Pilot's Guide

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Terminology

- **iFly EFB™** refers to the navigation software that can be installed on your Android, iOS, or Windows tablets.

- **iFly GPS™** refers to the following Adventure Pilot's portable hardware devices: iFly 700, 720, 520, 740, and 740b. Except where otherwise noted in this manual. The term "iFly EFB" can also apply to the navigation app running on the iFly GPS Portable device.

Some features, as noted in this manual, are only to iFly EFB or to an iFly GPS portable.

The term iFly EFB and iFly GPS are trademarks of Adventure Pilot, LLC.

Features

Interface

- Extensive zoom levels from .1 to 100 NM per inch (.3 for Vector Mode)
- Touch-n-drag scrolling, works even in turbulence
- Single touch zoom in/out, center, and auto track
- Split-Screen Synthetic Vision
- Seamless VFR and IFR charts
- Night Mode darkens and inverts colors at night
- Customizable Instruments Panel
- Portrait or Landscape views
- Compatible with attitude heading reference system (AHRS) devices, such as Stratux, Levil, or Stratus

Charts

- Includes all sectionals, IFR low and high enroute charts, approach and departure plates, airport diagrams
- Explore charts with touch-sensitive panning and zooming
- Reference actual FAA airport taxi diagrams
- Includes alpha-numerics for cutoffs and parallels
- History button toggles between charts, previously viewed airport details and plates
- Quick menu access to elements of chart and map "Border" and "Legend" data
- Georeferenced Plates
- Approach plates and airport diagrams can be overlayed onto the moving map
- Ability to cycle through multiple charts to see visual affect on route of flight

Flight Planning

- Direct-to flight planning (including rubber band editing on-the-go)
- Easily create multi-leg flight plans directly from the sectional/enroute chart or flight planner
- Vertical speed to target for custom waypoints with specific altitudes (a 3-D flight plan)
- Seamlessly share flight plans across any device running iFly on the same local network
- RealPlan: AI-assisted VFR Flight planning
- Save/load/reverse primary and secondary flight plans
- Easy online handling of IFR/VFR flight plans through Leidos (1800WXBRIEF.com)
- Flight plan is automatically saved and restored between power cycles
- Search for airports by identifier, airport name, or city name
- Easy loading of IFR departure procedures, arrivals, and approaches
- Single string waypoint entry (e.g. KDFW KTKI KSTL KOSH)

Spatial Awareness

- Track your current position with pre-loaded FAA published sectionals, charts, plates and more
- Critical and important airspaces, such as TFRs, MOAs, and restricted airspace, are highlighted and shaded
- Synthetic Vision with full AHRS support (requires supported ADS-B device with AHRS capability)

- Configurable instruments such as GPS, altitude, cross-track, etc.
- Find Airport button shows a list of the nearest airports with immediate navigational aids such as distance, turn, and ETE
- Distance rings around your current position
- Glide rings indicating glide range
- FAA published TFRs on all sectionals and charts
- Vertical guidance to a target airport's pattern altitude using Vertical Speed to Target (VST) instruments
- Live weather data available through ADS-B via third party devices; live updates of NexRad, METARs, TAFs, Winds Aloft, and PIREPs
- ADS-B Traffic Data Displayed
- Nexrad, METARs and Approach Plates overlaid on Charts
- Airport Diagrams overlaid on RealView™ Images
- Pre-flight weather downloads for METAR, TAFs, and Winds Aloft
- Terrain/obstruction highlights in relative view and profile view
- Active alert messaging for terrain, airspace, and collision
- Vertical Flight Planning – plan or view the flight plan from a defined altitude. Allows view of airspaces around planned route, displays obstruction information, and visualized cloud ceilings.
- NMEA Output Support

Airport Information

- Geographical data and obstructions
- Public and private airports
- Attendance schedule
- Communication information
- Full runway information, including a thumbnail with quick reference numbers
- Preferred runway displayed with current wind components
- METAR Data
- Traffic patterns with pattern altitude (if published)
- Geo-referenced FAA Airport Diagrams for over 900 airports
- Geo-referenced Approach/Departure/STAR
- Additional FAA remarks
- NOTAMS
- Fuel Prices

Compatible Devices

- Dynon
- TruTrak
- NMEA protocol
- Levil
- SkyGuardTWX
- uAvionix
- SkyRadar
- FreeFlight
- Avidyne
- Stratus 3
- Stratux
- Any other ADS-B receivers supporting the GDL90 standard

Note: Not all features or compatible devices available on all platforms

⚠ Warnings

- Carefully review this guide and make sure you thoroughly understand iFly EFB's functionality and operation before attempting to use during actual flight.

- Do not install Portable Device, Tablet, or Phone where it obstructs the pilot's field of view or interferes with operating controls.

- The flight indicators shown on the iFly EFB app are based on GPS-derived data and may differ from the aircraft's instruments.

- The altitude shown on the iFly EFB app may differ from the altitude displayed by pressure altimeters. Always use the pressure altitude displayed by your aircraft's altimeter for determining aircraft altitude.

- This app is intended to supplement other navigation data sources and should be considered only as an aid to enhance situational awareness. This app is not intended for use as a primary reference for navigation or obstacle/terrain avoidance. It is the pilot's sole responsibility to be aware of aircraft and surrounding conditions. Aircraft position, ground elevation, bearing, speed and all other elements of flight that may be displayed on this unit should be verified by the pilot using redundant external sources.

- Data utilized by the iFly EFB app comes from government and other 3rd party sources. It is provided without express or implied warranty as to accuracy, completeness, reliability or suitability. Adventure Pilot, LLC shall not be liable for any errors, inaccuracies, omissions, or other defects in the software or data contained on this device.

- TFR and other airspace data may change. Contact FSS prior to each flight for the latest information.

- ADS-B/NEXRAD data should be used for long-range planning only. Weather information on this device, regardless of the source, is not appropriate for use in short-range weather avoidance.

- The terrain awareness features in this device are aids for terrain avoidance, but should not be used as a primary reference for terrain avoidance. This device is not certified for use in situations requiring a certified terrain awareness system. Terrain data is from third party sources and may contain inaccuracies.

- Interference from GPS repeaters operating inside nearby hangars can cause an intermittent loss of altitude and heading displays while the aircraft is on the ground.

- Do not use outdated data. Aviation databases, charts, and plates must be updated regularly to ensure that the information is accurate. Pilots using outdated data do so at their own risk.

- Traffic information is provided to aid in situational awareness. It is the pilot's responsibility to see and avoid. Be aware that it is quite possible for there to be additional air traffic that is not being displayed by iFly EFB.

- Do not use the Instruments Panel as a replacement to aircraft gauges. The Instruments Panel is for situational references only, not primary navigation

Installing the App

iFly Hardware

All iFly GPS Hardware comes with the application pre-installed and ready to use. No installation is required.

Android OS

Go to the Play Store, search for 'iFly EFB', click the Install button (may be an icon, or "Get", based on Android OS version)

Apple iOS
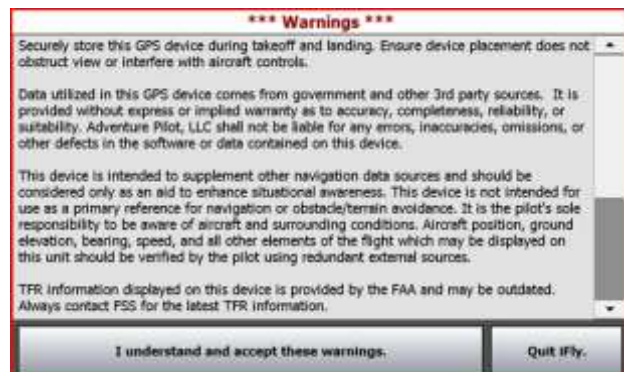
Go to App Store, search for 'iFly EFB', click 'Get', then 'Install'

Windows

The iFly EFB Windows Installer may be downloaded here: https://www.iFlyEFB.com/Windows.

Starting the App

- **For iFly GPS Units** to launch the app, touch the "Navigation" icon (iFly 700/720/520) or "*iFly GPS*" (iFly 740/740b).
- **On phones/tablets (iPhone, Android, etc.),** touch the *iFly EFB* icon after downloading the app from the App or Play Store. **On Windows**, double click the *iFly EFB* icon on your Desktop.
  - o **First Time Running the App:** you will be prompted to download the required data. Swipe your finger across the areas of the country you would like to download, then tap "Begin Download". For large amounts of data, the download could take 15 to 60 minutes, depending on your bandwidth. A WiFi connection is recommended for this step.

  - o The iFly EFB app should remain open and the device running while downloading data
- The iFly logo is displayed during initialization while the iFly EFB app collects satellite data and establishes its present location.
- After initialization, a dialog box appears containing safety warnings, and if applicable, TFR and sectional expiration notices.
- Touch "I have read and understand these warnings" to continue.
- A map will be shown with an icon representing your aircraft shown in the center of the screen.

iFly EFB Start-up Warnings and Confirmation Form

Updating your iFly EFB Application

The iFly EFB software, databases and charts can be updated through the iFly EFB website if you have a valid update subscription.

Account Setup & Subscription

First, log in to the website at www.iFlyEFB.com. If you do not have a login name, create one by clicking the "Register" button at the top of the screen. If you have a Subscription Code, you may enter the code on the website by touching **Support -> Activate Subscription**. (Subscription Codes are sometimes included with hardware purchases, or can be purchased at trade shows, or through 3rd party Subscription dealers).

Most customers will not have a subscription code, and so will need to purchase an online subscription. This can be done on the iFly EFB website by touching **Store -> New/Renew Subscription** and follow the instructions to purchase your subscription.

Once your account is created, and a subscription applied or purchased, you may perform a data update.

Update your iFly EFB App on an Apple, Android, or Windows Device

1. Open the *iFly EFB* app on your device.
2. If your device has not been connected to your account, you will need to login. Within the app touch **Menu -> About -> My Account**, then touch the **Login** button, and enter your Email & Password
3. To begin the update, touch **Menu -> Check for Updates**.
4. To complete the update, make sure the states you want data downloaded for are selected by tapping on them. You can select the Advanced Options Button to select which types of data you want to download. Once all wanted data types and states are selected, tap on Begin Download.
5. The minimum critical databases required for the app to run will be downloaded first, then a prompt will appear allowing the user to "Show Map" or "Watch Download". If "Show Map" is selected the update form will close and the app will show the navigation map. Data will continue to download in the background. If necessary, and if the device has Internet access, plates, airport diagrams, and maps will be   streamed from the Internet while the files are being downloaded.
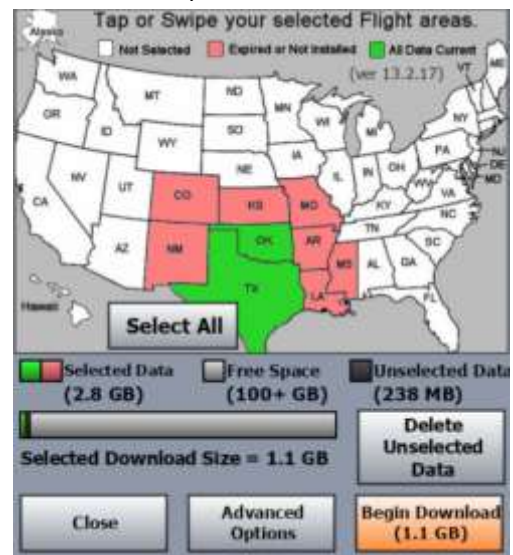
*Be sure and let the entire data set download prior to flying with your device

*The Delete Unselected Data button will remove any data that is not selected on the Check for Updates Page. This can be useful in order to clear storage space on your device from unused chart data.

*States highlighted in red are Charts that are not installed or expired. States highlighted green have charts installed that have current data. States that are white are not selected. States that are highlighted in yellow indicate your current charts are up to date and that the next chart cycle has also been installed on the device. When the state is yellow iFly will automatically use the new chart cycle once it becomes active.

Update using a wireless Internet connection (iFly 720/740/740b only)

Note: For detailed instructions, read the model-specific Extra Features Manual available in the support section of www.iFlyEFB.com.

1. From the System Main Menu, select Settings/Setup->Network(icon)->Select your wireless network->type in your network key(password), touch Save, and then Connect.
2. Once connected, touch Update from the System Main Menu. Follow the on-screen instructions.

Update an iFly device using iFly Connect (iFly 720/740/740b only)

Note:
1. With your iFly GPS powered off, eject the SD card. (This is the postage-sized memory chip on the left side of the iFly. To eject the SD card, gently push it in and release, it will pop out like toast from a toaster.)
2. Insert the SD card into your PC. If your PC does not have an SD card reader, you can buy one from your local retailer.
3. Open Google Chrome or Internet Explorer and go to https://www.iflyefb.com/iFlyConnect
4. Follow the instructions on the website to install the application and complete the update.

Update an iFly device using a USB Flash Drive (iFly 720/740/740b only)

1. Insert a USB Flash Drive into your computer.
2. Go to www.iFlyEFB.com and login with your email/password.
3. Navigate to www.iFlyEFB.com/UPDATES/CreateUpdatePackage.
4. Touch "Updates" -> "Create Update Package" on the website.
5. Follow instructions on the website to complete the update.

Data Cycles

The FAA data cycle is 28 days. Adventure Pilot will publish the next data cycle approximately one week prior to the activation date. Data downloaded during this period on a tablet or phone will stay downloaded in the background of the device as this will activate during the next cycle. On the update page this can be seen by the yellow highlighted states, which means they have the next cycle of data downloaded. Once the activation date is reached, a restart of the app is required to ensure the new data is switched from the background to what is displayed.

iFly GPS portable devices do not have the automatic preview & switch-over of data, the most recently published data will always be downloaded to the SD card. To maintain data cycle continuity for iFly portable devices a 2nd SD card may be used, and alternated as needed so the card with the currently live data is in the device.

Main Display

(Note: Not all menu items may be displayed in the same place based on your device's size and orientation. If a button seems to be missing, try tapping the Menu button)

a. **Ground Speed**- Toggle between Miles, Kilometers and Nautical Miles. (Touch Menu -> Setup -> Units of Measure.)

b. **Alt (MSL)** - Altitude in feet above sea level calculated by GPS. Warning: Always use your aircraft's pressure altimeter to determine your exact altitude.

c. **GPS Status**- Shows current GPS connection status

d. **Switch Maps**- This icon is visible if two or more map viewing options are available for the current zoom level. Toggle between available maps easily by clicking on this icon.

e. **Center View**- After exploring the map by panning and zooming around, simply hit the Center View button to bring your aircraft and location back to the map center.

f. **Menu**- Opens the Main Menu.

g. **Map Mode**- Opens the map configuration page

h. **NRST**- Shows a list of nearby airports, VORS, Fixes, Intersections and Custom Waypoints.

i. **Flight Plan**- Shows the flight planning form.

j. **Location Icon**- Indicates your current location on the sectional with a customizable aircraft icon.

k. **Vertical Profile**- A moving profile view of your current position relative to terrain, obstructions and airspaces ahead. Touch for a full-page profile view with zoom options.

l. **Tools** – Access additional tools such as Weight & Balance.

m. **History**- Jump between previously viewed approaches and screens.

n. **Inst Group**- Allows you to select or customize the instruments displayed on the screen.

o. **Track Up/ North Up**-Toggles the map display between North-Up and Track-Up. In North-Up mode, the chart is always oriented so that North is up. In Track-Up mode, the chart is oriented so that the plane is located at the bottom/center of the map facing straight up and the map will rotate as the airplane turns.

p. **Zoom In/ Zoom Out**- Zoom In to read map details. Zoom out to view surrounding areas and airspaces.

q. **Navigation Instruments**- Available when a flight plan is active. Customize Navigation Instruments by touching Inst Group on the map page. (Instruments may be customized, see page 46 for more information)

r.   **Course Tape/ Compass Ribbon**- The triangle indicates your current course. The ball indicates the most direct bearing to your next waypoint. To follow the most direct route to your next waypoint, keep the ball centered under the triangle. This instrument, and all others, can be added, modified, or removed.

Using the Touch-Screen

Panning the Map

Swipe your finger across the map to move (or "pan") the view to another area. Panning temporarily hides all the instruments and buttons on the map. This can be useful if you need to see text or an image that is behind something else on the map. For example, the Altitude instrument may be covering an airport frequency.

Activating Buttons

Activate buttons by touching them. In order to maximize the amount of screen available for displaying the map, the control buttons will fade to be almost invisible after about 30 seconds. However, the buttons are still active in this mode. Touching a faded button works the same as touching a non-faded button.

Note: You can change button fade settings by touching **Menu -> Setup -> Screen/Audio Settings -> Button Fading**.

Seamless Sectionals

Sectionals are crisp, high-resolution charts with movable seams and fast access to legends. Charts automatically switch by panning or zooming.

When viewing VFR or IFR charts a Switch Maps button will be visible near the lower/left side of the screen.

The Switch Maps button has 3 functions:

- When using iFly EFB the system will automatically select the appropriate map for the currently selected mode (VFR or IFR), based on the map location and zoom level. For example, in VFR mode if you zoom into a class B airspace, the system will automatically transition from viewing a Sectional to viewing a TAC chart. Users may dynamically force the system to display a different chart type using the **Switch Maps** button.

- As the Seamless Maps are joined together programmatically, there is a small area where the joined maps overlap. The best map will automatically be selected to show "on top" of the other. However if you touch **Switch Maps > Toggle Sectional Seam** this will cause the other map to be moved "on top."

- If legends are avaialbe on the map currently being viewed, the **Switch Maps** button will include a "Browse Map Legends" option. Select a legend from this menu to view an image of the legend taken from the original Sectional, TAC, Enroute, or other raster chart.

Portrait / Landscape Mode

iFly GPS Devices: Toggle orientation between landscape and portrait mode. To change modes, touch **Menu > Setup -> Screen/Audio Settings -> Screen Orientation**. Choose the desired orientation and your iFly GPS will reboot into the new mode.

Android / iOS Devices:

Turn the tablet to the desired orientation, portrait or landscape, prior to starting the iFly EFB app. If you rotate the device once iFly EFB is open, it will ask if you'd like to change the orientation. Touching "Yes" will close iFly EFB so you can restart it in the correct orientation.

Note: Instrument groups are unique to orientation mode and must be set for each mode. The Primary Button bar is also modified in compact/portrait mode, some of the actions such as **Tools** and **History** will be available by tapping the **Menu** button.

NOTE: This screenshot is shown in Simulation Mode

Quick View Popup™

Touching any point on the map will activate the Quick View Popup menu. This pop-up displays important information and actionable options relative to the point on the map that was touched. A collection of tabs along the right side of this pop-up controls the category of data & actions that is being presented. Tapping "Close" or tapping anywhere else on the map will close the popup. The Quick View Popup will maintain the last opened tab if you click on another point on the map after closing.

APT- Airport Information

Data includes: Airport code, name, elevation, Runway Advisor, frequencies.

Clicking on TWR or ATIS or other frequency labels will take you to details related to communications, runways and airport remarks.

Available Actions Include:
Rwy - Runway Advisor gives you a recommended runway. Tap the button to see calculated headwind and crosswind component. (Requires an internet connection or ADS-B In)
Flight Planning- Fly Direct to here or Add/Insert/Remove Waypoint.
View Plates- Choose from a list of available Approaches, Departures, STARs, or Minimums or Airport Diagrams
Airport Info- Touch to view full screen detailed information on the selected airport. (See page 24)
More Options - Additional options such as Search Nearby, Extend Runways*, Zoom to Airport RealView, or Add Custom Waypoint

*Extend Runways provides an approach feather on the map to help provide guidance to the proper runway.

Runway Advisor

Tapping the **Rwy** button opens the detailed Runway Advisor window, giving you a North-up line diagram of the airport with a wind barb in the upper right corner. The top box gives you identifier, name, pattern info (if known) and the winds. Then, a list of runways with their construction details and calculated winds follows.

Green is used to indicate which runway is recommended. Arrows to the right of the runway image indicates the calculated crosswind, headwind/tailwind components. A current METAR from ADS-B or the internet is necessary to calculate the winds.
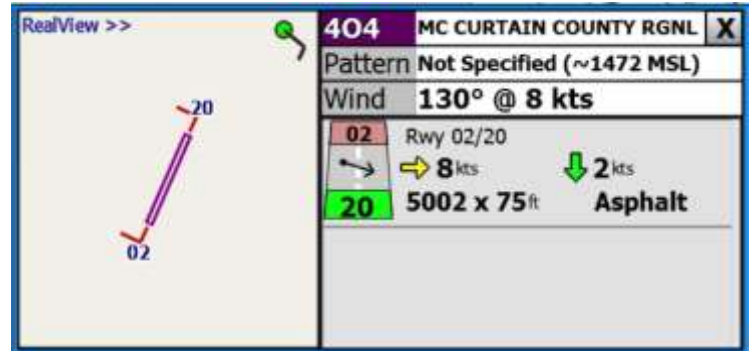
WX- Weather Information

Displays a summary of the METAR at the touched area, or the closest nearby METAR. If weather data is old or expired, TAF (forecast) may be shown, or no information.

Note that the WX Quick View popup is labeled and color coded to correspond to the current weather conditions. (Green=VFR, Blue=MVFR, Red=IFR, Magenta=LIFR)

Touch "More Info…" for METAR, TAF, Winds and PIREPs of surrounding area.

Touch "Animate Nexrad" to begin an animated loop of Nexrad Radar on the map.
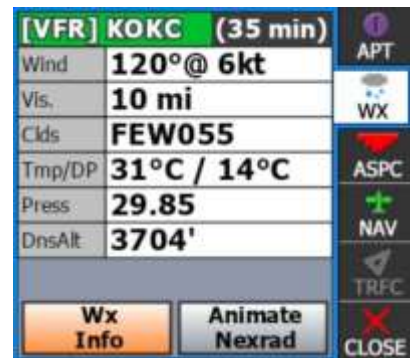
ASPC- Airspace Information

Check the surrounding airspace for TFRs, SUAs and other information.

To view the full text of the airspace tap the "More Info" button.

If multiple airspaces overlap the "Next>>" button will be enabled, and tapping this button will toggle through the overlapping airspaces.

NAV- Navigation Information

Shows Latitude, Longitude, Elevation, Distance and Bearing.

The closest Navaid (e.g. VOR, NDB, etc.) is shown. Tap the Navaid name to pinpoint it on the map, and then touch Flight Planning to insert the Navaid into the flight plan.

Flight Planning: Allows the current point or nearby navaid to be added or inserted into the flight plan.

Add Custom Waypoint: See Custom Waypoints page 39

Search Nearby: Select this button to locate other fixes, navaids, and airports that are nearby the selected position.

More Options: Add Marker, Browse Map Legends, and if an obstruction is near the touched point on the map, an Obstruction Information option will be added to the menu.

TRFC – Traffic Information

With ADS-B In capabilities the moving map will display traffic. Selecting an aircraft on the moving map will bring up the Quick View Popup for traffic. This will display the distance, relative position and altitude of the selected aircraft in the banner that is color coded to correspond to the threat level the aircraft poses: Green=Distant, Yellow=Caution, Red=Danger. Additional information provided is Callsign, Course, Speed, Vertical speed and age of the data. A line is drawn on the moving map from your aircraft to the selected aircraft to aid in tracking it.

Selecting **Track Aircraft** will inhibit any further alerting of the selected aircraft. It is assumed you have visual confirmation of the traffic. Other nearby traffic can be viewed by selecting the **Next >>** button.

See Traffic Alerts on page 44 for more information.

Primary Buttons and Menus

The following section will describe the action tool bar buttons.

Main Menu

Touch **Menu** on the bottom left-hand corner of the map display.

The Main Menu includes the following functions:

- **Register / Login** (App Only). Will display if an account is not logged in to an account with a valid subscription. Touch this button to setup a new account account, or login to an existing iFly EFB account.

- **Fly Direct To** - Quickly set a route by entering the airport code or name in the Fly Direct To Screen.

- **History** - Use the History button to toggle between charts, previously viewed airport details, plates, and flight trails.
  Note: Only visible in the Main Menu while in Portrait mode.

- **Sketches** – See Page 61 for more information

- **Text Search** - Find an airport or NAVAID alphabetically. The improved "Smart Search" keyboard dynamically lists the best-matched options as you type. Enter a name, location or identifier and watch the Smart Search keyboard filter work. Also includes custom waypoints.

- **Setup** – Customize device and display settings. See page 20 for more details.

- **Check for Updates** - Updates sectionals, weather, TFRs, aviation databases, plates, airport diagrams, and application data.

- **Start Simulation Mode**: There are 4 Simulation Modes to select:
  o **Show Simulation Controls**: Simulate flight by controlling Speed, Altitude and Track. Change start location of aircraft by centering the map at any location, then select Start Simulation Mode/Show Simulation Controls.
  o **Auto Fly Flight Plan:** Will automatically fly the currently loaded flight plan. If no flight plan is loaded, a demo play will be created.
  o **Replay ADS-B Recording:** This requires the user to first create an ADS-B recording on the device. When this option is selected a list of stored ADS-B recordings will be showing, and the selected one will replay on the device. This mode of replay is very high resolution, and will include traffic, weather, AHRS (turn/bank),
  o **Replay Flight Trail:** Displays a list of past flights, select one and tap "Load" to show the flight trail on the map, and begin a playback of the flight. iFly also allows the flight trail to be played back at a different speed, which is selected after choosing your flight trail.
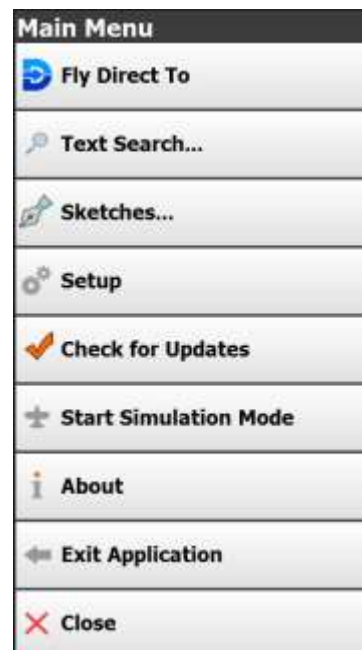
- position, speed, etc. See the section below on Menu -> Setup -> ADS-B for more information on creating an ADS-B recording.
- **Include Demo Traffic:** This option will add simulated traffic during simulation mode.
  Note: Do not use Simulation Mode while flying.

- **About** - Obtain information about chart expirations, software version, connected devices, contacts, and account information.

- **Exit Application** - Exits the navigation app.

- **Close** - Close the Main Menu.

About Menu

Access by touching **Menu -> About**

My Account…: Shows your current subscription information and allows you to register/deregister the device from your account. You can also sync data between devices from here.

Version and Contact: Shows the current software version and serial number of your iFly EFB, as well as Adventure Pilot copyright and contact information. You can also find out what is new in each release

Chart Expirations: Displays all installed charts and databases along with expiration dates for data currently downloaded to your device.

Read Warnings: Review the Device Warnings instructions.

Send Bug Report: Sends a bug report to our support team. This feature helps us improve our app and we appreciate all received bug reports. (Available only for the iFly EFB application)

Connected Devices: Provides details about devices attached to the USB port or connected via WiFi.

Setup

Attempt Internet weather… - Attempts to download weather, TFR, and NOTAM information in flight if a cellular signal is available. This does not appear on iFly GPS portables.

Timers – Create, start, stop, and delete custom timers such as Fuel Time, O2, Time Approach, etc.

Edit Aircraft... – Create/Modify your aircraft profile. Modify the tail number, map icon, estimated speed, fuel burn, climb rate, descent rate, glide ratio of your aircraft, etc.

Units of Measure – Choose the units of measurement for speed, distance, and fuel.

Map Settings - Customize various Map Settings. (See Page 50, Map Settings)

Alerts and Warnings - Customize alerts for airspace, terrain, traffic, vertical speed to target, and AHRS. (See Page 40, Alerting)

Customize Instruments – Allows customization of what instruments are displayed and their position, size and color. (See Page 46, Customizing Instruments)

NMEA Output - Send GPS information to external devices, including Autopilot, fuel computers, etc. (iFly GPS Hardware only)

ADS-B – Opens the ADS-B Status Window. If an ADS-B device is connected this will provide information on the data being received from the device.

- Heartbeats: Indicates the iFly EFB app is connected. This number will typically update at least once per second.
- GPS Updates: The device has a GPS lock. The number represents the position message received, and updates 1 to 5 times per second.
- Receiving Tower: The device is receiving information from a ground station. The number represents the number of towers currently being received. This may be 0 when on the ground, and typically 1 to 3 towers when in flight.
- TIS-B: Traffic data is being received (from the ground station or air-to-air). The number represents the number of traffic messages received and may increment rapidly when multiple traffic targets are being received.
- FIS-B: Weather, NOTAMs, and other data are being received. This will only increment when at least one Tower is being received, then each wx message will increment the counter.
- CRC Error Tests: This test tracks the overall quality of the data being transmitted. The first number indicates the number of messages that have been tested, the 2nd number indicates the quantity of errors found. A failure percent of less than 1% is typical, and > 5% indicates a significant data transmission issue.
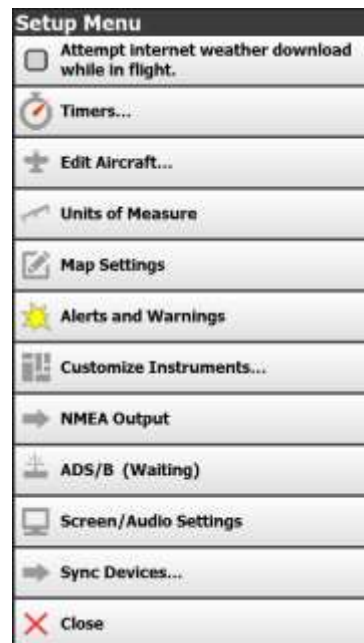
- Data Test: Is an internal test of the ADS-B data. Up to 3 numbers will be shown: The first number indicates the transmission rate (bytes per second), the 2nd number indicates the number of failures when interpreting a message, and the final number indicates the total number of messages received.
- Ghost Traffic: Indicates ignored traffic reports as probable "ghosts"

The "Options" button can be used to change the selected device ("Auto Detect" is recommended), to reset & reconnect to the ADS-B device, and to show the Detailed Information form.

Also, the Options button has a checkbox "Enable ADS-B Logger." If checked, an ADS-B Recording will be made of the current session. Creating an ADS-B log file consumes a lot of tablet resources, so conservative use of this option is recommended. See Start Simulation Mode on page 18.

Screen/Audio Settings - Enable button clicks, set the sound volume, set the amount of button fading, set the font size, and switch the screen orientation of the iFly EFB app.

Sync Devices – Provides options for uploading & downloading user data from the iFly servers. This enables you to keep all of your devices consistent.

Map Mode

Touch **Map Mode** on the bottom left-hand corner of the map display.

The upper section of this form selects the desired base map. Toggle between layers:

- **VFR** – Sectional & TAC charts
- **Vector** – "Decluttered" map with airports, airspaces, etc.
- **Instruments** – Typical VFR Instrument stack
- **IFR Low / High** – IFR
- **3D EFIS** – Synthetic vision split-screen

Note: When in VFR or IFR modes, the system will automatically select the most appropriate chart based on your location and zoom level: WAC, TAC, or Sectional chart. Use the Switch Maps button to override this behavior.

The Lower section of this form allows the addition or removal of optional layers to overlay the selected base map. Overlays include:

- **METAR/TAF** - Colored dots to airports indicating weather conditions*
- **NEXRAD** - Nexrad radar image indicating atmospheric moisture and precipitation*
- **AIRMET/SIGMET** - Highlights areas of significant weather reports**
- **Forecast** – Provides a slider to view future weather phenomena on the moving map. Includes options to choose between, flight rule, visibility, low-ceilings, cloud bases, cloud tops, convective activity, and cloud coverage

- **Hi-Res Winds** - Wind barbs showing prevailing winds at altitude. In addition, 2 sliders will be added allowing the user to select desired altitude and forecast for the wind details***
- **Terrain Highlights** - Color codes dangerous / high terrain when in flight
- **Glide Range** – Shows safe glide ring around current location
- **Map Sketch** – Create a new sketch or view the last drawn Map Sketch
- **Custom Waypoints** – Show, create and manage Custom Waypoints on the map
- **Traffic** – Enable displaying of color-coded triangles indicating other aircraft**
- **Obstructions** – Enables configurable alerting of towers, buildings, etc, that may interfere with flight
- **Fixes / Intersections** – Highlights fixes and intersections in Vector Mode only
- **Fuel Prices** – Shows current fuel price at participating airports***

* Overlay can be enabled from an Internet download, or from an ADS-B connection
** Overlay only available with an ADS-B receiver
*** Overlay only available from an Internet download

Some layers contain time sensitive information, the age of this data is indicated to the right of the layer name. Layers that have configurable options have a Gear icon that may be used to access & change the layer's settings

Touch **Brightness** or **Day/Night Mode** at the bottom of this form to adjust brightness and night setting.

Find Nearest Mode

The NRST search features at-a-glance information to take the guesswork out of searching for nearby Airports, Navaids, Fixes and custom Waypoints with relative direction and distance, airport information, runways and common frequencies within 50 NM of your current location. Access by touching NRST on the bottom left of the navigation screen. Select an airport to view airport information.

Touch **Menu -> Find Nearest** as an alternative method of finding nearby airports / navaids

Filters- Provides options to limit search results to Airports, Navaids, Fixes/Intersections, Custom Waypoints

Text Search- Touch to search for nearby Airports, Navaids, Intersections, and Custom Waypoints

Flight Plan- Touch to fly direct to or add waypoint to flight plan

Quick View- Touch to open the QuickView pop-up window

Touch the "!" button on the NRST page to enable Emergency Assist. Airports will be recommended and color-coded in Green, Yellow or Red based on the Glide Ratio entered into the Aircraft Profile.

Note: For optimal performance, please enter the Glide Ratio into the Aircraft Profile. Also, glide range information is based on current wind data.

Green = Recommended Landing

Yellow = Questionable Landing

Red = Not Recommended for Landing

Flight Plan

iFly EFB makes it easy to build a flight plan.
Simply touch Flight Plan button located on the bottom of the screen. Set the Departure Point to start building. See page 28, Flight Planning, for details on different ways to create and modify Flight Plans.
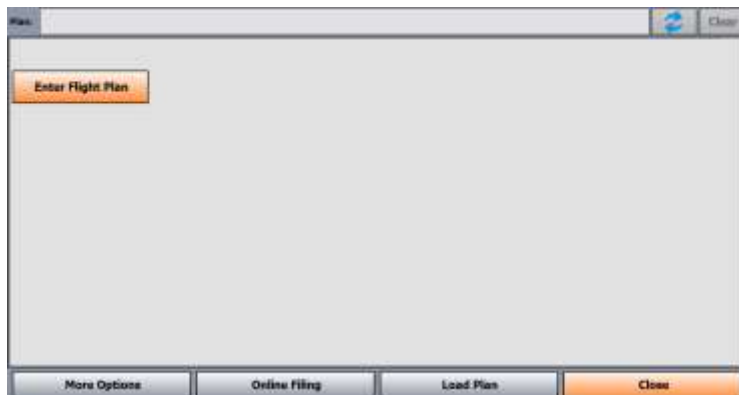
NOTE: The Sketch and History buttons are located in the **Tools** Menu. Depending on your device this can be located in the Menu tab.

Sketch

The Sketch button opens the most recent sketch, or the Sketches window if none exists already. Sketches have numerous purposes – they can be used to mark or highlight locations on the map, draw a taxi plan on a taxi diagram, take free-form notes on a blank sheet. For more information on how to create, view, or manage sketches see the Sketching section on page 61.

History

Toggle between charts, previously viewed airport details and more. Items are automatically added to history as they are viewed during normal use. Items used most recently are shown first. Use **Clear History** to clear this list.

Show Past Flight Trail: iFly EFB remembers all past flights and lists them with the date and time stamp of departure. Select one and touch Show to draw the flight trail on the map.
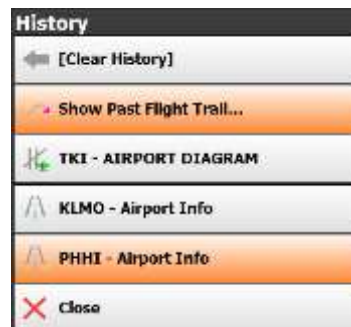
Instrument Group

Activate Basic, Extended, HSI, or a Custom instrument group. Access by touching the Inst Group button. Groups can be modified, and custom ones can be created using the Customize button at the bottom. For more information see Customizing Instruments on page 46.

Select Instrument Layout

- ⦿ Basic
- ○ Extended
- ○ HSI
- ○ Blank
- ○ Custom 2

Customize | ✕ Close

Airport Information Screen

Access by touching the screen to get the Quick View Popup, select the APT tab and touch "Airport Info." This screen provides important information related to the nearest airport where you touched the screen.

The following information is included on this screen:

- Airport code and name
- Elevation
- Latitude/Longitude (in two formats)
- Public/private status

- City and State
- If a control tower is present "Attended" will indicate tower hours. Otherwise, the schedule indicates when the airport has someone available to provide services such as fuel.
- Published traffic pattern altitude
- Fuel availability, and for most airports with fuel service the price will be included.
- Currently active NOTAMS, if any. Tapping the button will list the full NOTAM details.
- A quick summary of the runways is provided. More detail is provided regarding each runway as you scroll down.
- Airport lighting information
- Weather, if the airport has a METAR station or SayWeather installation.
- All utilized communication frequencies
    - Note: **Nearest ATC** and **Nearest FSS** frequencies will also be appended to the list of airport frequencies. These are not published as official frequencies associated with the airport, but are added to simplify accessing these commonly used frequencies. So while in flight if the pilot wishes to find the nearest ATC or nearest FSS frequency, they simply need to pull airport information on any nearby airport
- A list of runways with detailed information about each runway's orientation, type, condition, lighting, traffic pattern, displaced threshold distance, markings, existence of a visual slope indicator, IFR equipment, gradient, and obstructions
- Details on the FBOs available at the airport
- Any additional FAA published remarks about the airport

Note: Airport NOTAMS will also be shown if available by selecting the NOTAMS button at the top of the Airport Info Form. The number of NOTAMS available is displayed in the button. This data changes frequently and is downloaded anytime the device is connected to the Internet, or during a data update process. If NOTAMS are not displayed they may not be available for the airport being viewed, and the pilot should contact a Flight Service Station (FSS) for the latest NOTAMS.

Information in the Airport Information form can be scrolled by sweeping your finger up or down the screen, or by touching and dragging the scroll bar at the right of the form.

Direct to Here- Cancels the current flight plan (if any), and creates a new route from your current location to selected airport.

Add A Waypoint- Add A Waypoint- Inserts the selected item (fix, airport, lat/long) as a waypoint at the most appropriate location in an active flight plan.

Extend Runways – Draws 5nm extended runway centerline(s) on the map

View Plates – Shows a list of IFR plates and an airport diagram, if available

Search Nearby… – Provides options for finding nearby airports, navaids, fixes/intersections and custom waypoints

The Airport Runway Thumbnail image may be touched to zoom into a **RealView** image of the airport

Synthetic Vision

Checking the box in the Map Mode option to enable 3D EFIS will start the synthetic vision system, showing a 3D view of terrain, obstructions, traffic, and flight paths with an electronic flight information system (EFIS) overlaid onto it.

Notice: *Terrain views are for situational awareness reference only and not for primary navigation. This device is not certified for use in situations requiring a certified terrain awareness system. Terrain data is from third party sources and may contain inaccuracies.*

Touching anywhere in the synthetic vision pane will open the 3D Options Menu.

Hide EFIS – Closes the 3d view.

Full Screen Mode – Toggles the 3d view to full screen, covering the moving map.

Allow Panning while Moving – Allows you to move the camera separate of the movement of the aircraft.

Show Traffic – Toggles the displaying of ADS-B traffic. The **Opt…** button allows you to define preferred traffic icon size and pulsing effects for the 3D traffic targets.

Show Flight Plan – Toggles the flight plan displaying (commonly referred to as Highway in the Sky, or HITS). The Opt… button allows you to configure how the HITS is displayed, including turning rails on/off, drop lines, shadows, and adjust the width of the path and spacing of the boxes.

Settings… – Opens the Synthetic Vision Settings Menu

Synthetic Vision Settings

Touching the gear next to EFIS in Map Mode or in the Select 3D Option window will also open the settings menu. When you touch the EFIS display to bring up the 3D Option window will also open the settings menu

Overlay Size – Select the size of the attitude indicator.

Vertical Amplification – Adjust the amount terrain heights are multiplied.

Rendering Speed – Adjust the performance of the synthetic vision display.

Show Realviews – Toggles the displaying of Realview airport images on the 3D terrain.

Show Roads – Toggles the displaying of roads.

Show Traffic – Toggles the displaying of ADS-B traffic. The Opt… button allows you to set the size and amount of pulsing the icon displays.

Filter Obstructions – Whenever the aircraft is in motion and comes within 1200' or 5 minutes of an obstruction, it will be displayed regardless of the setting chosen.

Show Flight Plan – Toggles the flight plan displaying. The **Opt…** button allows you to configure options for Highway in the Sky (HITS) representation of your flight plan in the 3D view.

Default to Fullscreen Mode – When selected, the synthetic vision display will take up the full screen when opened, instead of split-screen with the moving map. Not available on iFly 7 series.

Flight Planning

iFly EFB includes an intuitive flight planning utility appropriate for VFR flight. A flight plan consists of a departure point, zero or more waypoints, and a destination. These points make up a collection of "routes." For example, a flight plan with two points (a departure and a destination) will have one route. A plan with a departure point, one waypoint, and a destination will have two routes. Routes are displayed on the map as magenta lines. When choosing waypoints and destinations for your flight plan, iFly EFB will automatically determine the most appropriate target point based on your location, course, and flight track history.

There are several ways to create and modify flight plans:

- Option 1: Create a point-to-point plan by touching the screen
- Option 2: Find an airport by code or keyword
- Option 3: Use the Flight Planner
- Option 4: Rubber-band flight modification
- Option 5: Real Plan to automatically create a VFR Plan
- Option 6: iFlightPlanner Integrated flight planning

These options are described in detail below

Several navigation instruments are available to aid in maintaining a course while on a flight plan. For example:

Course Tape- The triangle indicates your current course. The ball indicates the most direct bearing to your next waypoint. To follow the most direct route to your next waypoint, keep the ball centered under the triangle.

Bearing- The most direct route to your next waypoint.

Turn- The number of degrees you need to turn to stay on route.

ETE: Final Estimated time left until reaching final destination.

Option 1: Create a point-to-point plan by touching the screen

1. Pan the map until you find your desired airport or other flying destination.

2. Touch the destination to display the Quick View Popup menu. Select the **Flight Planning button** under the APT or NAV tabs

3. Select **Fly Direct to Here**. If there are any airports or NAVAIDS near your selected destination, you will be given a list to select from. (Or you can select the latitude/longitude if your destination is not associated with a particular airport or NAVAID.

4. **Fly Direct To Here** will replace your current plan. **Add Waypoint** will add the location to the end of your plan. **Insert Waypoint** will insert into the nearest leg.
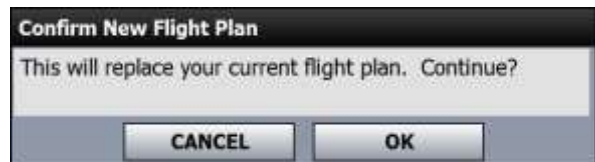
5. You can also select **Direct to Here** or **Add As Waypoint** from any Airport Information Form

6. If needed, you can modify the flight plan by bending or "**Rubber-banding**" the route line. Touch the line at any point and drag it to a new position. You will be presented with the option to Insert Waypoint or Change Waypoint.

Option 2: Find an airport by code or keyword

This method is a quick way to create a new simple point-to-point flight plan from your current location to another location.

1. Touch **Menu -> Fly Direct To**.
2. The Fly Direct to Screen will appear. Type the name or code of an Airport or Navaid, or a city name.

Enter a code, name, or city name to search

Optional: Filter search criteria will provide a selection of filter options to narrow down the result list

To enter for a specific Latitude/ Longitude, tap the Lat/Lon button

3. If flying to an airport, enter the Airport Code or full-text search.

    - If the code is unknown, enter a portion of the airport's name or city and let the Smart Search Keyboard find your Airport or Navaid.
    - Select your Airport or Navaid.
    - If more than one object is found, a list of objects matching your search criteria will appear. The list is sorted by **distance** from your current location.
    - If you have a current flight plan, it will be **cancelled,** and a new plan will be created with one route directly from your current location to your selected point.
    - Supports UATS-style keyboard entry of flight plan waypoints. Enter a Route list of identifier codes separated by spaces; the K is required for airports normally prefixed with a K, otherwise you may add a Navaid into the plan by accident (e.g. KDFW KTKI KSTL KOSH)

Option 3: Use the Flight Planner Form

The Flight Planner can be used to create a flight plan from scratch, tweak a current flight plan, change the order of waypoints, cancel a flight plan, save plans, or load previously saved plans. It can also be used to review flight time and fuel consumption estimates based on the Aircraft Profile.

1. Access the Flight Plan Screen by touching the **Flight Plan** button. If a flight plan is currently loaded, the points and route information will be shown.

2. If there is not an active flight plan in the system, this is where you can begin to build your flight plan. Touch Enter Flight Plan and begin searching. The system will provide an initial fix to choose

3. Then begin adding additional Waypoints/Airports to your Flight Plan. **Touch Add Waypoint** (if loading a Procedure select and load your arrival Airport as your next waypoint. Then select Procedures.)

4. Add Waypoint will add that location to the end of your Flight plan. There is no limit to the number of waypoints you may add to the Flight plan.

5. Next to each point in the flight plan is a gear icon for options. Touch to open a menu to see available information and options associated with that waypoint.
- **Load Procedure**: Available for IFR subscriptions, and will only be shown for procedures relative to that airport in the plan
- **Land Here** or **Cancel Landing**: Shown for Airports only – allows you to plan landings
- **Insert Waypoint:** Inserts after this waypoint
- **Remove Waypoint:** Removes this from the plan
- **Change Waypoint:** Change waypoint identifier
- **Move Up:** Move this waypoint up on the list
- **Fuel Stop:** Check this box to designate this airport for refueling
- **Set Altitude:** Use this option to set the altitude for the leg originating at this waypoint
- **Require Fly Over:** Check this box to designate this waypoint as a fly over waypoint. A greater than (>) sign will be appended to the beginning of the waypoint name in the
- **Set Name:** This will rename the waypoint to whatever you choose. This name will appear on the map. Note that this name will replace the official name in the flight plan itself but will not affect the Quick View naming.

*If your selected waypoint is set as a landing destination or the last waypoint in the flight plan, you will get the prompt shown on the right.

Loading IFR Procedures

1. Touch **Procedures** at the bottom of the Flight Plan Screen to load in the procedures.

2. In the **Procedure** Menu you can now select an associated **Departure**, **Approach** or **STAR**

3. Select **Departure**, **Approach**, or **STAR** to display a list of all available Procedures for that airport. Choose a specific procedure if known, or touch **Select from Map…** to get a visual depiction of the procedure.
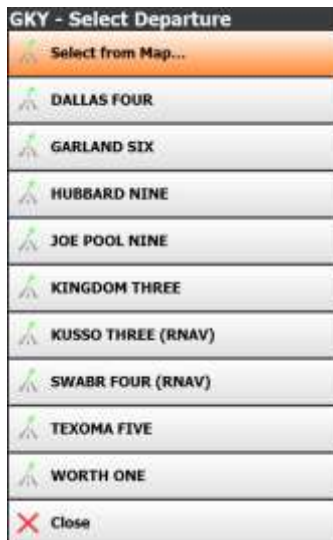
4. When selecting from the map, cycle through the plates and transitions using the arrows. Touch the Map Mode icon to see the actual plate. When the desired plate is selected, check **Load**, then touch **Done.**

⚠️ **iFly EFB data is not certified for IFR flight. Data may contain errors. ALWAYS validate your plan with certified equipment and data. Not all procedures can be loaded into a flight plan. Use this feature with appropriate safety and caution.**

Designates what kind of flight this is which affects altitude planning

Flight plan Name (Default name based on Departure + waypoints + Destination

Basic route info, including distance, true course, estimated flight time, and estimated fuel burn

Reverses the current flight plan route

Clears current flight plan and allows you to restore a previously cleared flight plan

Modify waypoint options (Tap on the waypoint name to bring up additional information regarding that waypoint)

IFR Procedures – tap button on the right to toggle all of the procedure waypoints

Manage the altitude of the flight plan

Information on all the airspaces your flight plan crosses

Sync the flight plan to iFlightPlanner

Select or edit aircraft profile. Used for calculating performance and fuel burn

Displays aircraft weight and balance information

Share/Export flight plan to local network or create a flight plan file

Automatically optimizes the flight plan based on adjustable parameters

Shows Additional options Menu

Shows options for filing the current VFR or IFR flight plan with the FAA via Leidos Flight Service

Save/Load a flight plan (From this screen you can also delete unwanted flight plans)

Close the Flight Plan form and return to the map

Option 4: Rubber-Band Route Modification

After creating your initial flight plan, it may be tweaked by touching and dragging a route line or waypoint.

You may need to tweak a flight plan if you find that it travels through areas or airspaces that should be avoided (such as a TFR, restricted airspaces, undesired controlled airspaces, etc.). Or you may wish to follow a specific VFR corridor, follow an area of low terrain, or for any other reason you wish to "customize" your route.

1. Touch a route line for about ½ second to "grab" the route. You will see a red crosshair appear under your finger. Then slowly drag the route to your desired position. This will insert a new waypoint in your plan.
2. After you release the route line, a list of Waypoint Options will appear showing the airports or NAVAIDs in the area. Choose one to insert it into your flight plan or choose Lat/Lon to save your new route. If you drag a beginning or ending waypoint in your flight plan you will be given the option to change that waypoint.
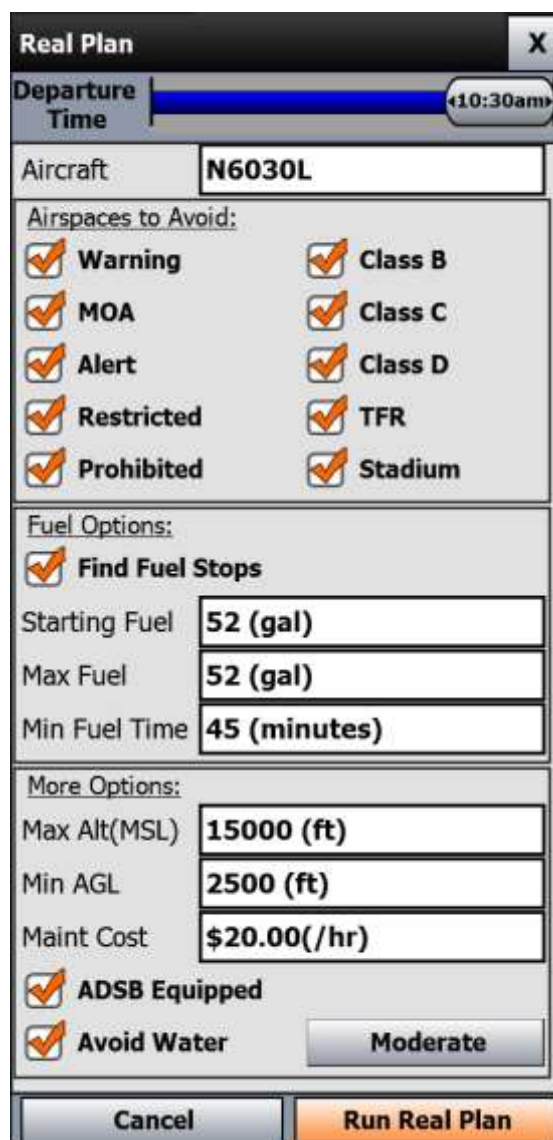
Option 5: Real Plan*

Real Plan can automatically create a complete VFR flight plan including vertical and horizontal routing (around airspaces, terrain, water, etc.) altitude optimization, and fuel stops. To use Real Plan first create a simple plan that includes your departure and arrival airport. Then in the Flight Plan form touch More Options -> Real Plan. The Real Plan options form will be shown; select the appropriate options then touch "Run Real Plan." Then, iFly EFB will find the best routes and 1 or 2 flight options, "Fastest" and "Cheapest." If the same route is both fastest & cheapest, only one option will be shown.

Most of the preferences and settings within the Real Plan form can be setup one time, the values will be re-used for all subsequent executions of the Real Plan feature.

1. **Departure Time**: Specify when you intend to depart, if within the next 30-36 hours. The appropriate Winds Aloft forecast will be used based on this selection

2. **Aircraft**: Touch this text box to select your desired aircraft. You should configure an aircraft profile if needed; climb & descend rates, speeds, glide ratio, fuel capabilities, runway lengths, fuel burn, and more are used by the Real Plan algorithm so ensure the aircraft profile is configured accurately.

3. **Airspaces to Avoid**: Select the airspaces you wish to avoid. If your departure or destination airport is within one of the selected airspaces, then that airport will be excluded from this restriction.

4. **Fuel Options**: Select if you wish the system to find fuel stops. Then select your starting fuel and your intended max fuel for each fuel stop. Also specify your fuel reserve, in minutes, for fuel stops and final destination.

5. **Max Alt (MSL)**: Specify your maximum MSL altitude for this flight.

6. **Min AGL**: The minimum AGL altitude you wish to fly

7. **Maint Cost**: This is your anticipated cost per hour to the selected aircraft, not including fuel. This is used to determine the actual cost of a flight, which is important to determine if a long deviation to find cheaper fuel is actually saving money

8. **ADS-B Equipped**: If unchecked, Real Plan will avoid areas that require ADS-B equipment. As with "Airspaces to Avoid", if your target or departure airport is within an ADS-B Required zone, then that airport will be excluded from this restriction.

9. **Avoid Water**: If checked, Real Plan will adjust your flight plan to avoid water completely, moderately, or loosely depending on the setting chosen.

*Real Plan is NOT available on the 700/520/720/740/740b.

Option 6: iFlightPlanner Integrated Flight Planning

iFlightPlanner Integration has allowed for you to sync your flight plans directly from iFlightPlanner using a very simple setup in the app. Note: iFlightPlanner is a third-party program used for flight planning outside of iFly EFB.

1.) Open the app and navigate to the 'Flight Planning' screen
2.) Tap **More Options -> Sync With iFlightPlanner**

If this is the first time to sync with iFlightPlanner, tap the **Login** button and enter your iFlightPlanner credentials to enable the sync.

Once logged in, the **Sync Now** button (Seen above) will be illuminated. Tap to retrieve flight plans from iFlightPlanner.

Vertical Flight Planning

Vertical flight planning allows you to view or modify your flight plan in relation to terrain highlights based on a defined altitude and interactive vertical profile. The Vertical Profile form displays the flight plan in relation to terrain, obstructions, and airspaces along the route. You can also modify the desired cruise altitude or define individual altitudes for each leg.

After you have created a flight plan, target altitudes for waypoints may be set by tapping **Set Alt.** and typing an altitude. Alternatively, touch the **Altitudes…** button to show the Altitude Planner form (see below). A default optimal altitude will automatically be selected. The altitude can be changed by touching the altitude line and dragging it up or down. The altitude will automatically snap to specific increments based on the VFR/IFR selection, and the direction of flight. *Note that Flight Plan lines may have red sections. These sections indicate either an unusual climb/descent, or where the flight plan intersects terrain.*

G. Wind Barbs show the relative headwind/tailwind component at various altitudes.

Airspaces   **Tower**   **Terrain**   **Planned Altitude**   **A. B. C. D.**

Planned Descent

Options: Displays the options menu.

Decrease the desired altitude by dragging the course line up and down.

Layers: Allows selection or deselection of the different visual layers displayed.

Return to Flight Plan

Select Option	
1. Flight Mode: VFR	**1.** Changes the flight from VFR to IFR
2. Allow Multiple Altitudes	**2.** Allows for the flight to have multiple altitudes
3. Set Altitude on Map	**3.** Displays the moving map and shows the Top of Climb and Top of Decent on the map. Also shows an altitude slider for changing the altitude.
4. Create Aircraft Profile	**4.** Create aircraft profile or change aircraft profile if one is already created
5. Optimize for Winds	**5.** Optimizes the cruise altitude for winds based on what is the fastest or cheapest
6. Clear Altitudes	**6.** Clears all altitude planning and closes the menu
7. Close	**7.** Closes the options Menu

Select Visible Layers
- A. ☑ Flight Conditions
- B. ☑ Surface Visibility
- C. ☑ Low-Ceilings
- D. ☑ Clouds Coverage
- E. ☑ B/C/D Airspaces
- F. ☑ SUA Airspaces
- G. ☑ Head/Tail Wind
- ✕ Close

E. Displays class B, C, and D airspaces
F. Displays the special use airspaces
G. Displays the wind barbs

A. Displays a colored bar showing what weather condition is forecasted for that point in the flight at the estimated time you'd reach it. (Green:VFR. Blue:MVFR. Red:IFR. Magenta:LIFR.) *Note, all other weather-related features in the altitude planning are based on these colors as well.
B. Displays a colored bar showing surface visibility.
C. Displays a colored bar where low ceilings are indicating the weather condition
D. Displays a blue cloud icon indicating the tops and bottoms of the cloud layer Menu (Light Blue: Few or Scattered. Dark Blue: Broken or Overcast.)

⚠ **Warning: Terrain views are for situational awareness reference only and not for primary navigation.**

Checking Your Flight Plan's Airspaces

Use the Airspace Information form to walk through all the airspaces that your flight plan crosses, one by one, in order to get detailed information on the airspaces and to adjust your flight plan if necessary. Access by touching the **Check Airspaces** Button under **More Options** in the **Flight Planner**. A large crosshair will appear on the Map as you cross each new airspace. Note that it does not tell you when you depart a particular airspace and enter Class G or E airspace. It will also not alert you when you cross over the Mode C/ADSB veil for Class B airspace. It will alert for TFRs.

Note: If your flight plan is significantly modified, you should close the Airspace Info form and go through the ***Airspaces*** *Process again.*

Display Information

Return to Flight Plan

Step through each airspace the flight plan crosses
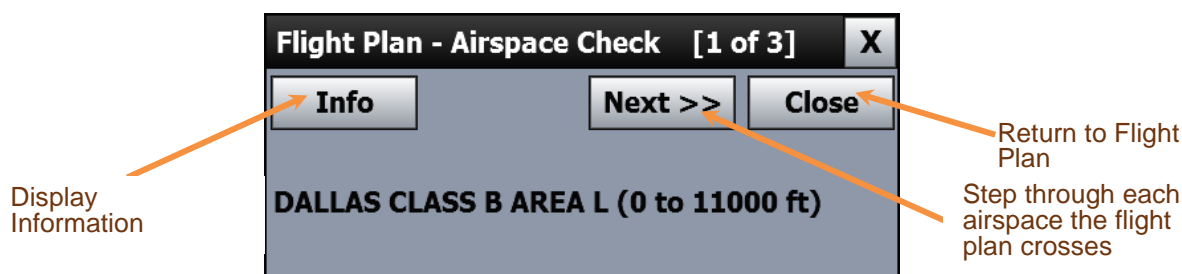
Sharing Flight Plans

Share Flight Plans and modifications using local Wi-Fi or ADS-B connected devices running iFly EFB.

The device sharing starts from the Master (or Host) device. Other devices will receive changes made from the Master/Host device.

To begin, connect devices to the same Wi-Fi or ADS-B network.

From the device you want to designate as Master, touch **Flight Plan -> More Options -> Share/Export Flight Plan -> Share to Local Network**

A message will appear on other local devices. Touch "**Accept Plan**" to accept a flight plan or modification on additional devices.
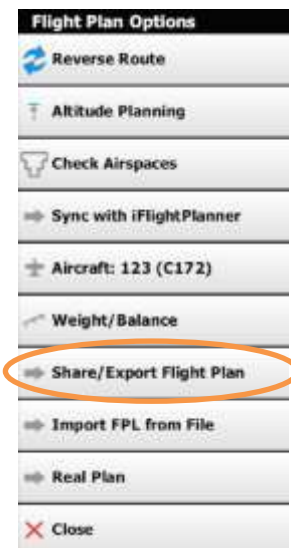
Master (Host) device

Second Device

Exporting Flight Plans to ForeFlight

Flight plans can be exported directly from iFly EFB to ForeFlight on the same device. Flight plans can also be shared as a ForeFlight link that can be shared with others.

To export a flight plan on the same device, in iFly EFB touch **Flight Plan -> More Options -> Share/Export Flight Plan -> Export to ForeFlight -> Launch ForeFlight with Flight Plan -> Open**

To share a ForeFlight flight plan link touch **Flight Plan -> More Options -> Share/Export Flight Plan -> Share ForeFlight-compatible file to any app.** This then produces a ForeFlight mobile link which you can share.

Clicking **Export to Shareable File** will create a .fpl file which can be opened in another app that supports the .fpl file format.
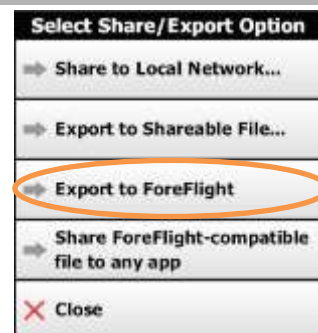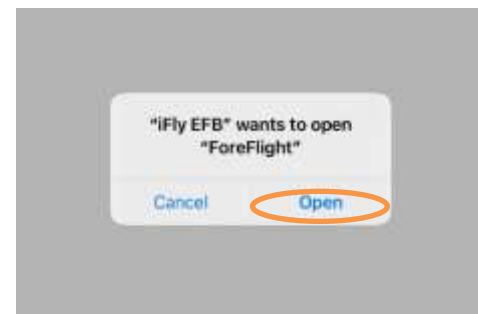
Loading Alternate Flight Plans

iFly EFB supports loading an alternate or "backup" flight plan. This allows the pilot to plan a backup airport, a different approach, a different route, or any other scenario where it may be useful to have a backup flight plan prepared.

In this image the magenta line is the currently active flight plan, and the grey line is the backup.

To utilize this feature first create and save a flight plan (Touch **Save / Load** on the Flight Plan form, then **Save As**, and enter a name for your flight plan.

Clear your flight plan and create a new (and different) plan and save the 2nd plan.

When both plans are saved, touch **Save / Load** > **Load Alternate Plan**, and select the first plan you created. This is now loaded and displayed as a grey line on the map.

All instruments and navigation references will be referring only to the currently active plan, which is represented by the magenta line.

To activate the backup plan, touch the **Flight Plan** button, then touch **Alternate Plan.** This will switch the currently active plan to the alternate, and the alternate will become the active plan.

Custom Waypoints

Custom Waypoints can be used to mark locations on maps, or as named waypoints in a flight plan. By default, custom waypoints will be included in text searches when using the Flight Planning options. When the Custom Waypoints layer is enabled, custom waypoints will be shown on the selected map.

To create a new Custom Waypoint using the map tap the desired location to view the Quick Info Popup form. Then select the **Nav** tab and touch the **Add Custom Waypoint** button. The default name for the custom waypoint will be an auto-incrementing number (#1, #2, #3…). Tap the Name field and enter a new name as desired to create a label for the waypoint. Other options may be selected such as the background color for the waypoint label, an icon type, and a group.

To view Custom Waypoints on the map touch **Map Mode** and enable the Custom Waypoints layer.

To modify, delete, or manually create Custom Waypoints touch the Gear associated with the Custom Waypoints layer.

Custom Waypoint Groups

When creating or editing a Custom Waypoint tap the Group field to create a new Custom Waypoint Group, or assign the waypoint to an existing group. Once an additional group is created, the Gear next to the Custom Waypoints icon can be used to select which groups should be visible on the map. Additional options will also be added to allow editing groups of Custom Waypoints.

To delete a Custom Waypoint Group first remove all items from the group by assigning them to another group, or deleting them. To do this select the Gear, then Edit for the desired group, then Options -> Edit Multiple Waypoints, Select All, then Move to Another Group or Delete.

Alerting

iFly EFB offers several types of audio and visual alerts, which can be customized in a variety of ways. Each of these alert types are explained in more detail in the sections that follow.

Access by touching **Menu -> Setup -> Alerts and Warnings**.

- **Airspace Alerts** warn you before you fly into an airspace. (Restricted, Class B, TFR, etc.)

- **Terrain Alerts** refer to terrain and ground obstacles.

- **Traffic Alerts** provide collision alert warnings when another aircraft is within a set distance from your current position (available if your iFly EFB is connected to a traffic-enabled ADS-B device).

- **Vertical Speed to Target** is an instrument that pops up to show the ascent / descent rate in feet per minute required to reach the target altitude of the waypoints in your flight plan.

- **AHRS Alerts** allows you to configure pitch/roll alert thresholds (requires connected AHRS device)

Airspace Alerts

Airspace Alerts provide a warning before you fly into an airspace. To control how Airspace Alerts pop for each airspace type, touch **Menu -> Setup -> Alerts and Warnings -> Airspace Alerts**. The following options are available:

1. **Alert Modes** – Select the airspace types and configure how they will alert.
   a. **Do not alert** – No warnings will be provided for the specified airspace type.
   b. **Show Alert Button** – This is an "unobtrusive" warning. The Alert button will appear, along with a loud sound, indicating you are approaching the airspace. Touch the Alert button to view the alert message.
   c. **Show Alert Message** – This is an "obtrusive" warning. A message box will appear warning you that you are approaching an airspace.
2. **Altitude Buffer** – Define the altitude buffer for an airspace. If your GPS altitude is within the buffer distance of the airspace's floor or ceiling, an alert will pop. If you are above or below the airspace by more than the buffer, an alert will not pop.
   For example: If an airspace has a floor of 1000 ft, and a ceiling of 3000 ft, and you set the altitude buffer to be 500 ft, you will be warned of approaching the airspace if you are between 500 and 3500 feet.
3. **Alert Distance** – Defines how far out an alert message should pop. Distance can be defined in terms of distance from the airspace, or time to intercept the airspace.
   For example: If you set the distance to 5 minutes, a warning will appear when your ETA to intercept the airspace is 5 minutes. If you set it to 5 NM, the warning will pop when you are 5 NM from the edge of the airspace.

Customizing Airspace Display Modes

You can customize how each of the Special Use Airspaces are displayed: **Hidden**, **Shaded**, **Outlined, Outlined - Faded**, or **Shaded and Outlined**. Access by touching **Menu -> Setup -> Alerts and Warnings -> Airspace Alerts -> SUA Display Modes**.

> *Warning:* Terrain, Obstruction, and Traffic Alerts are for *situational awareness reference only* and not for primary navigation. This device is not certified for use in situations requiring a certified terrain awareness system. Terrain data is from third party sources and may contain inaccuracies.

Terrain & Obstruction Alerts

iFly EFB maximizes the relevant notices and alerts, while minimizing "nuisance" alerts that the pilot doesn't care about. The iFly accomplishes this by analyzing ground track and vertical speed to project upcoming clearance levels.

Terrain alerts are reduced when approaching or departing an airport, and they are totally disabled when the aircraft is within an Airport Zone (a virtual area around all airports in the iFly database). The width and height of the Airport Zone depends on the size of the airport, and also changes if the airport is in your flight plan. When entering an Airport Zone, an alert tone will sound informing you that airspace alerts and terrain highlights are being disabled.

You can Enable/Disable and adjust the Alert Threshold so that Terrain Alerts and Obstruction Alerts pop less frequently or more frequently. Access by touching **Menu -> Setup -> Alerts and Warnings -> Terrain Alerts**.

Note: Alert Threshold settings chosen in Terrain Alerts do not affect Airspace Alerts

Terrain/Traffic Alert Thresholds follow these approximate tolerance levels for various settings and flight phases.

	Yellow Terrain Highlights	Red Terrain Highlights	During Approach / Departure			During Normal Cruise		
			Obstruction Alerts	Terrain Alerts	Traffic Alerts	Obstruction Alerts	Terrain Alerts	Traffic Alerts
Threshold / **Strict**	1000 ft clearance or less	200 ft clearance or less	Obstruction is < 120 sec or 2 nm*; < 250 ft clearance	Informative alert begins at < 200 sec / 700 ft	Traffic is < 60 sec or 2 nm; +/- 3000 ft clearance	Obstruction is < 240 sec or 5 nm; < 400 ft clearance	Informative alert begins at < 300 sec / 1000 ft	Traffic is < 120 sec or 5 nm; +/- 3000 ft clearance
Moderate	800 ft clearance or less	200 ft clearance or less	Obstruction is < 90 sec or 1.5 nm; < 250 ft clearance	Informative alert begins at < 80 sec / 350 ft	Traffic is < 60 sec or 1 nm; +/- 3000 ft clearance	Obstruction is < 180 sec or 3 nm; < 400 ft clearance	Informative alert begins at < 180 sec /800 ft	Traffic is < 120 sec or 3 nm; +/- 3000 ft clearance
Relaxed	500 ft clearance or less	200 ft clearance or less	Obstruction is < 60 sec or 1 nm; 250 ft clearance	Informative alert begins at < 80 sec / 200 ft	Traffic is < 60 sec or .75 nm; +/- 3000 ft clearance	Obstruction is <120 sec or 2 nm; 200 ft clearance	Informative alert begins at < 120 sec / 400 ft	Traffic is < 120 sec or 2 nm; +/- 3000 ft clearance

* the "or" conditions in this table indicate that either condition can cause the alert event. For example, a condition of 120 sec or 2nm will trigger an alert if the aircraft speed would cause an intersection within 120 seconds, or if the aircraft is within 2nm

More about Terrain Alerts

iFly EFB's terrain alerting logic will pop a terrain alert when your projected altitude falls below a certain threshold, as represented in the graph to the right. A Critical Alert occurs when iFly EFB detects a low clearance a short distance away. On the other side of the spectrum, an Informative alert will sound when iFly EFB detects a high clearance that will occur in a short time, or a low clearance that is still some distance away.

Note: For terrain alerts "Distance" is always measured in terms of estimated time enroute. For example, if the alert threshold is 240 seconds and your speed is 120 knots per hour, the alert will sound when you are within 2 nm of the terrain.

In low altitude situations, iFly EFB will also append other audible messages based on your flight phase and rate of climb.

- **Sink Rate** – Excessive rate of descent detected. Can occur during any flight phase.
- **Pull-up** – Descending into terrain, immediate halt of descent necessary. Can occur during any flight phase.
- **Don't Sink** – Descent detected during takeoff or departure flight phase (pilot should be climbing during this phase)
- **Too Low** – During landing indicates below a safe approach altitude, during takeoff indicates pilot is not climbing fast enough.

Reduce Alerting When Approaching Airport: The pilot can set the Terrain Alerts to be reduced for Planned Landing or all nearby airports in the Flight Plan.
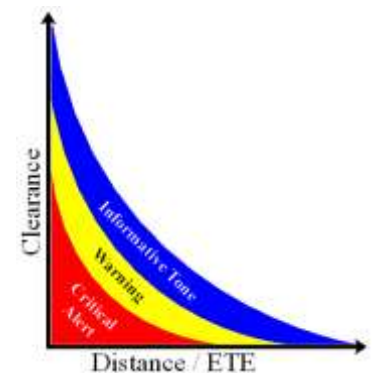
Terrain Alerts

To configure terrain alerts, touch **Menu -> Setup -> Alerts and Warnings -> Terrain Alerts.**

Show Terrain Shading: When flying at a potentially unsafe altitude the terrain will become shaded to alert you that you are getting dangerously close to the ground and potential obstructions.

Enable Terrain Alerts: Allows terrain alerts to be displayed when applicable.

Enable Obstruction Alerts: Allows obstruction alerts to be displayed when applicable.

Map Highlights…: Allows pilot to view and adjust terrain highlight settings.

> *Note: Terrain highlighting can also be modified by touching the Vertical Profile instrument, then Highlights.*

> **Mode:** Choose to view terrain highlights as throb, flash or solid. *Note: Terrain highlights are dimmed when there are no active alerts and become bold when alerts are active.*

> **Radius**: Enables highlighting on the map within the selected radius of your current location: 25 nm, 50 nm, 100 nm or Unlimited.

Reduce Alerting When Approaching…: Allows the pilot to reduce the terrain alerts when approaching airports.

Alert Thresholds: Allows the pilot to configure alert thresholds (Relaxed, Moderate, or Strict) appropriate for aircraft and flying preferences.
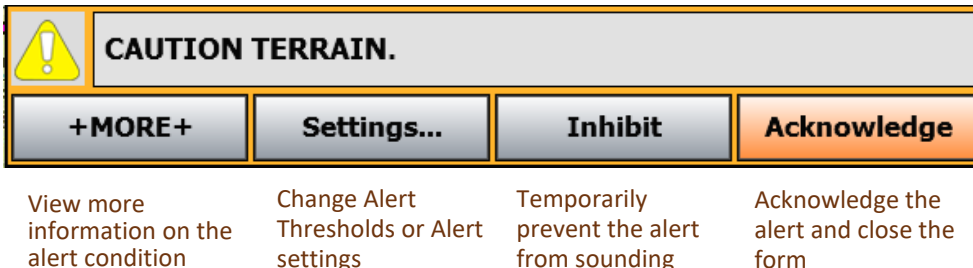
Obstruction Size: Allows the pilot to configure the size of obstructions being displayed on the map.

Filter Obstructions: Allows the pilot to specify the minimum obstruction height to be displayed on the map. This setting does not affect alerts, and an obstruction generating an alert will be shown regardless of this setting.

Managing Active Alerts

When an alert condition is detected, several things may occur based on the type and severity of the condition.

1. A tone may sound
2. The **Alert Button** may appear on the left side of the map
3. The **Alert Form** may show, which includes a summary and several options for managing the alert. Touching the **Alert Button** will also show this **Alert Form**

View more information on the alert condition	Change Alert Thresholds or Alert settings	Temporarily prevent the alert from sounding	Acknowledge the alert and close the form

When viewing the full information screen:

- If you touch **Inhibit**, you have the option of selecting when the alert will pop again (choose "1 minute," "5 minute," or "15 minute") or you can choose to disable the alert for that specific event type for the entire flight.
- If you touch **Acknowledge**, the alert will go away and will not reappear if your course never changes. But if you change course so you are no longer intercepting the airspace/collision, then turn back to an intercepting course, the alert will pop again. If you are flying in circles next to an airspace, the alert will keep popping up.

Traffic Alerts

Traffic Alerts provide a warning when ADS-B traffic comes near your aircraft. To control how Traffic Alerts pop and filter which traffic targets display on the map, touch **Menu -> Setup -> Alerts and Warnings -> Traffic Alerts**. The following options are available:

1. **Enable Traffic Alerts** – Turns alerts for traffic on and off.
2. **Filter Ghost Traffic** – Filters out ADS-B traffic that matches your Aircraft Profile.
3. **Show Relative Altitudes** – Displays the elevation of each traffic target as relative to your altitude, in 100's of feet. (Example: +70 means the target is 7000 feet above your current altitude.)
4. **Set Alert Thresholds…** - Configure alerting thresholds appropriate for aircraft and flying preferences.
5. **Distance Visibility** – Filters displaying traffic beyond a specified distance.
6. **Vertical Clearance Visibility** – Filters displaying traffic that is above or below your aircraft.

AHRS Alerts

Note: This feature requires a connected AHRS device.

To configure AHRS Alerts, touch **Menu -> Setup -> Alerts and Warnings -> AHRS Alerts**.

- **Pitch Threshold:**   20 deg, 25 deg, 30 deg, 40 deg, 50 deg, Disabled
- **Roll Threshold:**   30 deg, 40 deg, 50 deg, 60 deg, Disabled

When an AHRS Alert is enabled, and the aircraft exceeds the defined threshold, an audible alarm will sound and the Emergency Artificial Horizon will be displayed on the screen, overlaying whatever map or dialog is currently being shown.

AHRS Calibration Option: You can re-calibrate the AHRS to level by tapping the Artificial Horizon for a Setup Menu. Choose Re-calibrate to level to set new level position.

AHRS Tips:

- For best AHRS operation, try to achieve a level position within 15 degrees of level.
- If you need to reposition the AHRS, use the Clear Calibration to reset to factory defaults.

Customizing Instruments

Selecting Instruments Mode

Activate Basic, Extended, HSI display, Blank (no instruments) or a Custom instrument group by touching the **Inst Group** button.

Instrument Layouts

Allows you to customize instrument appearance: hide, show, or change location, size, and color. Access by touching **Inst Group -> Customize**.

After you add and modify the instruments to your desired configuration, touch Save; then choose either **Save as Current** to override current settings or **Save as New** to save with a new Instrument Layout name.
Note: Instrument settings are unique to Landscape and Portrait Modes. Also, some instruments are only displayed when a flight plan is in place, or the aircraft is in motion. Furthermore, some instruments are touch sensitive providing additional functionality.

Individual instruments are modified by first Touching the instrument to select it. The currently selected instrument will be outlined in Red.

View options for the currently selected instrument

Selects the saved layouts from a list

Customize Layout: Basic

Instrument Options

Select Layout

Toggle Size

Delete Instrument

Toggle Color

Add Instrument

Help

Save

Cancel

Changes the selected instrument size and color

Removes the selected instrument

Help – shows instructions on using this form

Displays a list of instruments that may be added to the current stack

The following instruments are available.

Instrument Name	Abbreviated Name	Description
3D View	3D View	An instrument version of the 3D EFIS Synthetic Vision
ADS-B Status	ADS-B Status	Status of ADS-B towers. Tap for detailed ADS-B status.
Air Temp*	Air Temp	Outside air temp (requires additional hardware)
Altimeter (Indicated Altitude)*	Ind. Alt	Indicated altitude (requires additional hardware)
Altimeter Setting	Alt. Setting	Altimeter setting from nearest ADS-B reporting station
Altitude AGL	Alt (AGL)	The distance from your GPS position to the ground in our terrain model.
Altitude MSL	Altitude	GPS altitude measures the current distance from your position to estimated Sea Level. (This is not the same as Pressure Altitude and will likely vary from your pressure adjusted Altimeter.)
Angle of Attack*	AOA	Angle of attack (requires additional hardware)
Artificial Horizon (gauge)*	AH	Used when connected to a remote attitude heading reference system (AHRS) device. (requires additional hardware)
Battery Level	Battery	Visual indication of the device's battery's state-of-charge
Bearing	Bearing	The compass direction needed to fly in order to reach the next target waypoint.
Bearing Final	BRG: Final	Bearing to last entry in flight plan
Course Tape	Course Tape	Active compass tape and ball. The needle indicates the current track and the ball represents the target waypoint.
Current Location	Current Loc	Your current Lat/Long.
Current Time	Time	The current system time.
Distance to Current Waypoint	Dist: wpoint	Distance from current position to the Next Waypoint. (Can be in Knots, Miles, Kilometers,)
Distance to Final	Dist: Final	Distance from the current position to the Final Destination. (Can be in Knots, Miles, Kilometers.)
EFIS Toggle	SHOW	Tap to toggle 3D EFIS Mode. (Does the same as checking the box in Map Mode)
ETA Current Waypoint	ETA: wpoint	The estimated time of arrival at the Next Waypoint based on the current Speed or VMG.
ETA Final	ETA: Final	The estimated time of arrival at the Final Destination based on the current Speed or VMG.
ETE Current Waypoint	ETE: wpoint	The estimated time remaining to the Next Waypoint at your current speed or VMG.
ETE Final	ETE: Final	The estimated time remaining to the final destination at your current speed or VMG.
Flight Duration	Flt Duration	Elapsed Flight Time calculated once aircraft exceeds 20 knots.
G-Load*	G-Load	Provides the present Gravitational Force (G's) loaded on the aircraft
GPS Status	GPS Status	Displays the quality of the GPS position information.
Ground Speed	Gnd Spd	Displays the GPS or ADS-B provided ground speed

Horizontal Situation Indicator (HSI)*	HSI	Combines several data elements into one: course over the ground, Cross-track error, planned bearing, and actual bearing.
Indicated Airspeed*	Indicated Airspeed	Gives the indicated airspeed for the aircraft on display
Magnetic Heading*	Magnetic Heading	Provides the magnetic heading of the aircraft for display
Name Current Waypoint	Waypoint	The Name, Identifier or Lat/Long of the next target waypoint.
Name Final	Final	The Name, Identifier or Lat/Long of the final waypoint.
Slip*	Slip	Indicates the slip degree of the aircraft
Speed	Speed	The current speed of the aircraft relative to the ground in KTS, MPH or KPH. (Note: This will toggle between Ground or Airspeed based on data availability)
Target Altitude	Target Alt	Current target altitude as defined in the the flight plan
Timer ##	<Timer ##>	Displays the status of timers.
Track	Track	Indicates the current path or track over the surface of the Earth directly below an aircraft. True or Magnetic. (This is not heading; and will likely vary the aircraft's physical heading on account of winds.)
Traffic Radar*	Traffic Radar	Top-down, radar-style view of traffic around your aircraft.
Turn	Turn	The degrees of turn (left or right) needed to fly to the next target waypoint.
Turn Timer	Turn Timer	Countdown timer to start of next turn, based on a 2 minute turn.
Velocity Made Good	VMG	The current "closing rate" to your next waypoint; this measurement accommodates for direction of travel. Shown in KTS, MPH or KPH.
Vertical Profile	Vertical Profile	A moving profile view of your current position relative to the terrain, obstructions, and airspaces ahead. Touch this instrument to toggle between full page and small views.
Vertical Speed	Vert. Speed	Calculated rate of climb or descent in feet per minute (fpm), derived from GPS data
Vertical Speed (Pressure)*	Vert Spd-PRS	Rate of climb based on change in air pressure
Vertical Speed to Target (VST)	VST (fpm)	Target rate of climb or descent needed to arrive at Pattern Altitude for the next airport in the flight plan, or the final destination. Appears when the VST reaches a defined rate of descent.
XTE - Cross-Track Error	XTE	The distance the aircraft is off course to one side of the course line. (A negative XTE value is left of centerline and positive XTE value is right of centerline.)
Zulu Time	Zulu	Displays the current Zulu time

*- Indicates that an external device is required to retrieve the data necessary for the instrument to work. Many ADS-B devices will provide Traffic and AHRS data, other devices (for example iLevil BOM) provide additional details such as air pressure, angle of attack, etc.

Warning: Your aircraft's pressure altimeter shows the altitude based on the air pressure recorded at ground level. iFly EFB shows altitude above sea level based on a GPS reference datum.
These altitudes can vary by as much as 10%.
If there is a discrepancy, always use your pressure-indicated altitude as the correct source, not the GPS altitude.

Vertical Profile Instrument

This is a moving profile view of your current position relative to the terrain, obstructions and airspaces ahead. Touch this instrument on the screen to toggle between full page and its default small view.

*See the **Vertical Flight Planning** section for more details.

Vertical Speed to Target Instrument

Use the **Vertical Speed** and **Vertical Speed to Target** instruments to follow the correct ascent / descent rate to reach the target altitude of the waypoints in your flight plan.

To manually define altitudes for non-airport waypoints in your flight plan, select the **Set Alt** button on the flight planning page. If no altitude is defined, the system will automatically display the **Vertical Speed to Target (VST)** to pattern altitude at the destination airport.

Note: the target altitude for an airport is assumed to = pattern altitude x miles from the airport.

Vert. Speed – Displays vertical speed in feet per minute, averaged over the last 5 seconds

For a steady descent, match your Vert. Speed to the VST

VST – Displays the ascent / descent rate required to reach your target altitude

*Note, the location of the **Vertical Speed** and **VST** Instruments will vary based on device and selected Instrument Layout. The VST Instrument will not show until an altitude change is required.*

Customizing Vertical Speed to Target Settings

- **Vertical Speed to Target** is an instrument that pops to show the ascent / descent rate in feet per minute required to reach the target altitude of the waypoints in your flight plan.

- Add the **Vert. Speed** and **VST** (Vertical Speed to Target) instruments to your display using the Instrument Setup form. Touch **Menu -> Setup -> Customize Instruments** or by clicking the **Inst Group Button**

- Note that the VST only shows during flight when above 600 AGL. It only displays during a descent greater than -200fpm or a climb greater than +100 fpm.

- Additional VST settings may be adjusted by touching **Menu -> Setup -> Alerts and Warnings -> Vertical Speed to Target Settings**.
  - Set the pattern altitude distance from airport, from 1 NM to 10 NM

Map Settings

The Map Settings menu allows a variety of map specific features to be enabled, disabled, or configured according to your preference. Access Map Settings by touching **Menu > Setup > Map Settings.**

SUA Display Modes: Set and customize warnings for Special Use Airspace. Keep irrelevant High Altitude SUAs from cluttering your screen by touching "Hide SUAs above 18000'". Uncheck to show all SUAs regardless of altitude.

Distance/Glide Rings: Select Dist/Glide Rings option. A Distance Ring is an arc shown on the map around the aircraft for easy interpretation of scale and distance. Options are Hidden, Dynamic, Fixed and Show ETE on Dynamic Ring.

Course/Compass: Options for a Compass Rose, a blue arrow extended in front of the plane indicating the current course, or nothing.

Show Intended Track Line: Can be enabled to display continuously or only when you are off course by 5 degrees or more. Enables a blue line drawn from your current location to your targeted waypoint.

Auto-Track Plane: Options for having the map to automatically re-center onto the aircraft after a period of time where the user has not touched the screen. Options include:
Enabled = Auto Track is enabled regardless of if the aircraft is in motion or not.
Enabled when moving = Auto Track is disabled when iFly EFB is not moving (such as while you're planning a flight). If the GPS is registering motion (while flying), Auto Track will be enabled.
Resume Time: Defines the time before the Auto-Track feature recenters the map to the current location.
Center Aircraft (no skew) = When tracking the aircraft it will always be positioned in the center of the map, instead of skewed toward the opposite direction of travel.

Aircraft Icon: Choose Aircraft map representation: Blue Arrow, Green Arrow, Helicopter, High-Wing, etc. This setting may also be configured by changing your Aircraft Profile.

Enable Auto Taxi: If checked, iFly EFB will automatically zoom into an airport when the plane is taxiing on airport grounds. The Airport Diagram or Real View image will automatically show, based on settings and data availability. After takeoff the map will revert to its prior zoom level.

Enable Simple Map Marker: Change from QuickView pop up to the simple pop-up marker used in earlier versions of iFly EFB.

Auto Show Apt Diagram: If checked, iFly EFB will automatically display an airport diagram anytime the map is zoomed into an airport that has an associated airport diagram.

Route Lines: Allows setting a color for primary and alternate flight plans. For more information on loading alternate flight plans see page 38 Loading Alternate Flight Plans.

Auto Extend Runways: When checked 5nm runway "feathers" will be extended off all runways from airports in the flight plan.

Screen/ Audio Settings

Access by touching **Menu -> Setup -> Screen/Audio Settings**.

Note: Available settings will vary based on the type and capabilities of the device

Calibration: Opens a device setup menu where you can perform a screen calibration process (iFly GPS Hardware Only)

Screen Brightness: Toggle screen brightness up or down (iFly GPS Hardware Only)

Enable Button Click Sounds: When checked all menu touches will make an audible click

Sound Volume: Adjusts the volume of alert and warning tones from the iFly EFB app. This setting is relative to the device volume setting; it does not directly affect the device's volume.

Button Fading: Control how much the buttons fade when not in use.

Font Size: Change font size to smaller or larger.

Screen Layout: Choose small or large screen (available only on apps).

**Screen Orientation**: Change orientation to portrait or landscape.

Map Modes

Touch the **Map Mode** button on the Main Screen to change or modify the current map.

The top portion of this form sets the current Base Map.

- **VFR**: Displays seamless VFR charts.
- **IFR Low**: Displays Low-Enroute Charts
- **IFR High**: Displays High-Enroute Charts.
- **Vector**: Displays a decluttered aviation map. Rendered items vary based on zoom level, and may include water features, airspaces, terrain, obstructions, navaids, and more.
- **Instruments**: Displays an analog Instrument Stack

- When in VFR or IFR modes, the system will automatically select the most appropriate chart based on your location and zoom level: WAC, TAC, or Sectional chart.   Use the Switch Maps button to override this behavior. If overriding iFly's choice of chart the Switch Maps option will annotate the natural choice and the forced choice.
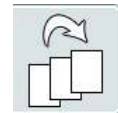
The lower portion of the form defines optional Layers that may be displayed on the selected base map.

- **METAR/TAF**: Displays visual indicators of the METAR or TAF conditions on the map. The METAR and TAF data will be automatically downloaded from the Internet if the device is online, or from an ADS-B receiver. This includes airports with a SayWeather system.
- **NEXRAD**: Displays Nexrad Radar images. These images will be automatically downloaded from the Internet if the device is online, or from an ADS-B receiver.
- **AIRMET/SIGMET:** Displays regions covered by an active AIRMET/SIGMET
- **Forecast:** Displays forecasted weather conditions with a time slider and layer options for specific weather information.
- **Winds**: Shows an overlay of winds, and adds a control to the form with sliders allowing the user to select altitude & forecast time, up to 36 hours out
- **Terrain Highlights**: Enables red and yellow terrain highlighting, to indicate low terrain areas

- **Glide Range**: Displays a polygon around the aircraft indicating the safe-glide distance. The range is based on aircraft profile, winds aloft, current altitude, terrain, and flying direction.
- **Map Sketch**: Show or hide any map sketches. The Sketch button will open the Sketch dialog. See Sketching on page 61.
- **Custom Waypoints**: Shows Custom Waypoint makers that have been created by the user.
- **Traffic**: Enables ADS-B traffic to be displayed
- **Obstructions**: Adds towers and other obstructions to the map.
- **Fixes / Intersections:** Displays fixes and intersections only in the Vector Map Mode.
- **Fuel Prices**: Shows the current fuel prices, color coded to indicate the best rates

At the bottom of the form is the **Night Mode** button. Use this to toggle the system into Night Mode, which will change the color pallet and darken the raster maps.

Note: Some systems support adjusting the screen brightness; in this case the button will be labeled **Brightness** *and it will provide options for toggling to/from Night Mode, or simply adjusting the screen backlight.*

Weather Data

Text Weather

When the METAR / TAF layer is selected, Weather information is shown on the map as a dot and a concentric circle with a wind barb over each FAA weather reporting station. The circle's color will indicate the conditions:

- Green: VFR
- Blue: Marginal VFR
- Red: IFR
- Magenta: Low IFR
- Gray: Some weather information is available but missing information to define if it is VFR/IFR etc.

Note: The quantity of METAR "Dots" will vary based on the zoom level. Zooming out will show fewer METARS, biasing the remaining dots based on the severity of the conditions.

Note: If a METAR has not been updated within the past 75 minutes it is considered "Aged" and a "?" will be presented inside the Dot. After 4 hours the METAR will be Expired and will no longer be displayed.

Additional weather data can be accessed by touching the map, selecting the **WX tab**, then selecting **Wx Info…** View decoded or raw text by touching **Display Mode**. Force an immediate weather update by touching **Options -> Update Weather from Internet**. Weather details include: TAFs (Terminal Area Forecasts), METARS, Winds and Temperatures aloft, and PIREPs.

- *Winds, PIREPs as well as TFRs expire after 12 hours, METARs expire after 4 hours. After this data expires, it will no longer be displayed.*

- *When viewing weather information, always note the time and age of the information to judge current relevance.*

Forecast

Touch **Forecast** to enable the Forecast feature. This will provide a slider to view future weather phenomena on the moving map. Includes options to choose between, flight rule, visibility, low-ceilings, cloud bases, cloud tops, convective activity, and cloud coverage. Use the time slider to select the time the forecasted weather information is for. An associated legend describing the color or image displayed can be found to the right of the layer options. Furthermore, you can change the opacity of the layer by clicking **Opcty.**
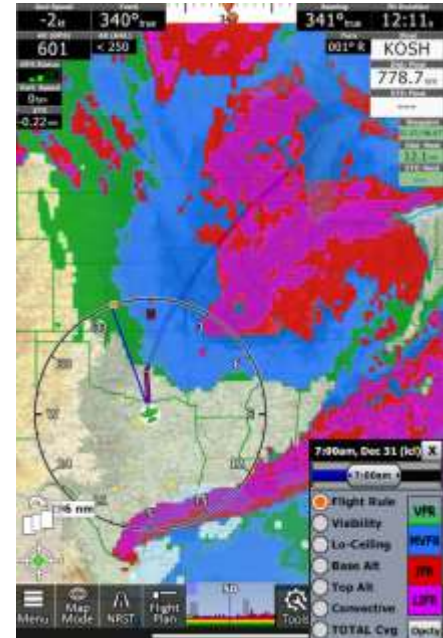
Nexrad

When connected to the Internet or connected to an ADS-B receiver, Nexrad radar data will automatically download and be available for display on any map. When using an ADS-B device, weather data will be kept current in a 250 NM radius around the ADS-B reporting station. Internet downloaded weather will include all of the United States.

NEXRAD image color describes weather intensity:

- Green – Light rain or moderate snow
- Yellow/Amber – Moderate rain or sleet
- Orange – Heavy rain or sleet
- Red – Thunderstorms
- Pink/Magenta – Heavy thunderstorms, hail, or other extreme weather
- Grey - Cloud cover

The NEXRAD image should update approximately every five minutes. While animated, a time stamp will show in a fixed location near the bottom of the screen.

To animate a history of images, touch the map to retrieve the Quick Info Popup, then touch **WX Tab -> Animate Nexrad**. A history of images from the prior 30 minutes will cycle until stopped by the user.
Note: If the **Animate Nexrad** button is disabled a history of Nexrad Data is not available and cannot be animated.

Access **Menu -> About -> Connected Devices** to view an ADS-B Device status summary. The "Status" field in this summary will display one of the following messages:

- **Connected**: ADS-B device is receiving weather data
- **Not Receiving**: The ADS-B device is not receiving any weather data. This is not error conditions; ADS-B can only be received at certain altitudes, so if the aircraft has not yet taken off, descends below a threshold, or flies out of an area covered by an ADS-B broadcast, the status will change accordingly.
- **Idle**: The ADS-B device has briefly stopped receiving weather data.

- **GPS Data Only**: GPS data is being received from the ADS-B device, but no weather or traffic information

Note: If the Connected Devices dialog does not have any status data regarding your ADS-B device, this could mean there is an issue with the underlying connection. Ensure your ADS-B device is turned on, the serial cable is connected, or the WiFi network is properly connected.

⚠️ **Warning:** ADS-B/NEXRAD data should be used for long-range planning only. Weather information on this device, regardless of the source, is not appropriate for use in short-range weather avoidance.

Traffic Details

If traffic data is available with your ADS-B device, the data will be processed and nearby traffic will be displayed on the iFly EFB map for enhanced situational awareness.

- The iFly provides collision alert warnings when another aircraft is within a set distance from your current position. (available if your iFly EFB is connected to a traffic-enabled ADS-B device).
- Traffic will appear on any Map you are looking at. (Sectional, IFR Low, etc.)
  - **Blue** Traffic Icons (more than 10NM from your position)
  - **Yellow** Traffic Icons (more than 3NM less than 10NM from your position)
  - **Red** Traffic Icons (less than 3NM from your position)
- iFly EFB will show all available information being broadcasted about that traffic. (Tail number, Altitude, Speed, Heading, climbing or descending.)

Note: Information about other aircraft is broadcasted with a delay. iFly EFB will automatically estimate the current position of the nearby airplane based on the last known speed and bearing.

The aircraft's projected Path is shown as a straight Line through the triangle. The line length represents 60 seconds of travel

Nearby aircraft shown as a yellow triangle

Warning: Some ADS-B receivers and transceivers will receive and send information about area traffic to iFly EFB. However not all receivers support this capability, and some provide only limited traffic capability. Check with your ADS-B manufacturer for complete details on how your receiver handles traffic information.

Plates & Diagrams

There are several methods of accessing FAA provided Plates and Diagrams. Most methods start with an airport: If you are viewing an Airport in the Quick View Popup, or in the Airport Information Form, and there are plates published for that airport, the View Plates button will provide a list of plates to select from.

Selecting a geo-referenced plate or diagram will automatically enable the Approach Plates layer and show the plate on the current base map.

Following are some examples of how to retrieve a plate:

1. Touch an airport to get the **Quick View Popup**, then touch **View Plates**
2. Select a recently viewed plate from the **History** button
3. Search for an airport by touching **NRST**, then **Text Search**, then enter your airport search criteria
4. From the Flight Plan menu touch an Airport to get to the details form, then select **View Plates**

Note: An IFR Subscription is required for most plates. Airport Diagrams are available to VFR and IFR subscribers. On some iFly Devices Plate data may be available without an IFR subscription, but it may be expired.

Note: If detected, a message box will be shown indicating how long a plate has been expired.

The following types of plates can be viewed:

- Airport Diagrams
- Instrument Approaches
- Departures (SIDs)
- STARs (Standard Terminal Arrival) plates
- Minimums

Geo-referenced Plates

When viewing a list of plates on the menu, most Airport Diagrams and Approach Plates are georeferenced. When viewing a Georeferenced plate, it will be shown over the active base map. Note that a plate that is highlighted red indicates the plate is not georeferenced.

Georeferenced plates may be viewed with partial transparency, fully opaque, or with the colors inverted. To configure these options touch the Plates button located on the right side of the screen, while a plate is being viewed.

The Plate Options menu includes several options to make navigating plates easier:

- **Hide Approach Plates**: Closes the Approach Plates layer and returns to normal navigation mode.
- **Fullscreen Approach Mode:** Removes the background map and makes the plate use the full screen
- **Show Apt Diagram**: Displays the airport diagram associated with the plate's airport (if available). If not shown it can be found under More Plates
- **Approach Loaded: [approach name]** If checked, the plate being viewed is currently loaded. If unchecked, checking this option will load the approach/star/departure into the plan.
- **More Plates**: Shows options to select other plates at this airport or other airports.
- **Set Opacity**: Controls the color and opacity of the plates. These settings are stored independently for each Map Mode.

Non-georeferenced plates

Non-georeferenced plates, such as Departures, STARs, or Minimums, will be shown in Plate Viewer mode. In this mode the Menu Bar is updated to accommodate special needs of viewing these plates. Instruments will remain in this mode to aid in navigation, but a map will not be available.

Returns to the navigation map

Find other plates at this or other nearby

Rotates the plate 90 degrees

Allows paging for plates with multiple pages

Checklists

iFly EFB supports creating, managing, and utilizing Checklists for a variety of functions. Numerous Checklists can be created, and each Checklist can contain independent Sections and sub-Sections of checklist items. For example, your Cessna 172 checklist may contain a Pre-Flight Section, and Pre-start Section, a Pre-Take-off Section, etc.

Creating a New Checklist

To get started touch the **Tools** button on the button bar (or touch **Menu -> Tools**), then touch **Checklists**. The first time the Checklist feature is used, it will be required to create a checklist by touching **CREATE** in response to this prompt. Then select from one of the sample checklists, or select <Blank List> to begin a new checklist from scratch:

New Sections can be added by touching the "ADD SECTION" button at the bottom of the list, or through the Options button at the bottom of the screen. Initially the Section will be added to the bottom of the list, but these can be re-ordered later using the "RE-ORDER SECTIONS" button in the form header.

New Sub-Sections and New Items can be added by tapping the respective buttons.

When adding a new Checklist Item, you may optionally separate the item text from the expected state with a colon, for example "Flaps: DOWN". The system will automatically highlight the expected state when the text is entered in this manner.

To re-order Sections or Items touch the "RE-ORDER" button, then check each item in the order they should be presented, from top to bottom.

To change the text for any Checklist Item, Group, or Sub Group, simply tap the item to be edited and enter the new text or label for that item.

Touch "Done" when your checklist editing or creating is complete.

Using Checklists

Touch the **Tools** button on the button bar (or touch **Menu -> Tools**) if that button is not available, then touch **Checklists.**

The last checklist used will be shown. If multiple checklists have been created, the button at the lower left of the form will allow you to switch between other checklists.

As you work through a checklist simply tapping any item in the list will turn it green. When an entire Section (including any Sub-Sections) have been checked, the Section will collapse and be marked "DONE." Tapping the Section will re-expand that section.

The Gear on the right side of the section header can be used to clear all the checks, resetting the Section.

If the iFly EFB app is restarted, the checked state will be recalled. However if the app is shut off for an extended period of time the checks will automatically be cleared.

Weight and Balance

Accessing Weight and Balance (Wt&Bal) from the Tools menu allows you to perform weight and balance calculations based on a Wt&Bal template associated with the aircraft profile being used. If no template is associated with the profile, you will be asked to create one. You can create a Wt&Bal template several ways. You can select from several preconfigured templates included in an Aircraft database. You can choose a generic template based on the number of seats in the aircraft. You can also copy a template you already created for another aircraft profile you have on your device. Only one Wt&Bal template can be associated with a particular aircraft profile. However, you can create multiple aircraft profiles for the same aircraft and use the Alias function to differentiate between them.

Creating a specific template for your aircraft is just a matter of filling in the correct information for your aircraft in the provided fields. The CG Limits section of the template is used to create an Operations Limits Graph which is displayed at the bottom to graphically show where you lie in relation to CG and overall weight limits.

Note that you can also access the Wt&Bal template by selecting the Weight/Balance field in the Aircraft Profile. Additionally, you can edit the template once selected or simply fill in the data fields for your current flight.

If you wish to delete a template associated with the profile, select the Copy From tab at the bottom of the Wt&Bal template and select DELETE Wt&Bal Template.

Once a template is created you just enter the appropriate information for this flight in the contents field. Note that this information will remain for your next flight.

Non-usable fuel is included in the Zero Fuel Weight (ZFW). All fuel above the ZFW fuel is used in the takeoff weight (TOW) result. To omit non-usable fuel just set it to zero in the template. There is an option to enter fuel by weight or fuel units (e.g. lbs. or gals).

The +Max field indicates the maximum amount of weight you can put at this station. If this field is red, then it indicates the minimum amount of weight that must be removed to bring the aircraft within safe Wt&Bal limits. If there is an asterisk, then even removing the entire amount of weight won't resolve the current out of limits situation but it will bring you closer to safe limits.

Other Tools and Features

Distance Measure Tool

On iFly devices: To measure the Distance between any two places on the map, touch the first location, then touch the NAV tab on the QuickView Popup. Touch More Options -> Measure Distance From... The red point on the line represents your first location. Drag and drop the black point of the line to your desired second location. Line will read both distance between the two points and bearing. Touch anywhere on the screen to close the tool.

On Apple and Android: Touch the screen with two fingers at the same time. Drag and drop each endpoint for precise measurements.

Sketching

Sketches can be created on maps, plates or diagrams, on blank sheets, or on a sheet designed to store CRAFT details (Clearance Limit, Route, Altitude, Frequency, and Transponder).

To manage, edit, and create new sketches by either going through Tools -> Select Sketch or Map Mode and select the gear next to Map Sketch.

Sketches made on a map will persist to other map modes. However, sketches made on a plate or airport diagram will only be shown with that particular plate or airport diagram.

Sketching on the map or paper uses the same tools and menus.

Exit Sketch mode and return to the map.

Select the pen, tap again to change line width and color.

Select the highlighter, tap again to change highlight width and color.

Removes and adds previously drawn lines.

Selectively remove items.

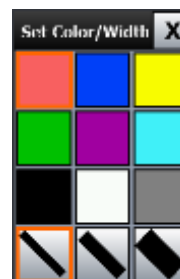Clears all the lines on the current sketch.

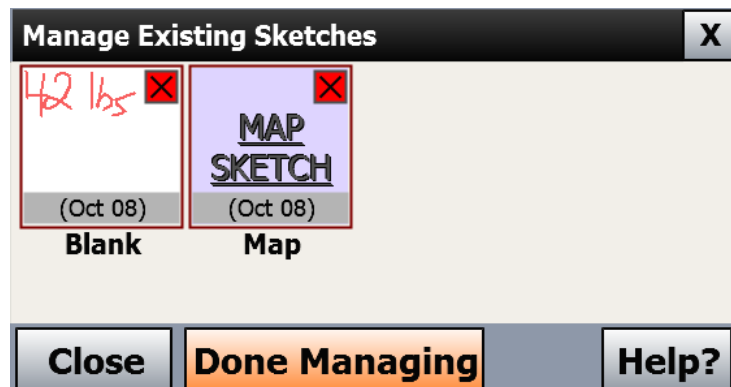Allows you to pan the image without drawing on it.

Allows you to sketch on the image without panning.

Manage Sketches

You can manage, edit, and create new sketches by going to **Menu -> Sketches** or select Map Sketch and press the gear button next to it.

To view or hide Sketches on the map, touch the **Map Mode** button, then toggle the **Map Sketch** layer.

Linking to Dynon, Avidyne

[This feature is supported on Android & iOS devices only]

iFly EFB is designed to automatically detect supported PFD (Primary Flight Display) devices. First connect your phone/tablet to your Dynon or Avidyne using the WiFi settings. Once connected launch the iFly EFB app. For most WiFi devices iFly will automatically detect, but due to the specific nature of the connections to panel mounted PFDs it is necessary to manually select the proper device. Do this by touching **Menu -> About -> Connected Devices -> Select Wireless Device** then pick the appropriate device from the list. You may watch the Connected Devices dialog to confirm the connection is successfully established.

Once connected, ADS-B data, if available, will automatically stream from the PFD and enable the variety of ADS-B data overlays (Traffic, Metars, Nexrad, etc).

To push a flight plan to the PFD from iFly EFB, touch the Flight Plan button, then touch the **More Options** button -> **Share -> Share Across Local Network,** or if your specific PFD is listed as a share target, select that option instead.

PDF Viewer

[This feature only supported in iFly Portable Devices]

1. With your iFly GPS powered off, eject the SD card and insert it card into your PC. If your PC does not have an SD card reader, you can buy one from your local electronic shop.
2. Create a new folder in the SD card and name it "PDF".
3. Copy files with a ".pdf" extension into the new folder.
4. Return the SD card to the iFly GPS.
5. A new option to View PDF Files will now appear when you touch Menu.

NMEA Output

The NMEA Output feature can be used to send GPS information to external devices such as an autopilot, fuel computer, or anything else that understands an NMEA-based GPS signal. Access by touching Menu -> Setup -> NMEA Output.

1. A special USB-to-Serial cable is required and can be purchased at www.iFlyEFB.com.
2. Wire the USB-to-Serial cable to the external device, using PIN 3 for data, and PIN 5 for ground.
3. Select the desired NMEA settings by touching **Menu -> Setup -> NMEA Output**.
4. If an available serial port is not found, "No Serial Ports" will be displayed.
5. If found, select Standard, Extended, or Custom from the resulting menu
   a. **Standard** = 4800 Baud, Basic GPS location data (GPRMC and GPRMB) sentences will be sent
   b. **Extended**=9600 Baud, Basic GPS location data plus extensive course information will be sent
   c. **Custom**=A form will display allowing for the selection of different baud and NMEA Sentences.   Refer to the external device owner's manual for details on settings required by the device.

To transfer NMEA data from an Android or iOS device you will need a compatible Bluetooth Serial device.

1. Connect the mobile device to the Bluetooth Serial Cable via the Bluetooth settings on the mobile device. (Refer to your specific Bluetooth Serial Cable's manual for specific instructions).

2. For iFly EFB to send information, you'll need to enable NMEA output to the Bluetooth Serial device by touching **Menu -> Setup -> NMEA Output -> Send to Bluetooth RS232 -> Select the Bluetooth Serial Device**

3. Lastly, to configure the NMEA output settings touch **Menu ->Setup -> NMEA Output.** The same options shown in the above text will be displayed for configuration.

Installing an External ADS-B Device

1. Check www.iFlyEFB.com for a list of compatible ADS-B devices.
2. If using a Wifi connection, first connect the tablet, phone, or iFly GPS to the ADS-B device.
   Note: Refer to device specific instructions for establishing a WiFi network connection
3. If using a hard-wire connection (iFly Devices Only), Plug a compatible ADS-B device into the USB port of your iFly GPS.
   Note: If the device does not have a USB connector, but has an RS232 serial adapter, connect using the "USB To Serial Cable" available in the iFly EFB store at www.iFlyGPS.com.
   a.   Once a hard-wire connection is established, no further setup is required
4. Touch **Menu -> About -> Connected Devices**, then touch the **Wireless Device** button to ensure that AUTO-DETECT is selected. The iFly software will determine the device type automatically.

Searching with Google Map Search

When a phone or tablet running iFly EFB is connected to the Internet, the Text Search form will support searching the Google Maps service for locations or addresses. Perform the following steps to utilize this feature:
1. Ensure the device is connected to the Internet
2. Touch Menu -> Text Search
3. Begin typing a text string or address, for example "Texas A&M" or "123 Main Street, Somewhere TX".
4. After a few characters are entered the "Lat/Lon" button will change to "Google". Touch this button to search the Google API for results
5. Select the desired result from the list, and the lat/lon for that point will be highlighted or added to your flight plan.

Interfacing with X-Plane Simulator

To interface an X-Plane simulator with the iFly EFB app, follow these steps:
1. Ensure the computer running X-Plane and the device running iFly EFB are connected to the same network
2. It's important that the devices are able to share UDP data; certain network configurations, firewalls, or software based firewalls may interfere with this communication process. Also on X-Plane ensure the app is granted permission to access the network.
3. Within X-Plane go to Settings -> Network Settings, and check the box "Broadcast to All Apps on Network"

4. Once your X-Plane flight begins, the iFly EFB app will automatically begin tracking the flight.

Exporting Flight Trails

The iFly EFB app can export a Flight Trail to be utilized in other applications. One popular Log Book app that can accept exported flight trails is MyFlightBook.

MyFlightBook is a free and robust Logbook app that supports both Android and iOS, and has features such as cloud-based storage of flight logs, log editing, attaching images & videos, generating currency reports, and much more.

To export a flight trail to MyFlightBook perform the following steps:
1. Ensure MyFlightBook is installed on the device
2. Within the iFly app touch **History -> Show Past Flight Trails**
3. Tap the desired flight trail file
4. Touch **Export**
5. A list of export available apps that can accept the file will be displayed by your device's operating system. Select "MyFlightBook" to send the trail directly to the MyFlightBook app
6. MyFlightBook will open and create a new log entry with the selected flight.
7. Review the log and complete & correct as needed

Frequently Asked Questions

What causes the "Weak GPS Signal" message?

There are several reasons that this message may appear: "Weak GPS Signal. Indicated Location / Altitude May not be accurate."

- If the device is turned off for an extended period of time, it may take a long time before a GPS signal lock is re-acquired. This happens because the network of GPS satellites is in constant motion. The current health, location, trajectory, and altitude of each satellite must be determined before the GPS can triangulate on its current location. This data (known as the Almanac) is continually being broadcast by the satellite network. It can take up to 30 minutes for the GPS to download the Almanac, and a clear view of the sky is necessary to ensure the download is not interrupted. It is not necessary to do anything; the GPS will always download the latest Almanac information whenever satellites are in view.
- If the GPS is relocated a long distance (more than 100 miles) while turned off, it may have a more difficult time re-acquiring a signal lock. This is because modern GPS systems use the last known position to speed up the initial triangulation process. However, this logic has the opposite affect for a relocated GPS, causing it to take longer to realize its location has changed. To speed the initial lock after relocation, you should touch "Menu" -> "About" -> "GPS Information" -> "Reset GPS." (iFly Devices Only)
- If this message keeps coming and going while in flight, you may have a weak signal. There are numerous possible reasons for a weak signal: Local or ground interference, weather, number of currently "visible" satellites, age of internal Almanac database, shielding in the cockpit, etc. Even distortions in the earth's ionosphere can affect the signal strength.
- If using a Tablet or Phone, the internal GPS may not be adequate, or it may be depending on ground-based phone towers to initialize the connection.

Things to try if this problem persists:

- Reposition the GPS to get a better view of the sky.
- Perform a "Factory Reset" – this will flush the Almanac and force the system to download the latest information. Touch "Menu" -> "About" -> "GPS Information" -> "Reset GPS" -> "Yes" -> "OK." (After this step, the "Reset GPS" button will be changed to "Factory Reset.") Touch "Factory Reset" -> "Yes" -> "OK."
  Note: it will take up to 30 minutes to re-acquire a signal lock after this step.
- Install an external antenna. Antennas are available at www.iFlyEFB.com (iFly Devices Only)
- If using a tablet or phone, consider using an external GPS source such as a Dual 160, or an ADS-B receiver

Why are items on the sectional not aligned perfectly?

If your flight plan to an airport seems to place you a little distance from an airport location on the sectional, or you notice that some of the airspace highlights don't perfectly overlap the sectional airspaces, there is a simple explanation for this:

The FAA sectional maps are still created using a lot of manual processes, causing the location of individual elements to be off a little bit. This issue exists in the printed paper charts, as well as all other tools and applications that employ the FAA scanned sectional maps.

FCC Information (iFly devices only)

All iFly GPS equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Adventure Pilot, LLC may cause interference and void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.