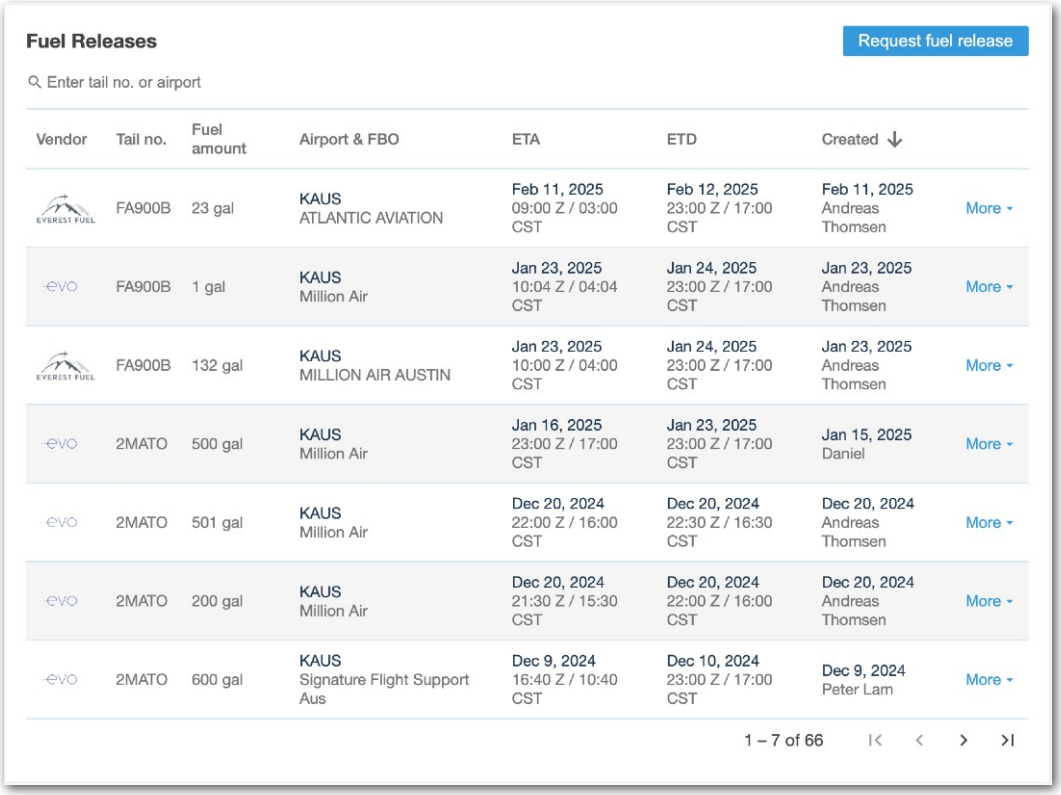
If a fuel card has not received prices, it will be indicated by a **No prices imported** message in the **Fuel prices** section. It can take up to seven days before prices are received from the vendor and updated on the card. Alternatively, prices can be manually uploaded (see **Manual Price Updates**).

27.4 Fuel Releases

The **Fuel Releases** view contains requests for fuel releases that have been submitted. Hovering over **ETA**, **ETD** or **Created** column headers will reveal an arrow. Click the arrow to toggle the direction in which the rows are sorted.

The list can be filtered by entering a tail number or an airport code in the search field.

Click the **More** button to reveal a menu with the option to open the confirmation. Click **Open confirmation** to show the **Fuel Release Confirmation** that was originally displayed when the fuel release was requested.



Fuel Releases

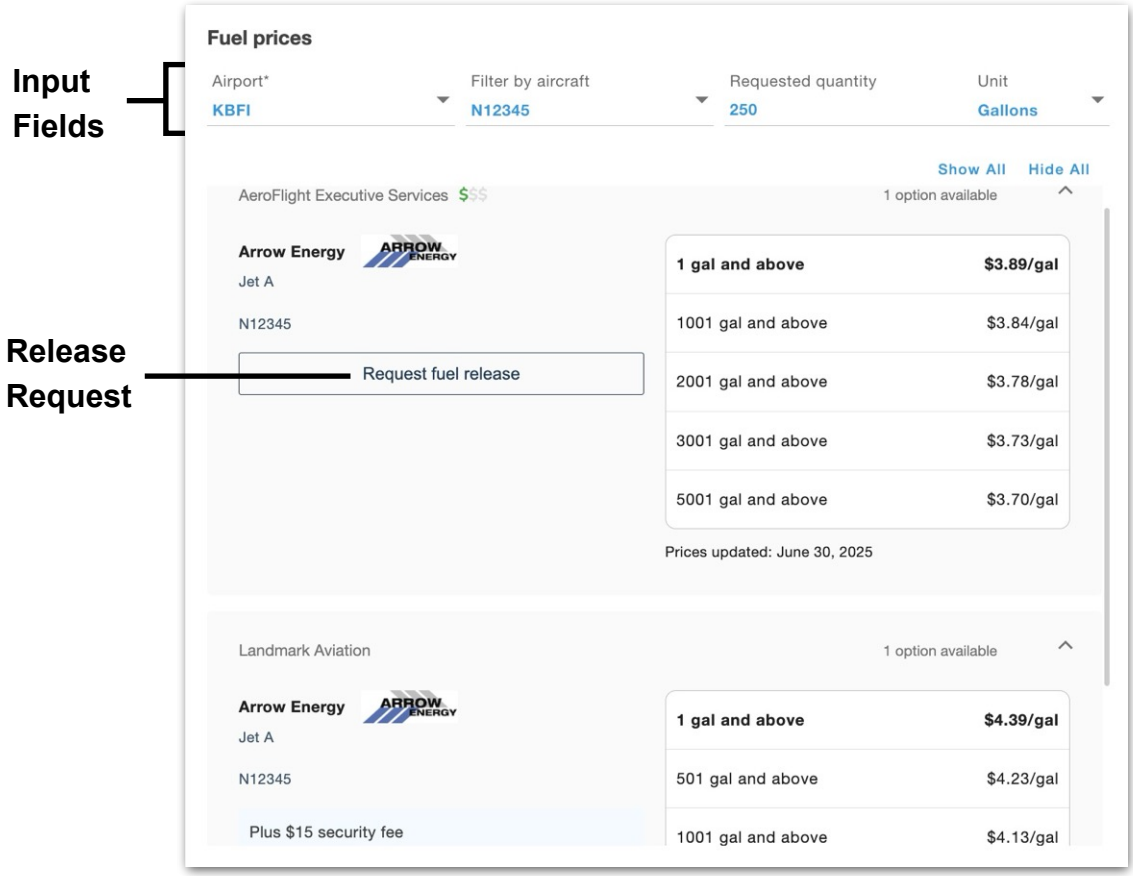
27.4.1 Request Fuel Release

Click the **Request fuel release** button to open a **Fuel Release Request** form.

27.5 Fuel Prices

The **Fuel prices** section of the dashboard enables browsing prices associated with all of the fuel cards at a given airport. The prices are grouped into FBO expansion panels. Each FBO panel can be expanded to show the prices at that specific FBO. Each price item lists the vendor who offers the price, a list of aircraft for which the price is available and an optional note from the vendor.

Click **Request fuel release** to open a **Fuel Release Request** form.



Fuel Price Browser

- Prices are grouped by fuel provider.
- The lowest available contract price option is marked with dollar signs **$$$**.

27.5.1 Input Fields

Airport - Select an airport to display the offer prices at the airport.

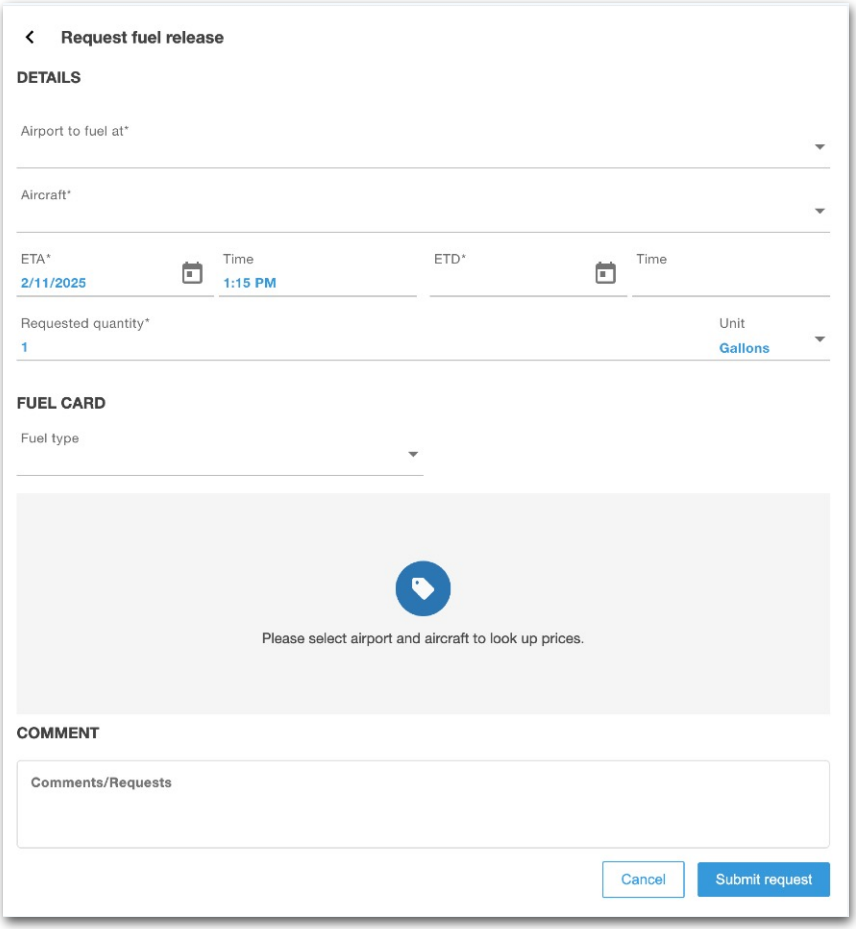
Aircraft - Select an aircraft to filter the results to that specific aircraft.

Quantity - Enter the requested quantity to filter the results to the range into which the requested quantity falls.

Unit - Select the desired fuel units.

27.6 Fuel Release Requests

The request form is divided up into 3 sections: Details, Fuel card, and Comment.



Fuel Release Request Form

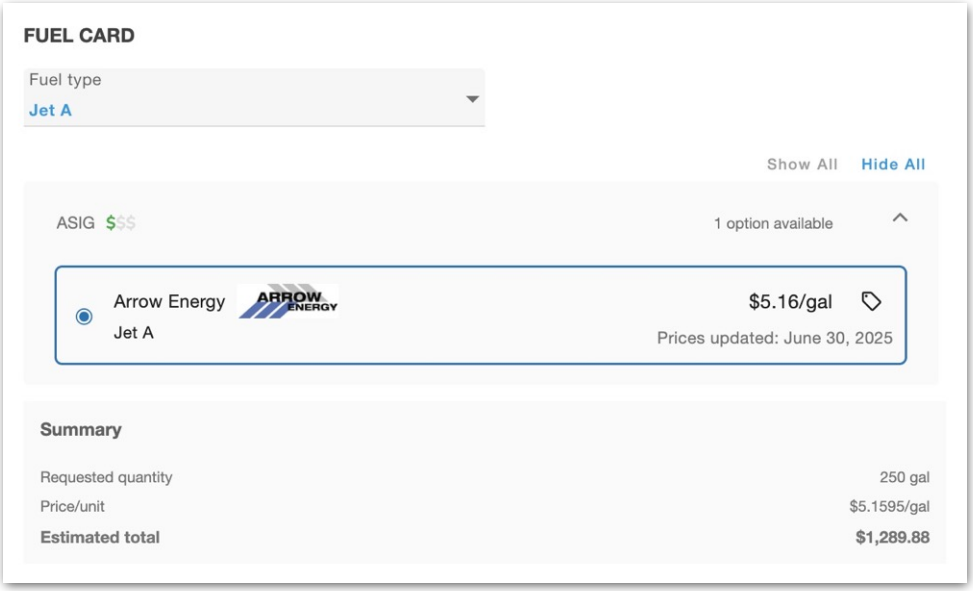
27.6.1 Details

Fill the details fields for the fuel release request.

27.6.2 Fuel Card

The **FUEL CARD** section will populate after an airport and aircraft are selected.

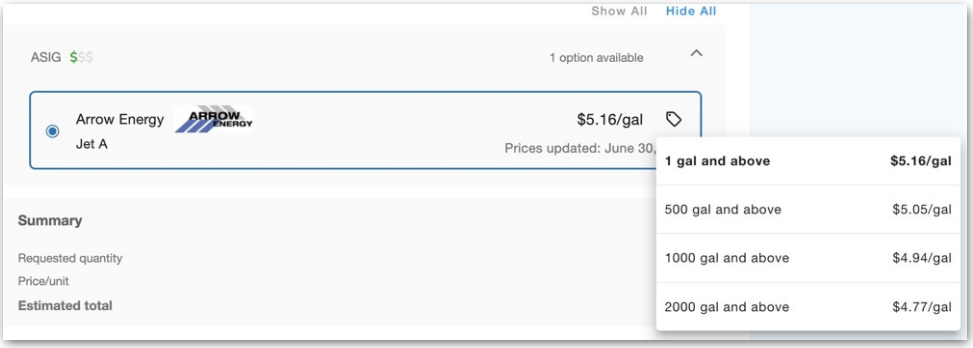
- Prices are grouped by fuel provider
- The lowest available contract price option is marked with a **$$$** icon
- Summary is shown if price selected from collapsed panel
- Summary section displays total cost.



Fuel Card

27.6.2.1 Price Option

The price option can be selected by clicking anywhere within the gray line. The price/unit is based on the requested quantity entered in the details section. Additional tiers can be viewed by clicking on the price tag icon.



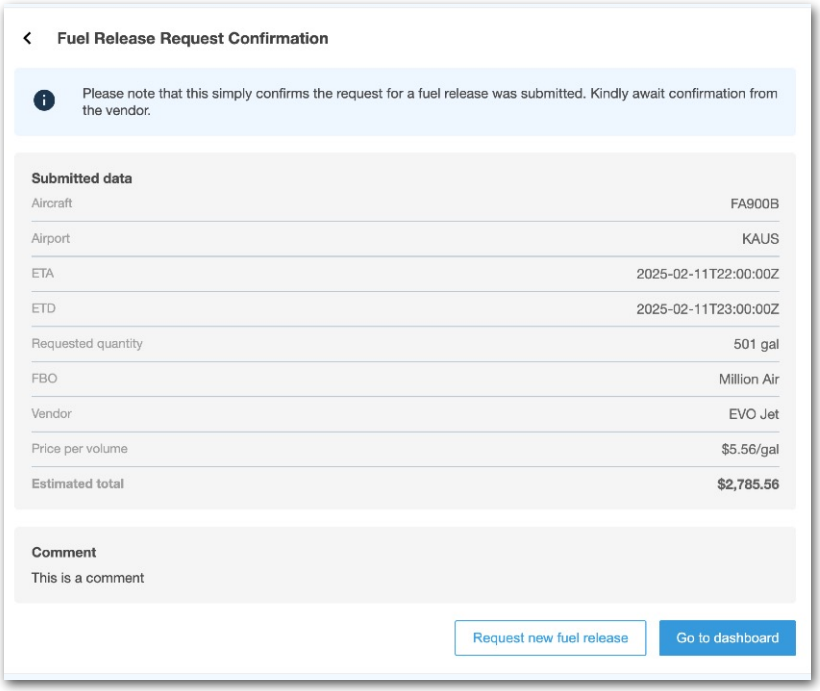
Price Option

27.6.3 Comment

Comments can be added to the fuel request using the **COMMENT** section entry.

27.6.4 Fuel Release Request Confirmation

After a successful request submission, the Fuel Release Request Confirmation will display, indicating that ForeFlight has sent the request.



Fuel Release Request Confirmation

NOTE: The Fuel Release Request Confirmation is not a confirmation from the vendor.

ANNOTATIONS

ForeFlight annotations allows full-color annotations to be added to approach plates, SIDs, STARs, airport diagrams, and documents. This can be useful for highlighting important elements such as crossing altitudes, taxi instructions, or adding notes to PDF documents.

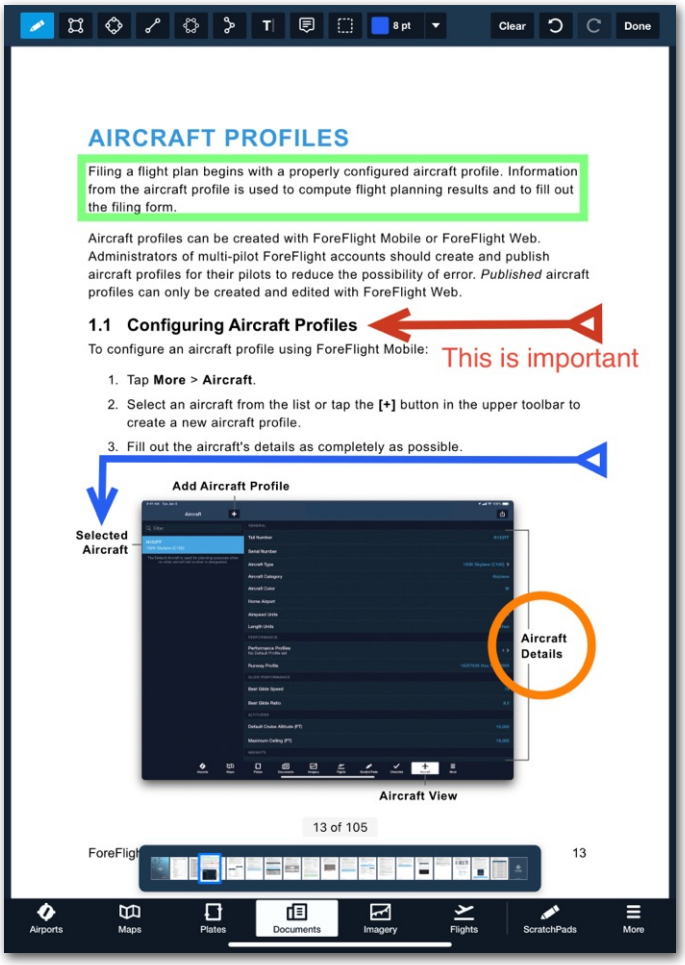
NOTE: Document annotations are not currently supported on ForeFlight Web.

28.1 Design

Annotations are available in all subscriptions. With a ForeFlight Essential, Premium, Business Pro, or Business Performance subscription, annotations made on an approach plate are displayed when the plate is displayed on the map.

Annotations added to a Plate, SID, STAR, or Airport Diagram are saved at the data cycle change-over unless the SID, STAR, or Plate name changes in the new data cycle (e.g., if the TEXXN5 STAR becomes TEXXN6, or RWY03 ILS becomes RWY04 ILS due to updated magnetic variation).

Annotations added to a PDF Document are synchronized between all signed-in devices and are saved if the document is updated, provided the document title stays the same during the update.



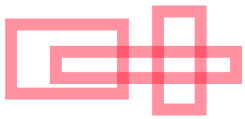
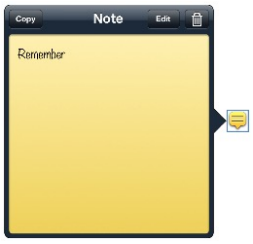
Document Annotations

28.2 Annotation Types

Annotations allow different tools to highlight items on documents. The default mode for annotations is the Drawing tool. Other shapes are available such as a rectangle or ellipse, and provide a precise look to permanent highlights.

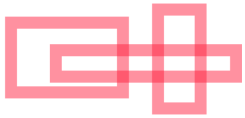
28.2.1 iPad Annotations

There are 8 kinds of annotations available on the iPad:

Drawing		Text Box	
Rectangle		Ellipse	
Line		Polygon	
Polyline		Sticky-note	

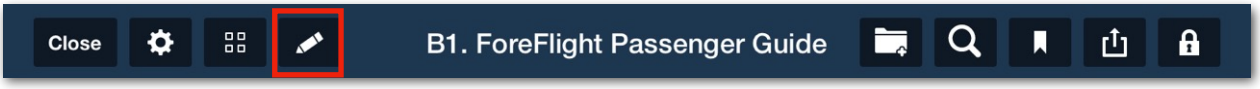
28.2.2 iPhone Annotations

All annotations made on an iPad are visible on an iPhone. However, there are only 3 kinds of annotations available to be created on the iPhone:

Drawing		Text Box	
Rectangle			

28.3 Adding and Editing Annotations

When a plate or PDF Document is opened, tap the **Annotation** button  in the menu at the top of the page to display the annotation toolbar.



28. ANNOTATIONS

Annotations will default to Drawing mode until another annotation style is selected. Use a finger, stylus, or Apple Pencil to draw directly on the plate or document.



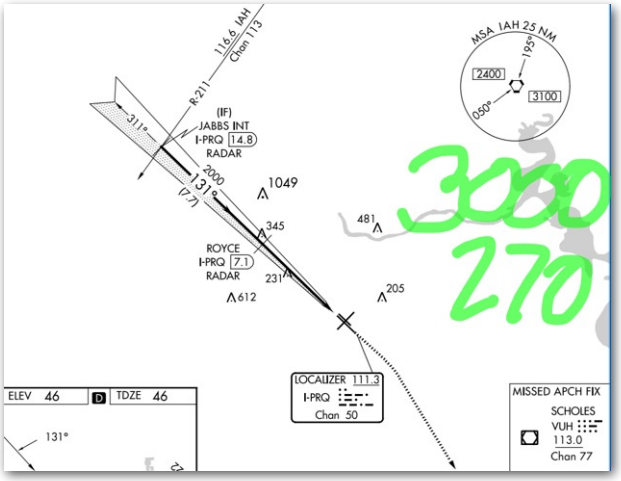
Another method to open annotations is to touch-hold on the plate or PDF Document momentarily, then release to display the popup Annotation menu.



Tap the button to choose the type of annotation to add (Text, Note, or Drawing).

28.3.1 Drawing

The default annotation is the freehand Drawing tool. Use a finger, stylus, or Apple Pencil to quickly draw directly on the plate or document. As an example, if ATC gives an alternate missed approach clearance to “Fly heading 270, climb and maintain 3,000 feet”, it can be written directly on the approach plate.



Drawing Annotations

Changing Annotation Color, Opacity, or Thickness

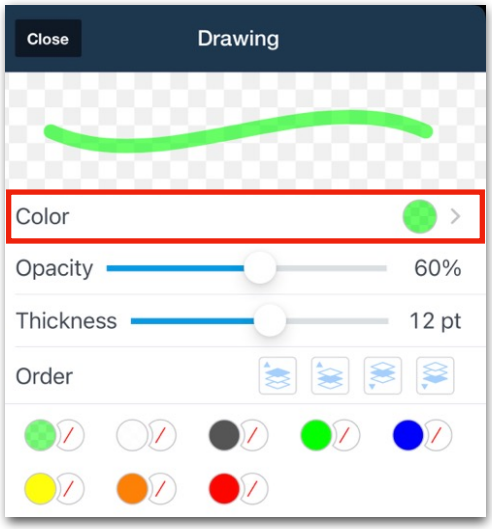
Tap the Annotation Settings drop-down in the top toolbar to display the Drawing settings popup.



Eight pre-set colors are available for quick selection. Press on a color button at the bottom of the popup to change to that color.

For more color options, tap the Color tab to open another color popup that has three color selection page (Grid, Spectrum, or Sliders). These pages provide different methods of selecting specific colors.

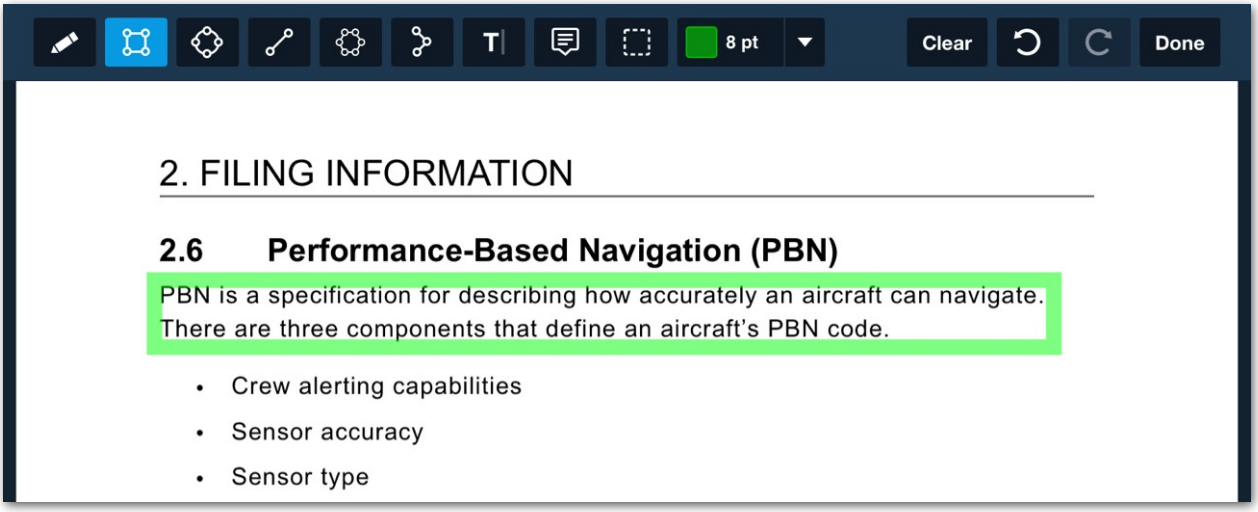
To change the line Opacity and thickness, move the sliders left or right until the desired setting is reached.



Drawing Settings

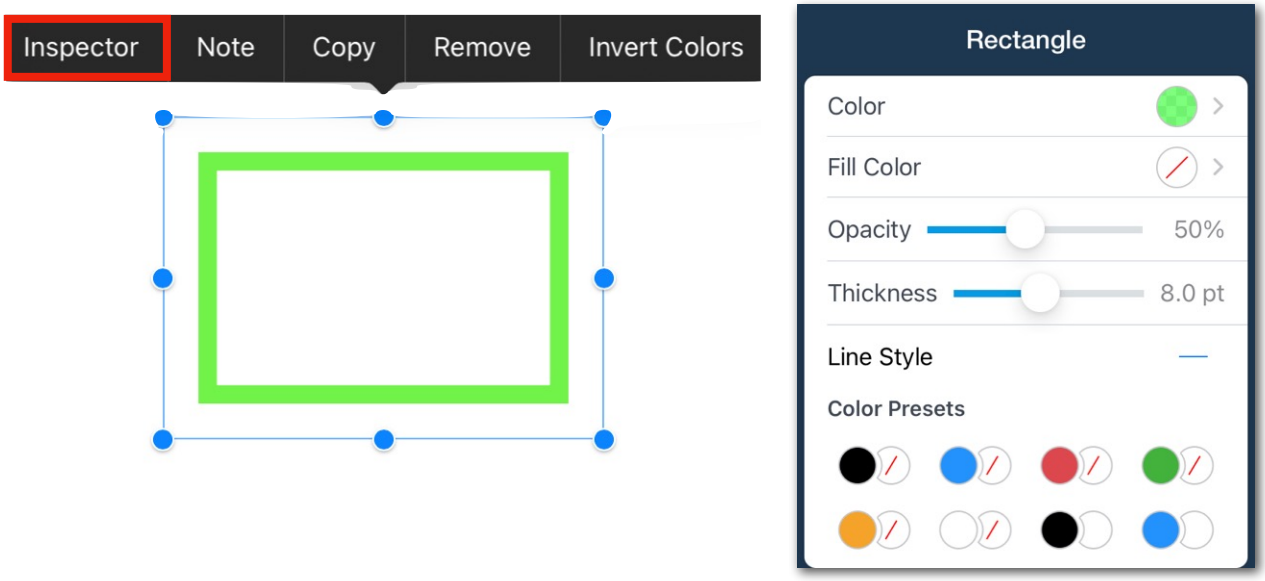
28.3.2 Rectangle

The Rectangle tool draws a rectangle shape around the selected information on a plate or document. To draw a rectangle, touch-hold using a finger, stylus, or Apple Pencil on one side of the information, then drag to surround the information. Lift to complete the drawing. Tapping the Annotation Settings on the top toolbar opens the Rectangle settings popup. The Rectangle Color, Fill Color, Opacity, and line Thickness can all be changed. When annotations are complete, tap the **Done** button to return to the original plate or document. The annotation will remain until deleted.



Rectangle Annotation

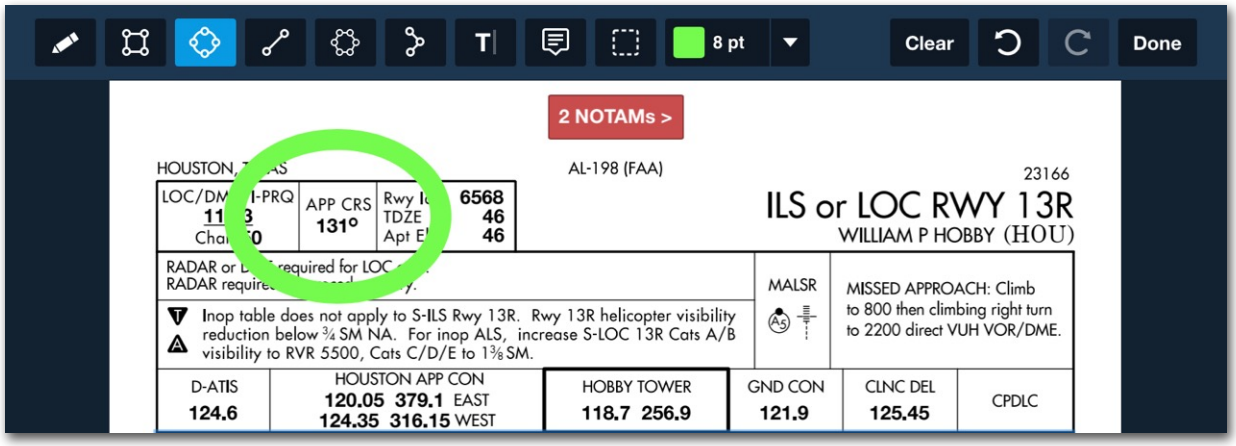
To edit a previously drawn rectangle, tap it. A lined box with blue dots will outline the shape of the annotation. The annotation can be resized by tap-holding on any of the blue dots and dragging it in the desired direction. Tap the **Inspector** button to open the Rectangle settings popup.



Rectangle Settings

28.3.3 Ellipse (Circle)

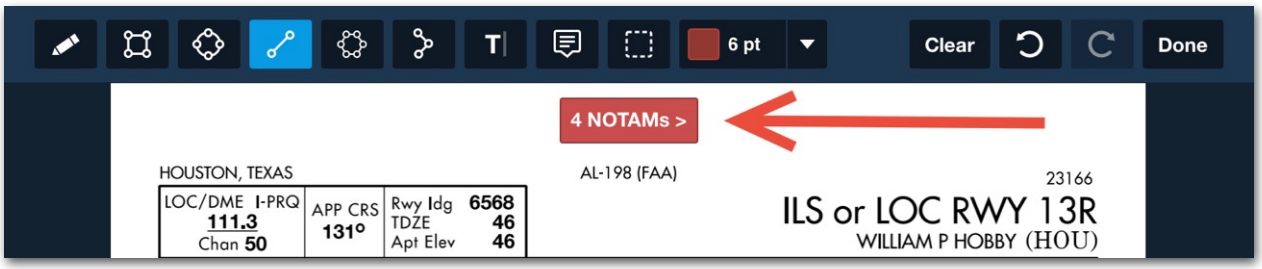
The Ellipse tool draws a circular shape around the selected information on a plate or document. To draw an ellipse, touch-hold using a finger, stylus, or Apple Pencil on one side of the information, then drag to surround the information. Lift to complete the drawing. Tapping the Annotations Settings on the top toolbar opens the Ellipse settings popup. The Ellipse Color, Fill Color, Opacity, and line Thickness can all be changed. When annotations are complete, tap the **Done** button to return to the original plate or document. The annotation will remain until deleted.



Ellipse Annotation

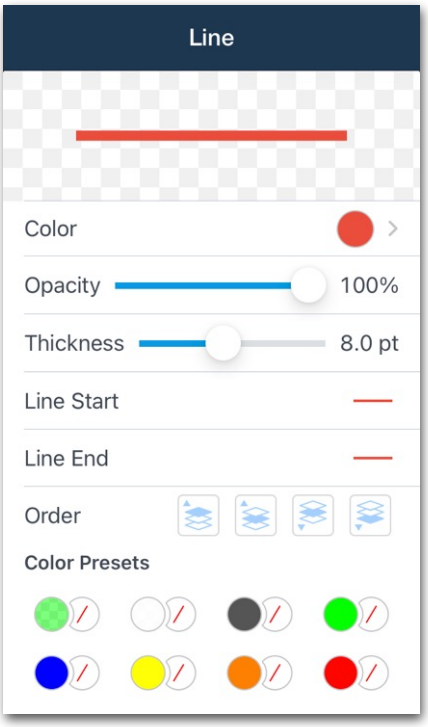
28.3.4 Line

The Line tool draws a straight line with start and end symbols, such as an arrow or circle, that can be used to point to selected information on a plate or document. To draw a line, touch-hold using a finger, stylus, or Apple Pencil on one side, then drag to another point to end the line. Lift to complete the drawing. When annotations are complete, tap the **Done** button to return to the original plate or document. The annotation will remain until deleted.

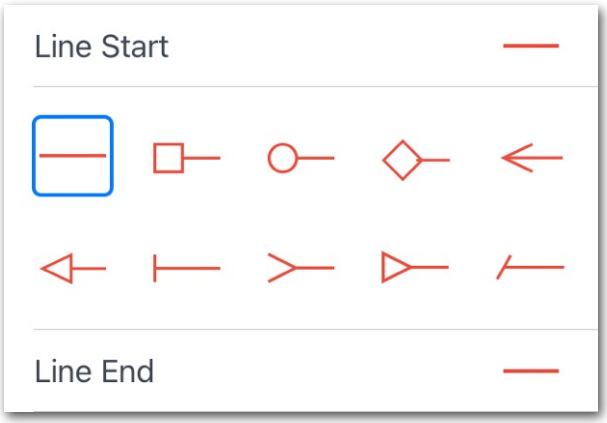


Line Annotation with an Arrow

Tapping the Annotations Settings on the top toolbar opens the Line Settings popup. The Line Color, Opacity, Thickness, Line Start, and Line End can all be changed. The settings must be selected before the line is drawn, or it will default to a straight line.



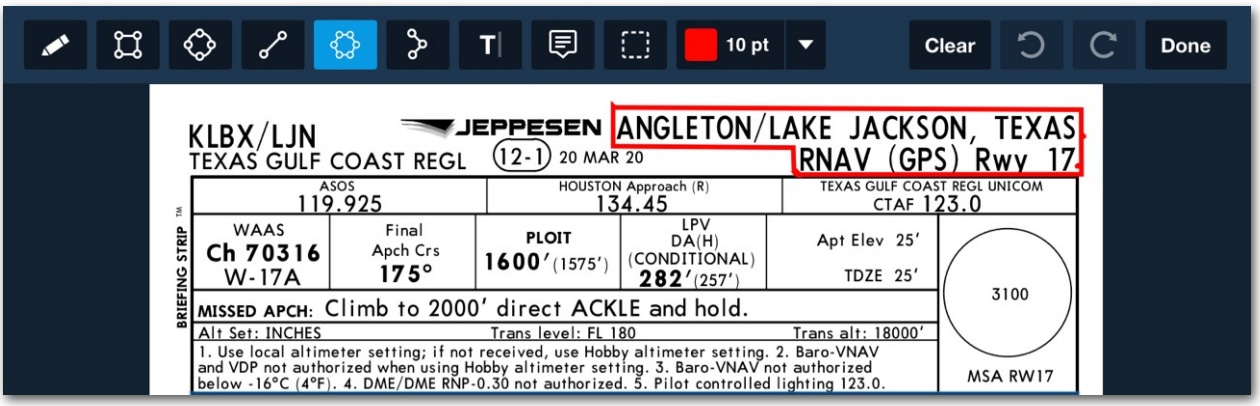
Line Settings



Line Start and End

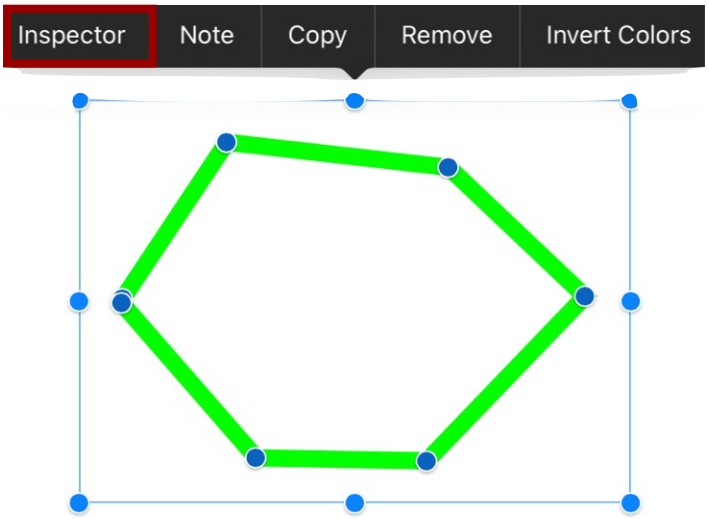
28.3.5 Polygon

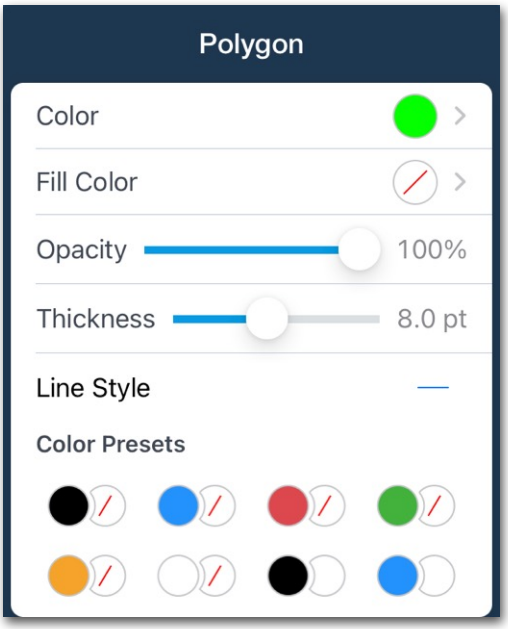
The Polygon tool draws a shape with straight lines from point to point with as many sides as are drawn. To draw a polygon, tap with a finger, stylus, or Apple Pencil to each desired vertice of the polygon. Each additional tap will extend a line segment from the previous corner to the new tap. Tap the **Done** button in the menu bar to add a final line segment automatically to close the polygon. The annotation will remain until deleted.



Polygon Annotation

To edit a previously drawn polygon, tap it. A lined box with blue dots will outline the shape of the polygon. The polygon can be resized by tap-holding on any of the blue dots and dragging it in the desired direction. Tap the **Inspector** button to open the Polygon Settings popup.

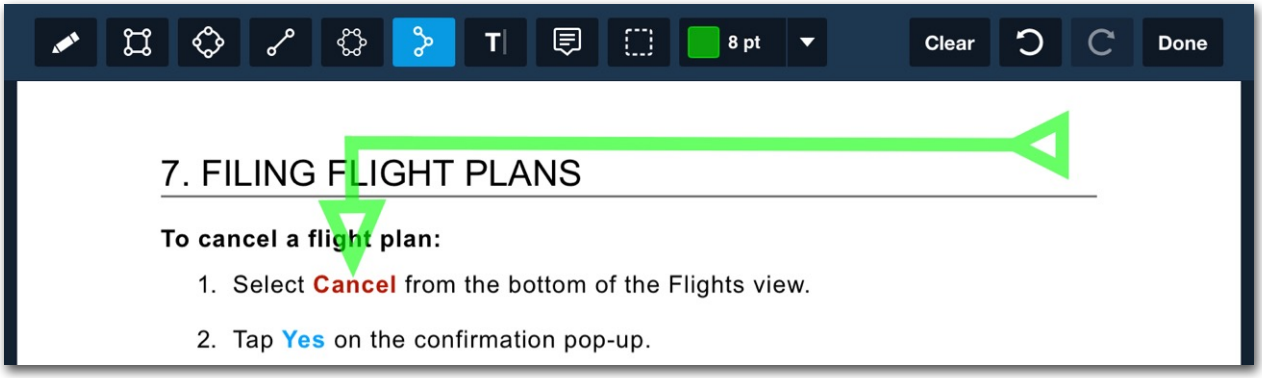




Polygon Settings

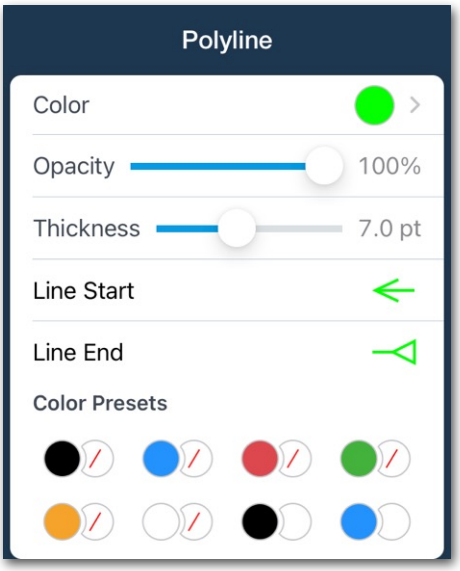
28.3.6 Polyline

The Polyline tool draws multiple continuous lines with a beginning and end point. To draw a polyline, tap a finger, stylus, or Apple Pencil at the beginning of the line and drag it to the first vertice and lift. Then, tap-hold where the line was stopped and drag to the new point. This can be done as many times as desired. When complete, tap the **Done** button in the menu bar. The annotation will remain until deleted.

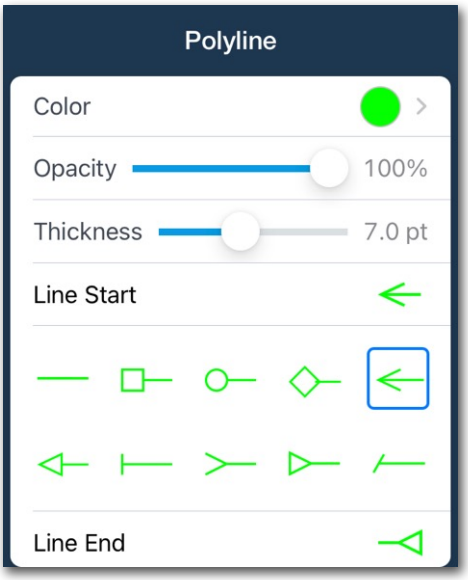


Polyline Annotation

The start and end-point types can be chosen (e.g., arrow, dot, diamond, etc...). To edit a previously drawn polyline, tap it, then choose the **Inspector** button.



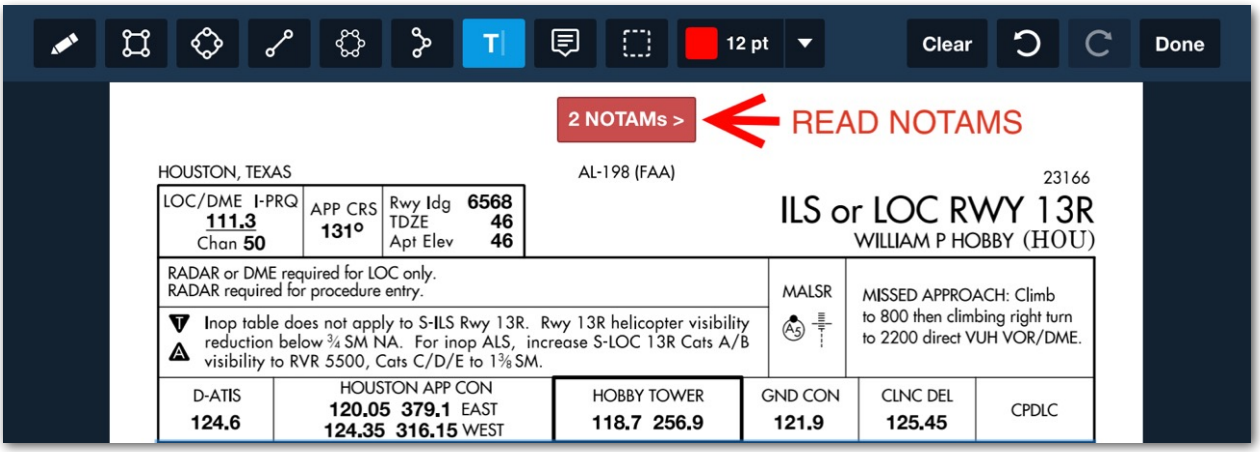
Polyline Settings



Polyline Start/End Settings

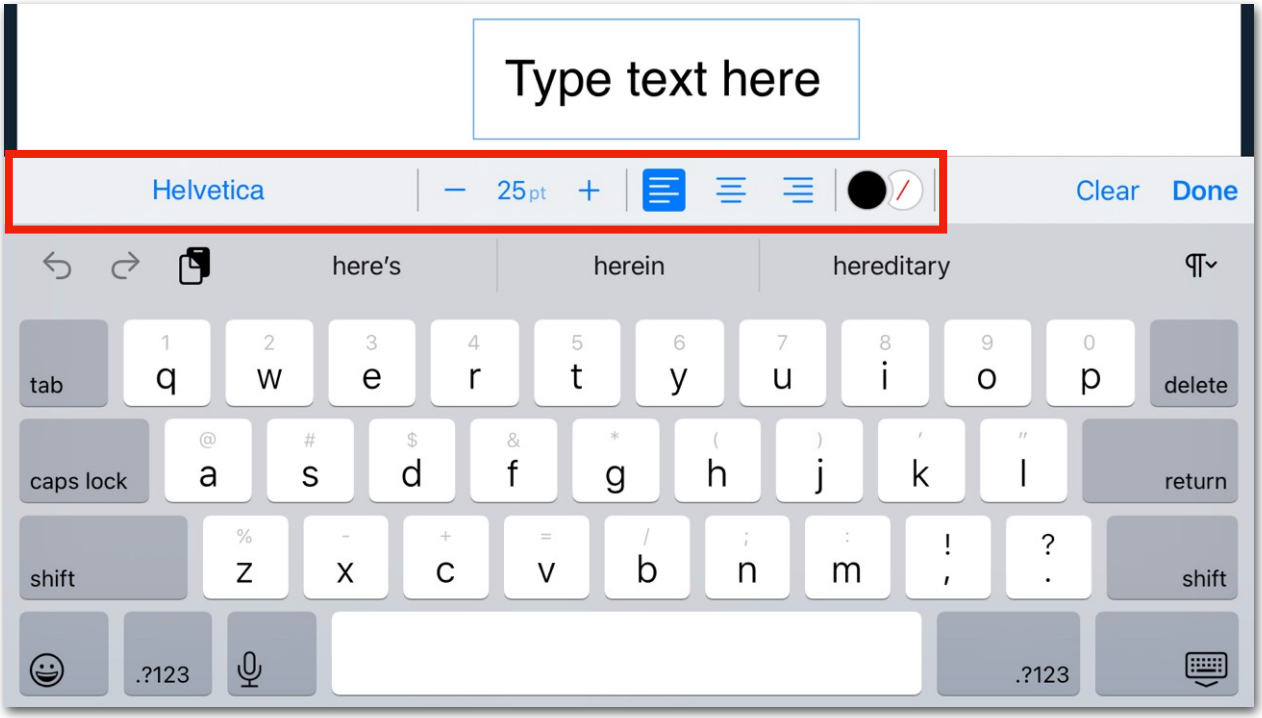
28.3.7 Text Box

The Text Box tool will add a text box anywhere on a plate or document. To create a text box, select the Text Box annotation button on the top of the Annotations toolbar, then tap the document where it will be placed. Type the information in the text box and press the **Done** button on the top toolbar to complete the annotation.



Text Box Annotation

When typing into a text box, several formatting options are available at the top of the on-screen keyboard.

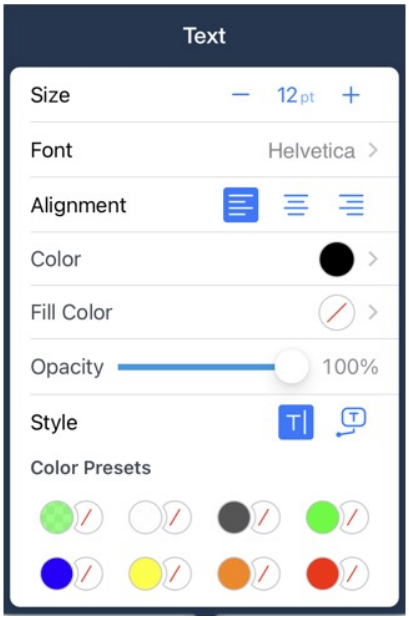


On-Keyboard Settings

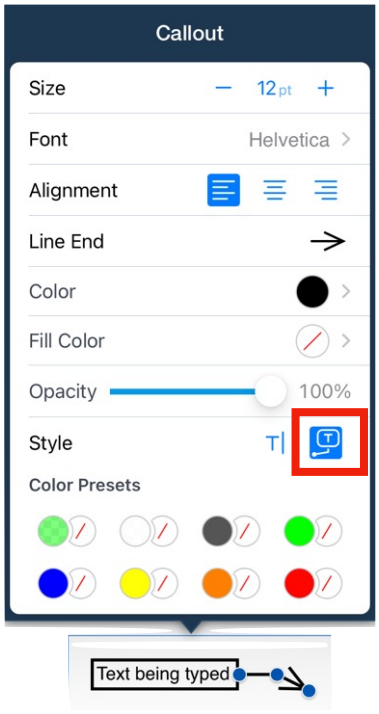
28. ANNOTATIONS

To edit a previously drawn text box, tap it, then choose the **Inspector** button, and tap the attribute to be changed. The Font (Font style in a sub-menu), Font Size, Alignment, Color, Fill Color, Opacity, and Style (Normal or Callout line) can all be edited by adjusting the Text Box settings.

If converting the Text Box to include a Callout line + arrow, tap the **Callout** button in the Style line to open the Callout popup. The callout line can be repositioned by touch-dragging on the blue corner point.



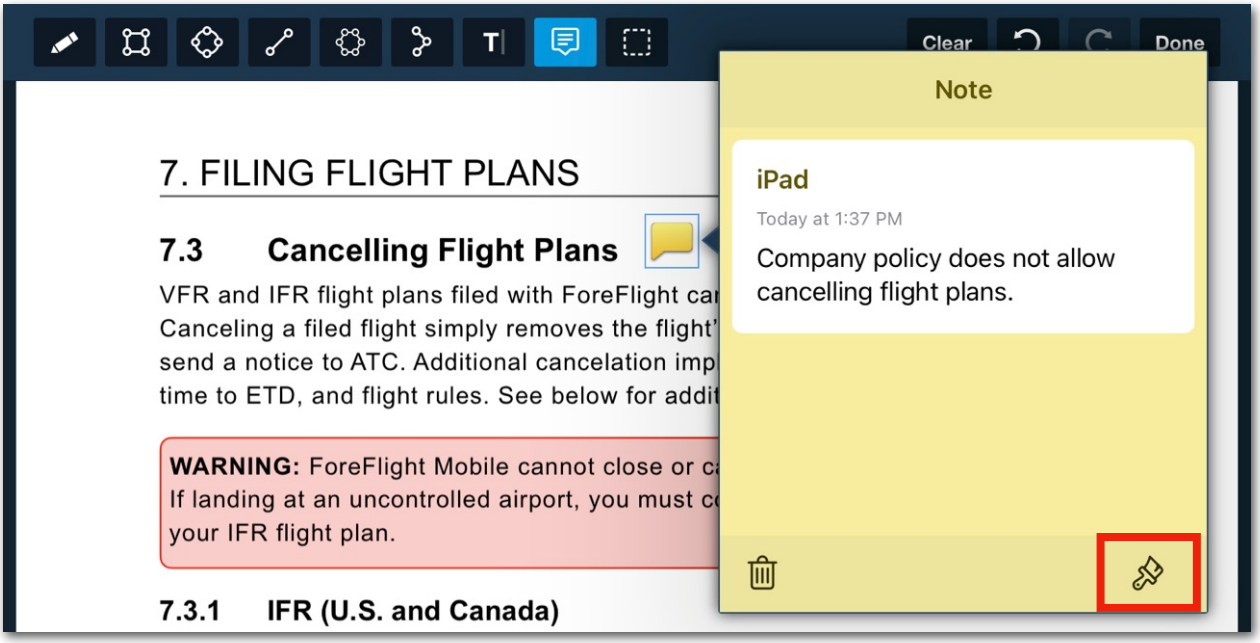
Text Box Settings



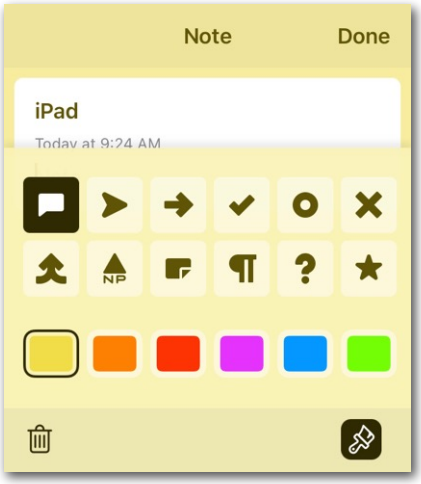
28.3.8 Note

The Note tool allows a user to add a text note that can be placed anywhere on the document or plate. A note icon will be visible to the user that can be tapped to open the full textual note.

To create a note, tap the **Note** button on the top Annotations toolbar. Tap the document where the note will be placed, and a note text box will open. Write the text, then tap anywhere outside of the note box to close the note.



Tapping the **Brush** button opens the note editor view. The note icon appearance and color can be changed by tapping on the desired annotation or color button.



28.3.9 Undo/Redo

While adding annotations to a Plate or Document, tap the Undo (left) arrow button to remove recent annotation elements. Tap the Redo (right) arrow button to restore recently removed annotations.

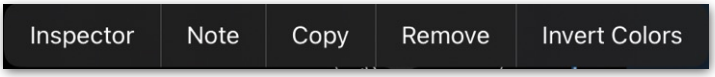


28.4 Selecting Multiple Annotations

Tap the Selection button  then touch-drag across multiple annotations to select several at once, then tap Group to group the items together, Copy to copy all items, or the Trash can to delete the selected annotations.

28.5 Copying and Pasting an Annotation

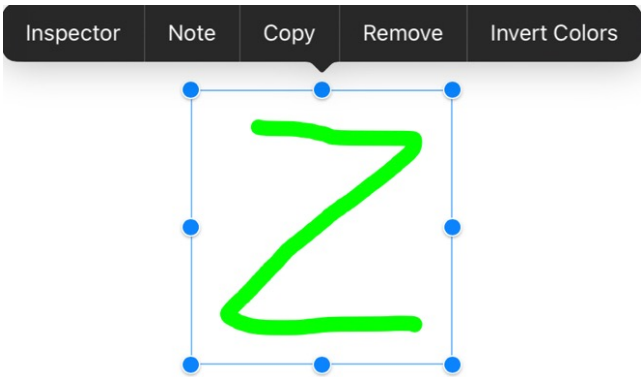
Tap a previously added annotation to select the annotation and display the edit popup menu, then tap the Copy button.



Paste the copied annotation in a different location or onto a different page (or document) by touch-holding on the Plate or Document until the magnifying glass appears. Lift, then tap the Paste button in the popup Annotation menu.

28.6 Deleting Annotations

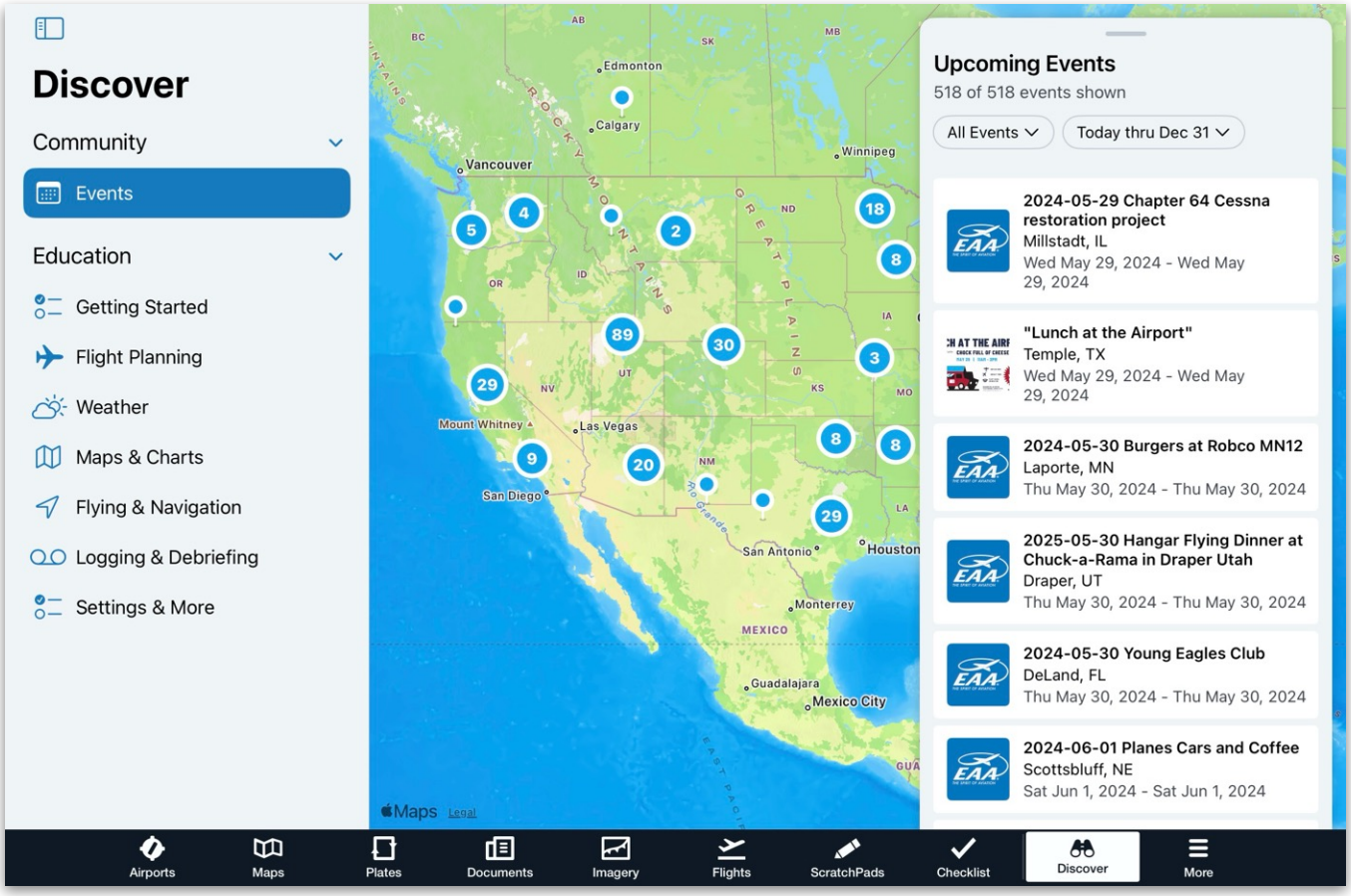
Tap the annotation to select it, then tap Remove in the edit view. To remove annotations from a page. tap the Annotation button  , then tap Remove.



DISCOVER

The Discover view displays upcoming aviation community events as well as an integrated video education library for getting the most out of ForeFlight Mobile.

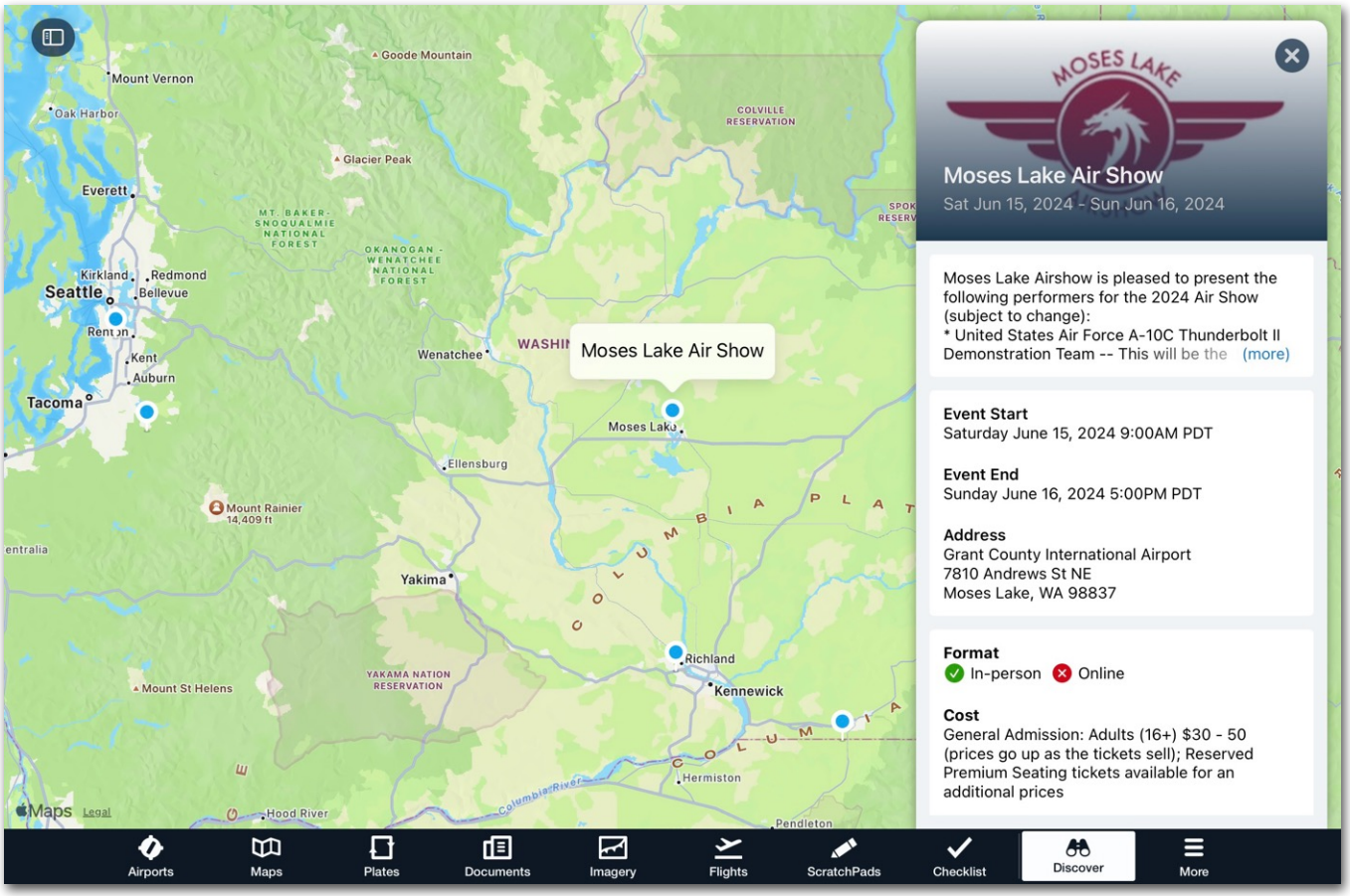
Access the Discover tab by selecting **More > Discover**.



Discover Tab

29.1 Event Map

Events are displayed on the map, represented by pins. For multiple events that occur near the same location within the selected date range, a blue marker with a number representing these events is shown. Tap on the marker to see all events occurring at that location and select an event to view its details.



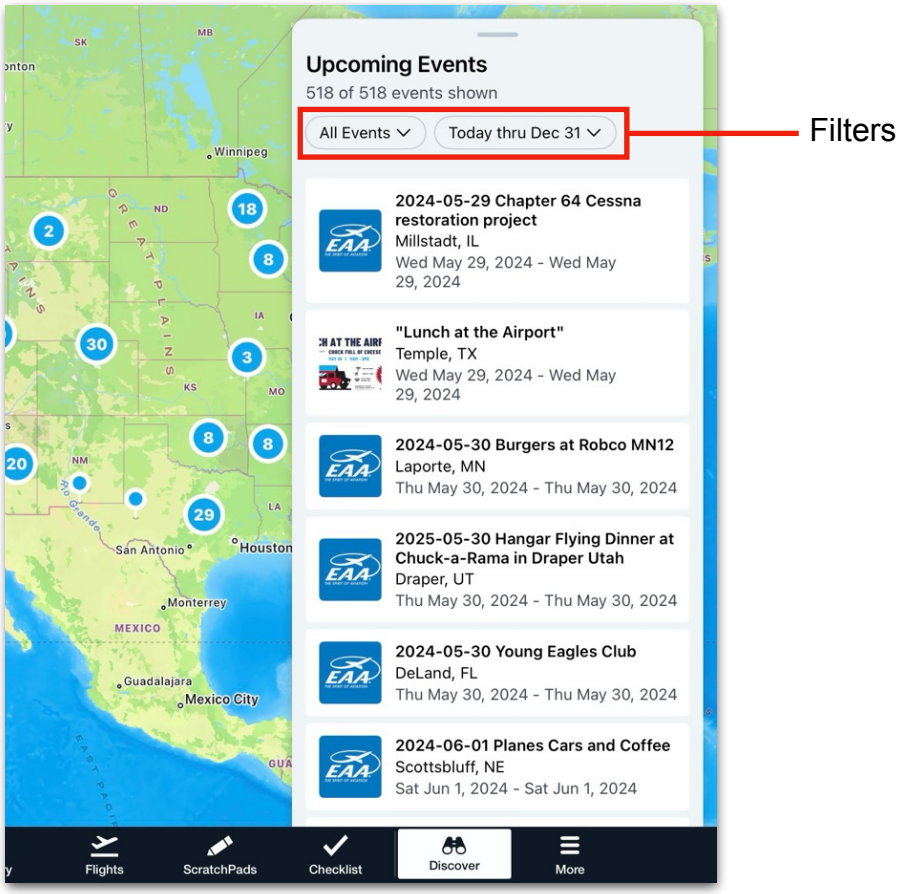
Event Map

29.1.1 Event Drawer

All events shown on the map are also shown in the Event Drawer, in a list format. Select an event from the list to see its details. The drawer is collapsible by swiping down from the top, and expandable by swiping up.

29.1.2 Filters

Events in the drawer may be filtered by date or category. Select the date or category filters at the top of the drawer to modify their values. When filtered, events will update in the drawer as well as the map.



Event Drawer

29.1.3 Event Details

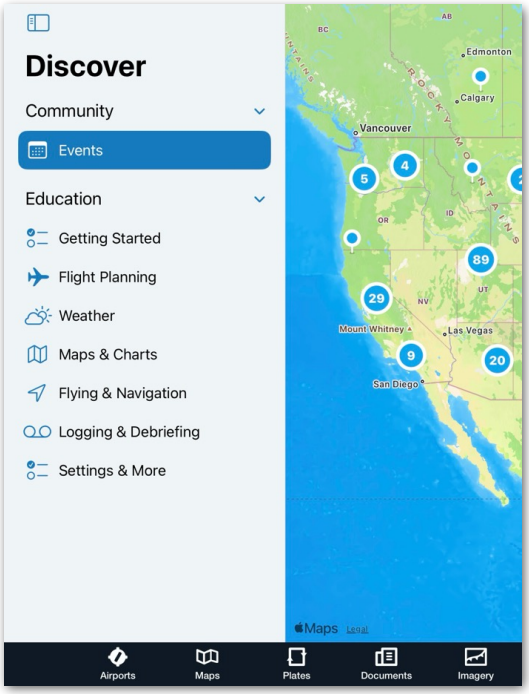
Tap on an event pin on the map or an event within the drawer to show a detail view with information about the event, including location, time (in event local timezone), a description of the event, format (in-person, online, or both), photos the event host has included, and contact information. Tap the ✕ in the top right corner to close the detail view.

29.2 Discover Sidebar

The Discover view contains a sidebar which may be expanded or collapsed.

Tap the sidebar button to expand the sidebar in any view. In the expanded state, the sidebar allows the selection of either Community Events or Education video categories.

Tap the sidebar button to collapse the sidebar. In the collapsed state, the selected content is viewable in full screen.



Discover Sidebar

29.2.1 Community

Worldwide, the aviation industry hosts tens of thousands of events dedicated to safety, training, sales, and more. The Discover tab can inform, inspire, and connect pilots to the real world of flying and encourage more flying to interesting places and events. Community, connection, and adventure encompass the future of Discover.

The Discover tab integrates aviation community event data (both in-person events and webinars) into ForeFlight Mobile, sourced directly from trusted third-party sources.

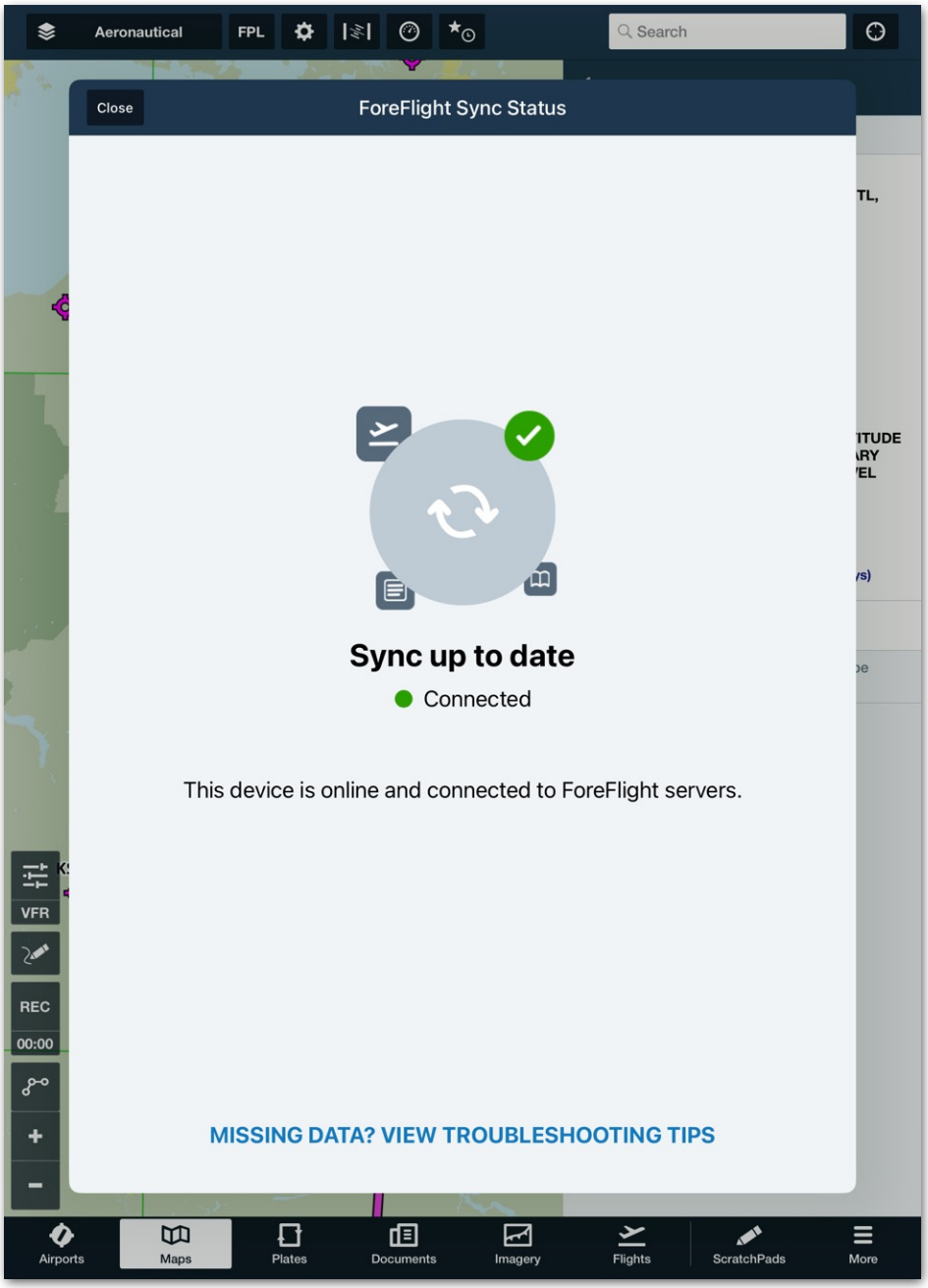
29.2.2 Education

ForeFlight's full video education library is integrated directly into Discover. Videos are organized into categories, which contain playlists. The Education section requires a network connection.

Select a category to see all available playlists. Tap into a playlist to view videos relevant to that topic. Select a video to play it directly within ForeFlight Mobile.

SYNC STATUS

Synchronization and connection status to ForeFlight servers can be checked by selecting **More** > **Sync Status**. Troubleshooting tips can be accessed by tapping **MISSING DATA? VIEW TROUBLESHOOTING TIPS** at the bottom of the Sync Status page.



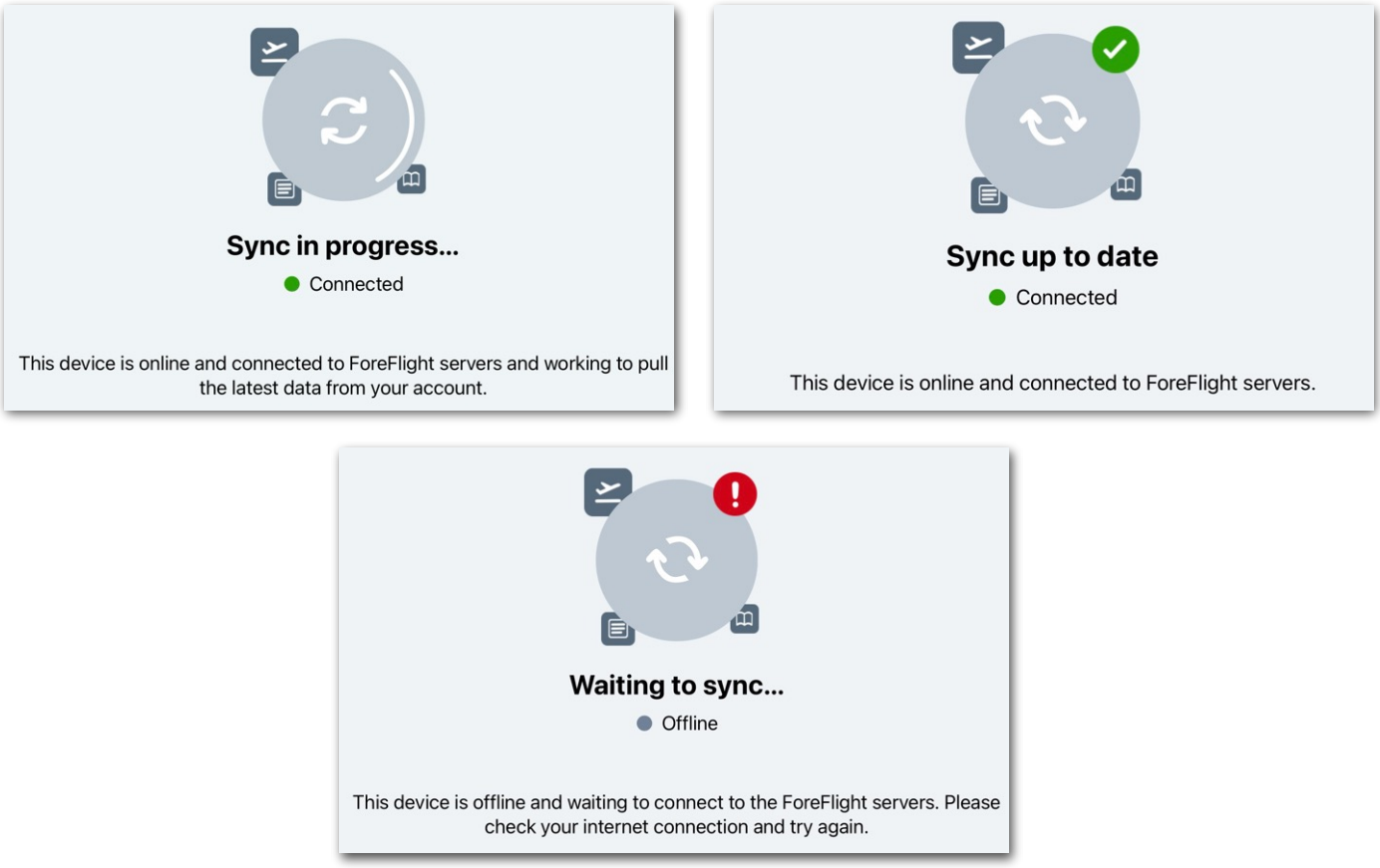
Sync Status

30.1 Sync Status State

When opened, the Sync Status page automatically displays the current state of data synchronization and internet connectivity.

ForeFlight Mobile may exhibit lag while **Sync in progress...** is displayed.

If **Waiting to sync...** is displayed, ForeFlight Mobile is not connected to the internet, and data synchronization will not occur.



Sync Status State

SUPPLEMENTAL GUIDES

Supplemental guides for various ForeFlight features are available in-app by selecting **Documents** > **ForeFlight**.

Checklist Guide

ForeFlight Checklist provides interactive checklists including Abnormal and Emergency checklists. The app includes checklist templates for various fixed-wing and select rotorcraft models, all derived from pilot operating handbooks.

For complete details, refer to the ForeFlight Checklist Guide available in-app by selecting **Documents** > **ForeFlight** or online at **foreflight.com/checklist-guide**.

Filing Guide

ForeFlight Mobile can be used to file most VFR, IFR, DVFR, and composite flight plans. For complete details, refer to the ForeFlight Filing Guide available in-app by selecting **Documents** > **ForeFlight** or online at **foreflight.com/filing-guide**.

Logbook Guide

Logbook is part of the ForeFlight Cloud and can track hours, currency, ratings, endorsements, medical certificates, and more across all devices. For complete details, see the ForeFlight Logbook Guide in **Documents** > **ForeFlight** or at **foreflight.com/logbook-guide**.

Search and Rescue

ForeFlight Mobile includes a Search and Rescue feature that allows pilots to plan search and rescue flights. For complete details, refer to the ForeFlight Filing Guide available in-app by selecting **Documents** > **ForeFlight** or online at foreflight.com/sar-guide.

Weight & Balance Guide

Weight & Balance is a dedicated view for determining if an aircraft is loaded within limits. In addition to the dedicated Weight & Balance view, Integrated Weight & Balance is available for all Performance subscribers beginning with ForeFlight Mobile version 14.2. Integrated Weight & Balance allows users to view Weight & Balance information on the Flights view.

Once a Weight & Balance profile is set up, a Loading Summary for each flight can be quickly created, and the profile and a PDF copy of the Loading Summary can be shared via email.

Weight & Balance profiles are automatically synced between devices when **Sync Data To/From Device** is enabled in **More** > **Settings**.

For full details, see the ForeFlight Weight & Balance Guide in **Documents** > **ForeFlight** or at **foreflight.com/wb-guide**.

CHANGE HISTORY

Version	Date	Change Summary
17.8	September 2025	• Added user waypoint customization in 23.2.2, 23.2.3, and 23.2.4. • Added new Breadcrumbs 5.7 and Ownship 5.8 sections to Settings chapter. • Added NOTAMs section to Dynamic Procedures sidebar 11.18.3. • Added Sync Status chapter 30. • Revised Airborne Traffic Alerts 26.8.1. • Added Prioritize Jeppesen Plates to 3.7.
17.7	August 2025	• Revised JetFuelX Section 27. • Added alternates to Flight Binders in 12.6 and 15.3.2. • Added Dynamic Procedures 11.18 and 11.19.8. • Added LSALT Calculator 6.4.14, 9.7, 11.9.3.1, and 11.17.8.1. • Added Debrief scoring toggle 24.10.3. • Corrected block fuel calculation inputs 18.2. • Revised FPL NavLog to match new format 11.7.8. • Added obstacle corridor regulatory agencies 16.2.1.4 and 16.3.2. • Revised NOTAM colors to match new format 11.5.17. • Revised Fuel Orders 15.4.2.
17.6	July 2025	• Revised subscription names.
17.5	June 2025	• Added caution statement to By-Altitude Profiles 8.2.2. • Added ForeFlight Debrief 24.10.3. • Added Unusual Attitude alert 26.4.9.

CHANGE HISTORY

Version	Date	Change Summary
17.3	April 2025	• Added ADS-B Winds Aloft 11.5.21. • Revised Grid MORA/LSALT and MSA descriptions 6.7.7. • Revised Cloud Drive location 23.11.11. • Revised HTML printing and sharing 24.4. • Added Airport Cameras 10.5.1.1 and 11.5.26. • Added Turbulence Max Age setting 6.4.14. • Revised Max Landing Weight Analysis 16.5.2. • Revised Automatic Content Pack Download 23.11.11. • Revised Printing and Sharing 21.4.
17.1	January 2025	• Clarified Grid MORA altitude 6.7.7.
16.11	December 2024	• Revised Purchasing Jeppesen Coverage section 3.1. • Revised Alternate Advisor Performance Calculations section 15.8.4. • Revised Supported Fuel Vendors sections 27.1 and 27.2.1.
16.10	October 2024	• Update Runway tab section 10.5.3. • Added Declared Distances (Runway) 10.5.3.3.
16.9	September 2024	• Added Helicopter Airways to VFR and LOW IFR map settings 6.7.5.3. • Added Ownership Status, 8.2.1. • Added Grid MORA instrument 11.21.1. • Added 16.3.6.1 Highest MTOW EOP. • Added 16.3.6.2. Runway Details.



ForeFlight

A Boeing Company

ForeFlight, LLC
2323 S Shepherd Dr, Houston, TX 77019
foreflight.com