Air Navigation Pro 5.2

User Manual

Air Navigation

Real time navigation system with moving map for iPhone & iPad.

Available on the App Store

For more information: www.xample.ch

Xample

Special thanks to our Beta testers, partners and users who where invaluable in making this a better product.

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http://www.xample.aero
http://www.facebook.com/AirNavNews
http://www.youtube.com/XampleAirNav

PRODUCT VERSION: 5.2 (09/2012)
DOCUMENT VERSION: 5.2 (09/2012)

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Introduction

Thank you for your interest in Air Navigation. Air Navigation was developed with General Aviation in mind, however it was quickly adopted by pilots of various flying vehicles including for example paragliders, gliders, ultra light, single or multiengine airplanes, helicopters and even hot air balloons.

Air Navigation is an affordable, yet powerful flight planning and real-time navigation application. With version 4, the application user interface was overhauled to make it easier to use and add various new features. We hope you'll enjoy the product as much as we enjoyed working on it.

About this document

This document is intended to be a complete user manual, however, as new updates are released often, brand new features may be missing until they are added in a further version. You will find references to 3 versions of Air Navigation (Free, Standard and Pro), however, this document will focus on Air Navigation Pro.

About Air Navigation

Air Navigation is a real time navigation and flight planning application. It is distributed in 3 versions:

Air Navigation Free

- Internal database with more than 100.000 waypoints, airports and related information;
- Navigation instruments (HSI, CDI, ADF).

Air Navigation Standard

- Moving map with direct to waypoint capability;
- Access to free of charge, open source maps, downloadable from within the application;
- Internal database with more than 100.000 waypoints, airports and related information;
- Internal database with airspaces information (not all countries available);
- Logbook (manual);
- Navigation instruments (HSI, VOR, ADF).

Air Navigation Pro

- Moving map with multi leg flight planning or direct to waypoint capability;
- Access to commercial aviation charts (as in-app purchases) for Europe, USA, Australia, New-Zealand (check our website for available countries);
- Support for geo referenced approach charts (not all countries available, check our website for more information);
- Access to free of charge, open source maps, downloadable from within the application;
- Internal database with more than 100 000 waypoints, airports and related information;
- Internal database with airspaces information (not all countries available);
- Logbook (automatic);
- Support for elevation data, see terrain in front of airplane or while planning legs;
- Support for 3D data of Synthetic Vision;
- Navigation instruments (HSI, CDI, ADF);
- Online flight tracking service.
- Support for the use of external gadgets (AHRS g mini, Flytec)

Minimum requirements

Air Navigation Pro 5 will run on:

- An **iPhone**, **iPod Touch** or **iPad**;
- iOS operating system **version 4 or higher**;
- **200 MB** of available space for the application and database;
- approximately **350 MB** of available space **for each chart** of the size of a country like France or Germany;
- A **GPS module** is mandatory for real time navigation. The following devices have an integrated GPS moduel:
  – iPhone 3GS/4;
  – iPad 1 or 2 with 3G capabilities;
  – New iPad (known as iPad 3).
  iPod Touch and iPads Wifi only require an external GPS module. Example of external GPS modules are:
  - TOM TOM car kit for iPhone or iPod Touch;
  - GNS 5870 MFi Bluetooth;
  - Bad Elf 66 channels.

For more information on how to connect Air Nav Pro with an external GPS device, please refer the «External devices» chapter.

Note: versions of **Air Navigation Pro 5.2 or higher** will **NOT** work on an **iPhone 3G** due to the changes on Apple's testing code for developers. However, the app will perform normally on an iPhone 3GS or latest versions.

Disclaimer

Before using this software, you must read and agree with the following terms and conditions.

This software is not intended to replace a certified navigation device! We do not guarantee the accuracy and comprehensiveness of the information provided. The embedded navigation database is provided for informational purpose only. It may not be complete and may contain erroneous data.

You should always use official aeronautical documentation (AIP) when preparing and performing a flight. You should always use certified navigation devices when performing a flight. This software is provided 'as-is', without any express or implied warranty. In no event will the authors or third party data providers be held liable for any damages arising from the use of this software.

YOUR USE OF THIS REAL TIME ROUTE GUIDANCE APPLICATION IS AT YOUR SOLE RISK. LOCATION DATA MAY NOT BE ACCURATE.

User Interface

Air Navigation Pro 5 on iPad

On iPad the screen is divided to display the selected route and an instrument of your choice on the left side. The moving map is on the right side together with the data bar at the bottom.
An optional terrain profile view can be displayed at the bottom.

The moving map can be set to full screen and it this case, the route and the instrument are hidden but still accessible from the instrument button in the top toolbar.

Other modules, functionalities and settings can be accessed from the top toolbar.

Air Navigation Pro 5 on iPhone

On iPhone one module can be displayed at a time. By default, the moving map is displayed at launch time. Other modules can be displayed by pressing the corresponding tab buttons at the bottom of the screen.

On iPhone the toolbar is hidden by default and you must press the «screwdriver» button on the left side to display it.

Other modules and settings can be accessed in the «Configuration» tab in the bottom right corner.

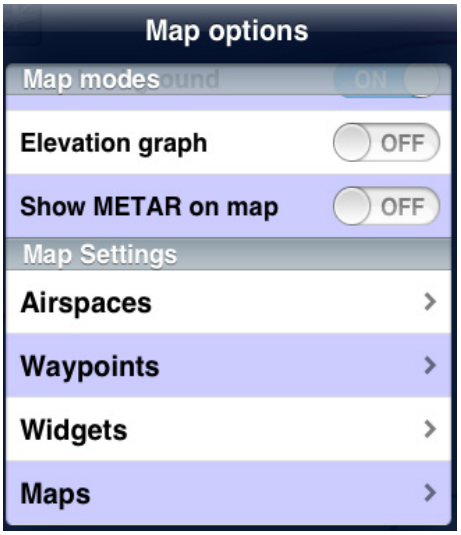
Buttons in the Toolbar

On iPhone, this button toggles the moving map data bar visibility on/off. On iPad, this button toggles between **«Split-screen»** and **«Full-screen»** mode. The split screen shows two of the selected instruments together with the moving map. This instruments/route can be selected from the "Instruments Layout" menu in «Configuration» button at the top-right corner of the toolbar. For more information please refer to «Configuration» icon on next page.

This button will run the **«EFIS module»**. You will first need to download the 3D data from the «Map Store» menu.
On the iPhone, you will find this instrument on the «Configuration» tab at the bottom right corner.

«Map Options» displays the map settings module. In the map settings you can configure what will be displayed on the map and how. Please refer to the «Map Options» chapter for details. The following are the available options on this menu:

- Control the screen brightness;
- Show/hide the map background (the installed charts/maps);
- Show/hide the terrain elevation graph;
- Enable the Terrain awareness 3D/2D;
- Show/hide symbols of weather conditions (VMC, IMC);
- Setup the airspaces filter and display modes;
- Setup the waypoints filter;
- Enable, disable the extended track and bearing line widgets;
- Enable Maps/Charts and choose which map will be displayed on top of the others;
- Choose background color (for where there is no map).



Toggles between **«Flight mode»** and **«Edit mode»**. When edit mode is turned on, a yellow-black bar at the top of the screen indicates it is active.
On the edit mode it is possible to tap waypoints on the map to add/remove them to/from a current route.
Additionally, you can freely navigate the EFIS module.

Displays the waypoint database where it is possible to «Search» for a particular waypoint or list nearby waypoints, sorted by distance.

Displays the list of saved «Routes». Tapping on a route from the list will set this route as current, display the legs in the «Route» module and display the route in the moving map as a magenta-color vector.

Selects the «nearest airfield» from your current location as a direct to waypoint.

This button is used to «Erase» the current selected route or "direct to" feature from the moving map. Press this button when you want to set the map to «free flight» mode and/or when you want to start a new blank route. Additionlly, you can hide a georeferenced approach chart from the moving map.

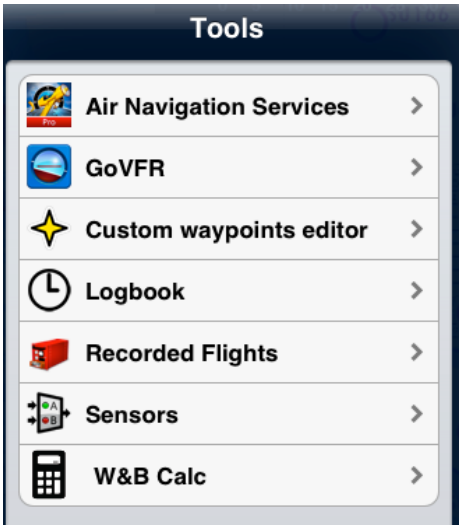
Displays the «current Flight logbook» entry. On iPhone, this module is reachable from the tabs at the bottom and has a slightly different icon.

Displays the «instruments» list. On iPhone/iPod Touch, the instruments list is reachable from the «Configuration» tab at the bottom right corner.

Displays a list of «weather stations» and latest METAR/TAF information in a decoded format. You can add stations of your choice by entering an identifier in the search field on top and press return. On iPhone/iPod Touch, this module is reachable from the «Configuration» tab at the bottom right corner.

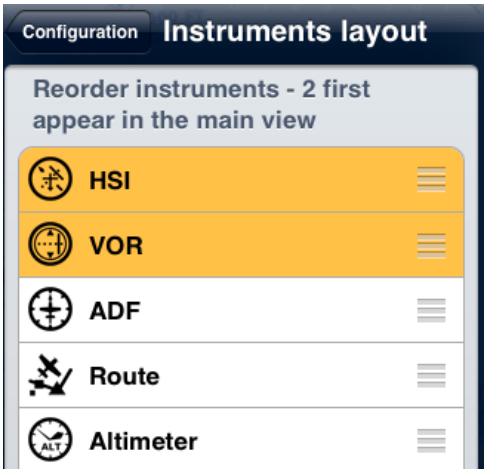
Displays a list of «PDF documents» associated to an airfield. Pressing a document will display its content in fullscreen mode.
You will also use this tool to create an «Aircraft profile».
On iPhone/iPod Touch, this module is reachable from the «Configuration» tab at the bottom right corner.

Displays the **«Tools»** list where you can find additional utilities. On iPhone/iPod Touch, the tools are reachable from the «Configuration» tab at the bottom right corner.
The following are the available options on this menu:



- **Air Nav Services**. Please refer to «Flight tracking system» chapter on this manual;
- **GoVFR tool**. Please refer to the «Third Party Services» chapter on this manual;
- **Custom Waypoint Editor**. You will be able to create user waypoints of different types (Airfield, Heliport, IFR, Navaids, etc);
- **Logbook**. Please refer to the «Logbook» chapter on this manual;
- **Recorded Flights**. You can reproduce your flights live on this option. Refer to «Record a Flight» chapter on this manual;
- **Sensors**. Please refer to the «Sensors» chapter on this manual.
- **W&B Calc**. Weight and Balance calculator after entering the required data in the Aircraft profile.

Displays the **«Settings»** module where you can fine tune the application behavior and customize units and other settings.
We can also find the **«MapStore»** module within this button, from where you can download both free and commercial maps/charts/data.
When using the Waypoints database search engine, you can enable/disable the countries displayed to make the search easier.



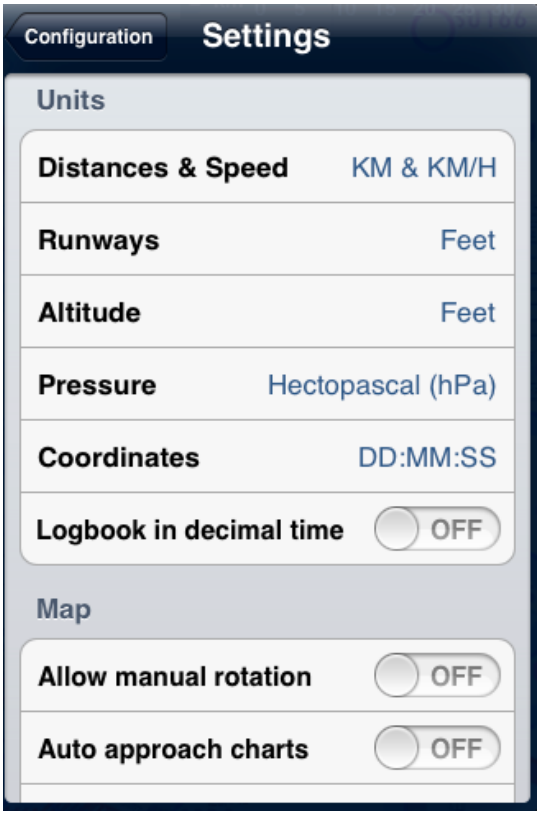
This button also displays the **«Instrument Layout»** menu, where the instruments are reordered on top of the list in order to appear in the «split» screen when using an iPad. In this case, only the first two will show together with the moving map.

On an iPhone/iPod Touch, the «Instruments Layout» menu will reorder the first 4 instruments to show them in the Bottom bar.

All the mentioned modules and settings are reachable from the «Configuration» tab at the bottom right corner on an iPhone/iPod Touch.

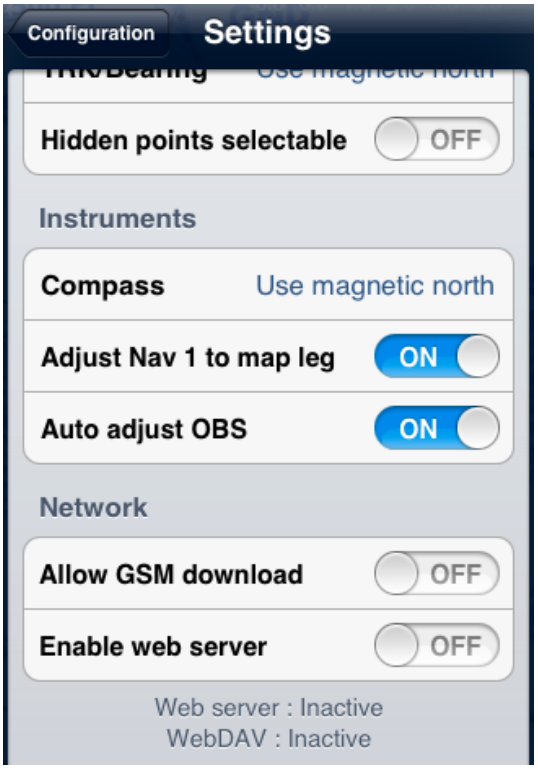
The following are the available «Settings»:

- **Units**. Gives the possibility to change the units of the displayed values:
  - Distance & speed: NM&KTS, M&Mph, km&km/h;
  - Runway lengths: meters, feet;
  - Altitude: meters, feet;
  - Pressure (AHRS g mini): hPa, inHg;
  - Coordinates: DD:MM:SS, decimal, DD:MM.mm;
  - Logbook time: HH:MM, decimal.



Should you wish to change Fuel/Length units, you can do it in the Aircraft profile panel.

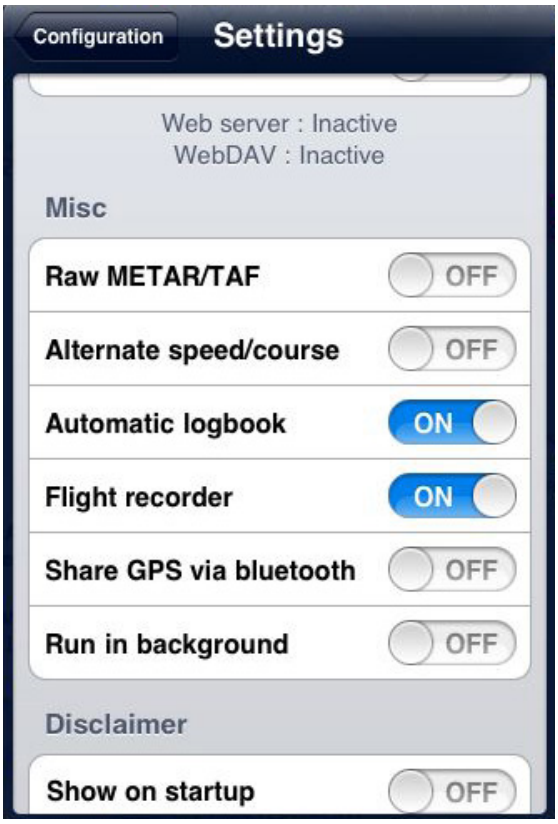
- **Map**. Blocks/allows map rotation.
  When «Auto approach charts» option is ON, the approach plate will show up on the moving map when the desired Airport is the next waypoint. Note that in order to use this option, you will first need to purchase the "VFR/IFR" approach charts from the Map Store (not all countries available). Please refer to the next chapter for more info.
  «TRK/Bearing» option will allow you choose from showing True North or Magnetic North when creating a Route/displaying next waypoint. When «Hidden points selectable» option is ON, the user can still select a waypoint if it`s hidden.



- **Instruments**. You can choose from displaying the True/Magnetic North when using the Compass. When «Adjust Nav 1 to map leg» is ON, the instrument will automatically be configured to the NEXT waypoint on the map. Remember that as it`s "Nav 1" it will only affect to the FIRST instrument of the list showing under «Instrument Layout» menu.
  You can also choose to «Auto Adjust the OBS» when using the ADF, VOR and HSI. This will automatically align the arrow/CDI of the instrument in direction of the configured waypoint.

- **Network**. This will show, when enabled, the IP addesses to connect the Mac/PC with the «Embedded WebServer» or the «WebDAV server».
  You also have the option for enabling «GSM download», when using 3G/4G network to download charts/data.

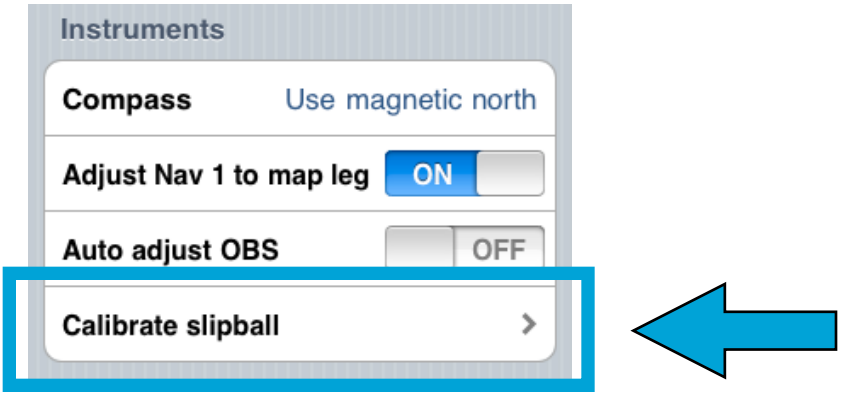
- **Misc**. The user can «RAW the METAR/TAF» information, enable the option that will turn the «flight recorder» ON, and have the possibility to «run the app in the background» on the iPad, if having to temporarily use another app or change settings outside Air Navigation Pro. If Air Nav remains in the background for more than 10 minutes, it will automatically close so as to save energy.
  «Alternate speed/course» option forces Air Nav compute the data in "time deltas" and not continuously. This will help when the GPS signal is weak and breaks off intermittently.
  The «Automatic logbook» option will complete the Block-OFF/Block-ON times and the Take-OFF/Landing times automatically. Please refer to the «Logbook» chapter in this manual for more details.
  «Share GPS via Bluetooth» will let PAIR the device with another one of the same nature (for example an iPad with an iPod Touch) and share the GPS signal.



- **Disclaimer**. Disables the "Disclaimer" message at the start of the app.

- **Default**. Reverts to factory settings, WITHOUT deleting or modifying existing waypoints, routes, flights or logbook.
  This last option might help in case Air Navigation Pro is not working properly.

- **Spinball**. This option will only appear in the «Settings» section of the iPhone/iPod Touch. There is not such a feature on an iPad.
  To calibrate the spinball, you have to position your iPhone/iPod Touch on a flat surface.



Installation

Application Settings

After installation of the application, at first launch, the system will ask for authorization to access location data (GPS). You should **allow GPS access** to Air Navigation otherwise realtime navigation functionalities will not work properly.

After launching Air Navigation for the first time, the map should be centered to your current location. The application has an internal waypoints database and you should see waypoints in the vicinity on the map.

Please note that NO map in the background is installed with the application. You can install a map from various free of charge or commercial sources from the «MapStore» module located in the «Configuration» button on iPad and in the «Configuration» tab on iPhone/iPod Touch. You can find more information on how to install maps/charts in the next page.

Should you wish to change length, speed or altitude units, you can do so from the «Settings» panel.

Installing maps and charts

Commercial charts screenshots: http://www.facebook.com/AirNavShots
For Reinstalling purchased maps please refer to the next chapter.

Free of charge open source maps, charts from the public domain and commercial charts can be installed to be used as the background image of the moving map module.

Maps/charts are downloaded from our servers from within the application. They are stored in the iPhone/iPad memory and do not require an internet connection while flying.
To browse the available maps/charts catalog, choose **«MapStore»** from the «Configuration» menu (top right button) on iPad or from the «Configuration» tab on iPhone.

Before you attempt to download a map you should check that:

- Your iPhone/iPod/iPad is connected to a functional Wifi network;
- **Bluetooth is turned OFF** on your device, as it can disturb the Wifi network, sometimes leading to download failure.

The map store module has 2 sections. The top section is to manage installed product. In the installed products module, it is possible to display a list of maps/charts installed on your device. It is also possible to reinstall a product in the list if it is not functioning properly. This is also where you can delete a product or parts of a product that is outdated for example.

The «Download Queue» module lists current and pending downloads. This module is typically used to monitor download progression of a map/chart It is possible to reorder the downloads or to remove an item from the download list.

The «Download products» section is a catalog of available maps/charts. You can browse the products and get information about them such as:

- Source/Provider
- Country or Area
- Product size
- Product price (if not-free)
- Included packages: Most products contain only 1 package, however, some products may be composed of 2 or more sub-packages or regions from a country. For example, the 3D data is divided in regions that are included all in the same price. After a package is purchased, the user may choose from only downloading the region they need.

Installed packages may appear colored:

➡ **Green** : installed and up to date;
➡ **Orange** : installed but a newer version is available for download.

Uninstalled packages appear in white.

When a particular package appears in **orange**, it means that an **update** is available.
The reason could be:

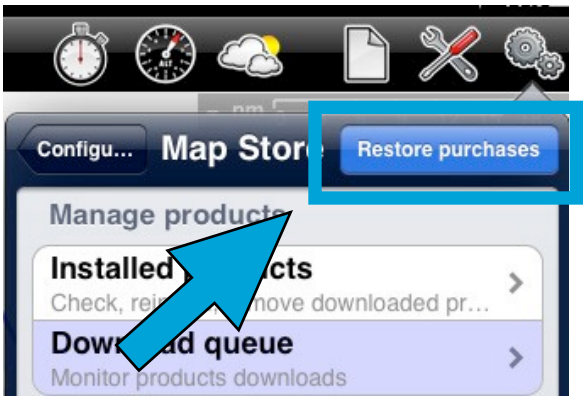
- A chart update, that is part of your subscription is available;
- We found an issue with the chart and we released a fixed version.

Installing VFR approach charts for Germany

Due to licensing terms, the VFR approach charts for Germany are not (yet) sold through the AppStore facility. You can purchase the approach charts package from our web store, hosted at Kagi at this url:

http://store.kagi.com/cgi-bin/store.cgi?storeID=HEC_LIVE&&

In the confirmation email, you will receive a license code and a clickable link. The clickable link will install the product automatically in Air Navigation. Should you wish to install it manually, you can input the license code in the «Restore purchases» -> «Input code» module of the «MapStore module» (check on the right on this sheet for details).



Reinstalling previously purchased maps and charts

From Air Navigation 4 onwards there is a **«Restore purchases»** button on the top right corner of the «MapStore» module. This is useful if you reinstalled the application and to reinstall the maps from the internet. Pressing this button will ask you if you want to:

- **Restore purchased charts from your iTunes account**: In this case a list of purchases found on your iTunes account will be displayed. You can then press on a particular chart to reinstall it for free. This will also work if you install Air Navigation on a new iPhone or iPad, in this case you should use the same iTunes account as your other device.
- **Input a license code**: this option can be used for product that where sold with a license code, such as the VFR approach charts for Germany.

Moving Map

Real Time usage

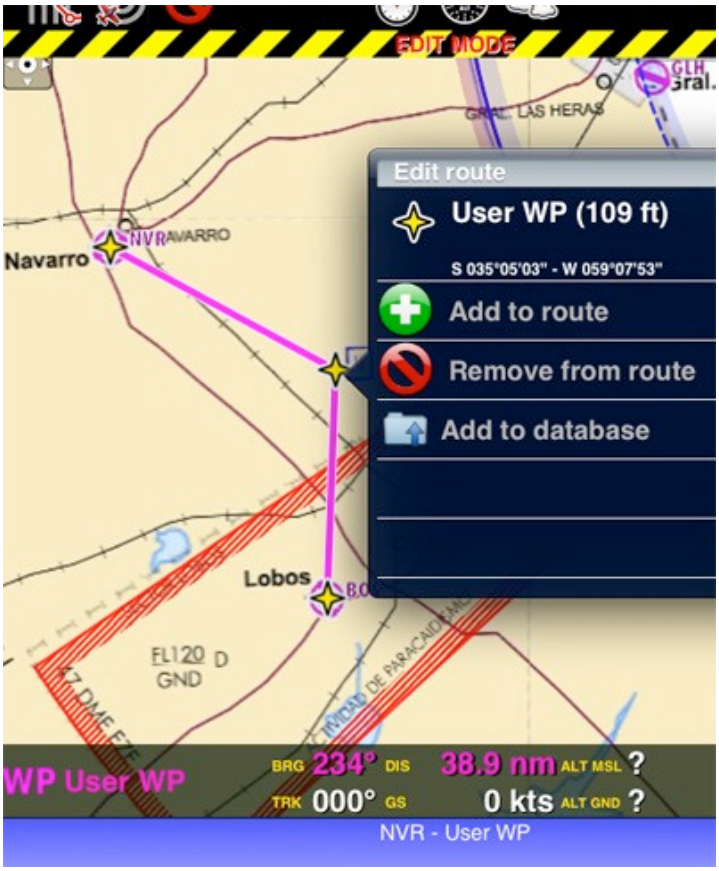
The moving map is the main instrument of Air Navigation. It is used for real time navigation as well as route planning or creation of user waypoints.
In Air Navigation 5, you can create a route/waypoint directly from the moving map. It is possible to add intermediate waypoints to your current route during a flight (to avoid bad weather conditions for example)
By default, the moving map is centered on your current location, north oriented. By pressing to the symbol in the top left corner, you can toggle between:

North oriented, current location in the center of the screen, moving;

Track oriented, current location at 1/3 the bottom of the screen, rotating to match current track, moving;

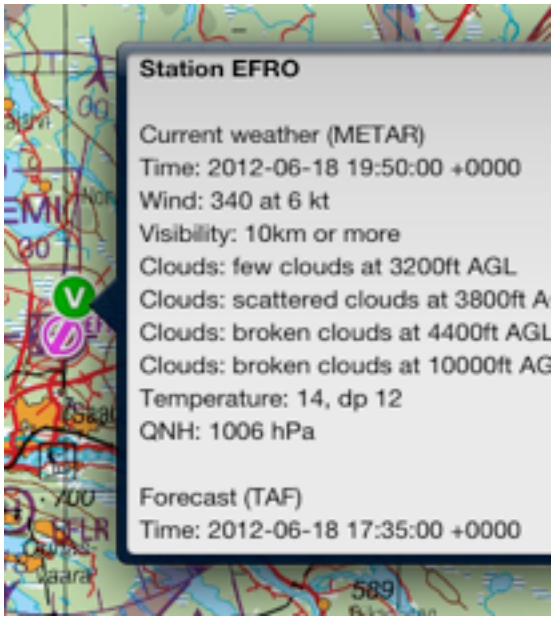
Panned mode;

Touching and moving the map will switch to **panned mode.** In this case the map will be moved to the location of your choice, north oriented. It will **not move** to follow your current location, instead, the aircraft symbol will move on the map, possibly leave the screen area. You can center the map again and restore map movements by pressing once on the symbol in the top left corner.



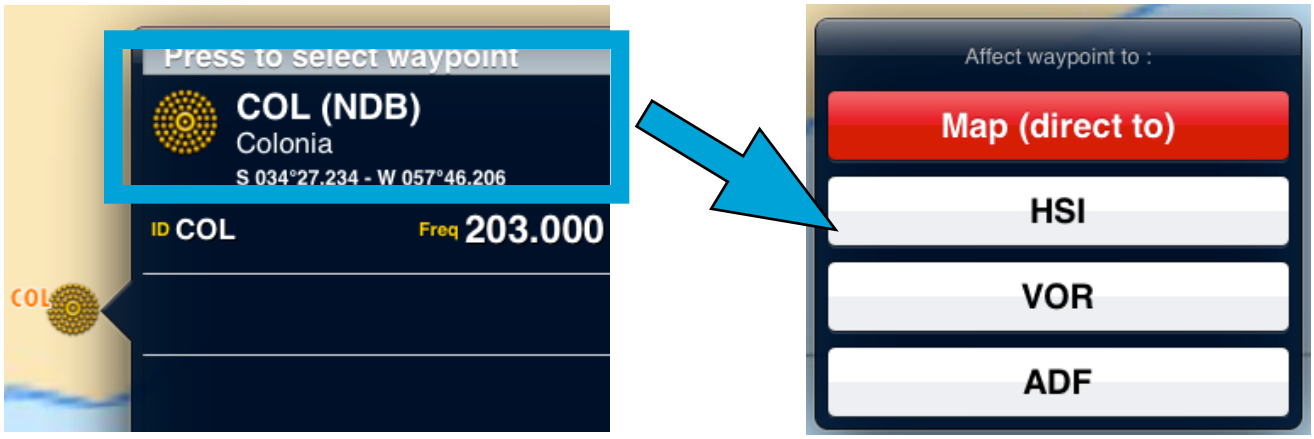
Touching an area of interest on the map will reveal a popup with useful information. Touchable items are:

- **Waypoints**: elevation, type, full name for Navaids and their frequency, for Airports you will get runway and frequency information.
- **Airspace**: lower and upper limits, name, class and additional information
- **METAR/TAF stations**: Weather information of an Airport. You enable them in the «Map Otions» menu.



On iPad, pressing outside the popup will hide it, on iPhone you have to press the close button in the top right corner of the popup.

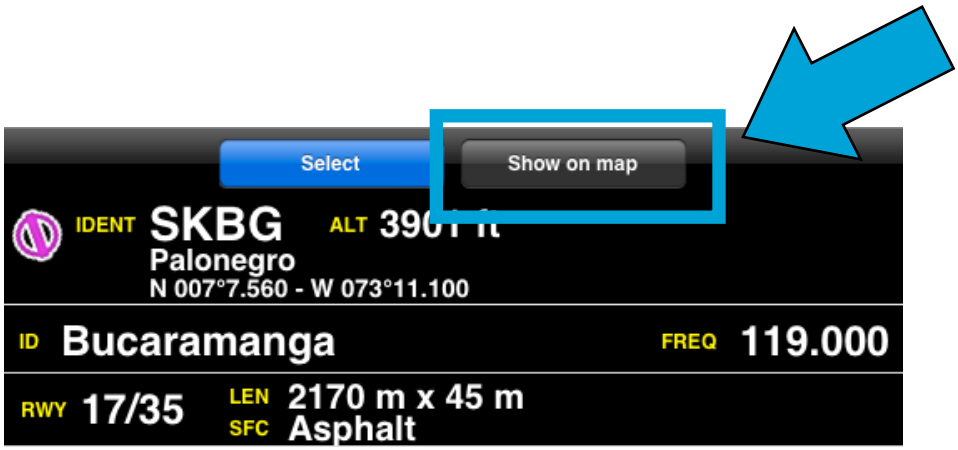
When in «Flight mode» (default), pressing on the name of the waypoint will ask you if you want to select this waypoint and affect it to an instrument or direct to the point in the moving map.

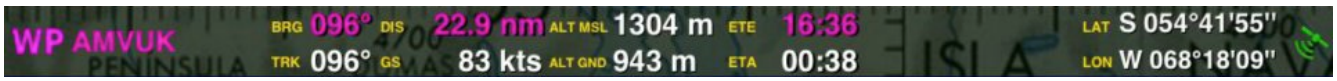


Selecting a waypoint from the database

By pressing on this button at the top toolbar on an iPad or within the toolbar in an iPhone/iPod Touch (accessible from the «screwdriver» button), you can have access to the waypoints database.

You can search by country or use the «search» field to go directly to the waypoint you are looking for. It is possible to search by “name”, “ID”, “place”.
Once you found the desired waypoint, you can directly press on it to select it as a “direct to” or adjust it to one of the instruments (HSI, VOR, ADF); or you can press on the blue disclosure button on the right side and check the information about it such as name, city, frequency (for Navaids), runway and contact frequency info (for Airfields) and you can “jump” on the map where that waypoint is located by selecting «Show on map» button.





The data bar at the bottom of the moving map will display real time information such as next waypoint information (identifier, name, bearing, distance and estimated time), current speed as reported by the GPS (ground speed), track, altitude as reported by the GPS, height over ground (if the elevation data for your area is installed), quality of the GPS signal.
For real time navigation, the quality of the GPS signal is required to be a green or yellow symbol. A red or orange symbol will only show an approximate location and will not report speed nor track information.

For better results, you should place your device near a window, with a direct view of the sky, Do not hold the iPad with the hand covering the GPS antenna (black area on the top of the iPad). If you are flying with a full metal airplane or your airplane is equipped with anti ice windshield, the internal iPhone/iPad GPS may be a bit weak and you may need an external GPS module.

Route planning

By default, the moving map is in «flight mode». You can toggle the moving map from «flight mode» to «planning mode» at any time to create or amend a route by pressing the **«EDIT»** button in the Toolbar.

To start **creating a route**:

- toggle to **«Edit mode»**, a yellow and black striped bar should appear at the top of the moving map. A search field will also appear on top of the «Route» module.
- To **add waypoints**, press on waypoints of your choice on the moving map. In the waypoint popup, press the «add to route» option. A yellow star should now appear on the moving map and your waypoint should be in the «Route» list.
- Alternatively, you can input one or more waypoint identifiers in the search field on top of the «Route» module and press return. Multiple identifiers must be separated by a space.

Note: to find a waypoint near an airfield, typically VFR report points, you can use the following syntax: W@LSZG (waypoint id@airfield id) then return. This will force Air Navigation to find the closest waypoint from LSZG with the identifier W.

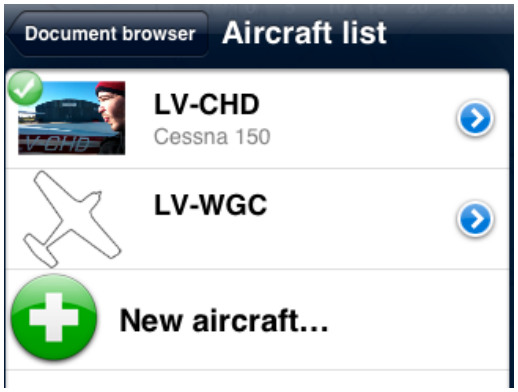
In **Edit** mode it is also possible to **reorder** and **remove** waypoints from the list in the «Route module». Alternatively, you can remove a waypoint by pressing on the map and choose the «remove from route» option.

It is possible to **insert a waypoint** by pressing on the magenta vector (leg) and moving to a new location on the map. As a result a new waypoint will be inserted in the «Route». If the location on the map is not over an existing waypoint, a «temporary» waypoint will be created. You can add this waypoint later to the database if you wish to do so.

You can **create a new waypoint** by pressing 2 seconds at its location on the map. A popup will ask if you want to add this point to the database or simply use it as a "temporary" waypoint for the route or direct to.

In the «Route» module, you can press on the **«Summary»** line at the top of the list to set the **route name** and **wind**. The route name is used to identify a particular route in the «Route» list when they are saved. Wind and cruise speed information will be used to display estimated time and heading in «edit mode». In «flight mode» current speed as reported by the GPS will be used to compute estimated time.
The button at the top right corner of the window can be used to **reverse the route** or **duplicate** it.
When you are satisfied with your route, you can toggle back to «flight mode», the route is automatically stored in the «Routes list».

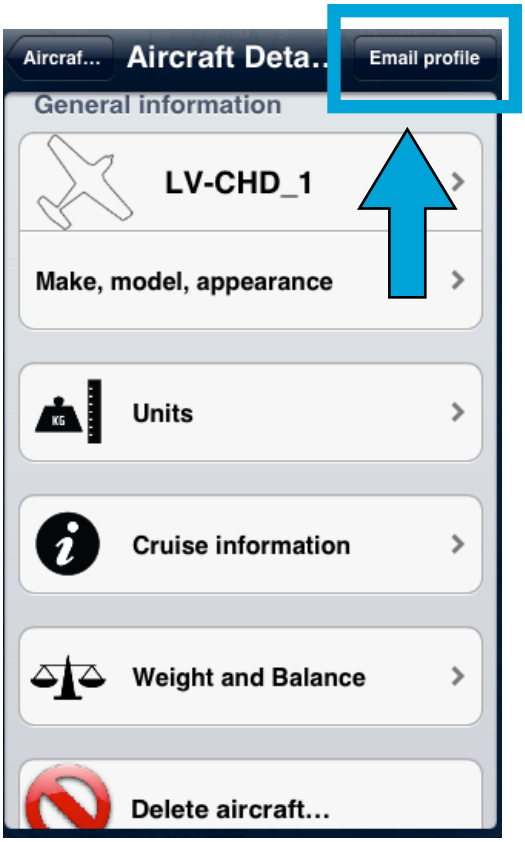
Add an Aircraft profile
(Get ETA and total Fuel consumption)



Air Nav Por 5 offers the possibility to calculate the total fuel consumption for the whole flight and the estimated arrival time when you plan a route.

First of all, you will have to create an Aircraft profile. In order to do that, you will press on «Aircraft» under **«Document Browser»** menu and proceed to add a New aircraft. You will be able to set the Aircraft`s identification and choose an image (optional).
After completing with the ID, you will be taken back to the window where your new Aircraft ID is created.

In order to enter more information about your Aircraft, you should press on the BLUE-circled button on the right side. Under "Cruise information", you will be able to enter the **Cruise Speed** and the **Fuel flow** of your Aircraft. This information is very important for Air Nav **to calculate the ETA and Fuel consumption**. Under "Make, model, appearance" you will be able to enter the aircraft's info and choose color.

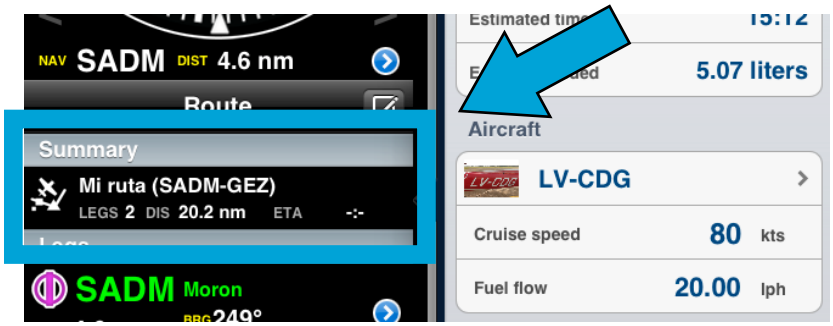


From Air Nav Pro 5.2 onwards, a feature for **Weight and Balance** has been added (refer to «Weight and Balance» chapter for more details).

Should you wish to change speed or altitude units, you can do it from the «Settings» panel.

Don`t forget to **select your Aircraft**. Once selected, you should see a **green mark** on the left side of the ID, as it is shown on the image **above**.

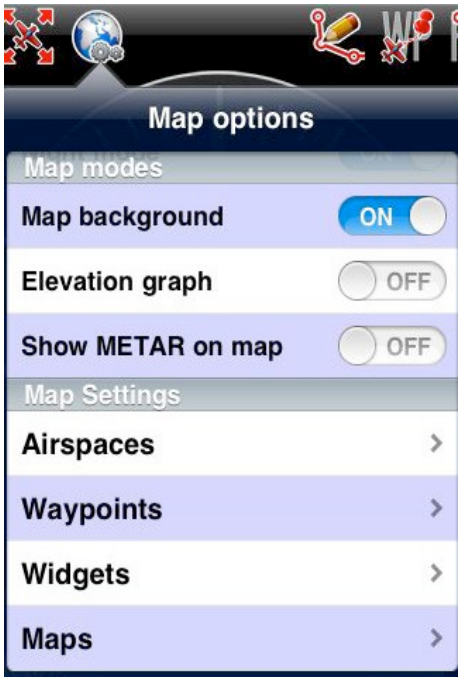
If you wish to send the Aircraft profile by e-mail, should you do it through the button on the upper-right corner.



Note: After creating a route, when pressing on **«Summary»** within the Route module, you will then be able to see the ETA and the estimated Fuel consumption for the whole flight.

«Map Options» menu

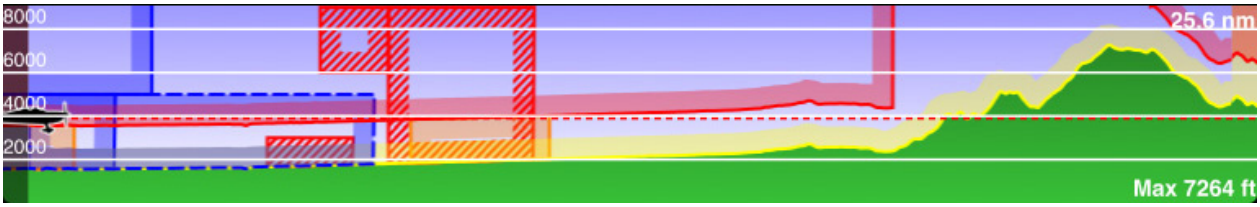
From the «Toolbar» press the «Map Options» button to access various options for the moving map.



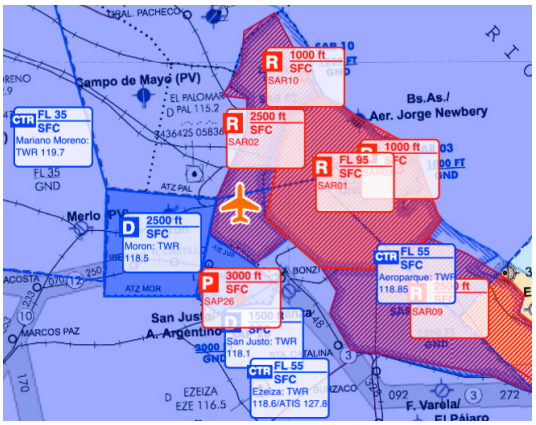
- **Brightness**. Controls the brightness of the screen.
- **Show maps**. Enables or disables the screen background.
- **Elevation graph**. Enables or disables the terrain elevation view. Refer to <u>next chapter</u>.
- **Terrain awareness 2D/3D**. Enables or disables the terrain awareness for both moving map and 3D EFIS module.
- **Show METAR on map**. Displays icons over the Airports according to the weather conditions (VMC/IMC) on the map. Internet connection is needed to use this feature.

The «Maps settings» module

- **Airspaces**. Displays a list where you can show/hide the airspaces according to their type on the moving map. Use it as a filter of which type of airspaces you'd like to always see on the map and which ones not. There`s also an Altitude filter, so you might choose from seeing all the existing airspaces in the zone you are flying or just the ones at your current altitude. Besides, you can fully-shade the airspaces and even display their names and show them in the Elevation Graph as shown on the screenshots, below.



- **Waypoints**. You can filter the waypoints according to their type (Airfield, Heliport, IFR, VRP, Navaid, etc). There`s also the chance to filter by runway length and surface type.



- **Widgets**. You can choose to show or hide the extended the track line of the plane (shown as a dotter orange line) and the bearing line to a waypoint (shown as a dotted gray line) selected on the map. The extended track line will show the **ETA** from current location to the next **2, 5 and 10 minutes** points ahead. The bearing line will point from current location to the next waypoint selected. (example image on next page)

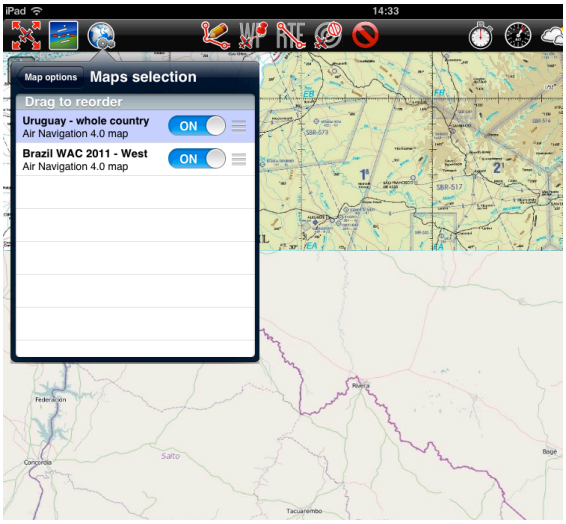
The **«Extended track line»** (orange) shows the **ETA in minutes** from your current position.
The **«Bearing line»** (grey) points to the next waypoint selected.

- **Background color**. You can choose the color of the background for the zones where no maps are shown. This is a very useful tool for when you find "gaps" or "white" zones in the sea/ocean part of some downloaded charts. You can then choose the "sea" color to fill those gaps.

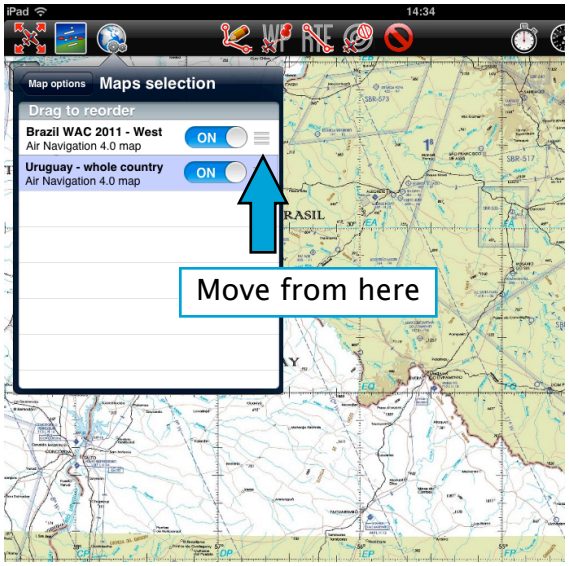
- **Maps**. You can show/hide/overlay previously downloaded maps.

Air Nav Pro 5's map engine is capable of **displaying multiple maps at the same time** and specify which map should be displayed on top where they overlap. It means that you can MIX maps from different providers and use them all at the same time.

Overlaying ("Missing part" on a chart)



In the screenshot on the **right**, we show both the chart "Brazil WAC 2011" and the chart "Uruguay – Free" one on top of the other. The problem looks like if the Brazilian chart is missing a part, but actually, **it is not**. This is a clear example of **OVERLAYING**.



You can solve this problem by simply moving the charts up or down in the **«Maps»** panel or switching them ON or OFF.

On the picture on the **right**, we show the chart from Uruguay on top of the one from Brazil. So, if we move it below, the latter will show on top of the former. This is shown on the picture on the **left**. We move the charts by pressing and holding from the right edge (where the three-line mark is).

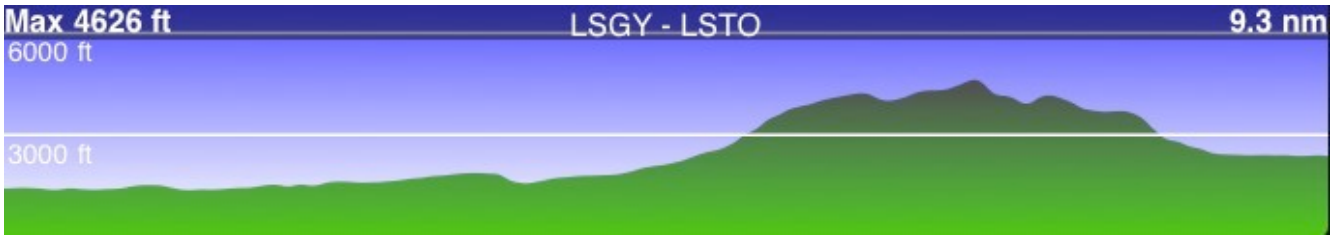
The terrain elevation view

if elevation data is installed for your region, the elevation graph will display terrain information. Note that you will show data information ONLY after downloading **«Free Elevation data»** files or **«3D data»** files from the Map Store.

In «Flight mode», it will display the terrain in front of the aircraft, updating the view every 5 seconds, the terrain view can be zoomed to display 10 NM to 50 NM of terrain elevation. The maximum reported altitude will be displayed in the top left corner of the elevation view. A symbol representing your aircraft will be displayed in the view with a red dashed line, representing your current altitude, as reported by the GPS.

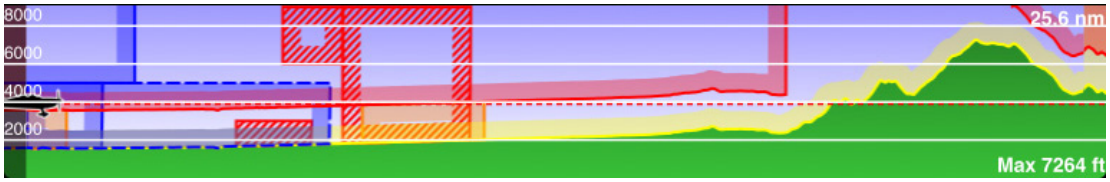
In **«Edit mode»,** it will display the terrain **between the two waypoints** of the selected leg. This is very useful when planning your route, to get an estimate of the minimum safe altitude.

Please note that even with a good GPS signal, the altitude as reported by the GPS may have an accuracy of +/- 200 ft. Elevation database may also contains some inaccuracies. You should always plan your flight with a reasonable margin over the obstacles.



Note 1: The «3D data» includes all the terrain information with better accuracy than the one from the «Free Elevation data». It`s more complete and it works for both the terrain profile graph and the «3D EFIS» module (for more info refer to the «3D EFIS module» chapter).

Note 2: remember that you can activate the Airspace view in the Elevation Graph from the menu «Map options», then looking for the option under «Airspaces» section.
The Elevation Graph should look like the following screenshot shows.



Instruments

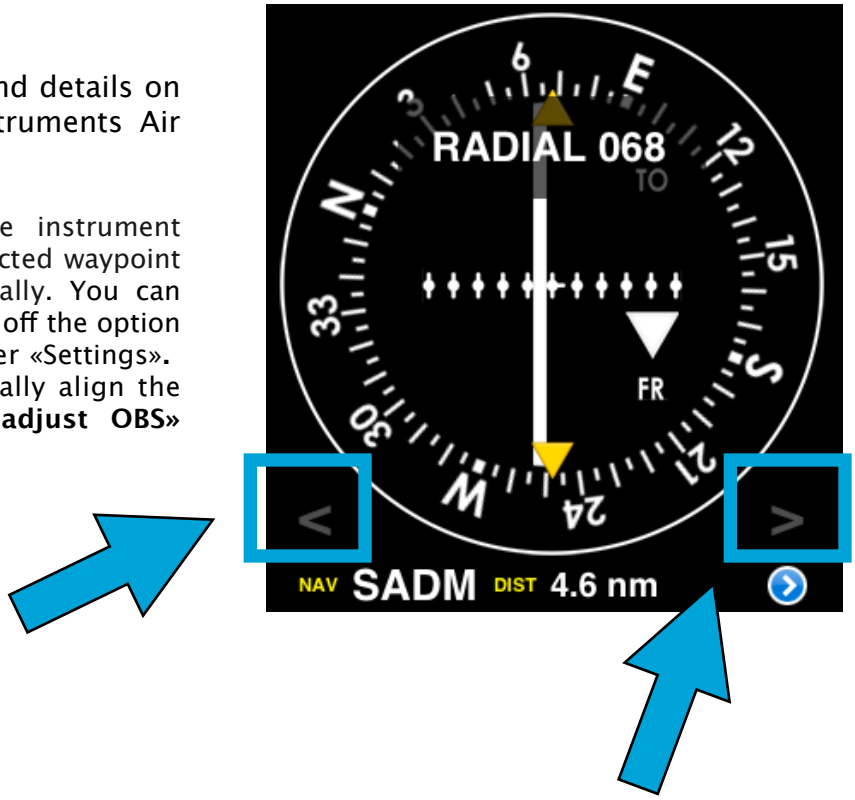
Overview

Using the built-in GPS receiver and accelerometers of the iPhone Air Navigation can simulate various aircraft instruments such as HSI, ADF, CDI/VOR, Altimeter. Unlike real navigation instruments, the virtual instruments can be set to point to any waypoint in the database (airport, VOR/DME, user waypoint, etc).

From Air Navigation 5.1 onwards it is possible to make fine changes and set the instrument more accurately by tapping on one side of it or the other. This applies for the HSI, VOR, ADF and Compass.
It is considered very useful for when flying in turbulent conditions.

On the next pages, you will find details on how to use the different instruments Air Navigation Pro brings.

Note: In the default mode the instrument displays the course of the selected waypoint on the map/route automatically. You can cancel this behavior by switching off the option **«Adjust Nav 1 to map leg»** under «Settings».
It is also possible to automatically align the CDI by switching on **«Auto adjust OBS»** option.



HSI

The HSI is the most practical of all traditional nav instruments but it also requires some training before it can be used efficiently.

If the GPS reception is bad the warning flag will show that the instrument does not display correct data.

The top part of the screen is an emulated HSI (Horizontal situation indicator) . The yellow needle is the Course select pointer, the moving part in the middle is the Course deviation indicator (CDI) which displays the deviation (+/- 12 degrees) from the selected radial or course to or from the selected waypoint. Unlike on a real HSI where the orange Heading bug is used to set a course for the autopilot, the heading bug displays the bearing to the selected waypoint. Also the HSI does not display magnetic heading but the track of the aircraft.

The advantage of the HSI is that it displays the position of the aircraft symbol in the middle relative to the selected course. The compass card will rotate automatically to match the current flying track. Radial or course selection is done by touch and swipe gesture up or down on the left or right of the compass ring.

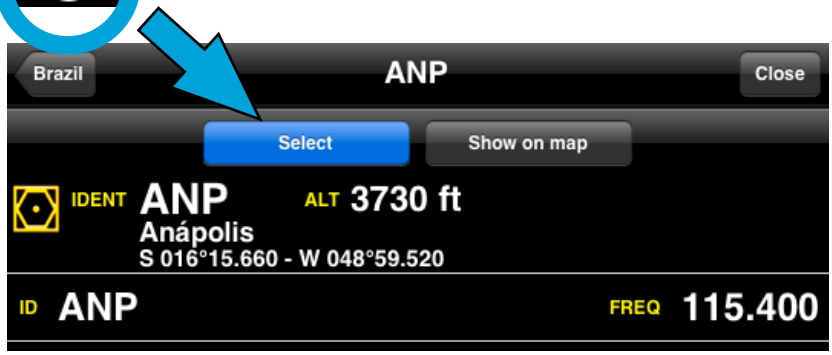
A **"NAV" warning flag** (as shown in the image above) will let you know that you should Not trust the HSI indicator in the following cases:

- **No waypoint** is selected for the instrument;
- the waypoint distance is **over 250 nautical miles**;
- the **GPS accuracy** is bad;
- Groudspeed is **less than 5 Kts**.

Note: Please note that you may still get correct deviation information when GPS accuracy is less than 2.5 nautical miles. In this case the compass card will be oriented to the north.

Below the main indicator, the selected waypoint is displayed as well as the distance from the waypoint (great circle distance) and GPS accuracy. You can use **any kind** of waypoint (Airports, VOR, NDB, etc) to be used with the HSI instrument. (A real HSI indicator requires radio signals from VOR, VOR/DME or VORTAC transmitters).

You can select a new waypoint from the database with the the blue disclosure button on the bottom part of the instrument (see screenshot). Please read «Selecting waypoints from the database» to get information about waypoint search and selection.



Note: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/iPod Touch devices.

VOR/CDI

The VOR instrument uses GPS data to display the bearing to a waypoint

The top part is an emulated VOR indicator. The white needle (CDI, Course deviation indicator) will display the current deviation up to +/- 12 degrees relative to the selected radial to or from the course to the selected waypoint.

Course and radial selection is done by touching and swiping gesture up or down on the left or right of the compass ring.

Below the main indicator the name of the currently selected waypoint is displayed as well as distance from the waypoint (great circle) and GPS accuracy. You can use any kind of waypoint (Airports, VOR, NDB, etc) with the VOR instrument (whereas a real-life VOR indicator requires radio signals from VOR, VOR/DME or VORTAC transmitters).

You can select a new waypoint from the database with the the blue disclosure button on the bottom part of the instrument. Please read «Selecting waypoints from the database» to get information about waypoint search and selection.

A **"NAV" warning flag** will let you know that you should Not trust the VOR indicator in the following cases:

- **No waypoint** is selected for the instrument;
- the waypoint distance is **over 250 nautical miles**;
- the **GPS accuracy** is less than 2.5 nautical miles;

Note 1: you don't need Groundspeed to get accurate information on this instrument.

Note 2: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/ iPod Touch devices.

ADF

The ADF instrument in Air Navigation uses GPS track information and does of course not receive any radio waves. It can still be of value for practicing ADF navigation.

The top part is the ADF indicator. The yellow needle is pointing towards the selected waypoint relative to the longitudinal axis of the aircraft.

The compass card can be manually rotated using touch and swipe up/down gesture on the left or the right of the indicator. This way you can set the ADF to the magnetic heading.

Below the main indicator the name of the active waypoint is displayed as well as the distance from the waypoint (great circle distance) and GPS accuracy. It is possible to select any kind of waypoint (Airports, VOR, NDB, etc) as an ADF target waypoint unlike with a real ADF which requires NDB or AM transmitters as waypoints.

You can select a new waypoint from the database with the the blue disclosure button on the bottom part of the instrument. Please read «Selecting waypoints from the database» to get information about waypoint search and selection.

A **"NAV" warning flag** (as shown in the image above) will let you know that you should Not trust the ADF indicator in the following cases:

- **No waypoint** is selected for the instrument;
- the waypoint distance is **over 250 nautical miles**;
- the **GPS accuracy** is bad;
- Groudspeed is **less than 3 Kts**.

Note: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/iPod Touch devices.

Compass

The “compass” instrument displays the current GPS course (not the magnetic heading) on a virtual animated compass card. The course can be displayed either as true course or magnetic course depending on the settings.

The outer ring is user adjustable by touching and sliding your finger up or down on the left or right of the compass indicator.

Air Navigation’s "compass" only shows the **GPS course**. Due to the large error of the iPhone 3GS/4’s integrated compass in the cockpit environment we decided to stick with GPS data for all course information.

The bottom part contains the compass information, current ground speed and GPS accuracy as digital values. Units are adjustable in the settings. If the course information is magnetic the digital course label will be
“MC” (Magnetic Course)
otherwise it will be
“TC” (True Course).

A **“NAV” warning flag** will let you know that you should Not trust the Compass indicator in the following cases:

- **No waypoint** is selected for the instrument;
- the waypoint distance is **over 250 nautical miles**;
- the **GPS accuracy** is bad;
- Groudspeed is **less than 3 Kts**.

Note: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/iPod Touch devices.

Altimeter

The Altimeter of Air Navigation is GPS based like all nav instruments. Usually, the GPS has an acceptable precision. Nevertheless it should never be used as a replacement for the barometric altimeter.

The altimeter instrument of Air Navigation displays altitudes **above Mean sea level** (**MSL**) as reported from the GPS unit. Usually the altitude has an **accuracy of 70 ft or less**. The accuracy is usually even better with external GPS modules.

The top part is the analog altimeter indicator. On the bottom part you will find the digital altimeter value as well as the current GPS status symbol.

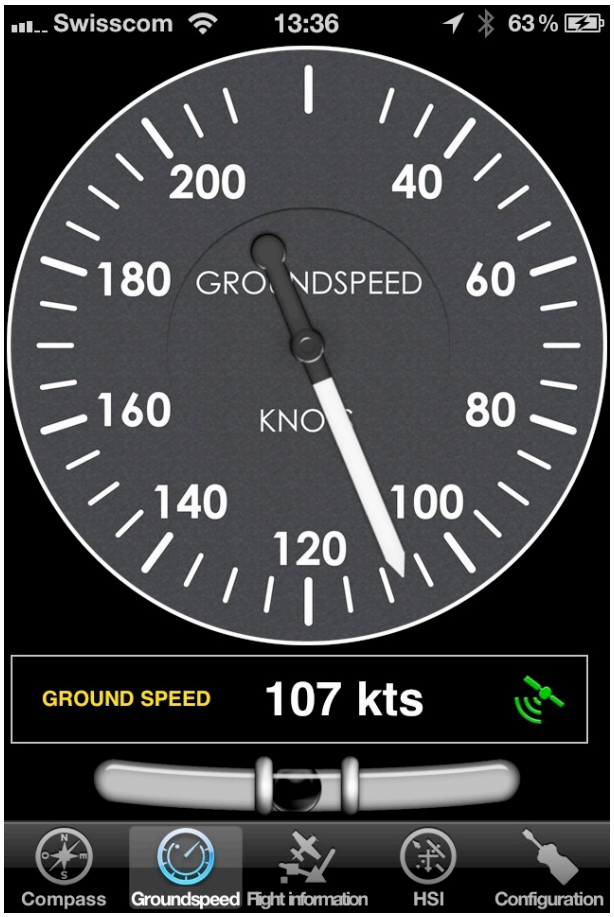
The altimeter unit can be set as feet or meters in the application settings.

A **Question mark** will show instead of a digital altimeter value when:

- GPS accuracy is **more than 230 ft**;

Note: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/iPod Touch devices.

Groundspeed



The top part is the analog ground speed indicator. On the bottom part you will find the digital speed value as well as the current GPS status symbol.

The speed unit can be set as knots, miles per hour or kilometers per hour in the application settings.

A **Question mark** will show instead of a digital altitude value when:

- **GPS accuracy is bad**;

Note: remember that you will ONLY find the spinball at the bottom of the instrument on iPhone/iPod Touch devices.

Variometer

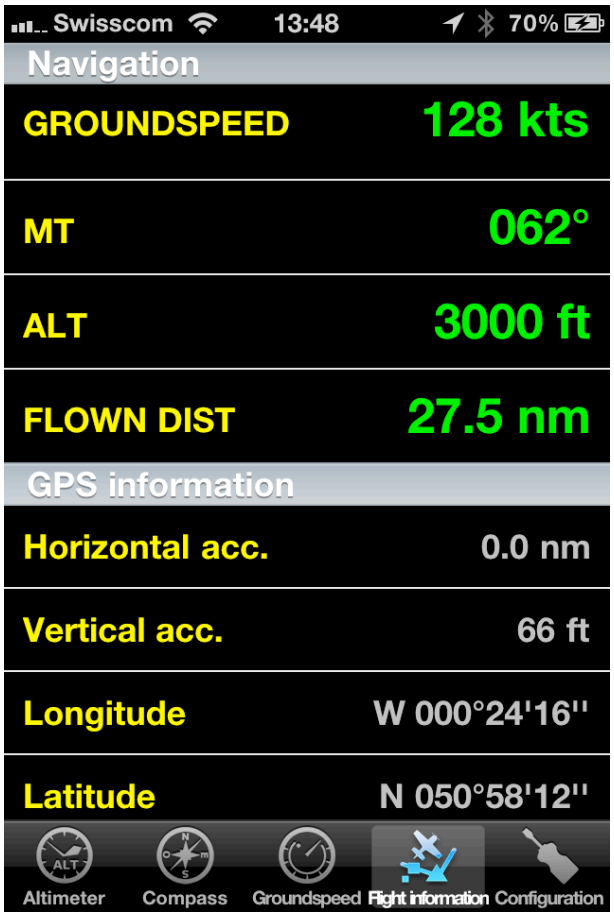
The variometer was designed to work with **external devices** such us the AHRS g mini.

Other external devices are thought to be compatible with this instrument in future updates of Air Navigation Pro app.

For the time being, the variometer will receive the **AHRS g mini** data and display it at the bottom bar of the instrument.

If no signal is received, then a question mark will show as vertical speed (see screenshot).

Flight information



The flight information module displays a list of real time navigation values in digital form. It will also compute the distance flown since the application startup or the current flight was reset in the «Flight time» module.

At the bottom part, you will find the GPS horizontal and vertical accuracy as well as the coordinates of the current location, as reported by the GPS subsystem.

Tools/Features

Besides the moving map and navigation instruments, various tools are available to help with flight planning and other tasks.

Flight Time

The flight time module is used to store the current flight log entry. The time and departure/arrival places can be set manually or automatically. To let Air Navigation fill the time, departure and arrival places automatically, the **«Automatic logbook»** option must be turned on in **«Settings»**. Block-off time is set when Air Navigation detects the movement of the aircraft.

Take-off time will be set when the speed pass 30 kts. **Landing time** is set when the speed decrease to 25 kts. Block-on will be set when the aircraft stops. After 90 seconds with no movement, the flight will be stored in the logbook. This is to ensure that the block-on time will be registered in case you have to stop on the taxiway for example.

Air Navigation will try to find the airport at the block-off and landing location, setting the values in the logbook accordingly. Multiple take-off-landings will be added to the landings count. Our filters are designed to not record events in case the GPS signal is poor or invalid. Therefore you should check that the GPS signal is good (yellow or green symbol) before using the automatic logbook.

The logbook values can be edited at any time either from the «Flight time» module, by pressing on the corresponding line, or, if the flight was already committed to the logbook, from the logbook module itself.

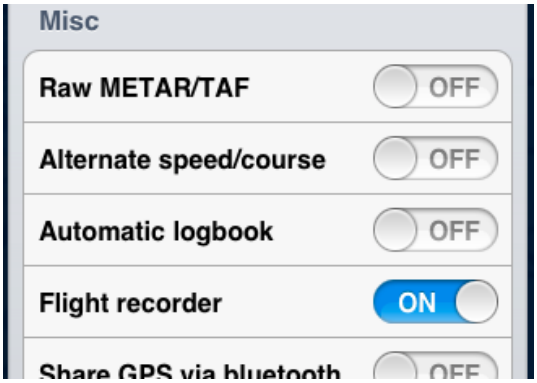
By pressing the «Edit» button in the top right corner, you can force commit the flight to the logbook or reset the «flight time» module to start a new flight.

If for any reason Air Nav collapses and the application is closed during the flight, you can **recover the session**.

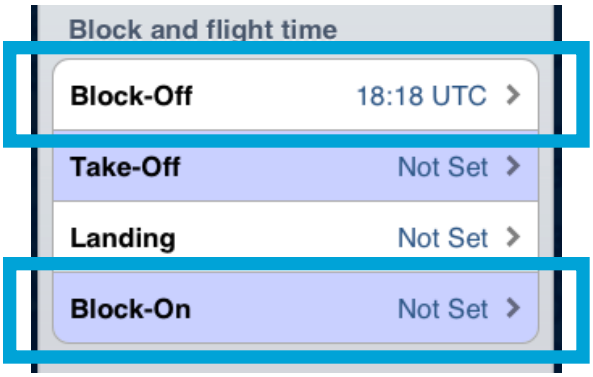
Note: on iPhone, if the «flight time» module is placed in the bottom tab bar (default), a red badge will start blinking with the time value as soon as the block-off time is set, until the flight is committed to the logbook.

Record a Flight

In order to record a flight, you have to enable the option **«Flight recorder»** in the «Settings» menu. This should be done before starting the flight.

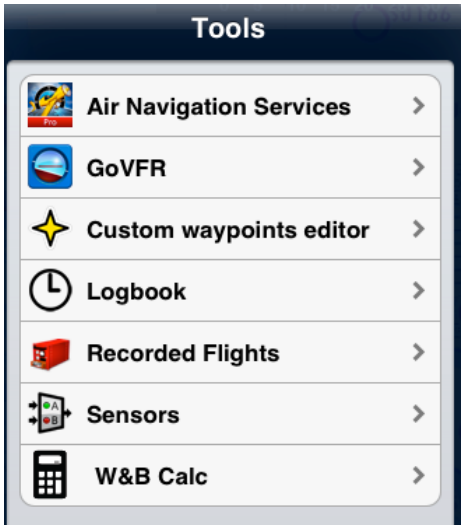


Air Nav will start recording as soon as the **Block-Off time** is set. You can find this value, as it was explained on the previous chapter, under the «Flight Time» module.
When the **Block-On time** is finally set, Air Nav will stop recording the flight and it will be automatically stored in «Tools» menu.

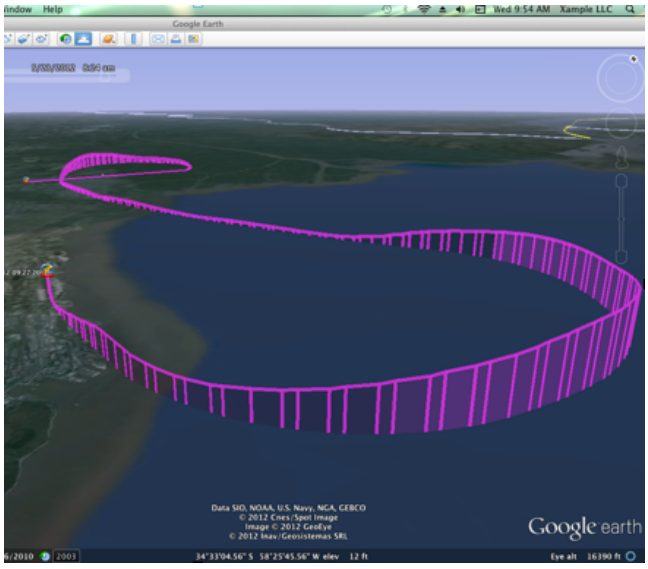


Remember that you can set the values manually or it can be set automatically if the option **«Automatic logbook»** is enabled in «Settings» as well.

The flight can be **reproduced** from within the application by pressing on the desired recorded flight in the «Tools» menu, where the flights are stored.



A **KML file** will be stored as well in one of the Air Nav`s folders. This file can be downloaded from the **embedded WebServer** server and then opened on Google Earth/Maps and see the flight`s track (refer to «Advanced features» for more info on how to connect to the Webserver)



Note: Besides having the chance to reproduce a flight in Air Nav Pro, you can also send it by email by selecting the option after pressing on a desired one.

Logbook

The logbook is basically a database of stored flights time and details. It contains all your manually added flights or, if the «Automatic logbook» is turned on in the settings, the detected flights time and departure/ arrival.

The flights are displayed with the most recent flights first.

Flights from the **current month** are displayed as **individual entries** in the main list.

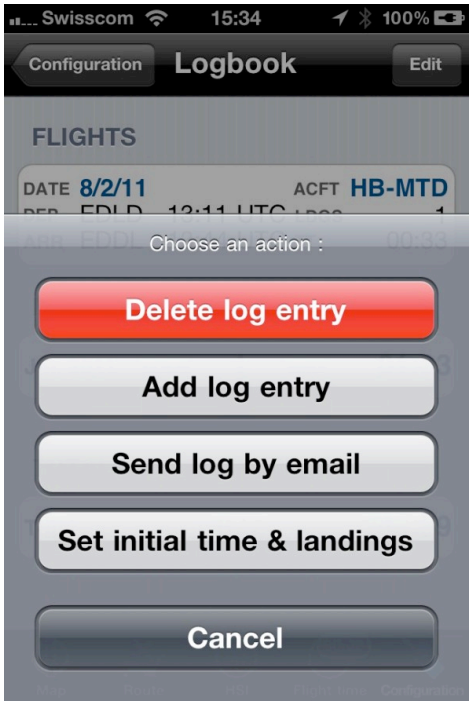
Then, flights from the **current year** are **grouped by months**, and then by year.

It is always possible to display individual flights in months or year groups by pressing on the corresponding line.

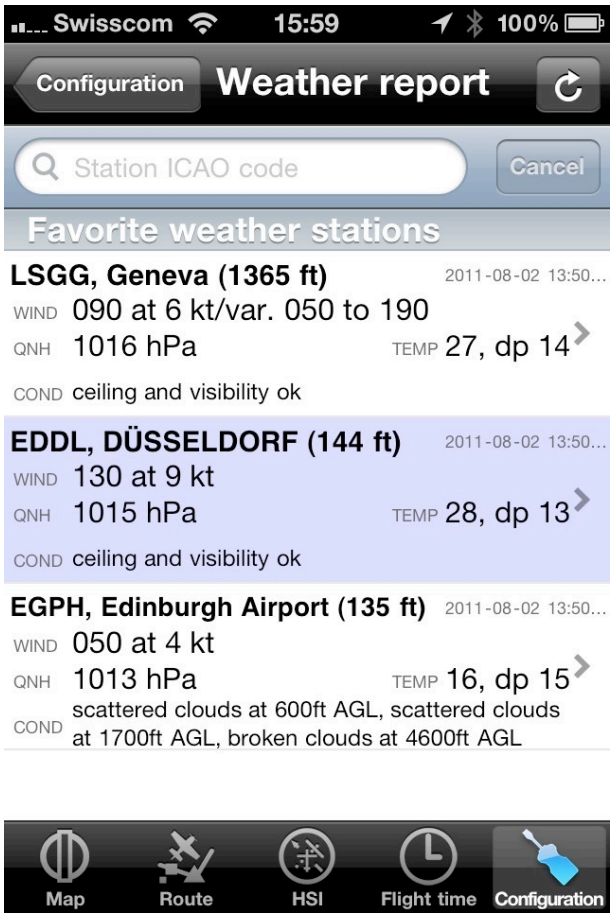
Individual flights can be **edited** or deleted.

By pressing on the «Edit» button in the top right corner, it is possible to:

- toggle edit mode to delete entries from the list;
- create a new log entry;
- send the entire logbook or selected flights **by Email** as a text and html file;
- set the initial time and landing count from a previous logbook.



Weather



The weather module will list your favorite weather stations, usually located at airfields. The weather module will try to download the latest available weather data for each station **every 30 minutes**. Weather data will be decoded and stored in the cache, together with a timestamp. Weather station cached data will be **invalidated if older than 36 hours**.

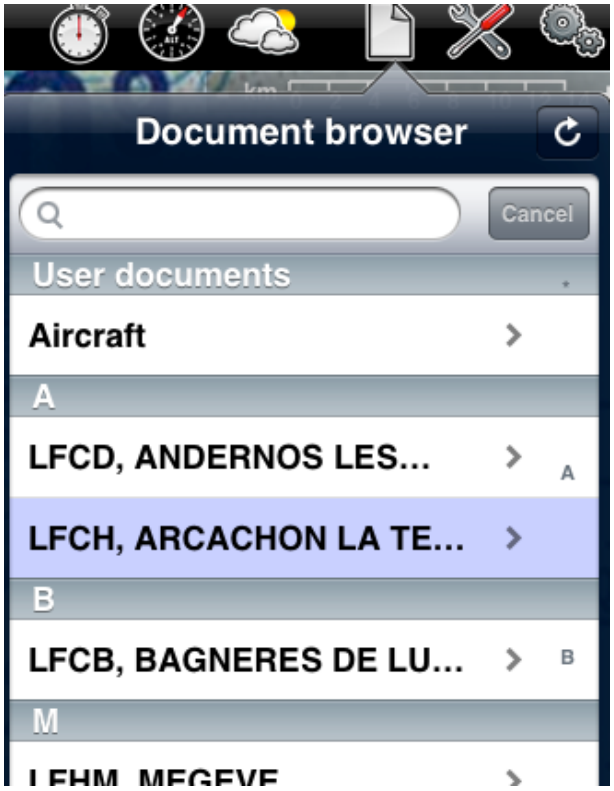
To add a station to the list, type the **ICAO identifier** of the airport where the station is located in the search field at the top of the list. Then **press return**. The station will be added to the list immediately. However, gathering weather data may take some time. Please note that downloading weather data requires an **internet connection** and may not work during flight as GSM coverage is poor.

To remove a station, swiping on the line from right to left, will reveal a "delete" symbol.

Pressing on a station's line will reveal the detailed weather message (**METAR**) decoded.

Additionally a forecast weather message (**TAF**) will be displayed (**when available**).

Document browser



The «Document browser» module lets you access and display **PDF documents** while planning or during a flight.

Documents can be added in the «Document browser» either by:

- Installing an approach charts package;
- Uploading a PDF file from the embedded Webserver;
- Sending a PDF document **by Email** and using the «Open in Air Navigation» function in the mail client;
- Using the WebDAV server to copy files from a computer.

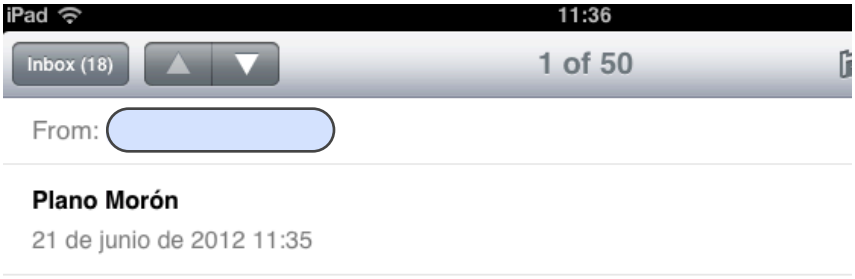
«Users documents» appear on top of the list and are useful to store important documents such as **AFMs**, **Checklists**, **Notams**, etc. Below the «User documents», you can find all the PDF documents **attached to specific waypoints** (ICAO or not, IFR waypoint, User waypoint, etc).

When installing an approach charts package, PDF documents will be stored and displayed on a per-airfield basis and appear in the indexed list with their identifier, name and country.

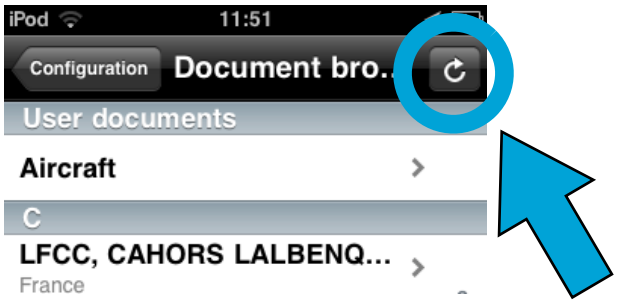
There's a search field on top of the list that you can use to look for a specific PDF document.

It is possible to install user documents and **attach them to airfields**. To do so, the name of the PDF file must be prefixed with the 4 letters ICAO identifier of the corresponding airfield and the file must be uploaded in the «Appcharts» section of the embedded web server (see the «Embedded Webserver» chapter, later in this guide, for more details).

Alternatively, the document can be sent by email to your iPhone/iPad.
Then you can use the **«Open in Air Navigation»** function, available when pressing on the attachment in the mail application.



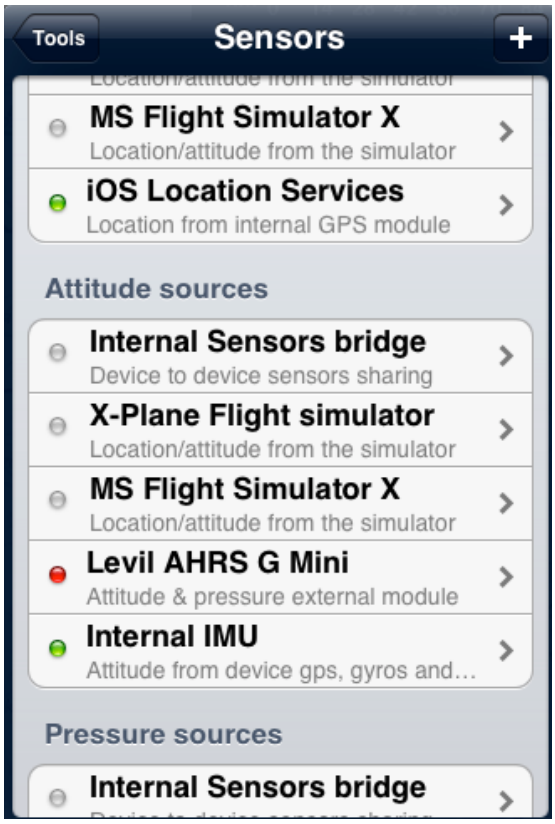
After purchasing app charts, attaching PDF documents to any waypoint or adding «User documents» to the Document Browser menu, you can use the button at the top-right corner of the window to re-index and show the new documents on the list.



Note: To copy PDF documents to «Users documents» or to attach PDF documents to airfields with **non-ICAO identifier, you must use the WebDAV server** (see the «WebDAV server» chapter later in this guide).

Sensors

They work as follows:



Internal Sensors bridge

- to pair with another device (an iPad with an iPhone for example). Typically it is possible to connect a Wifi only iPad to an iPhone with an internat GPS module and let the iPhone share the location data with the iPad.

X-Plane Flight simulator

- to connect with the X-Plane plugin.
  (refer to the X-Plane-related chapter)

MS Flight Simulator X

- to connect with the FSX plugin.
  (refer to the FSX-related chapter)

iOS Location Services

- to be able to receive GPS signal (either internal or external).

Levil AHRS G Mini

- to connect with the AHRS G mini device. This is a special device that makes the EFIS module work by showing accurate bank angle, direction and attitude of the aircraft (refer to the «3D EFIS module» chapter below in this manual).

Internal IMU

- to connect with the internal gyroscopes of the iPad/iPhone.

Screen Lock

It is possible to lock the screen in order not to accidentally change the route or press on non-desirable buttons while in flight.

You will lock the screen by swiping **three fingers** from right to left over the moving map. You will unlock the screen by swiping them from left to right.
Two symbols on the left side will confirm that the screen has been locked, one at the bottom and one at the top.

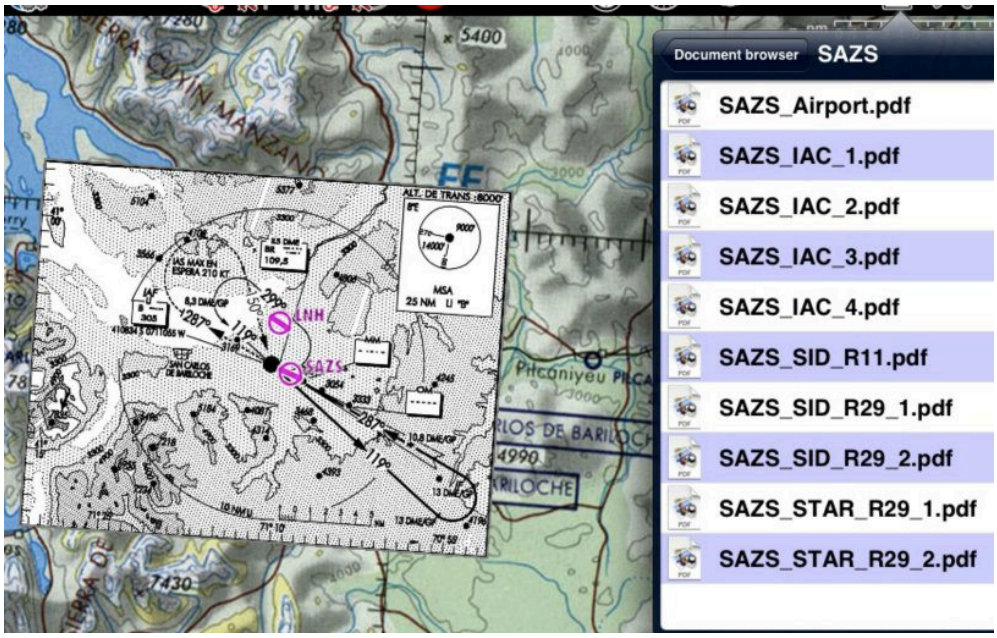
Notepad

When the screen is locked, you can use it as a notepad to note down relevant information such as frequencies, transponder code, pressure data, etc.

You will write on the screen by **using your fingers**. You have 6 pages which are accessible by scrolling up or down with three fingers.
All pages are saved and stored while not erased. In order to blank a page, you will tap on the screen three consecutive times with three fingers.
You can also erase the notes by pressing on the “delete” button at the top-left corner of the locked screen.

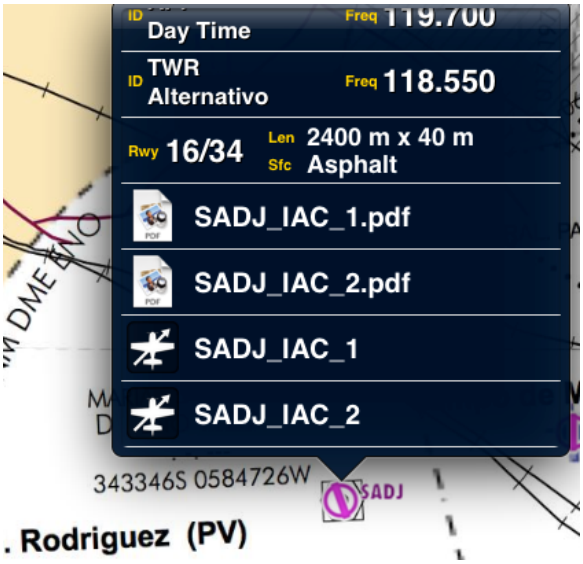
Approach charts (Georeferenced)

Air Navigation Pro supports georeferenced approach charts for certain countries. The charts can be downloaded from the module **«Map Store»**. They come in packages, but still the user can choose which ones download into Air Nav to use on top of the moving map.
After downloading the approach charts into Air Nav, they will show on a list in the «Document Browser» (you might have to press on the upper-right button to "re-index" the list).



Most of approach charts files come with **more than** 1 PDF document, some of them have additional information such us parking sheet, aerodrome chart, several VAC's, and even a description on how to approach or relevant data coming with the charts.

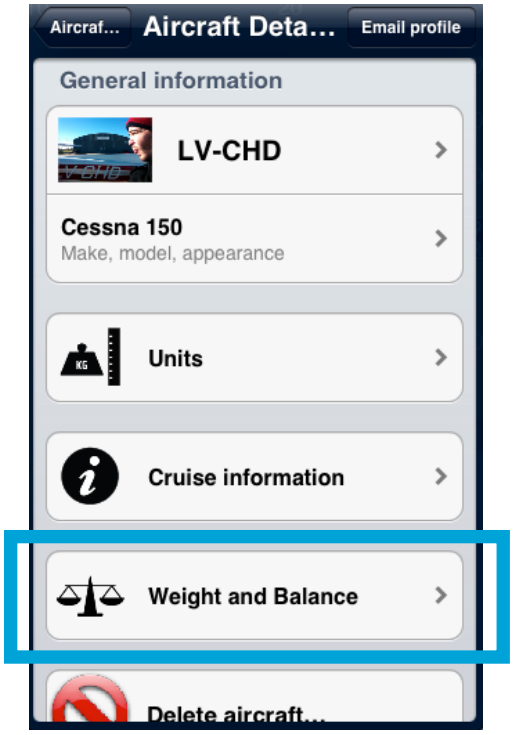
An approach chart can be opened manually by **pressing on the Airport waypoint** and selecting the the file which shows a **"plane" symbol** on the left side.
It can also be automatically configured to pop-up on top of the moving map by enabling the option **«Auto approach chart»** from the Settings. The approach chart will then pop up as soon as the Airport waypoint is the **next** one in the route list or if we select the waypoint as "Direct to".



In order to **hide the approach chart** you should use the RED icon from the toolbar.

Weight and Balance (W&B)

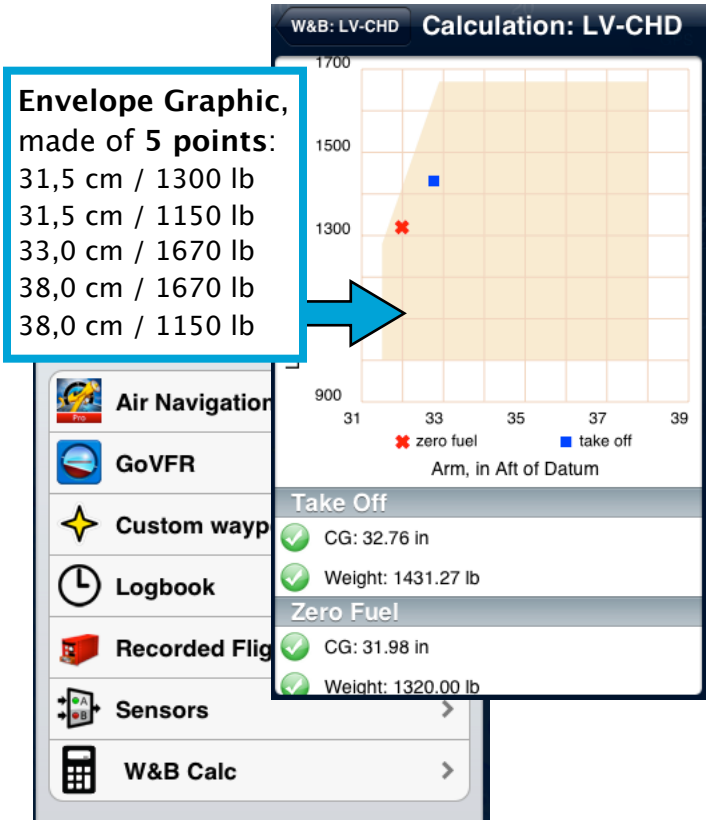
The **Aircraft profile** has been updated with definition of Weight and Balance envelope values and weights/arm locations. When a profile is selected you can easily compute weight and balance with the **W&B Calc tool** under «Tools» menu.



As mentioned before, the W&B tool is located in the Aircraft profile under **«Document Browser»**.
On the screenshot at the upper-right corner of this page, you will see the available fields to be completed.
The **weights** for **seats**, **baggage** and **misc** will be entered from the **«Tools»** menu AFTER the rest of the data has been already completed. The same happens to the amount of **fuel**.
On next page there's a full example.

Note: you need to enter at least **4 points** for **envelope** data.

Once everything is set and all the values are entered, you will be able to see the calculation reflected on a **graph**, under **«Tools»** menu.



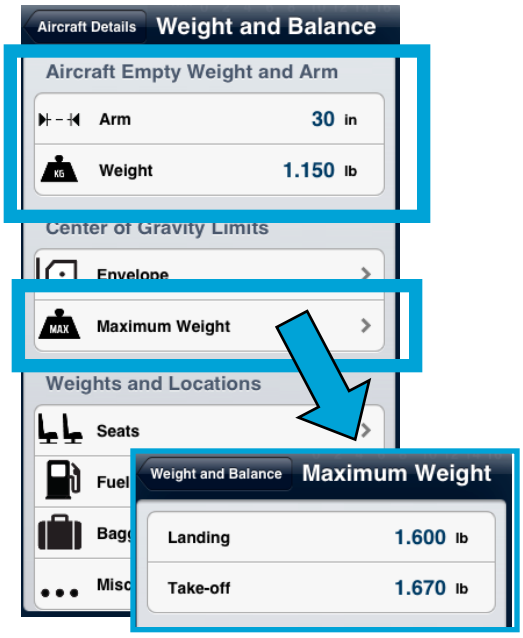
Go back to index

Example on W&B tool

In order to complete data related to the aircraft's nature, you **MUST** use a **certified manual** of the aircraft's model.

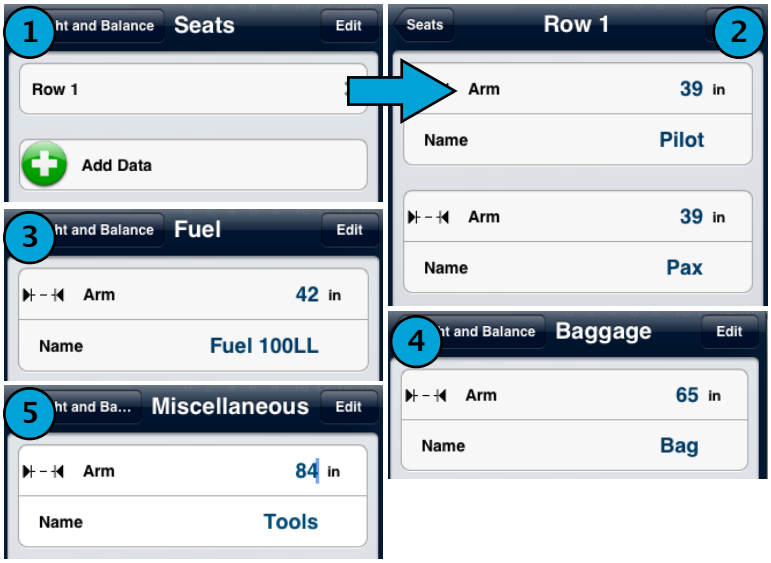
This is NOT a certified calculator.

Let's first complete the data concerning the aircrafts specifications. We'll take a C150 as an example.

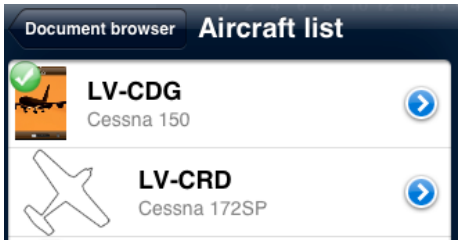


In order to complete the **«Envelope»** data, the values are taken from the CG Envelope Graph.

We proceed with the Seats, Fuel and Baggage, as shown in the screenshot.



Note:
The Miscellaneous part is optional.



After the module is completed, we then make sure to have the **Aircraft profile selected** from the Aircraft list (see the green mark on the left side of the profile).

Finally, we go to the **«Tools»** menu and we select the **«W&B Calc»** panel, from where we will complete with the weights and fuel information:

Note: once we have the module completed, we proceed to press on the button **«Calculate».**

EFIS Module (3D Synthetic Vision)

Overview

The EFIS module is a graphic interface which displays real **3D terrain** while flying. In order to use it, you will first need to download the **3D data** from the Map Store. EFIS code engine has been programmed to work close to a real artificial horizon.

You will show an **Elevation indicator** on your right and a **Groundspeed indicator** on your left.

At the top of the screen, you will show the **Compass.**

In the middle of the screen the **Artificial Horizon**.

At the bottom, there`s a green button that shows a different label depending on how and where you are flying.

You might show the following:

EDIT MODE — You can freely navigate throughout the terrain in this mode.

CALIBRATE — Press it for **2 seconds to calibrate** it according to your device`s position.

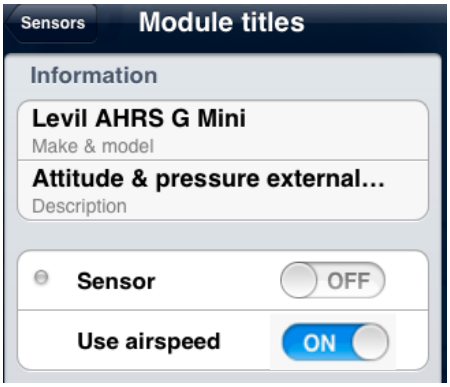
G MINI — This will show it when using an AHRS G mini gadget.

XPLANE — You will show it when using Air Nav Pro with X-Plane.

FSX — You will show it when using Air Nav Pro with FSX.

If you want to get the aircraft`s attitude and banking in a real flight, Air Navigation must be installed on an iOS device with internal **gyroscopes** (iPad 3, Pad 2, iPone 4/4S).

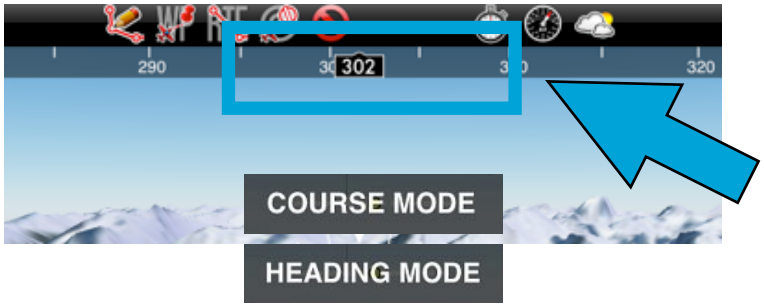
If it is not the case, Air Nav is prepared to work together with an external device known as **AHRS G mini** from Levil technology.
The AHRS G mini can also share **pressure**, **altitude** and **Airspeed** with Air Navigation if the sensors are active under “Tools” menu.

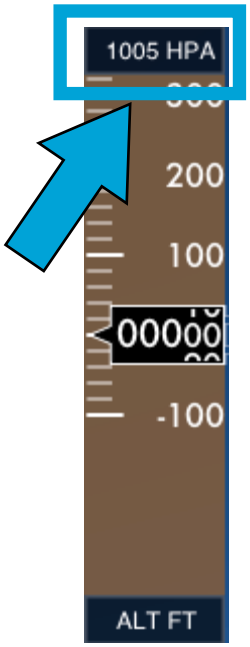


Pressure and View mode

Air Navigation 5 comes with the possibility of setting the **QNH** at the top of the Altitude indicator within the EFIS module. You can change it when in “Flight Mode”.

Also, by pressing on the top bar (Compass indicator, as shown below on the image), you can toggle the screen view to **Course/Heading mode**. This will only work when using the AHRS g mini gadget.





Note: If you split the screen on the iPad while using the EFIS module, you will always show the Route module and the Moving Map as the ONLY instruments.
You can also turn the Elevation graph ON and you will see the Elevation data up to 10 NM ahead.
(you can see it on a screenshot on next page)

Manual navigation in 3D EFIS module

In **«Edit» mode**, you can manually move along the 3D terrain by controlling **pitch**, **heading**, **altitude** and **moving back** and **forth**.

When you have a route created and still in «Edit» mode, if you press over a waypoint from the «Route» module, you will be positioned 2 NM from the selected waypoint in direction of the leg.

Use the following controls to move along the terrain:

- use the Altitude indicator to move up/down.
- use the arrows on the left to move forth and back.
- use the artificial horizon in the middle of the screen to control pitch and direction.

Terrain awareness 2D / 3D

When the option is enabled under «Map Options», you will show terrain zones above current altitude in **RED.** Terrain below us up to 50 meters will show in **YELLOW.**
This feature works for both EFIS module and 2D moving map.

Note 1: In order to be able to make use of this new feature (for both 3D and 2D interface), you must adquire the 3D data from the Map Store.

Note 2: if you have the option "Terrain awareness 2D/3D" enabled, but you don`t use it, you might experience a yellow color on the map, so it is better that you disable the option.

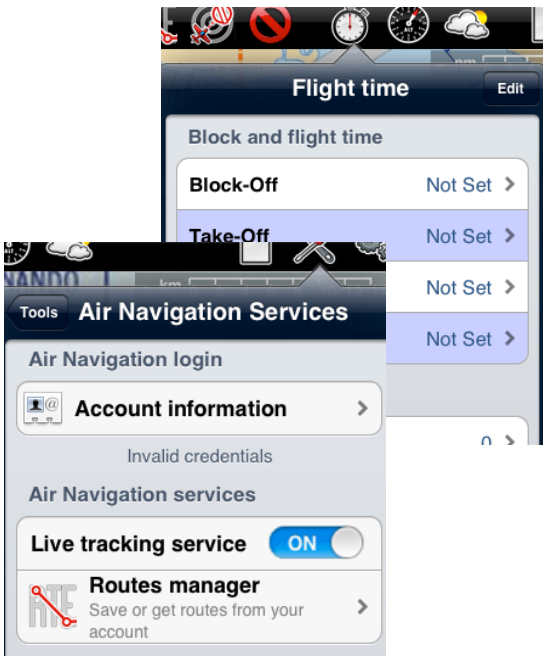
Xample services

Version 5.2 introduces access to new **online** services. Users can create a Free account on our server http://services.xample.ch giving access to various services. For example, you can turn on the **Live Tracking** feature or you can either **synch routes** from your iPad/iPhone.

Flight tracking system

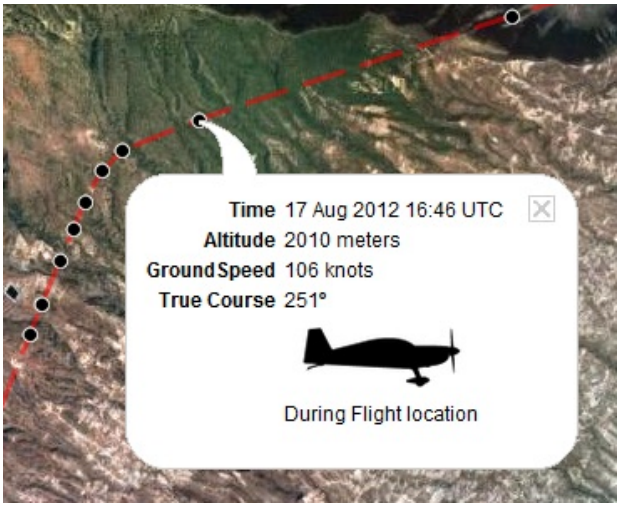
(3G capabilities needed)

It will start when **Block-off** time has been set in the **«Flight Time»** module (remember it can be automatically configured in the settings).
Once Block-off time is set, it will record the flight live to your account.
Make sure to enable Live tracking service under «Tools» menu.



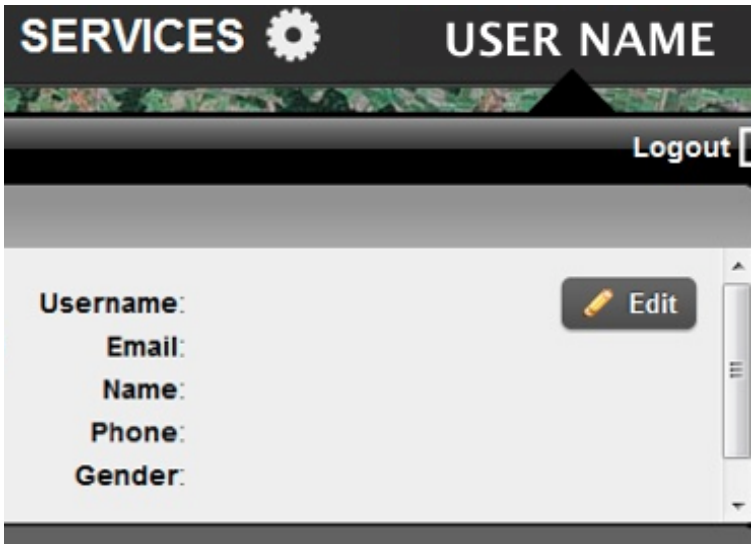
It is possible to keep the flight private or share it with family or friends with a password or set it as “public”.

The application will send points through the server in real time as the flight goes by and at the same time a person connected with your account will be able to check those points that mark the track and has relevant info such as current altitude, heading and time.



Note: Flight tracking system will work live as long as GSM network is available.

Each recorded flight will be stored on the left bar of the webpage and can be downloaded as a **KML file** or as a **GPX file** from the right side of the **bottom data bar**.
You can also **delete** them.



Each user account can be configured by “clicking” on the user’s nickname at the upper-right corner of the top bar on the webpage.

Third party services

GoVFR

www.govfr.com is a third party website where you can create a free account and create and exchange flight plans.

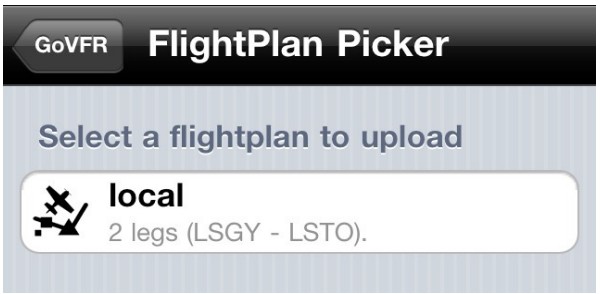
The «GoVFR» module in Air Navigation was designed to communicate with the website and **exchange Routes** (flightplans) between Air Navigation and your account on the website.

In order to use the «GoVFR» module you have to:

- Create an account on the www.govfr.com website;
- Create a flightplan on the www.govfr.com website (for testing purpose);
- In the «GoVFR» module, press the «Account information» line and enter your credentials;
- Go back to the «GoVFR» module, you should see the test flight plan in the list.

Pressing on a flightplan in the list will download and install it as a Route in Air Navigation.

Pressing on «Upload a flightplan» will display a list of routes stored in Air Navigation. You can then press on a route to upload it to your GoVFR account.



Simulators

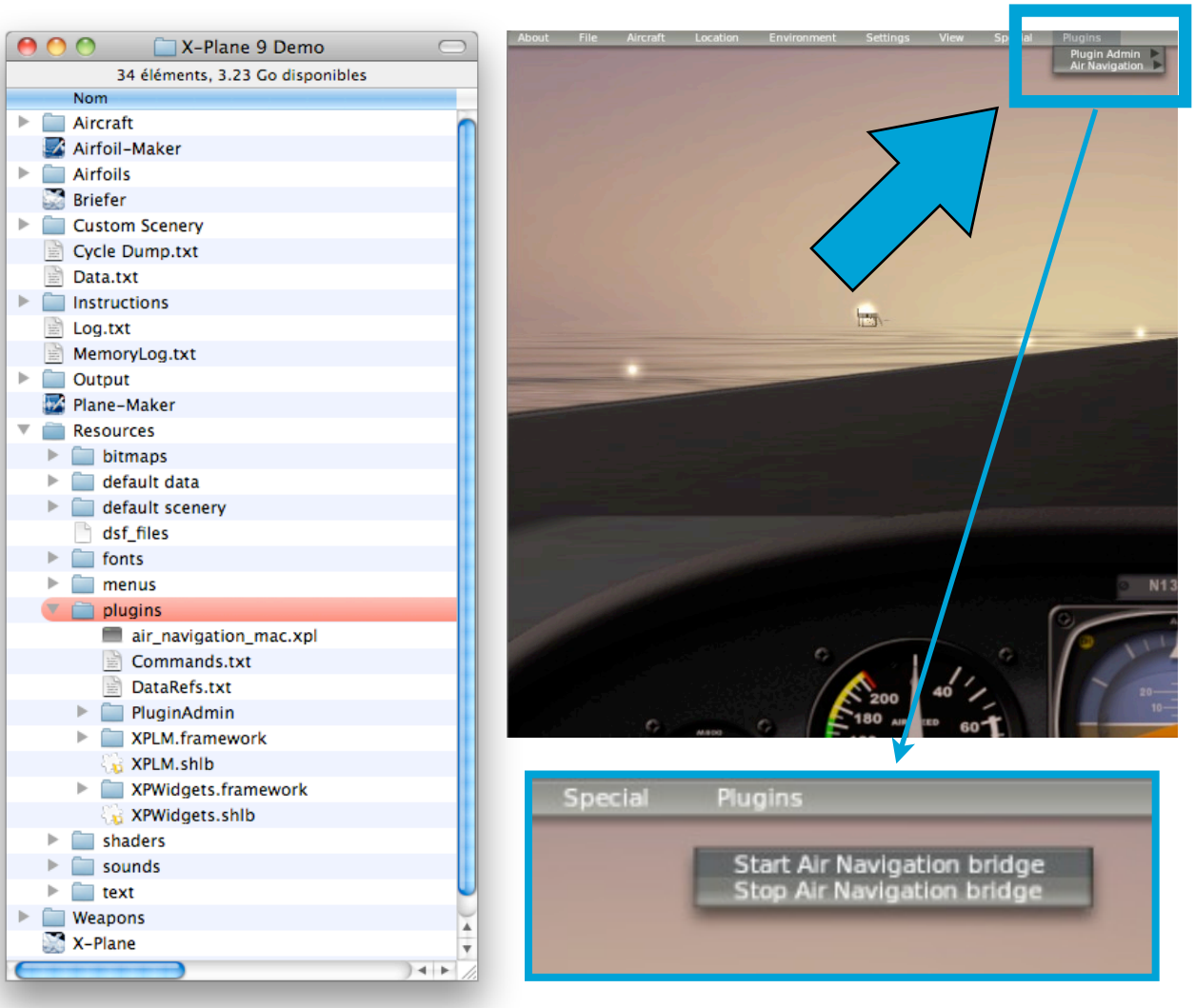
Connecting the X-Plane plugin

In order to connect Air Navigation Pro to the X-PLANE Flight Simulator a special plugin must be installed in the **«plugin» folder** of X-Plane.

The Plug-in for Mac or Windows can be downloaded from our website

http://www.dixdouze.com/xample/index.php/airnavigation/support#tabs-1

The plugin «Air Navigation_mac.xpl» or «Air Navigation_win.xpl» **must be copied to the «Resources/Plugins» folder** inside the X-Plane folder. If the plugin is correctly installed, you should see «Air Navigation» in the «Plugins» menu of X-Plane, located at the top bar when starting a flight.



Once you have identified the plugin on X-Plane, then click on **«Start Air Navigation bridge»**, located within «Plugins» top menu as mentioned before.

On Mac computers we use the "Bonjour" feature to discover X-Plane on the network, this is much easier than typing network addresses.

On Windows computers the “Bonjour” service is required for the automatic detection of X-Plane network address by the iPhone or iPad. If you have already installed iTunes you don’t have to do anything, since Bonjour comes with iTunes automatically.

To download and install the Bonjour service for Windows manually go to the following address:

http://apple.com/support/downloads/bonjourforwindows.html

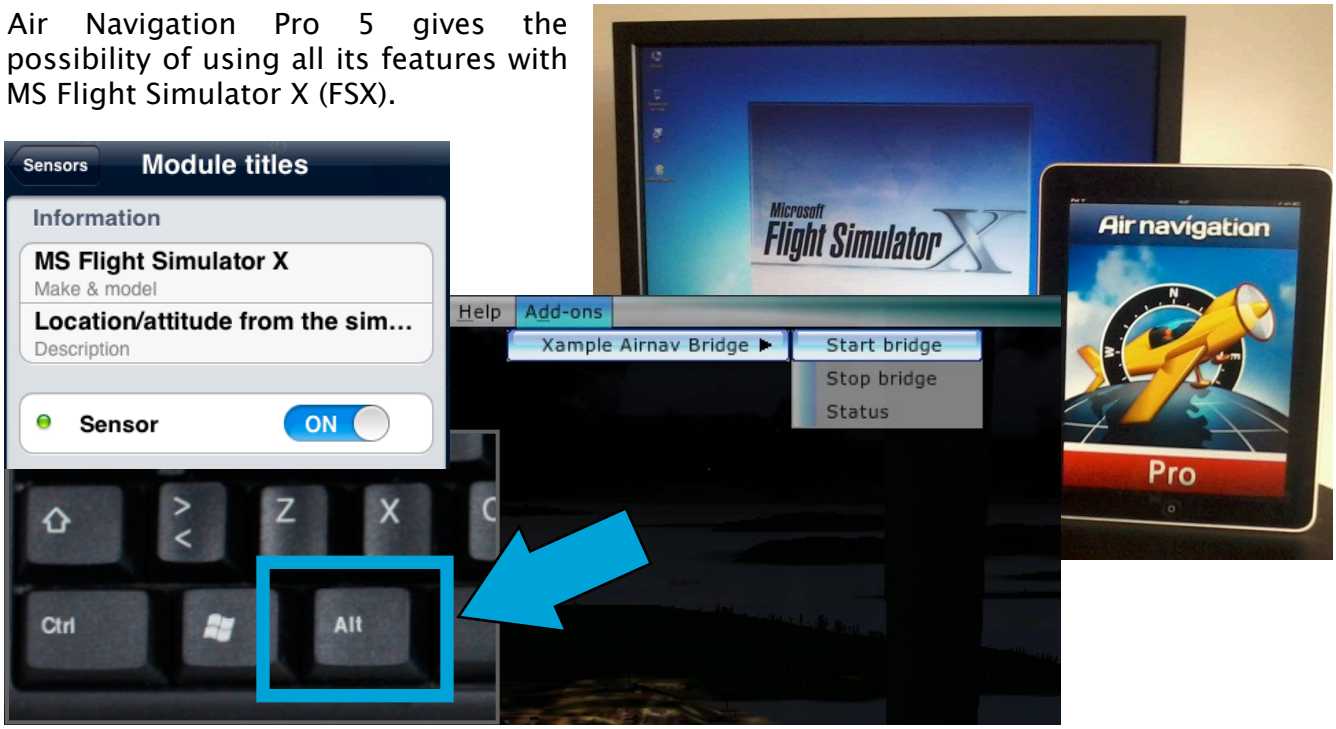
download the installer and follow on screen instructions.

Once you have started the Air Navigation bridge on the X-Plane:

- make sure you have your **iPad/iPhone and your PC** connected to the **same wifi network**;
- make sure to switch the **X-Plane Sensors ON** in the «Tools» menu.

Connecting the “Flight Simulator X” (FSX) plugin

Air Navigation Pro 5 gives the possibility of using all its features with MS Flight Simulator X (FSX).



In order to do so, you should follow this steps:

- Make sure to have the **“Acceleration” pack** installed with FSX (or instead the SP1 and SP2, that you can get from the internet).
- Download and **install the plugin** from our website: http://www.dixdouze.com/xample/index.php/airnavigation/support#tabs-1
  If having issues while installing it, run the icon as “Administrator” (right-click on it)
- Download and **install “Bonjour”** application:
  http://support.apple.com/kb/DL999
- Make sure to have **both** PC and iPad/iPhone connected to the **SAME wifi network**.
- Run FSX and **accept on the messages** that you will show related to the plugin.
- Run Air Navigation Pro on your iPad/iPhone and make sure to ONLY have the **“Flight Simulator X” sensor** in «Tools» menu (disable all the others, including “iOS Location Services”.
- Start a flight in FSX and press “ALT” key , then look for the “Add-ons” menu on the top bar and **Start Air Nav bridge**.

Note: make sure to have **no Firewalls** blocking the connection.

Import/export data
(backup and sharing)

Air Navigation Pro was designed to allow endusers to import data in the application database and export data created on Air Navigation Pro such as Waypoints, Recorded tracks, Routes, etc.
These tools play an important role when it comes to sharing information with a friend, or copying the data to a second device or for doing a backup before reinstalling the app.

The following are tools to import/export data:
(click on the option to jump to page)

Currently it is possible to import/export the following data:

Import

- Waypoints, Frequencies and Runways as TXT-format files;
- Waypoints, Frequencies and Runways by editing the «UserDatabase.sql» file (SQLite 3 file);
- **Waypoints as GPX files**;
- **Routes as GPX files**;
- Airspaces files as OpenAir text files;
- Airspaces files as Tim Newport Peace text files;
- **PDF documents**;
- **Logbook** entries as TXT-format files.
- **Aircraft profile** in ANP format.

Export

- Waypoints, Frequencies and Runways as TXT-format files;
- Waypoints, Frequencies and Runways created within Air Navigation Pro that are stored in a «UserDatabase.sql» file (SQLite 3 file);
- Routes as GPX files;
- Logbook entries as TXT-format files;
- **Recorded tracks as KML files** (they can be viewed with Google Earth);
- **Email** (Routes, PDFs, logbook, aircraft profile).

Embedded Webserver

The iPhone/iPod must be connected on a **wifi network**. Additionally the wifi network must be the **same network** as your desktop computer.

The web server must be turned on in the «Settings». If the web server is on, its network address will appear just below the web server switch (see screenshot beside). Example: http://192.168.46:8080

To access the embedded web server, type this address in the URL bar in a reasonably up to date Internet Browser (Firefox 3, Safari 4, Explorer 8) on your computer and press return. Air Navigation web site should appear in your navigator.

If you fail to connect, try several times and on **different browsers**.

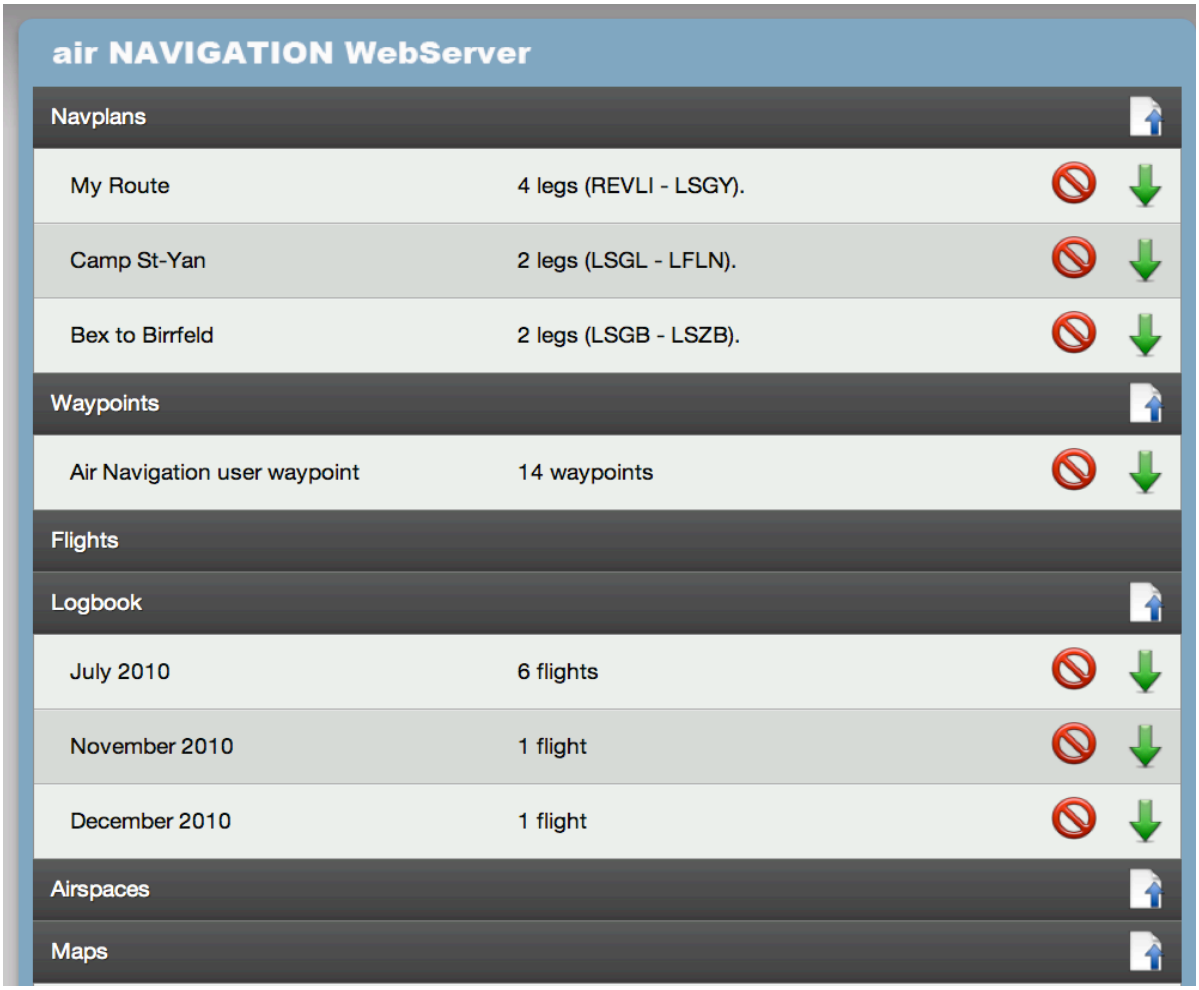
Note: if you have the Bonjour application installed on your computer, the web server will appear automatically as part of the detected websites, in this case you don't have to type the IP address manually. Bonjour is installed automatically on Mac computers, on Windows it comes together with iTunes.

Should you wish to install the plugin manually, please download the latest installer at this address:

http://apple.com/support/downloads/bonjourforwindows.html

On the browser, available data is grouped by type: Navigation plans, Waypoints, Airspaces, Recorded flights, Logbook (see screenshot below).

Press on a group bar to disclose its content. Some data types can only be uploaded or deleted (Airspaces or maps), some can only be downloaded and deleted (Recorded flights) and some others can be uploaded, downloaded or deleted (Waypoints, Navigation plans, logbook).

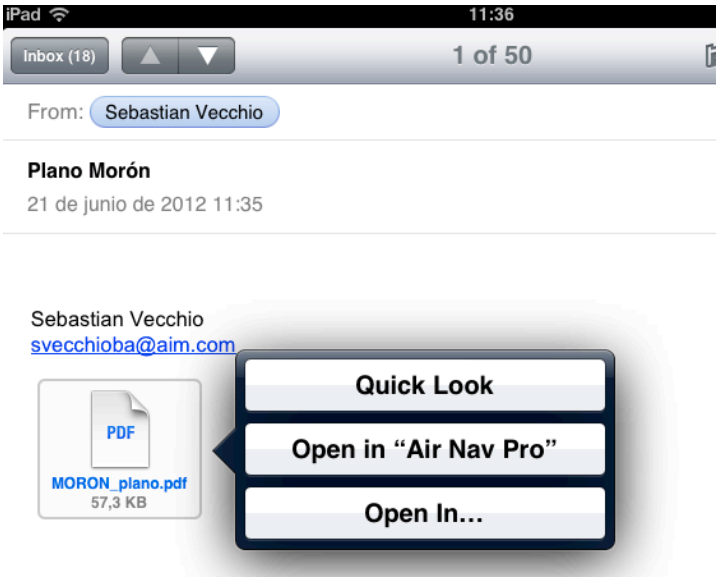


To **download a file**, press the **green arrow** on the right side of the file. The red circle is used to delete a file.

To **import a file** in a particular group, press the file icon with the **blue arrow** on the right side of the group name. A selection popup will appear on top of the page. On most modern browser, after a file is selected, it will start uploading immediately. On older browser, you may need to press the «Upload» button to start uploading.

To upload a **PDF document** and associate it to a specific airfield, you must add the **ICAO code** of the airport where you want the PDF to appear at the beginning of the pdf name (Example: LSGG _Geneva_approach.pdf). You can then upload the document in the «Appcharts» section. If Air Navigation cannot find an airfield matching the 4 letter prefix of the file, an error message will appear and the PDF will not be installed.ç

You can also send PDF documents **by Email** to your iPhone/iPad. If you add the 4 letter ICAO code as a prefix to the PDF name, you can use the «Open in Air Navigation» feature of the mail client. The pdf file will be automatically installed in Air Navigation.



Note: You can also **send routes in GPX format** by email to your iPhone/iPad. Then, you can use the «Open in Air Navigation» feature of the mail client. The route file will be installed in Air Navigation.

Go back to «Import/Export data» chapter

WebDAV server

WebDAV is a file server protocol based on the http protocol. It is natively supported by most modern operating systems (Windows, MacOS X, Linux). Since version 4.0.1, it is possible to share and «mount» the «documents» folder of Air Navigation as a network share (server) on your computer by using the WebDAV protocol.

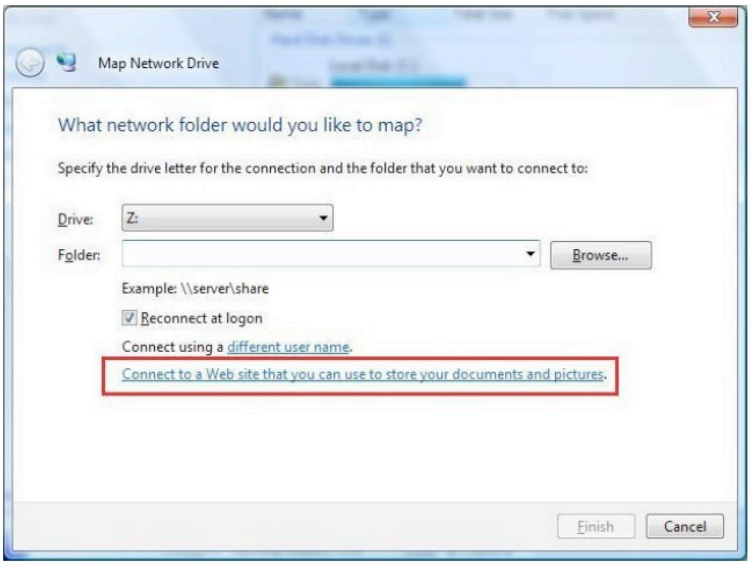
The WebDAV network share is much more practical as it is possible to manipulate files as if they were on a USB key. It is possible to copy several files at the same time and even complete folder structures to Air Navigation.

The WebDAV address will appear in the settings, under the Webserver address.

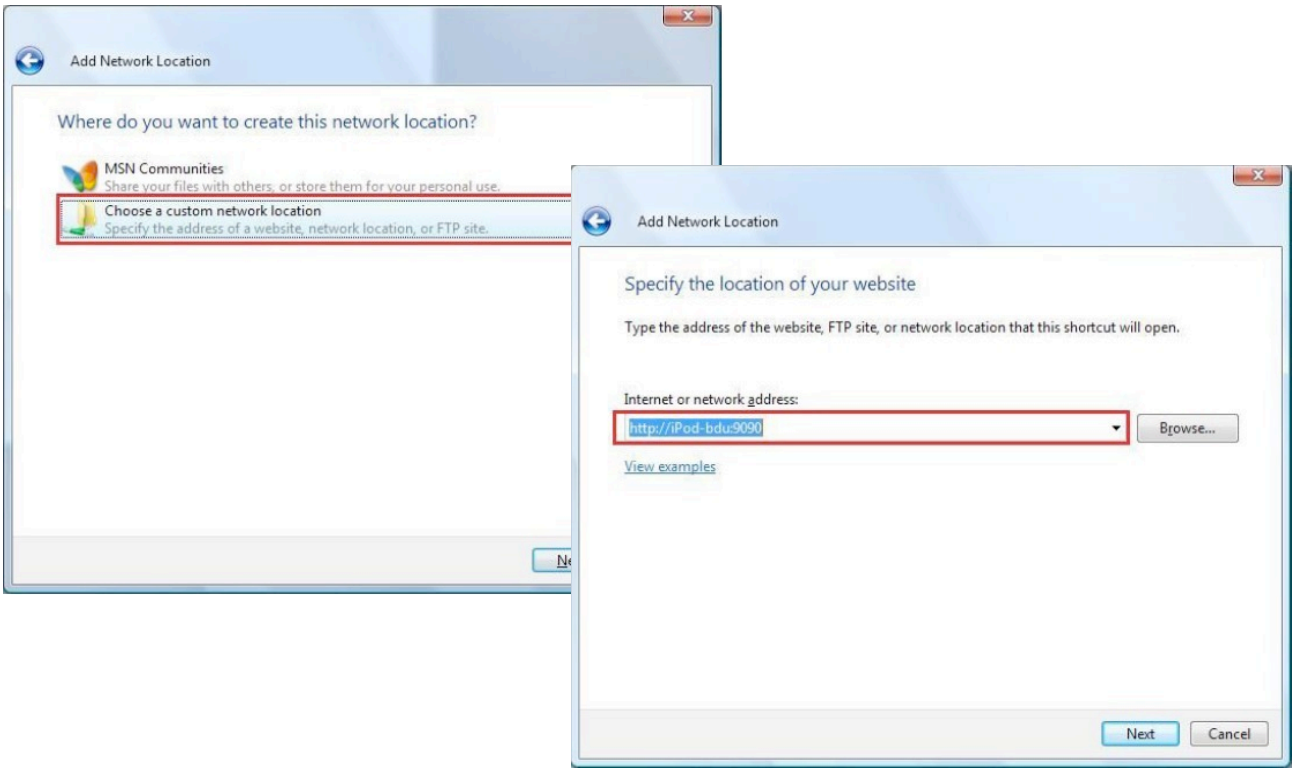
As we do it with the Webserver, by activating the option «Enable web server» (see screenshot above), we can get the IP address below that option. Example:
http://192.168.1.46:9090

Mounting the «Documents» folder using WebDAV on Windows 7, VISTA, XP

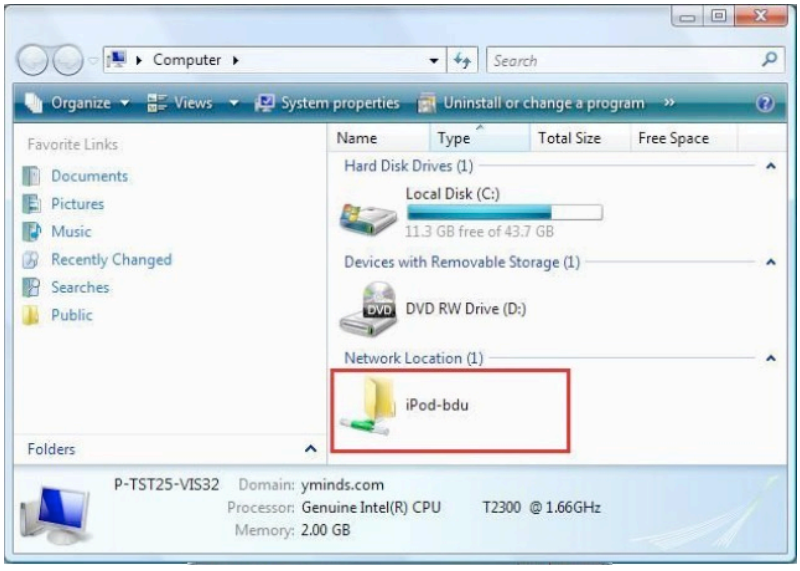
- Open “My Computer” from the Start Menu;
- From the Menu select “Map Network Drive”
  Or
  Right-click on “My Computer” and select “Map Network Drive”;
- Use the link on the bottom of the next box: “Sign up for online storage or connect to a network server”;



- Follow the network assistant's procedure and use the network address from Air Navigation settings page. The default address can be for example:
  http://iPode-bdu:9090 or
  http://192.168.1.101:9090



- Chose a name for your iPhone which will appear in the "My Network Places" window later;
- Open the drive like an external hard disk and use it the same way.



Mounting the «Documents» folder using WebDAV on MacOS X

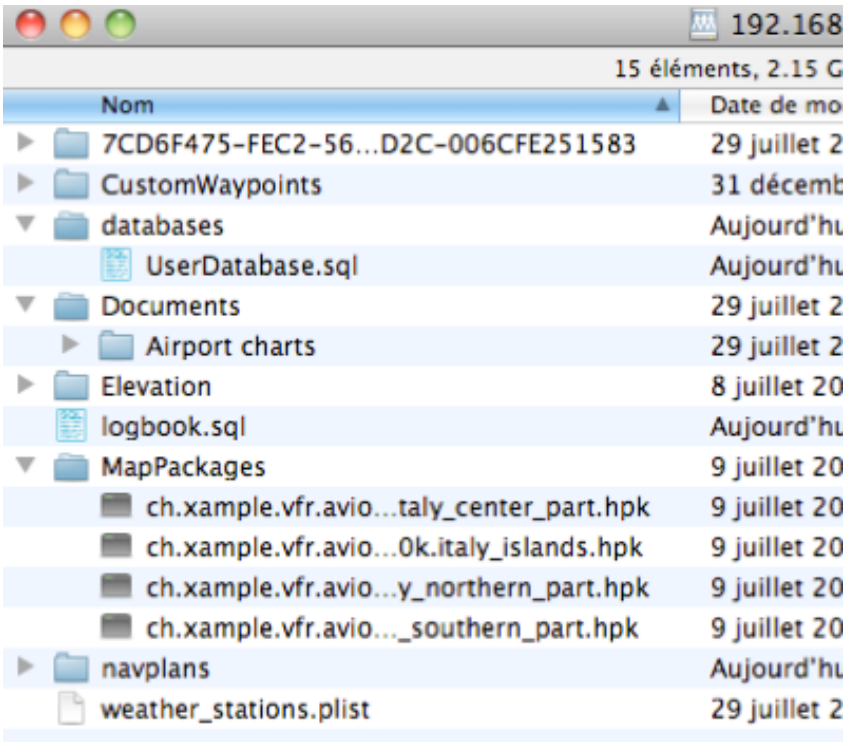
- Select the «Go» menu;
- Select “Connect to Server”;
- Enter the network IP address according to Air Nav Pro:
  the default address can be for example http://192.168.1.101:9090;
- The iPhone will appear on the desktop as a hard drive symbol.

Content of the «Documents» folder

Once mounted as a network drive, you can access and manage files used by Air Navigation.

deleting, renaming or installing unsupported files may cause the application to **malfunction**.

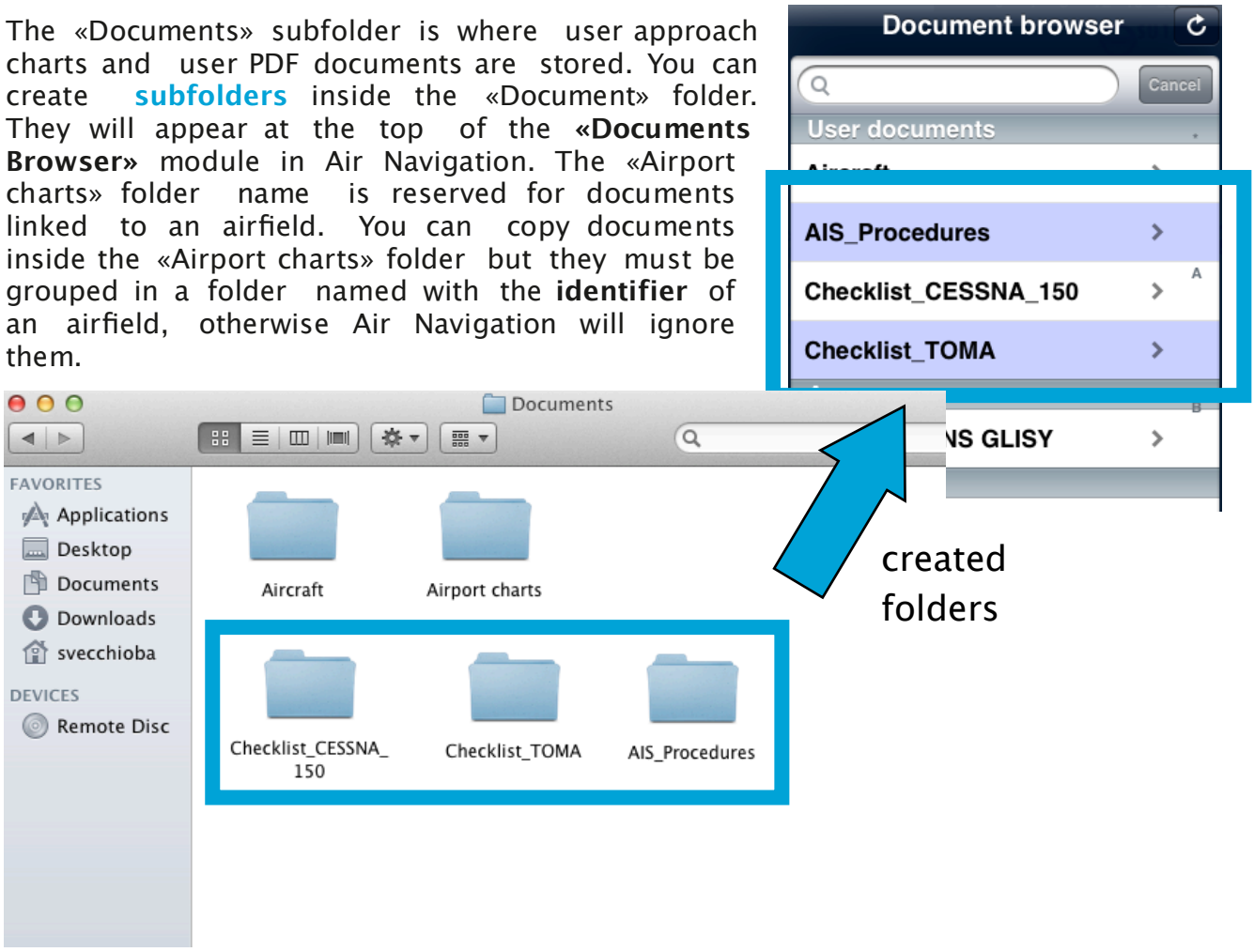
The «Documents» folder contains installed **maps and charts**. They are stored in the «MapPackages» subfolder. The maps can be backed up to a computer and copied to another device. However, commercial maps are protected with a certificate that will only work on the device where it was created. If you try to install maps on a second device, you will have to use a **«Restore purchase»** blue button located at the top-right corner of the «MapStore» module to create the necessary certificates.



If you want to backup the maps on your computer, you should also backup the certificates. The certificates are located in the folder named with the hexadecimal string (first folder in the screenshot on previous page). You should **NOT change** the name of the folder or the files inside.

The «databases» folder currently contains only the **user database**. In the future, Air Navigation may support more than one user database. The user database file is a SQLite file and can be edited by any SQLite 3 editor. This database contains user waypoints, frequencies and runways. They are linked by the waypoint identifier. It means that if you want to input an airport with a runway and some frequencies. The relevant records must have **the same value** in the «waypoint_id» field.

The «Documents» subfolder is where user approach charts and user PDF documents are stored. You can create **subfolders** inside the «Document» folder. They will appear at the top of the **«Documents Browser»** module in Air Navigation. The «Airport charts» folder name is reserved for documents linked to an airfield. You can copy documents inside the «Airport charts» folder but they must be grouped in a folder named with the **identifier** of an airfield, otherwise Air Navigation will ignore them.



The «Elevation» folder is where the free elevation databases are stored. You can backup the elevation files on your computer. You can also copy those files to other devices.

The «Logbook.sql» is a SQLite3 database file where the content of Air Navigation **logbook** is stored. It can be edited by any SQLite 3 editor.

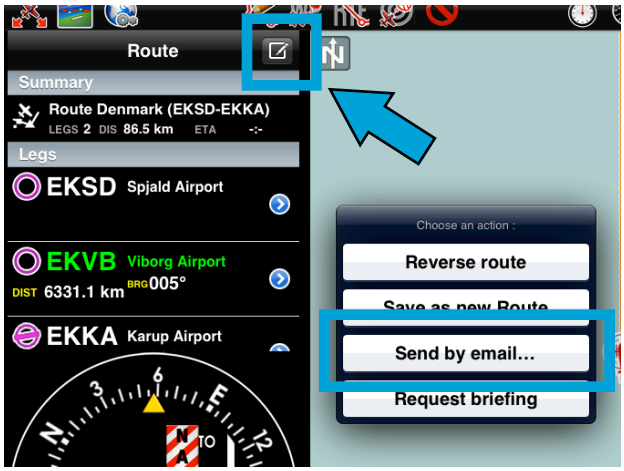
The «Navplans» folder is where saved routes are stored. You can backup and/or copy the files to other devices.

Go back to «Import/Export data» chapter

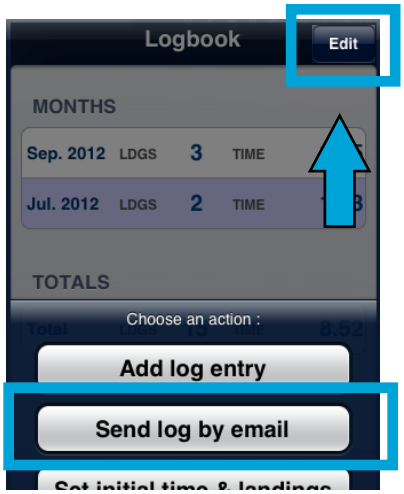
Email feature

Users can send their data through Email as long as they have their account configured within the iPad/iPhone:

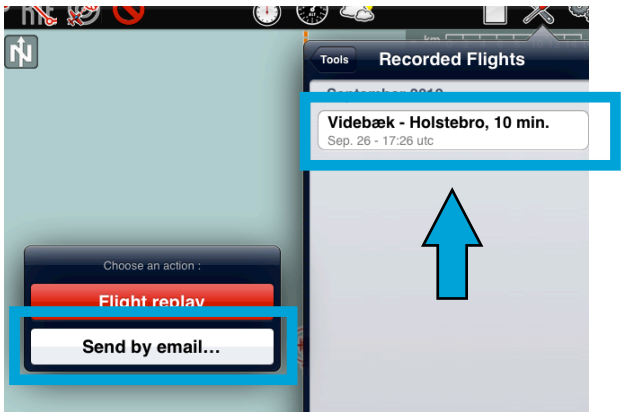
Routes (in GPX format)
In the «Route module» you will find a button at the upper right corner.



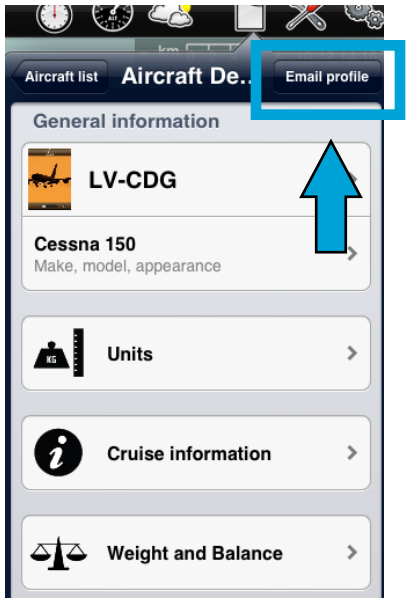
Logbook (in TXT format)
Under «Tools» menu, you will get in the «Logbook» panel and press on the button at the upper right corner.



Recorded flights (in KML format)
Under «Tools» menu, you will get in the «Recorded Flights» panel and press on the desired flight.



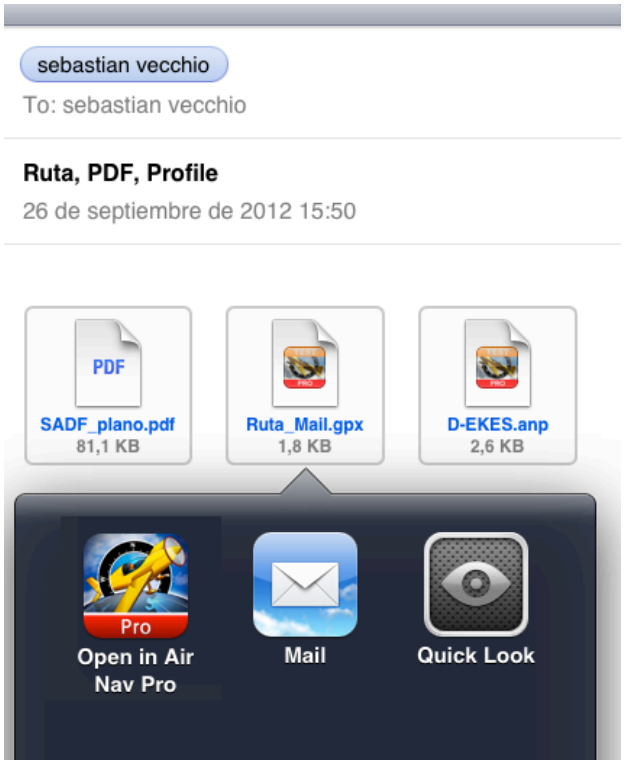
Aircraft profile (in ANP format)
Under «Document browser» menu, you will get in the «Aircraft» profile panel and find the button at the upper right corner.



Go back to «Import/Export data» chapter

«Open in Air Nav Pro» feature

If you have your Email account configured on the iPad/iPhone, you will then be able to send a data file and use the feature «Open in Air Nav Pro» as the screenshot shows below.

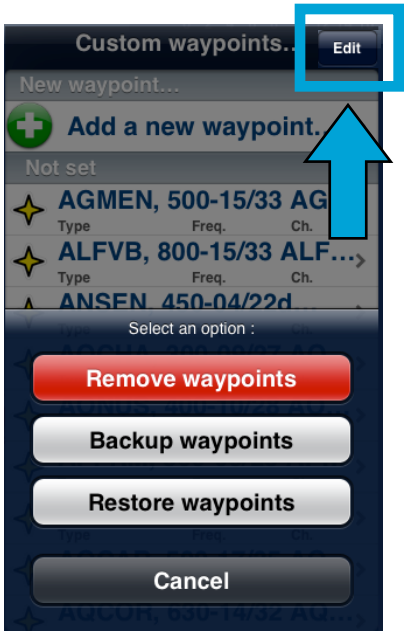


As you can see, there are three types of files that Air Nav Pro can import through this method:

- PDF documents
- GPX Route files (not waypoints yet)
- ANP Aircraft profile files

Backup option for User Waypoints

Users can use the «backup waypoints» option to keep their created user waypoints in a file that will then be copied from iTunes at the moment of synchronizing. That file can be copied to another device then and the option «restore waypoints» will bring them back.



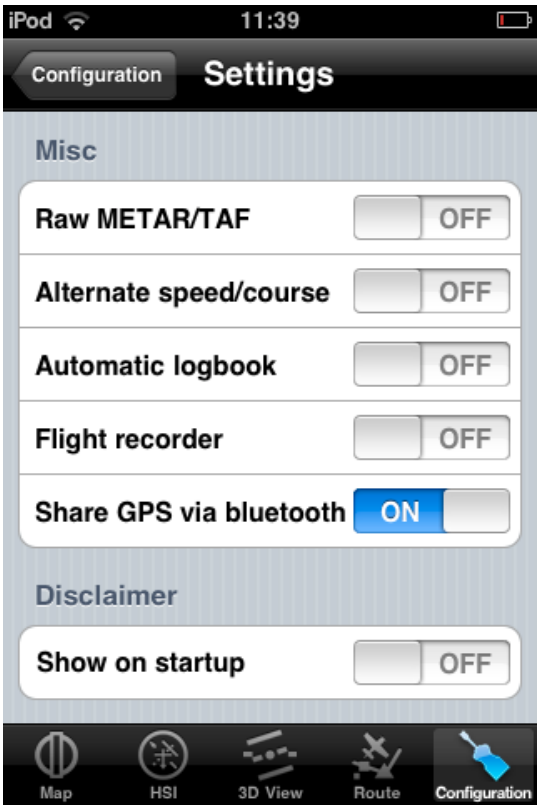
Go back to «Import/Export data» chapter

Advanced features

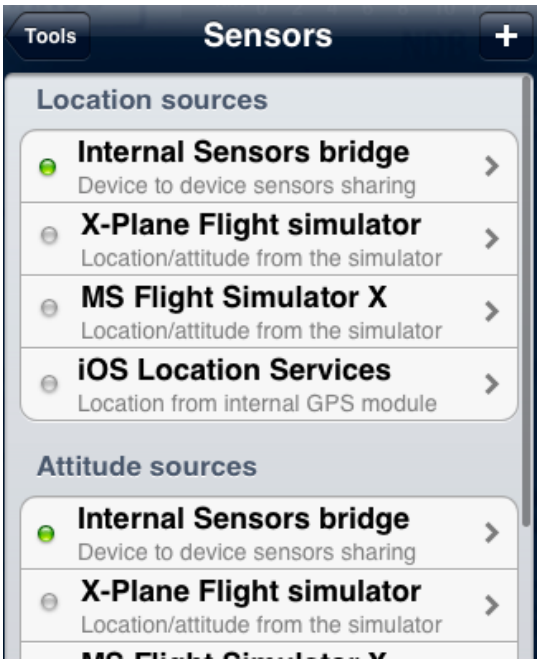
Pair 2 devices

Communication between 2 iOS devices is established by connecting the 2 devices via **BLUETOOTH**. The procedure to start the connection is as follow:

- Enable **bluetooth** at system level on the iPhone, iPod or iPad settings **on both devices.**
- Enable the **«Share GPS via bluetooth»** option in Air Navigation settings **on the master device** (usually the device with an internal GPS).



- Enable the **«Internal Sensors bridge»** in the «Toos» menu **on the slave device** (usually a device without GPS).
- Connection should occur automatically when a suitable master device is detected. You can monitor connection state in the sensor bridge. Green means that you are connected and receiving GPS data.



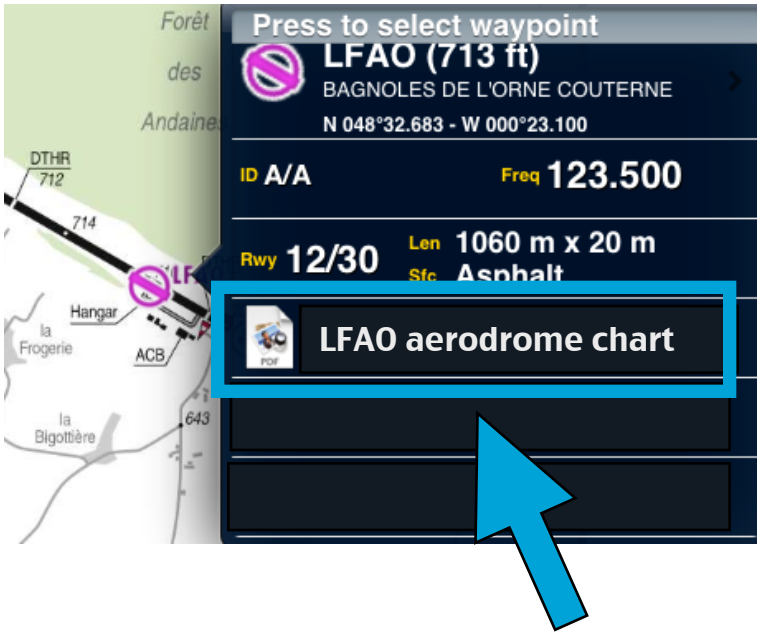
Note: in order to maintain the connection Air Navigation Pro must be running on both devices at the same time during the whole flight.

Attach a PDF document (WebDAV server)

Existing/created ICAO Airport waypoint
From the «Documents» folder on the WebDAV server, OPEN the «Airport charts» folder. Remember to create a new folder with the ICAO code name of the Airport and copy the PDF document inside it.
Example: I want to add an Aerodrome chart to the Airport of ICAO: SADF. I will then create a folder named "**SADF**" inside "Airports charts" and then copy the PDF document "Aerodrome_chart_fdo.PDF".

Any non-ICAO waypoint
Air Nav Pro allows you to attach a PDF document to ANY type of waypoint (Airfield, Heliport, IFR waypoint, User Waypoint, etc).
The procedure is the same as for the ICAO-code waypoints.
You should create a new folder inside «Airport charts» folder with the **EXACT name of the waypoint** and then copy the PDF document into it.
Example: I want to add a PDF document to an Airfield named "Marco Aurelio 2".
I will then create a new folder named "**Marco Aurelio 2**" and i will copy the PDF file into it. See that I'm respecting the "spaces" that the waypoint's name has.

The user can open the PFD documents from within Air Navigation Pro from the «Document Browser» menu or directly by pressing on the waypoint and selecting the Document from the pop-up window, as the screenshot shows below.



Waypoints file format

To import a list of waypoints with the embedded Webserver, the data must be formatted as a tab separated text file, encoded as UTF8 to support special characters.

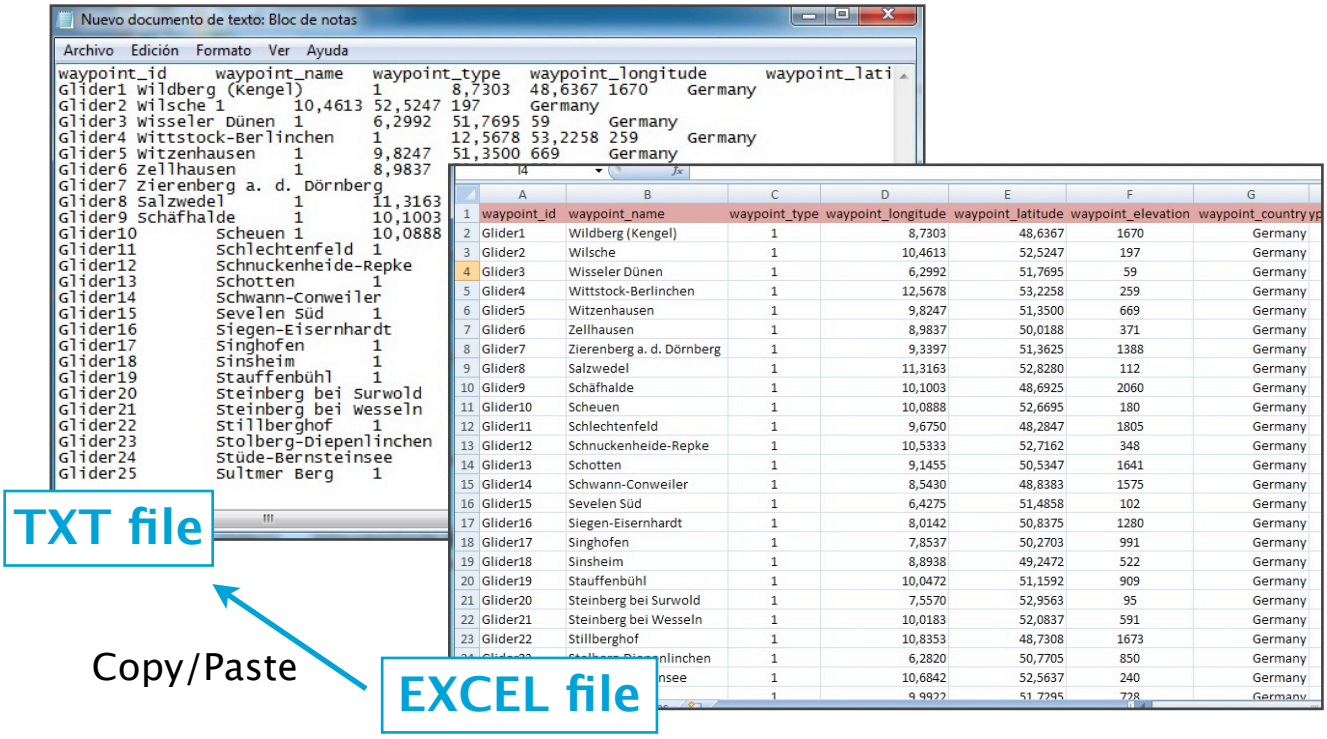
You can use your favorite spreadsheet application or convert waypoints from another database to match the structure described below.

We strongly recommend that you create a custom waypoint on the iPhone/iPod first and download it from the website to get the correct file structure, then you don't have to type the columns names manually (which could result in typos and/or bad structure that would not be recognized as a valid file on importation).

File structure for waypoints

To be valid, a waypoint file must start with a row listing the columns names separated by a tab character (TAB key). The other lines are the actual waypoints values (one line per waypoint). Values can be empty but they must be separated by a tab character.

The **best would be** to work on MS EXCEL and when having finished, then copy the columns and paste them into a TXT file with a program like «Notepad»:

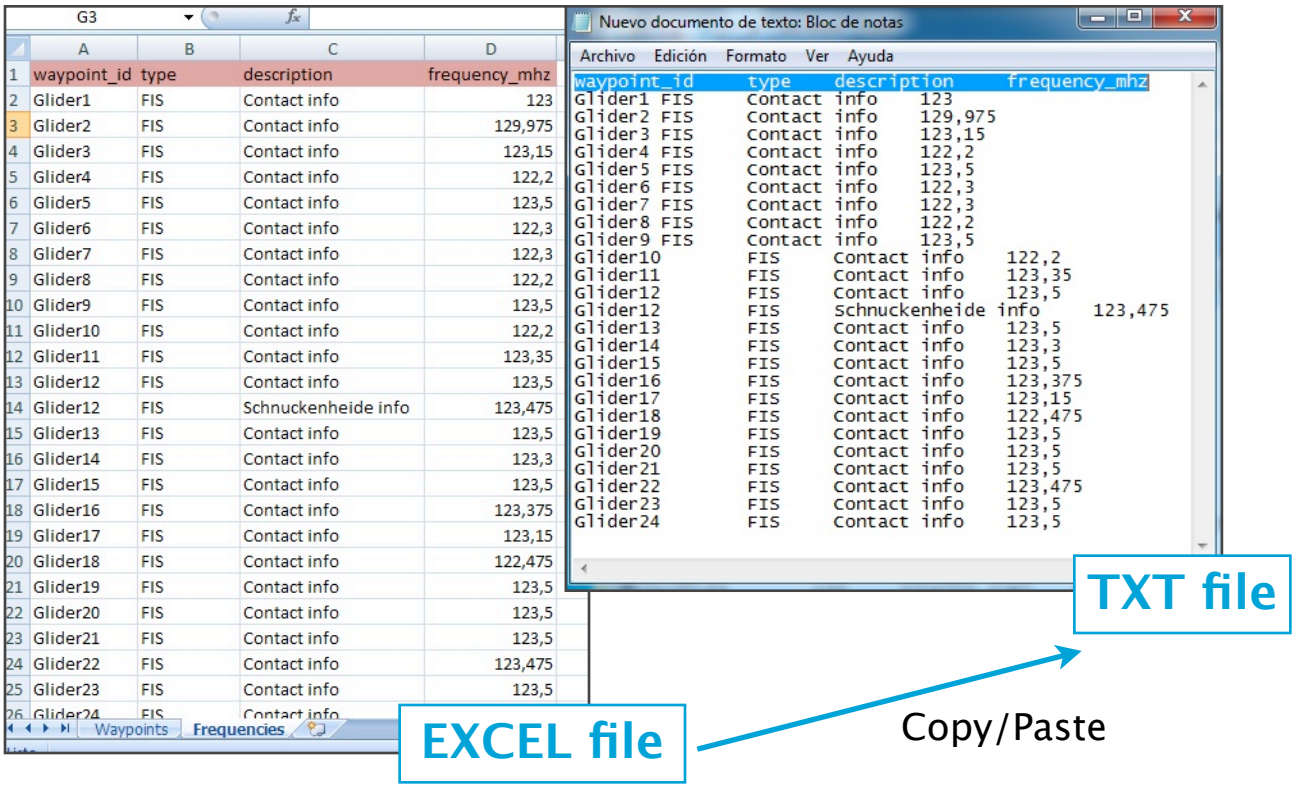


Columns names and definition are:

- **waypoint_id** (text, usually less than 6 characters, required value)
- **waypoint_name** (text, longer description of the waypoint)
- **waypoint_type** (number: 1=Airport, 2=fix, 3=waypoint,4=Helipad, 5=seaplane base, 8=IFR waypoint, 10=DME, 11=NDB, 12=VOR, 13=NDB/DME, 14=VOR/DME, 15=TACAN, 16=VORTAC)
- **waypoint_longitude** (number with decimal)
- **waypoint_latitude** (number with decimal)
- **waypoint_elevation** (number, elevation in feet)
- **waypoint_country** (text)
- **waypoint_state** (text, example California)
- **waypoint_channel** (text)
- **waypoint_frequency** (number, for navaids only)
- **main_runway_orientation** (number 1 to 360)

File structure for frequencies

To be valid, a frequencies file must start with a row listing the columns names separated by a tab character. The other lines are the actual frequencies values (1 line per frequency). Values can be empty but they must be separated by a tab character.



	A	B	C	D
1	waypoint_id	type	description	frequency_mhz
2	Glider1	FIS	Contact info	123
3	Glider2	FIS	Contact info	129,975
4	Glider3	FIS	Contact info	123,15
5	Glider4	FIS	Contact info	122,2
6	Glider5	FIS	Contact info	123,5
7	Glider6	FIS	Contact info	122,3
8	Glider7	FIS	Contact info	122,3
9	Glider8	FIS	Contact info	122,2
10	Glider9	FIS	Contact info	123,5
11	Glider10	FIS	Contact info	122,2
12	Glider11	FIS	Contact info	123,35
13	Glider12	FIS	Contact info	123,5
14	Glider12	FIS	Schnuckenheide info	123,475
15	Glider13	FIS	Contact info	123,5
16	Glider14	FIS	Contact info	123,3
17	Glider15	FIS	Contact info	123,5
18	Glider16	FIS	Contact info	123,375
19	Glider17	FIS	Contact info	123,15
20	Glider18	FIS	Contact info	122,475
21	Glider19	FIS	Contact info	123,5
22	Glider20	FIS	Contact info	123,5
23	Glider21	FIS	Contact info	123,5
24	Glider22	FIS	Contact info	123,475
25	Glider23	FIS	Contact info	123,5
26	Glider24	FIS	Contact info	

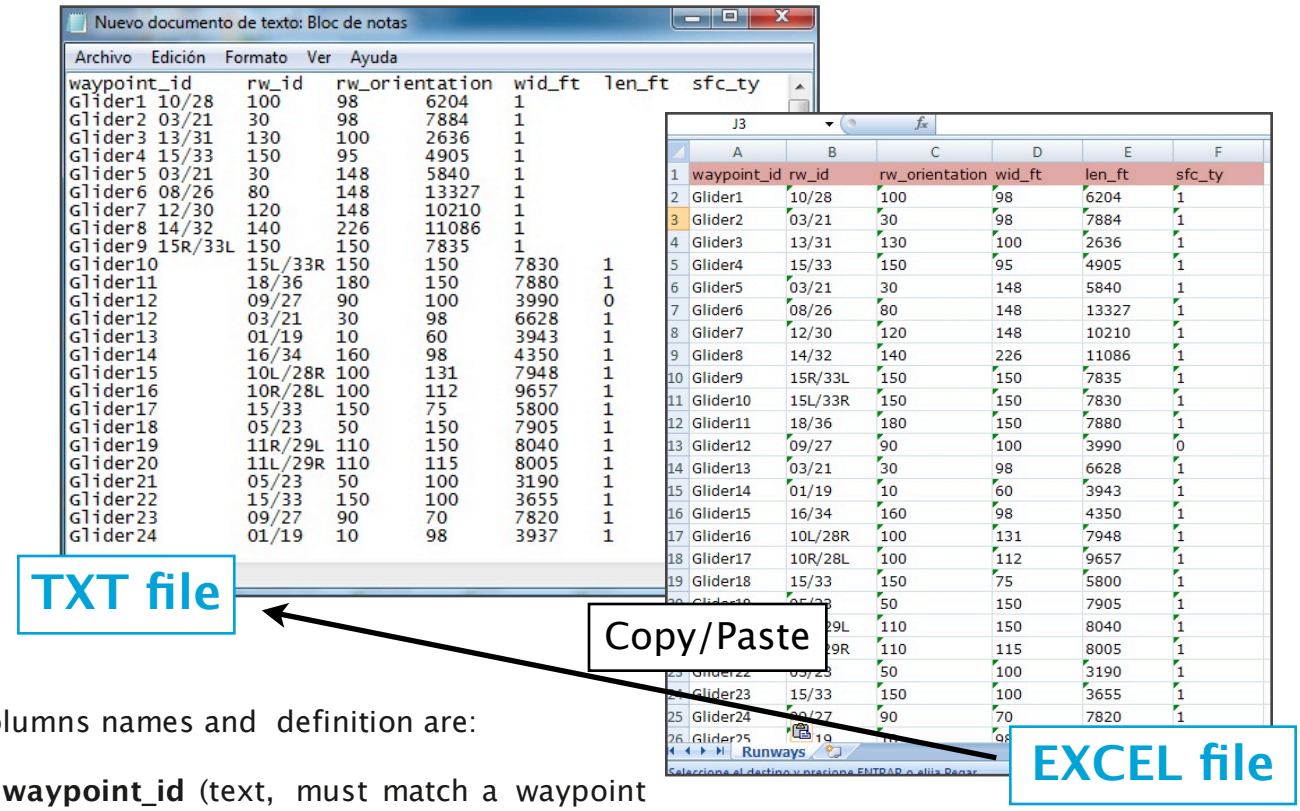
```
waypoint_id     type    description     frequency_mhz
Glider1 FIS     Contact info    123
Glider2 FIS     Contact info    129,975
Glider3 FIS     Contact info    123,15
Glider4 FIS     Contact info    122,2
Glider5 FIS     Contact info    123,5
Glider6 FIS     Contact info    122,3
Glider7 FIS     Contact info    122,3
Glider8 FIS     Contact info    122,2
Glider9 FIS     Contact info    123,5
Glider10        FIS     Contact info    122,2
Glider11        FIS     Contact info    123,35
Glider12        FIS     Contact info    123,5
Glider12        FIS     Schnuckenheide info     123,475
Glider13        FIS     Contact info    123,5
Glider14        FIS     Contact info    123,3
Glider15        FIS     Contact info    123,5
Glider16        FIS     Contact info    123,375
Glider17        FIS     Contact info    123,15
Glider18        FIS     Contact info    122,475
Glider19        FIS     Contact info    123,5
Glider20        FIS     Contact info    123,5
Glider21        FIS     Contact info    123,5
Glider22        FIS     Contact info    123,475
Glider23        FIS     Contact info    123,5
Glider24        FIS     Contact info    123,5
```

Columns names and definition are:

- **waypoint_id** (text, must match a waypoint waypoint_id to be associated with it)
- **type** (text, short name of the frequency)
- **description** (text, long name of the frequency)
- **frequency_mhz** (number with decimal, the actual frequency)

File structure for runways

To be valid, a runways file must start with a row listing the columns names separated by a tab character. The other lines are the actual runways values (1 line per runway). Values can be empty but they must be separated by a tab character.



Columns names and definition are:

- **waypoint_id** (text, must match a waypoint waypoint_id to be associated with it)
- **rw_id** (text, name of the runway)
- **rw_orientation** (number 1-360)
- **wid_ft** (number, width in feet)
- **len_ft** (number, length in feet)
- **sfc_ty** (number, unknown=0, Asphalt=1, Concrete=2, Grass=3, Gravel=4, Dirt=5, Sand=6, Snow=7, Ice=8, Water=9)

Note: imported waypoints/frequencies/runways will be stored under their imported filename on the Webserver. A special filename "**Air Navigation User waypoint**" is reserved for waypoints created on the iPhone/iPod.

Airspaces file format

Air Navigation is compatible with two well known Airspace file formats:

➡ **OpenAir**
➡ **Tim Newport-Peace**

Both formats are easy to understand text files format describing Airspace attributes and geographic boundaries as well as lower and upper limits.

You can import airspaces files from the embedded Webserver, in the «Airspace» tab.

Important: OpenAir files must have a ".txt" file extension, Tim Newport-Peace must have an ".air" file extension.

You can find a description of the Tim New Port Peace format here:
http://soaringweb.org/TP/sua.html

You can find a description of the OpenAir format here:
http://www.winpilot.com/UsersGuide/UserAirspace.asp

Once uploaded, the airspaces should appear on the moving map.

Note: OpenAir pen styles "SB" and "SP" commands are **not** supported.

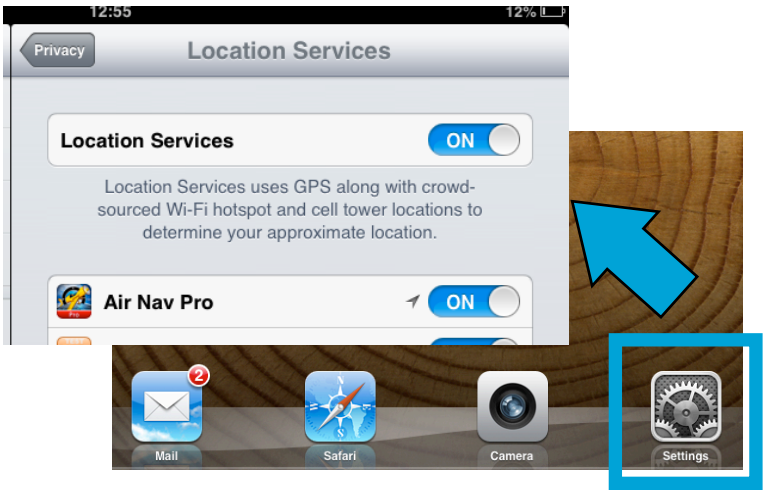
External devices

External GPS devices

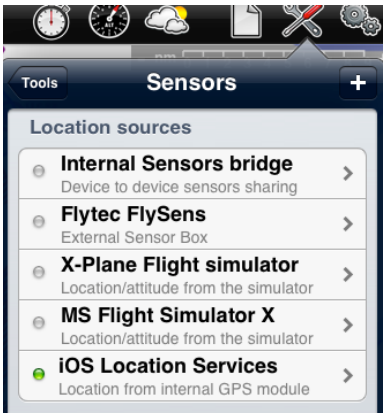
Air Navigation Pro functionality depends on receiving a GPS signal internally (coming from an internal device) or externally, which means that the signal is provided by an external GPS device.

No matter if it is wired or Bluetooth, the procedure to make sure the device is working is the following:

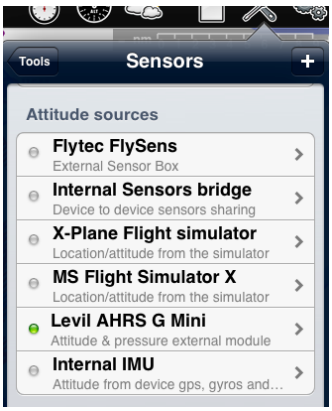
- **Create a connection** between the iPad/iPhone and the external GPS device.
- Make sure to have Air Navigation Pro **activated** under Location Services in the Settings of the iPad/iPhone.



- Make sure to have the sensor «iOS Location Services» **activated** in the «Sensors» panel under «Tools» menu.



AHRS g mini



Air Navigation Pro is compatible with the gadget AHRS g mini from Levil technology. This is mainly used in the «EFIS module» to work as an **artificial horizon**. However as newer versions are developed, more uses become possible with this device:

- Altitude data
- Pressure data
- Airspeed data

For more information, you can refer to the «EFIS module» chapter.

To check the **specs** of the AHRS g mini, your can visit the Levil website:

http://www.aviation.levil.com/

Getting support

Current user manual is a work in progress, since it will be updated and completed as new features and tools are released.

In the mean time, if you don't find specific information about Air Navigation Pro, you can send us a support request from the «support» section of our website:

 http://xample.desk.com/

We usually answer support requests within a few business days.