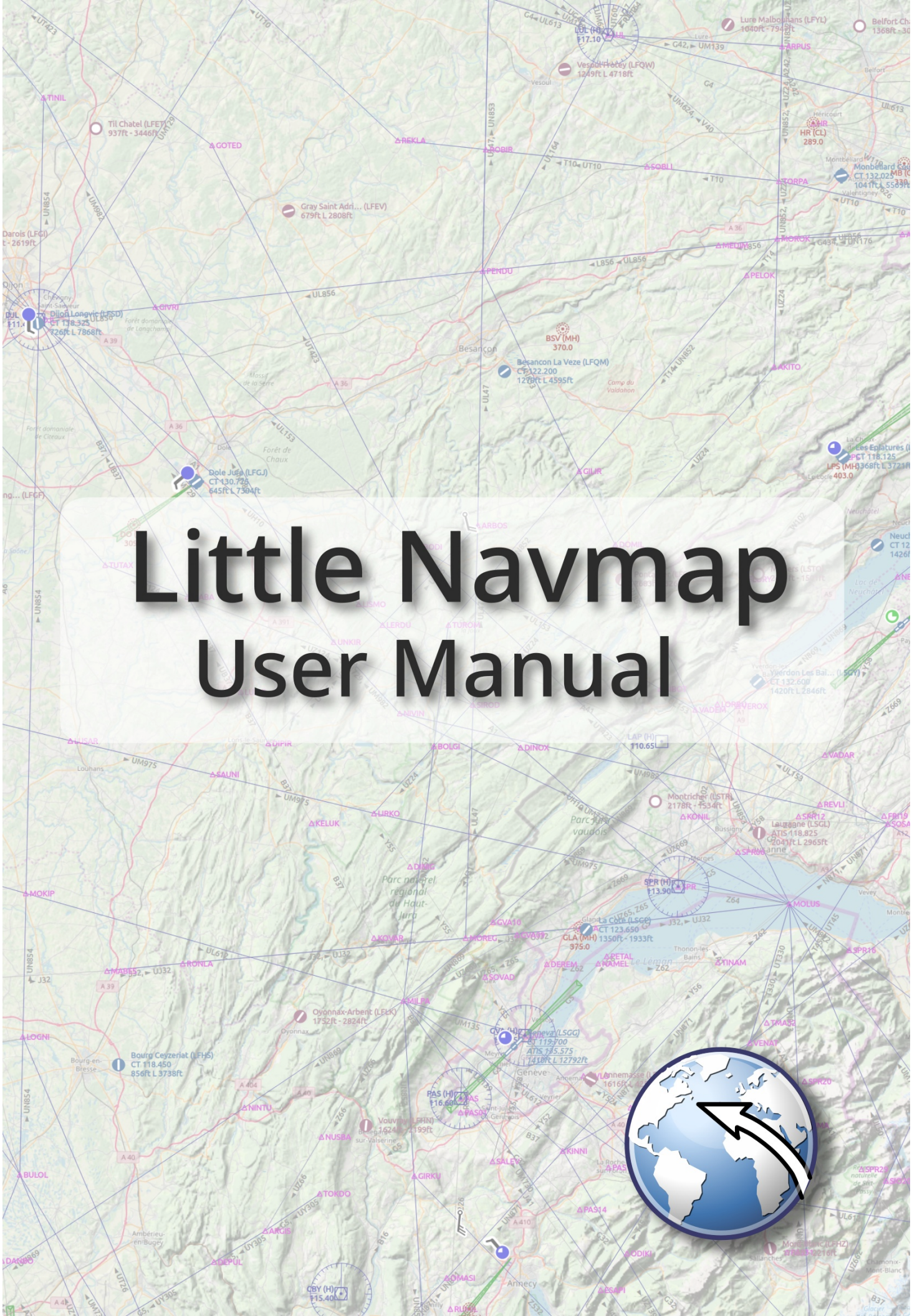


Little Navmap

User Manual

Little Navmap User Manual

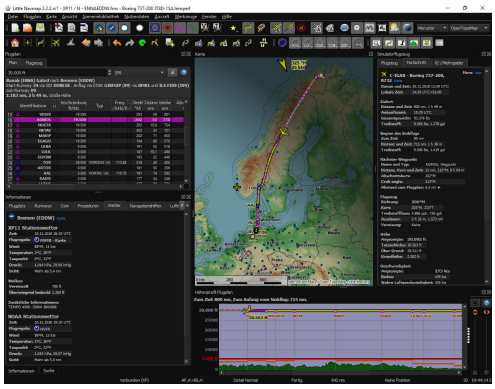
Little Navmap is a free open source flight planner, navigation tool, moving map, airport search and airport information system for Flight Simulator X, Flight Simulator - Steam Edition, Prepar3D v3 to v5, Microsoft Flight Simulator 2020, X-Plane 11 and X-Plane 12.

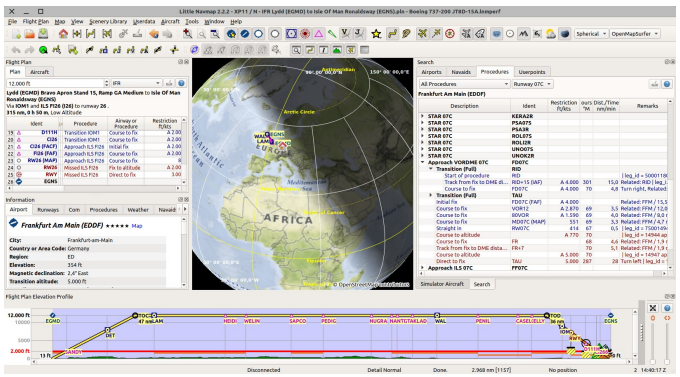
> More about my projects at www.littlenavmap.org [https://www.littlenavmap.org]. Support forum at AVSIM [https://www.avsim.com/forums/forum/780-little-navmap-little-navconnect-little-logbook-support-forum/].

You can get the latest version of this manual in different formats from here: User Manuals [https://albar965.github.io/manuals.html]

Do not use this program for real world navigation.

This user manual is for *Little Navmap* versions 3.0.





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This manual was created using Sphinx [https://www.sphinx-doc.org/] and the Read the Docs Sphinx Theme [https://sphinx-rtd-theme.readthedocs.io/en/latest/index.html] on Kubuntu Linux. PDF and MOBI formats converted using Calibre [https://calibre-ebook.com/]. The sources of this manual are available on GitHub [https://github.com/albar965/littlenavmap-manual].

1. Acknowledgments

A big thank-you for all people supporting me, sending me their log files, screen shots, ideas for improvements, friendly messages, donations and more.

A huge Thank you! to Paul Watts for his support, for testing, tips, links to incredible tools and for all his work on the manual.

A very special thank-you to Roberto S. from Switzerland for his valuable input and also helping with his capability to find the most obscure bugs.

Thanks to Navigraph for kindly allowing me to include a free AIRAC cycle in the download. Thanks for Richard Stefan for his great support. Current AIRAC cycles can be purchased from Navigraph [http://www.navigraph.com].

A big Thank you! to Jean Luc from Reality XP [http://www.reality-xp.com] for his great support.

Thanks to Jose from fsAerodata for his kind support.

The French translation of the program was done by Patrick JUNG alias Patbest. Thank you!

Thanks to Karl Wichelmann, Stephan Leukert and merspieler for the German translation of the user manual.

Thanks to Ricardo Vitor for the translation to Brazilian Portuguese.

Thanks to Daniel “Wolf” (wolfinformatica.com [http://wolfinformatica.com]) for the Spanish translation.

A thank you! to Flavio Borgna and Andrea Deplano PVI, Italian virtual pilots for the Italian translation.

Thanks to Alfredo alias *fred*, Josemi alias *aquileo* and Emilio alias *zxplane* from X-PLANE.es [http://www.x-plane.es/] for the Spanish translation of the manual.

Many thanks to Valerio Messina and Flavio Borgna for the Italian program translation.

Thank you! to Eddy Crequie for doing the Dutch translation.

Huge thanks to Sten Kristensen for the compilation for Raspberry PI!

A “Thank you!” for Piotr for helping out in the Avsim forum.

Many thanks to icykoneko [https://github.com/icykoneko] for implementing the SID and STAR for MSFS.

Many thanks to u-an-i [https://github.com/u-an-i] on GitHub for implementing the new web user interface.

Thanks to John Liu, Tong Hui [https://github.com/tonghuix] and yudongx [https://github.com/yudongx] for the Chinese translation.

Ein herzliches Dankeschön and Jannik Prinz for setting up the Tavis CI builds.

Ein großes Dankeschön to Günter Steiner for his image for the new splash screen.

Thanks to all beta testers for their effort, patience and ideas: Barry, Jean-Pierre, Brian, Gérard, John, Remi, Paolo, Sam and many others.

Thanks to Gradus Hageman for his testing efforts, his ideas and for generally pointing me into the right direction.

Another big Danke! to Marc from Germany for all his great ideas and endless bug reports.

Vielen Dank and die Herren vom FSC.ev [http://fsc-ev.de/] für Fehlerberichte, Vorschläge und neue Ideen!

Danke für Karl Wichelmann und Zoltan für die Arbeit an der deutschen Übersetzung der Anleitung.

Thank you, Björn for the idea with the automatic performance collection.

Plenty of thanks to Hervé Sors [http://www.aero.sors.fr] for allowing me to include his updated `magdecl.bgl` file with *Little Navmap*.

Thanks to all in the forums who patiently supported me and gave invaluable feedback during the public beta:

SimOuthouse [http://www.sim-outhouse.com], FSDeveloper.com [https://www.fsdeveloper.com].

Thanks to AVSIM [https://www.avsim.com] for kindly hosting the support forum for *Little Navmap*.

This project and my library atools [https://github.com/albar965/atools] would not exist without the fabulous documentation of the BGL files in the FSDeveloper Wiki [https://www.fsdeveloper.com/wiki]. So, here a huge thank-you to all the contributors.

Also a thank you to Ed Williams for his Aviation Formulary [http://www.edwilliams.org/].

Without the open source Marble [https://marble.kde.org] widget that allows me to access and display all the maps I would still be busy doing that myself for years.

Let's not forget about all the services that provide us all the online maps for free:

Stamen Design [http://maps.stamen.com], OpenTopoMap [https://www.opentopomap.org] and CARTO [https://carto.com/].

And last but not least: If there were no OpenStreetMap [https://www.openstreetmap.org] and its thousands of contributors none of us would have any maps at all.

2. Donations

Donate to show your appreciation if you like *Little Navmap* **.**

Spenden Sie, um Ihre Wertschätzung zu zeigen, wenn Ihnen *Little Navmap* **gefällt.**

[https://albar965.github.io/donate.html]

3. Installation

Little Navmap for **Windows** is available as a 64-bit or 32-bit application and was tested with Windows 10 and Windows 11. You can download either an installer package or a Zip-archive.

Using the installation package ist strongly recommended on Windows since it takes care of obsolte files and others.

Apple **macOS** is supported from macOS High Sierra 10.13 or later. You need Rosetta to run *Little Navmap* on Apple Silicon / M1 computers with the exception of Little Xpconnect which is available as a native X-Plane plugin.

Linux versions built on recent Ubuntu releases are available and should work on other distributions as well.

Each version of *Little Navmap* and the other programs come with a plain text file `CHANGELOG.txt` which has important notes and describes the changes between versions.

Warning

Do not install *Little Navmap* in the MSFS directory `Community` or in the X-Plane `plugins` directory.

Important

Apple macOS users: Keep in mind that you have to clear the quarantine flag for *Little Xpconnect* on update. See Clearing the Quarantine Flag on macOS.

3.1. Updating manually

This chapter does not apply if you use the Windows installer.

Delete all installed files of a previous *Little Navmap* version before installing a new version or install into a new directory. All files from the previous ZIP archive can be deleted since settings are stored in separate directories.

Warning

In any case do not merge the installation directories since old files can cause problems.

There is no need to delete the old settings directory. The program is written in a way that it can work with old setting files and adapts these if needed. In some cases settings are reset to default if an updated version is installed.

See Files for more information about settings, database and cache files.

3.2. Windows

3.2.1. Builds

There are two builds of Little Navmap and Little Navconnect for Windows available:

- **Windows 64-bit: For MSFS and all X-Plane versions.** Download file is `LittleNavmap-win64-3.0.4-Install.exe` for example.
- **Windows 32-bit: For FSX and Prepar3D.** Download file is `LittleNavmap-win32-3.0.4-Install.exe` for example.

You can see the Windows build type in About Little Navmap and in the Window Title (`64-bit` or `32-bit`).

Note that *Little Navmap* and all related programs are inter-operable across the network (*Little Navmap* and *Little Navconnect*) as well as the X-Plane plugin (*Little Navmap*, *Little Navconnect* and *Little Xpconnect*).

Also both versions share the same settings and databases. You can switch from one version to another without problems.

3.2.2. Installer

Using the self-installing package based on Inno Setup [https://jrsoftware.org/isinfo.php] to install *Little Navmap* on your computer is strongly recommended for first time installations as well as updating *Little Navmap*. The installer packages are named `LittleNavmap-...-Install.exe` and contain the same programs and files as the Zip archives.

The installation process always installs the program for all users in a protected directory like `C:\Program Files` (64-bit) or `C:\Program Files (x86)` (32-bit). You can manually select another directory but I recommend to leave the default location. Both the 32-bit and the 64-

bit versions can be installed in parallel.

There is no need to uninstall the program before when updating. The installation process automatically detects the last selected directory and overwrites the current installation. Obsolete files are automatically removed before updating the installation.

Note

Note that there is no need to uninstall *Little Navmap* before updating to a new version.

File types can optionally be associated with *Little Navmap* which allows to load a flight plan by double clicking on a LNMPLN file in Windows Explorer, for example. *Little Navmap* is either started or an already running instance is used to load the flight plan.

If both the 32-bit and the 64-bit versions are installed, the last installed version is associated to the file types. Change the association manually in Windows Explorer if needed.

Start menu entries for all included programs as well as the most important files and links are created.

Note

There is no need to install or modify any files in the installation directory for the web server or map themes.

See options page Web Server for information how to change the root directory and Map Themes for information how to set the map theme directory and how to install additional map themes.

3.2.2.1. Uninstall

You can uninstall *Little Navmap* by right clicking on the icon in the Windows start menu and selecting `Uninstall`. Alternatively uninstall *Little Navmap* from Windows settings or control panel.

The installer removes only known installed files. All other user created files or directories in the installation directory are not touched.

The uninstaller asks to optionally delete all settings and databases created by *Little Navmap* after removing the main program. Files in directories like `Documents\Little Navmap` are not deleted.

Warning

Note that this step also removes the userpoint database as well as the logbook and cannot be undone.

The two directories which are optionally deleted are:

- Settings and databases: `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel`
- Online map cache: `C:\Users\YOURUSERNAME\AppData\Local\.marble\data\maps\earth`

3.2.3. Manual Installation

The manual installation of *Little Navmap* does not change or create any registry entries in Windows and involves a simple Zip extraction of files. Use the Zip archives and the manual installation if you'd like to run *Little Navmap* in portable mode (see Portable Execution for more information).

Important

Do not extract the archive into the directory `c:\Program Files\` or `c:\Program Files (x86)\` since this requires administrative privileges. Windows keeps control of these directories, therefore other problems might occur like replaced or deleted files.

There is no need to run *Little Navmap* as administrator. Adapt directory permissions if you have to export flight plans to protected places.

Extract the Zip archive into a directory like `C:\Users\YOURNAME\Documents\Little Navmap` or `C:\Users\YOURNAME\Programs\Little Navmap`. Then start the program by double-clicking `littlenavmap.exe`. The extension `.exe` might be hidden in Windows Explorer depending on settings. In that case look for a file `littlenavmap` having a light blue globe icon .

File types have to be manually associated to *Little Navmap* when using this installation method. Use Windows Explorer or another file manager used on your operating system to do this.

3.2.3.1. Uninstall

Simply remove the program directory. See Files for more settings, cache and database directories if you'd like to completely remove *Little Navmap*.

3.2.4. SimConnect

Little Navmap comes with a SimConnect library and does not require a separate installation of SimConnect.

3.2.5. Unblock Application

Depending on system and anti-virus settings it might be needed to unblock the executable files. This applies to *Little Navmap* (`littlenavmap.exe`), *Little Navconnect* (`littleconnect.exe`) and the *Little Xpconnect* plugin (`win.xpl`).

You can do this in the Windows explorer by selecting properties and checking `Unblock file`. Detailed instruction can be found here, for example: How to Unblock a File in Windows 10 [https://mywindowshub.com/how-to-unblock-a-file-in-windows-10/].

3.2.6. Improve Start-up Time

Anti-virus programs can significantly slow down the startup and execution of the program on Windows.

Therefore, it is recommended to exclude the following directories from scanning:

- Disk cache for map tiles: `C:\Users\YOURUSERNAME\AppData\Local\.marble\data`
- Scenery library and userpoint databases`C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_navmap_db`

These directories do not contain executable files and are accessed frequently by *Little Navmap*.

3.3. macOS

Extract the ZIP file and copy the `Little Navmap` application to the directory `Applications` or any other directory.

Note

The menu entry which is referenced as `Tools` -> Options in this manual for Windows and Linux can be found in the application menu at `Little Navmap` -> `Preferences` on macOS.

3.3.1. First Start on macOS

Note on first start on macOS: When starting the application you will get a message `Little Navmap is from an unidentified developer. Are you sure you want to open it?`.

The procedure may be slightly different depending on whether you're using Big Sur or Catalina.

1. Right or Ctrl-Click in the Finder on *Little Navmap* and select `Open`.
2. You will see a dialog `Little Navmap cannot be opened because it is from an unidentified developer.` Click `Ok`.
3. Go to `System Preferences` -> `Security and Privacy`. You will see a message mentioning *Little Navmap*. Click `Open Anyway`.
4. Next a dialog `Are you sure you want to open it?` pops up. Click `Open`.

3.4. Linux

Extract the archive to any place and run the executable file `littlenavmap` to start the program from a terminal:

```
./littlenavmap
```

Most file managers will also start the program if double-clicked.

A desktop file `Little Navmap.desktop` is included. You have to adjust the paths to use it. You must use absolute paths in the desktop file.

See the Little Navmap - Frequently asked Questions [https://albar965.github.io/littlenavmap-faq.html] for help if the program does not start.

3.5. Additional Programs

The *Little Navmap* Zip archive contains two additional directories:

`Little Navconnect`: A complete copy of the program allowing remote flight simulator connections for FSX, P3D, MSFS and X-Plane.

`Little Xpconnect`: This is the 64-bit plugin that is needed for *Little Navmap* or *Little Navconnect* to connect to X-Plane. See Little Xpconnect for installation and usage.

3.6. X-Plane Plugin

Little Navmap can only connect to X-Plane using the *Little Xpconnect* X-Plane plugin which has to be installed as well.

The *Little Xpconnect* plugin is included in the *Little Navmap* archive. You can always find the correct and matching version in your *Little Navmap* installation directory.

See Little Xpconnect for installation and usage.

3.7. Portable Execution

See chapter Portable Execution for more information about running *Little Navmap* in portable mode which allows to run more than one installation in parallel for testing, for example.

3.8. Multiple Installations

Do not run more than one *Little Navmap* instances using the same settings directory in parallel. This can result in crashes when accessing the databases. Running several instances is prevented by the program on Windows but not on Linux and macOS.

You can instruct *Little Navmap* to create and use a different settings directory by passing the parameter `--settings-path` to the executable when starting up. This is supported for all operating systems.

This parameter instructs the program to use the given full absolute or relative path instead of `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel` on Windows, for example. This allows to have two instances of *Little Navmap* running with their own settings and databases.

All configuration files and databases are stored per default in these directories:

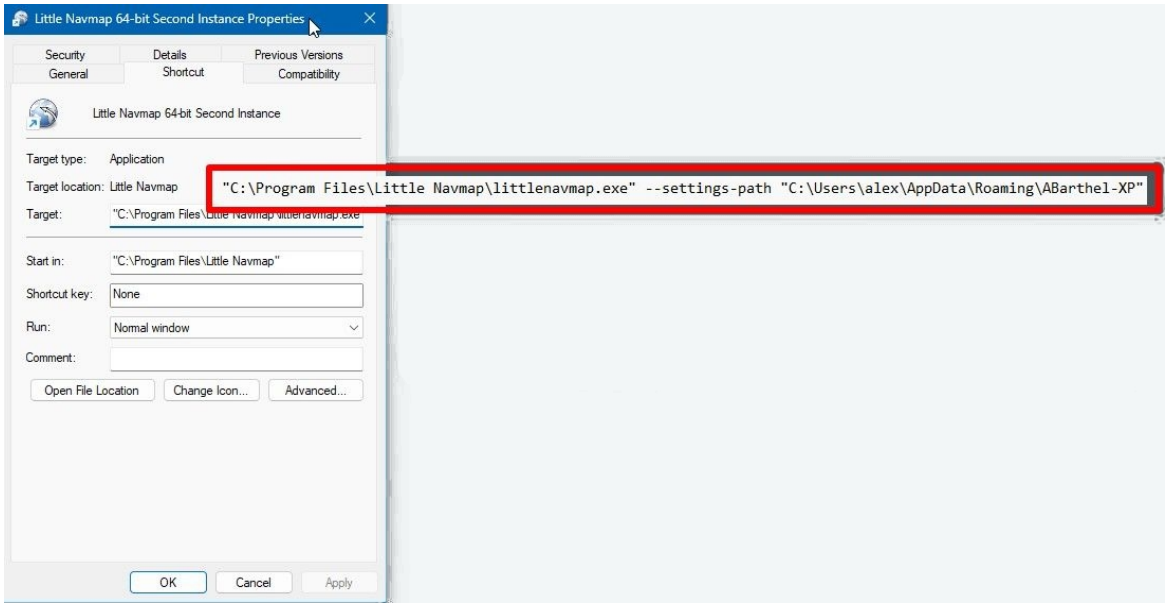
- Windows: `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel`
- macOS: `/Users/YOURUSERNAME/.config/ABarthel`
- Linux: `$HOME/.config/ABarthel`

Example:

How to use `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel-XP` as a settings directory on Windows:

1. Right click on the `littlenavmap.exe` file (extension might be hidden in Windows explorer depending on settings) and select `Create Shortcut`. You can also duplicate the shortcut in the Start menu or on the desktop if you used the installer.
2. Right click on the newly created shortcut and edit the shortcut properties.
3. Append `--settings-path "C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel-XP"` to the path in the settings field separated by a space before `--settings-path`. Also keep the space before the path. Replace `YOURUSERNAME` with your login name.
4. Click `Ok`.

Note that you have to enclose all paths in double quotes `"` if they contain spaces.



Contents of the link properties dialog for the example above. Extended target directory input field to have the whole path visible. `YOURUSERNAME` replaced for user `alex`. Note that the path to the executable has to be put into double quotes too since it contains spaces.

4. Start

This page opens automatically in your browser after updating or first installation of *Little Navmap* **and is a part of the** *Little Navmap* **online manual.**

It gives valuable links and information for first time users and provides a list of first steps.

Other chapters helpful for beginners:

- Installation
- User Interface
- Tutorials

See also User Aircraft Centering for general information about centering the aircraft during flight, as this feature can be confusing to new users.

The chapter Main Menu and Toolbars explains all **main menu items**. You can navigate through the menu structure in the user manual contents on the left. Note that most toolbar items have an equivalent in the main menu.

Context menus are an important element in *Little Navmap*. All context menus and items are explained in the following chapters:

- Context Menu Map
- Context Menu Flight Plan
- Context Menu Search
- Context Menu Procedures

Tip

Explore the chapters on the left side of this page or use the search function on the top left.

4.1. First Steps

Little Navmap shows a several dialog windows on first start to give hints for better usage. You can dismiss these dialogs for future starts by pressing `Do not show again` but keep at least the message in mind. Make all the dismissed dialog windows reappear by selecting Reset all Messages in the menu `Tools` if you need them.

Tip

If you'd like to use a **dark mode** when flying: Enable this in menu `Window` -> `Style` -> `Dark` (Style). The darkness of the map window can be adjusted in options on page Map. Look for section `Map dimming in dark style`. See Style.

4.1.1. Preparing

4.1.1.1. Files and Directories

The program suggests to create a recommended directory structure on startup. You can choose to ignore this and save your *Little Navmap* files in arbitrary places. The program does not require a fixed directory structure for its files.

See Directories for more information.

You can also create the directories manually later by selecting menu `Tools` -> Create Directory Structure for saving Files.

4.1.1.2. Load Scenery Library

Little Navmap will copy and prepare the included Navigraph database on the first startup.

The first dialog window pops up automatically. You have to load the scenery library first to see the airports of your simulator. Select your simulator and click `Load`. Note that the loading process runs in background and the connection dialog window pops up immediately.

Go to main menu `Scenery Library` and select Load Scenery Library or click on the toolbar to load the scenery library database manually later.

Also have a look at Scenery Library Menu, Load Scenery Library and Navigation Databases about the different scenery library modes which can be selected in the menu.

4.1.1.3. Connect to Simulator

The connect dialog window pops up next and allows to attach *Little Navmap* to your flight simulator. Choose your simulator and click `Connect`.

Go to main menu `Tools` -> Connect to Flight Simulator or click on the toolbar to do this manually. See Connecting to a Flight Simulator for more information.

Important

The included *Little Xpconnect* plugin has to be installed for X-Plane. You can do this from the main menu `Tools` -> Install Little Xpconnect in X-Plane Plugins

See Little Xpconnect for more information.

4.1.2. Building a Flight Plan

This quick introduction shows only one of many ways to build a flight plan and select departure and destination airports.

1. Right click into the map on an airport and select departure (Set as Departure), destination (Set as Destination) and intermediate waypoints (Add Position to Flight Plan and Append Position to Flight Plan) from the context menu.

2. Save the flight plan into *Little Navmap*'s own format LNMPLN by clicking Save Flight Plan. This file format is only for *Little Navmap* and allows to keep all flight plan features like remarks, departure as well as arrival runways and more. **Do not try to load it into simulators or other tools.**

3. Configure the flight plan export in menu `File` -> Multiexport Flight Plan Options. Select desired formats by clicking one or more checkboxes on the left and adapt the paths and filenames for export. See Flight Plan Multiexport.

4. Select `File` -> Multiexport Flight Plan to export the flight plan for your simulator, tools or aircraft.

5. You probably see a few warning messages in *Little Navmap* about missing aircraft performance information. Ignore these for now.

See also in the menu `Help` -> Tutorials if you're new to *Little Navmap*.

See here Tutorial - Creating an Aircraft Performance Profile for an tutorial which shows how to create your own aircraft performance files or download one here: Little Navmap Downloads - Aircraft Performance [https://www.littlenavmap.org/downloads/Aircraft%20Performance/].

4.2. How to run a Network Setup

You can connect *Little Navmap* running on another (or remote, networked) computer to *Little Navconnect* running on the flying computer. This setup is helpful if you do not have a separate screen available on your flying computer but a spare old notebook or computer.

The remote computer does not need a simulator installation and there is no need to share the scenery library of the simulator.

The programs are inter-operable which means that you can connect *Little Navmap* from a Linux or macOS computer to *Little Navconnect* on a Windows computer. The same applies to 32-bit and 64-bit versions.

See Network Setup **on information how to set up a remote/networked connection.**

4.3. Recommended things to do after Installing

- The elevation data which is used by default is limited and inaccuracies. Therefore, I recommend to download and use the offline GLOBE elevation data. See Install GLOBE elevation data for more information.
- Have a look at Tutorials if you use the program the first time.
- See Install Navigraph Updates [https://albar965.github.io/littlenavmap_navigraph.html] on my home page for information how to update *Little Navmap*'s navigation data.
- Think about backing up your valuable data of *Little Navmap*. See Important Files to Backup for more information.

4.4. Useful Links

Frequently asked Questions [https://albar965.github.io/littlenavmap-faq.html].

Little Navmap Downloads - Aircraft Performance and more [https://www.littlenavmap.org/downloads/].

New Maps for Little Navmap at Avsim [https://www.avsim.com/forums/topic/627225-new-maps-for-lnm-update-4/].

Little Navmap related projects and more at www.littlenavmap.org [https://www.littlenavmap.org].

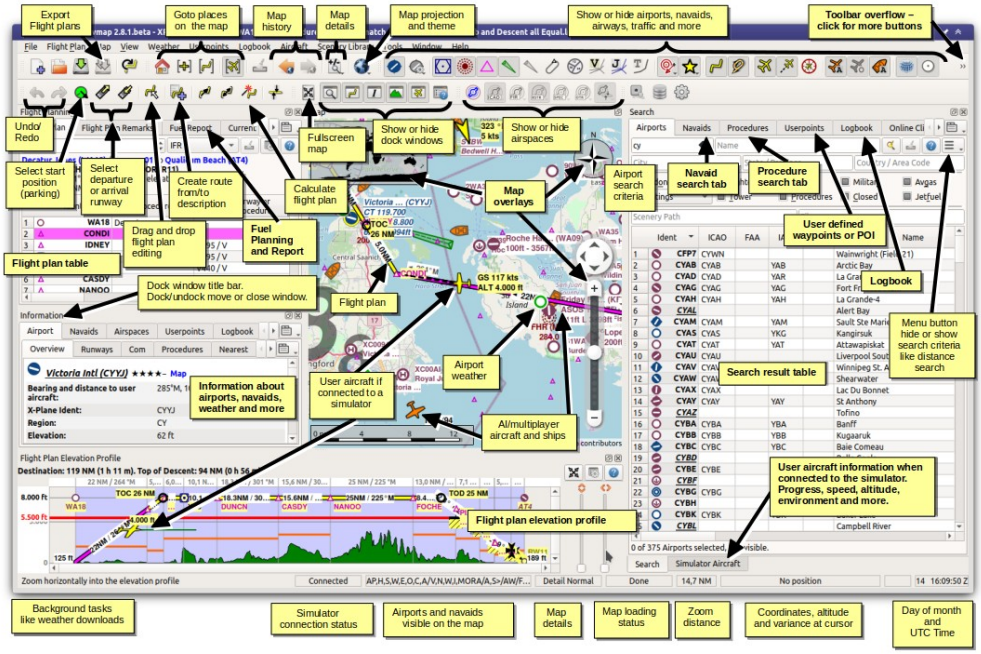
Support forum at AVSIM [https://www.avsim.com/forums/forum/780-little-navmap-little-navconnect-little-logbook-support-forum/].

The sources of this manual are available on GitHub [https://github.com/albar965/littlenavmap-manual].

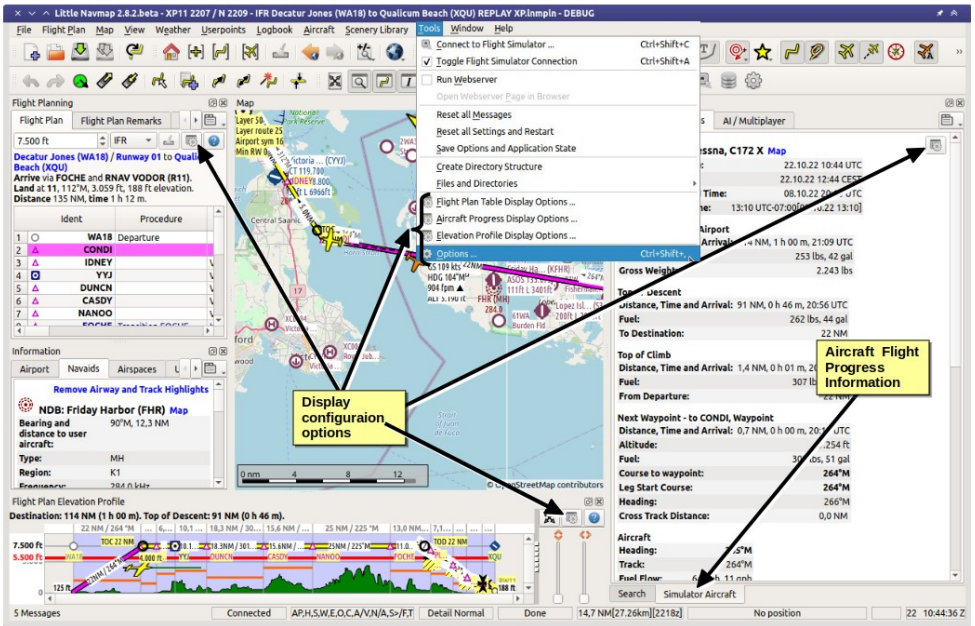
5. Quick Overview

Click images to enlarge.

5.1. Functions



A quick overview of *Little Navmap* showing the most important functions. *Click image to enlarge.*

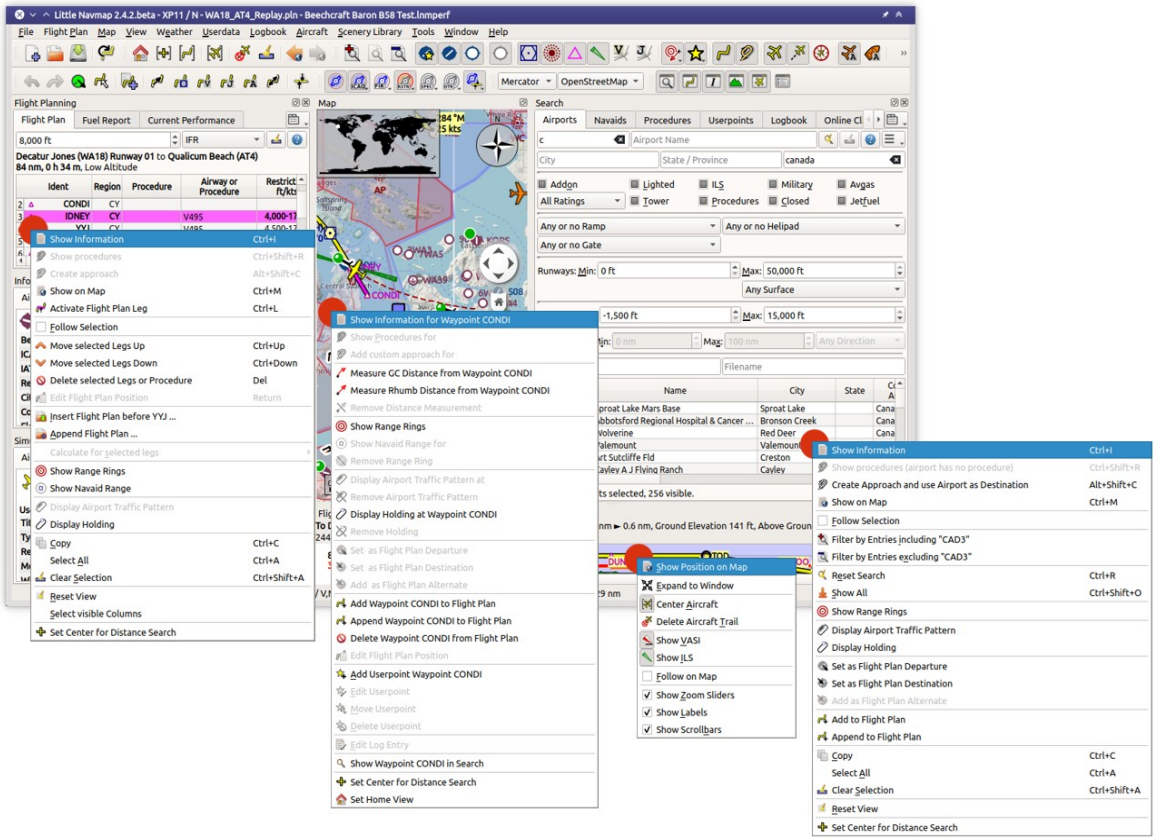


A quick overview of *Little Navmap* showing configuration options and aircraft progress. *Click image to enlarge.*

5.2. Context Menus

Little Navmap makes extensive use of context menus, which are used on the map, on the flight plan table and search result tables.

See also Context Menus.



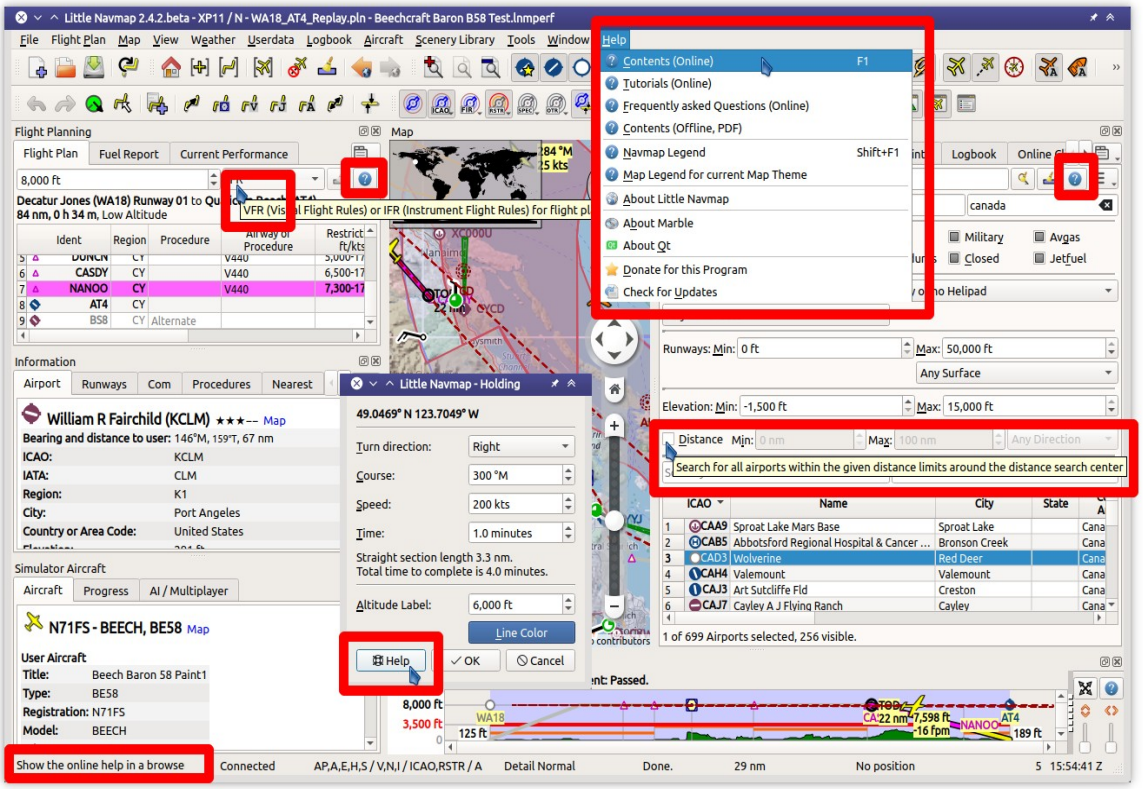
The most important context menus which are can be used to build a flight plan, navigate the map or show information. Image based on *Little Navmap* 2.4.5. *Click image to enlarge.*

5.3. Help

There are many ways to get help in *Little Navmap*. The help menu links to the most important online pages as well as the included user manual.

Hove the mouse cursor above a button or input field to get help in form of tooltips (small pop up windows).

See also Tooltip Help, Help Buttons and Help Menu.



Where to get help and more information. Tooltips, status bar and help buttons marked red. Image based on *Little Navmap* 2.4.5. *Click image to enlarge.*

6. User Interface

This chapter provides information about the user interface of *Little Navmap* in general.

Tip

You can use `Window` -> Reset Window Layout to Default if the main window of *Little Navmap* is not or only partially visible. Activate the main window of *Little Navmap* by either clicking on the visible part or by using the `Alt+Tab` function of your operating system. The window only needs to be active and not visible.

Then press the shortcut `Ctrl+Alt+Shift+W` to reset the window layout which brings the main window back on screen.

6.1. Terms

`Button` is used for buttons or other texts from the *Little Navmap* user interface.

`Menu` -> `Sub-menu` -> `Menu Item` denotes paths through the main menu or a context menu.

See Glossary for terms.

6.2. File Associations

The Windows Installer optionally creates file associations for *Little Navmap*'s own file types as well as often used flight plan types.

This means you can double click a LNMPLN, PLN or FMS file in Windows Explorer and *Little Navmap* is either started or an already running instance is used to load a flight plan or another file.

This works on all supported operating systems. All you have to do is assign *Little Navmap* to a file extension or a file type. The actual process can differ across operating system and Linux desktop.

See Command Line Options for more information.

6.3. Drag and Drop Files

You can drag and drop files from your operating system's file manager like Windows Explorer or Apple Finder into the main window of *Little Navmap* to load the files.

The following file types are recognized:

- LNMPLN, PLN, FMS and all other supported flight plan types. See also Open Flight Plan.
- LNMPERF aircraft performance files. See Open Aircraft Performance, Aircraft Performance and Aircraft Performance Edit for more information.
- LNMLAYOUT window layout files. See Open Window Layout and Window Layout.
- Garmin GPX files where the track is loaded as aircraft trail (Load Aircraft Trail from GPX and Aircraft Trail).

Note that the file type is not detected by file extension but by file content.

6.4. Dock Windows

See the chapter Dock Windows for more information about using dock and floating windows.

6.5. Tabs

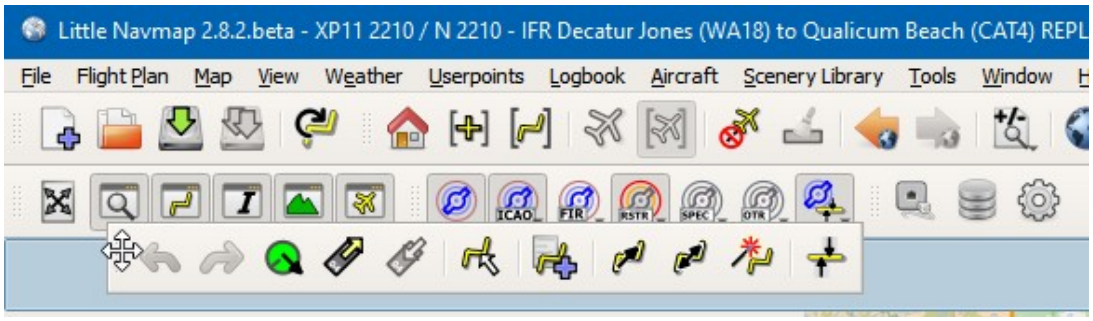
See Tabs for information about the context menu and how to configure and arrange tabs.

6.6. Toolbars

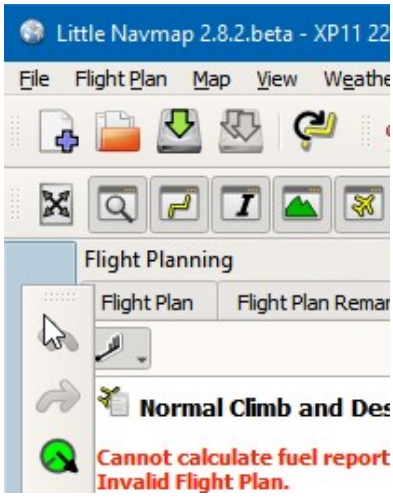
Toolbars are also movable by clicking on the left handle and can also be closed or detached from the main window similar to the dock windows. Toolbars can also be opened and closed in the main menu `Window`.

All toolbars have a right click context menu where different toolbars can be shown or hidden.

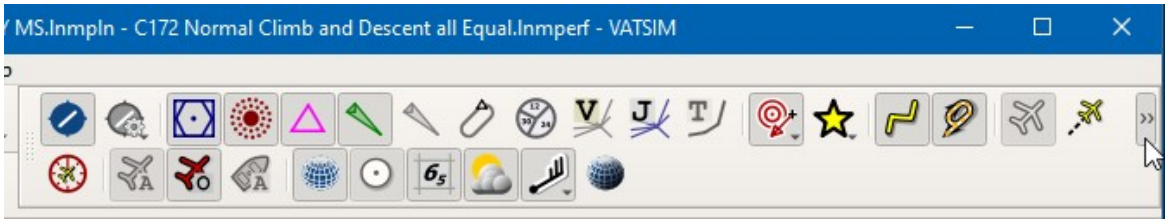
A toolbar gets an overflow button >> on the right side if it is too long to show in the main window. Click >> to see the remaining buttons.



Moving a toolbar into a new position.



Moving a toolbar into a new vertical toolbar at the left side of the main window.



The main window it too small to show the whole toolbar. Clicking the overflow button >>.

Note

Use the `Window` menu in the in the main menu to save, load or restore windows, toolbars and tabs layouts.

The menu item Reset Window Layout to Default in the menu `Window` can be used to reset the state and position of all dock windows and toolbars back to their default.

6.7. Statusbar

The statusbar at the bottom of the window displays various information. Shown or hide it in the menu `Window` -> Statusbar. See chapter Statusbar for more on the shown information.

6.8. Disabled Buttons and Menu Items

Menu items, buttons, toolbar buttons and other controls are disabled (i.e. grayed out) if their function is not applicable. The aircraft center button on the toolbar is disabled when *Little Navmap* is not connected to a simulator or the `Remove all Range Rings` menu item is grayed out if there are no range rings to delete, for example.

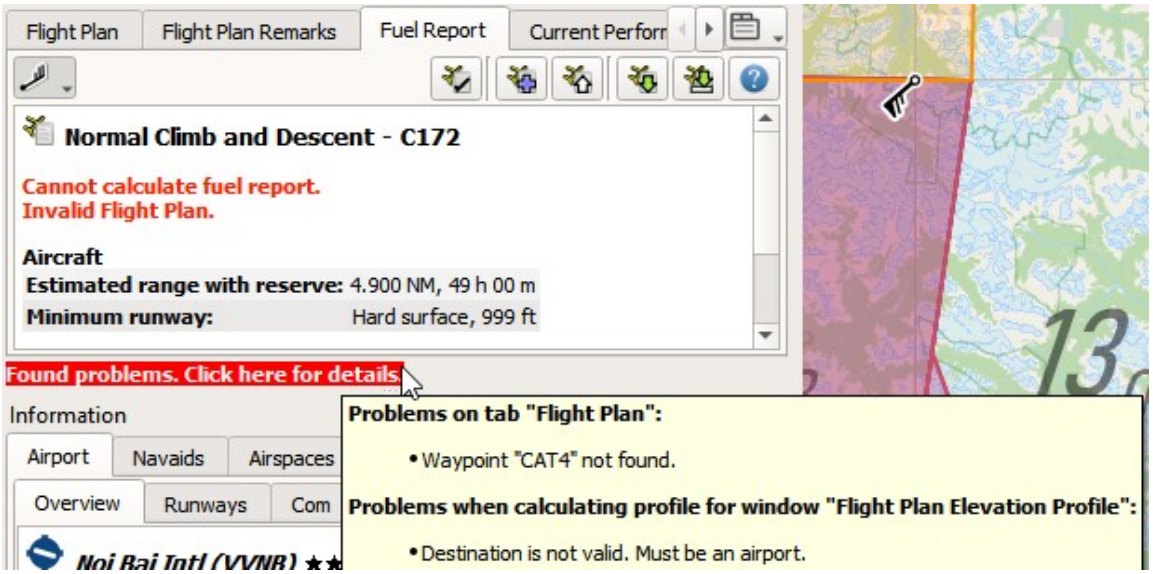
6.9. Warning and Error Messages

Little Navmap shows error messages with white text on red background for problems with the aircraft performance, top of descent/climb calculation or other issues.

Tooltips on these error messages give more help in most cases. Click these messages or hover the mouse cursor above to see more information.

Orange warning messages show hints about less severe issues.

These message are shown in the Statusbar, Flight Plan Table fields, Error Messages Footer, Tab Progress, Connect Dialog and other places.



A red error message in the flight plan footer and an orange warning message in the flight plan fuel report.

6.10. Tables

The header of table views allows the following manipulation:

- **Click on the top left corner of the column header:** Select all result rows.
- **Click on a column header:** Sort ascending or descending (only for search result tables - not for flight plan table).
- **Click and drag on the column header:** Change column order.
- **Double-click on column border:** Automatically fit column size to content.
- **Click and drag on column border:** Change column width.
- **Click into the empty space below all rows:** Deselect all entries and remove highlights on the map.

The above applies to most table views in the program and partially also to the tree view of the procedure search.

The program saves the sort order, column widths and positions until `Reset View` is selected in the related context menu.

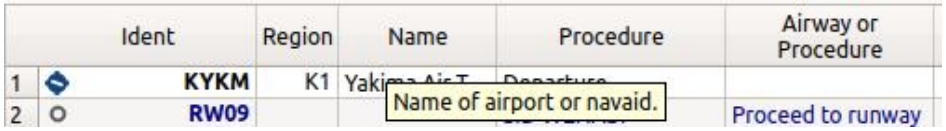


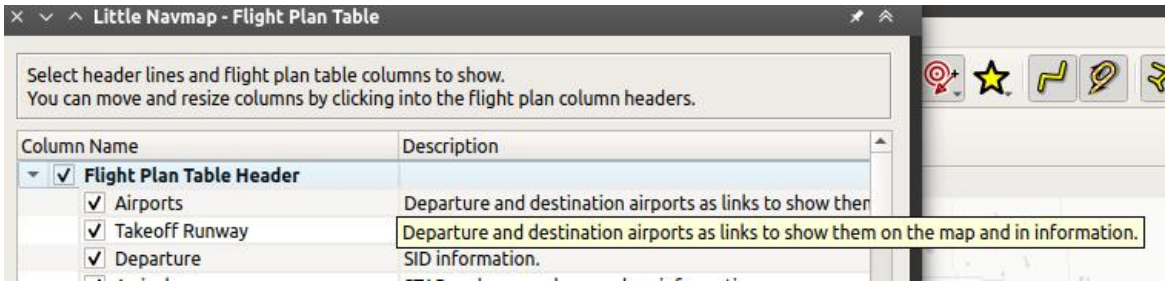
Table header of the flight plan table with tooltip.

6.11. Trees

Some configuration dialogs uses a tree element. You have to click on the small right pointing arrow (▸ or + depending on operating system and user interface style) to open a branch with options.

Select checkboxes on the left to enable or disable features. Explanations are given in the right column.

You can also click on the small checkbox in the branch root to select or deselect all elements of the branch.



Tree for flight plan table display configuration. Shows tooltip for cut off explanation. Branch checkbox for `Flight Plan Table Header` is selected and indicates all items in branch enabled.

6.12. Context Menus

Context menus (or right-click menus) are an important element in *Little Navmap* to build flight plans or get information and can be found in the following places:

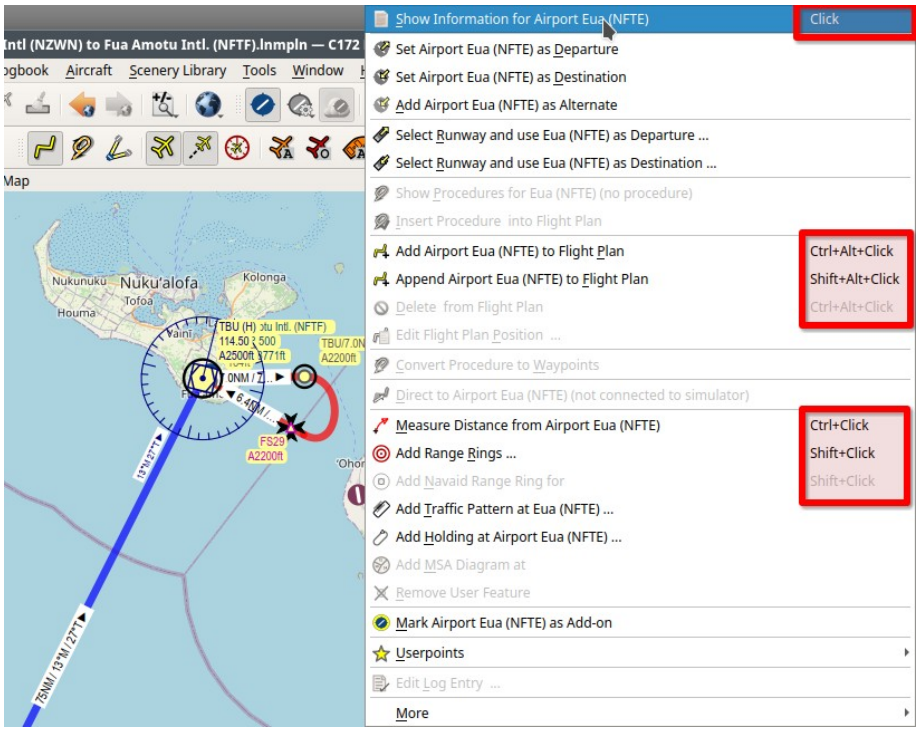
- Toolbars: Toolbars
- Tab Bars: Tabs
- Map display window: Context Menu Map
- Flight plan table: Context Menu Flight Plan
- Airport, navaid and other search result tables: Context Menu Search
- Procedure search tree: Context Menu Procedures
- Elevation Profile: Context Menu Elevation Profile
- Aircraft Progress: Tab Progress
- Multiexport Flight Plan Options: Flight Plan Multiexport.

The context menus provide functionality to get more information about an object at the clicked position or to build or edit a flight plan.

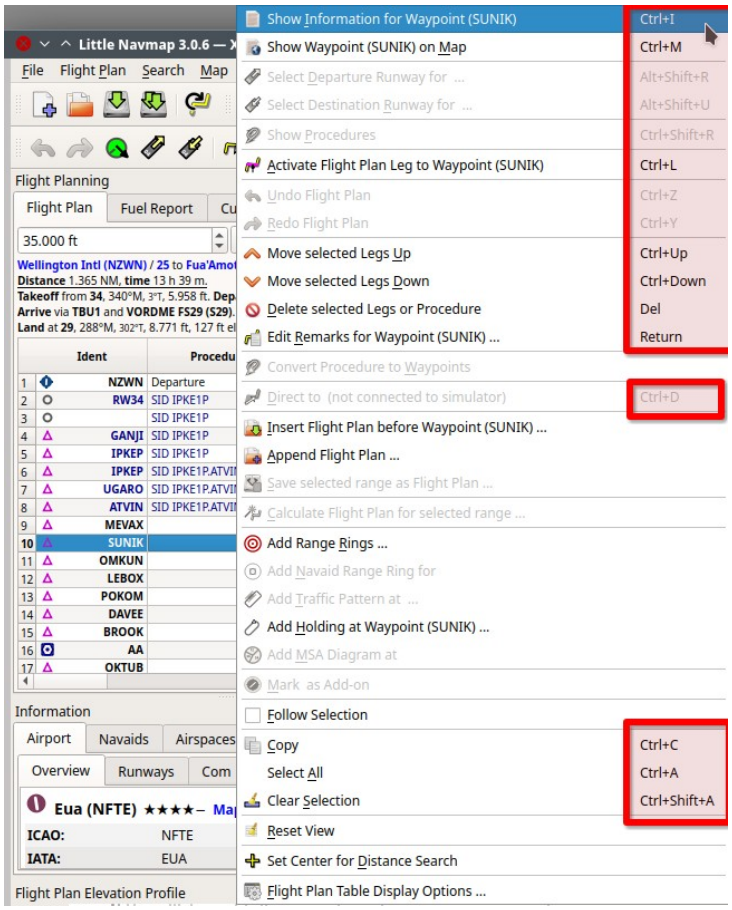
6.13. Shortcuts in Menus

Keyboard shortcuts or modifiers such as Shift, Alt, or Ctrl are displayed in the right column next to the corresponding function in all shortcut menus as well as in the main menu.

Note that some shortcuts are available in the whole program while some are only available in search windows, for example. You have to activate the related window before using such local shortcuts.



Keyboard modifiers shown in the right side of the map context menu. Use Shift, Alt and/or Ctrl and left mouse click to start functions without opening the context menu. *Click image to enlarge.*



Keyboard shortcuts shown in the right column of the flight plan table context menu. Shortcuts are also shown in the main menu. *Click image to enlarge.*

6.14. Menu Buttons

Menu buttons provide dropdown menus on click. These are used in the Search and Flight Plan Route Description windows, for example.

6.15. Tooltip Help, Help Buttons and Help Menu

The help menu of *Little Navmap* contains links to the online help, an included offline help PDF document, online tutorials and the map legend.

The program uses tooltips to provide help or to display more information on buttons and other controls. Tooltips are small labels which pop up if you hover the mouse above a control like a button or text edit field.

A more detailed description is also shown on the left side of the Statusbar if you hover the mouse over a menu item.

Almost all dialogs and dock windows have buttons which are labeled `Help` or use the icon . Clicking these will open the corresponding sections of the online manual.

6.16. Window Title

The main window title shows the following information:

1. Application name
2. Version
3. Build type (for Windows only): `64-bit` (use this with MSFS and all X-Plane versions) or `32-bit` (use this with FSX and P3D).
4. Selected simulator scenery library database (`FSX`, `FSXSE`, `P3DV3`, `P3DV4`, `P3DV5`, `MSFS`, `XP11` or `XP12`) and AIRAC cycle if available. In parentheses if not used.
5. Selected navigation database (Navigraph: `N`) and AIRAC cycle. In parentheses if not used.
6. Loaded flight plan file name plus a `*` if changed. Only `*` is shown if plan was not saved yet. Flight plan will be auto-restored on next startup.
7. Loaded aircraft performance file a `*` if changed.
8. Selected online network connection if used.

The AIRAC cycle is shown as a four digit number after the simulator and Navigraph database indication if available and if a database is selected.

The AIRAC cycle is only shown for X-Plane and Navigraph databases. Other simulators do not provide cycle information in their scenery libraries.

A `N` will be appended if the Navigraph database is used. Otherwise `(N)` is used. Example below for Prepar3D:

- `P3DV5 / (N)`: All features on the map and all information in dialogs and windows come from the flight simulator database. Navdata might be limited depending on simulator.
- `P3DV5 / N`: Airports and ILS are shown and used from the flight simulator database. Navaids, airways and procedures are used from the Navigraph database.
- `(P3DV5) / N`: All data is used from the Navigraph database. No aprons, no taxiways and no parking positions are available for airports.

See Scenery Library Menu, Load Scenery Library and Navigation Databases for more information.

Examples: `Little Navmap 2.6.8 64-bit - XP11 2001 / N 2011 LOAG_LOWW.lnmpln * - PA30 Twin Comanche.lnmperf - VATSIM`

Version 2.6.8, new 64-bit Windows build, X-Plane selected with AIRAC cycle 2001, Navigraph database in use with AIRAC cycle 2011, flight plan `LOAG_LOWW.lnmpln` changed and performance profile `PA30 Twin Comanche.lnmperf` unchanged. Connected to VATSIM network.

```
Little Navmap 2.6.4.beta - (XP11) / N 2012 IFR Frankfurt Am Main (EDDF) to Fiumicino (LIRF).lnmpln - PA30 Twin
Comanche.lnmperf *
```

Version 2.6.4.beta (a test version), X-Plane not selected - using Navigraph only, Navigraph database in use with AIRAC cycle 2012, flight plan unchanged and performance profile `PA30 Twin Comanche.lnmperf` changed.

```
Little Navmap 2.6.5.rc1 32-bit - FSX 2012 / (N) - *
```

Version 2.6.5.rc1 (a release candidate), 32-bit version as required for FSX, FSX selected, not using Navigraph, no flight plan loaded and new and empty default performance profile loaded.

6.17. Information and Simulator Aircraft Text

You can change the text size permanently in the options dialog for these windows. See options dialog on page Display and Text.

This page also allows to change the font for the whole program interface.

Note

Little Navmap remembers the size of dialog windows. In some cases you have to resize dialog windows after changing to a larger font to see all content.

Tip

A quick way to change the text size is to use the mouse wheel and `Ctrl` key. This setting won't be saved across sessions, though.

6.18. Activating and raising Windows and Tabs

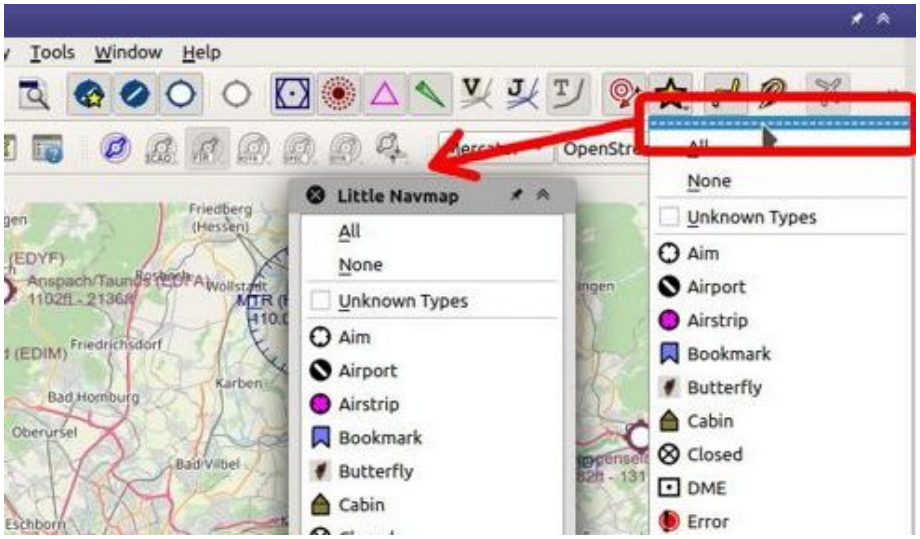
Little Navmap opens and raises dock windows and tabs for certain actions like `File` -> New Flight Plan or `Aircraft` -> Open Aircraft Performance to avoid confusion for new users. This behavior can be disabled in the options dialog on tab User Interface by disabling the option Raise related windows on actions. Show flight plan after opening file, for example..

6.19. Tear off Dropdown Menus

Toolbar buttons with a drop down menu and other buttons like Flight Plan Route Description allow to tear off the menu by clicking on the dashed line on top of it.

This will move the menu into a separate window and allows to quickly change several options at once.

The state of the tear off menus is not saved.



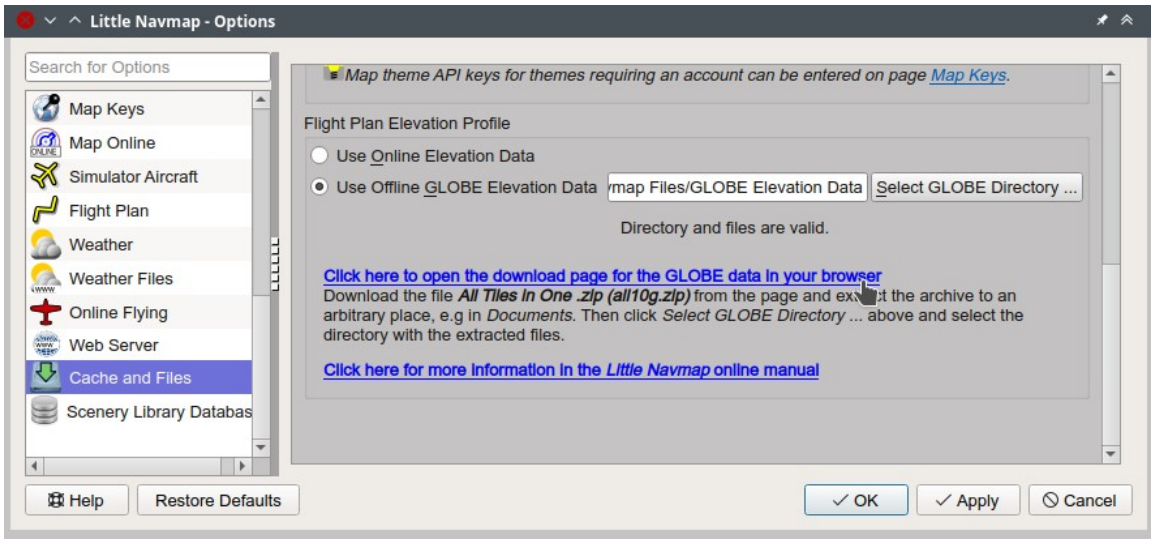
The drop down menu button for the userpoint categories for map display and how the menu can be teared off into its own window.

6.20. Links

Blue link texts in all windows of *Little Navmap* are clickable.

The general links can have these functions:

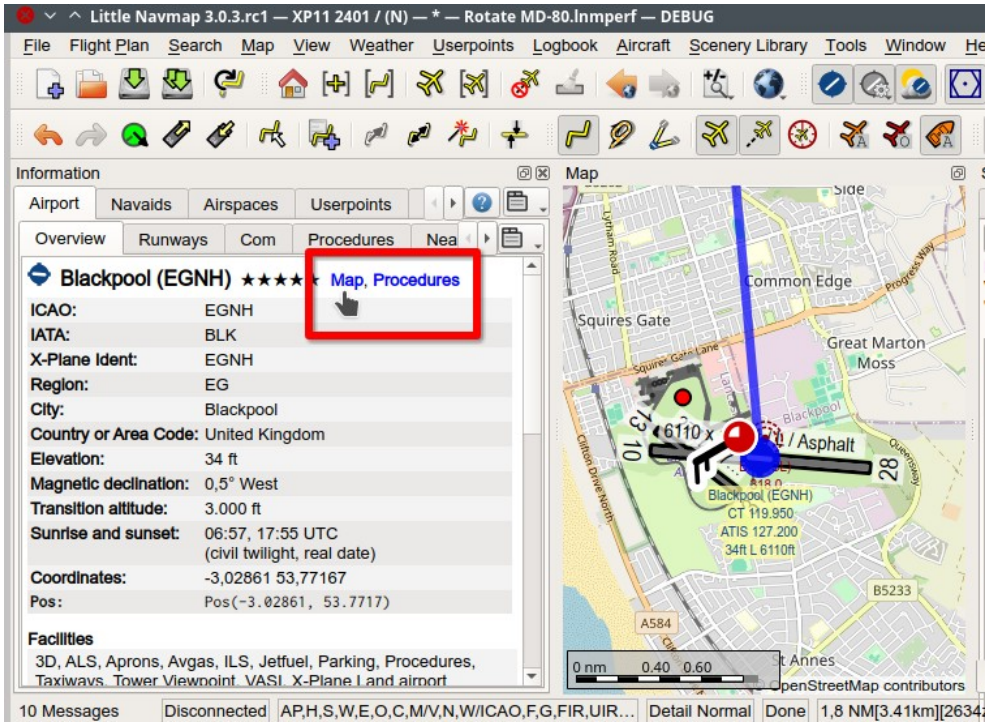
- Open a web address in your browser.
- Open a file like the log file in your default text editor.
- Show a file or directory in you default file manager like Windows Explorer, Apple Finder or KDE Dolphin.



The options dialog window with blue web links. Klick on the links to open them in your web browser. *Click image to enlarge.*

The windows and tabs Flight Planning, Information and Search Procedures provide links to:

- Show information about a navaid or airport or show these on the map (link `Map` or airport name).
- Show procedures of an airport (link `Procedures`).
- Highlight a full airway (link `Map`).
- Show waypoints of an airway, e.g. waypoint/region `ASMUS/EK`.
- Highlight airspaces (link `Map`).
- Show airport files in the default file manager (BGL or `apt.dat` files).
- Remove highlighted features from the map like `Remove Airspace Highlights` or `Remove Airway and Track Highlights`.



The airport information has links to center the airport on the map or to show procedures. *Click image to enlarge.*

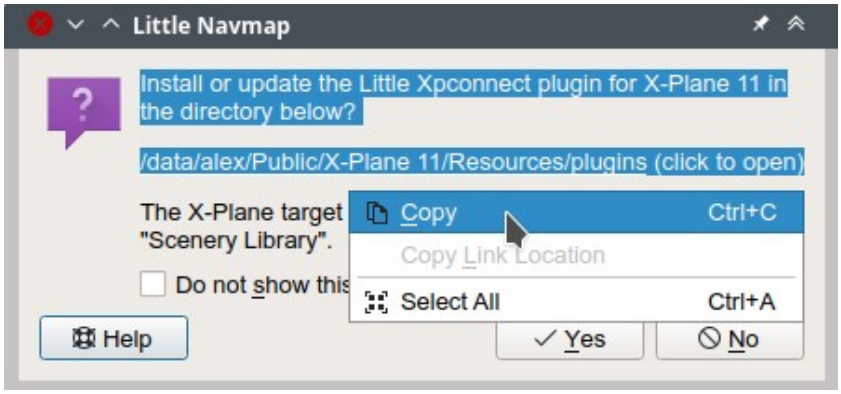
6.21. Copy and Paste

Almost all dialogs, text labels and all information windows in *Little Navmap* allow to copy and paste the formatted text to the clipboard.

You can select the text using the mouse and then either use `Ctrl+C` or the context menu to copy it to the clipboard.

The table views for the flight plan or airport/navaid search results allow copying of the results in CSV format to the clipboard which can be pasted into a spreadsheet program like LibreOffice Calc [https://www.libreoffice.org] or *Microsoft Excel*.

This copied text can be used in forums or emails instead of screenshots.



Text selected with the mouse. Right-click context menu or `Ctrl+C` can be used to copy the formatted text to the clipboard.

6.22. Translation and Locale

Little Navmap is currently available in several languages, although not all translations are complete.

Your system language is used if supported. Otherwise *Little Navmap* falls back to English. The language for the user interface can be changed in options on page User Interface.

I will happily support anybody who would like to translate the user interface or manual into another language. Language packages can be added to a *Little Navmap* installation later once they are available. See Translating [https://github.com/albar965/littlenavmap/wiki/Translating] in the GitHub *Little Navmap* wiki for more information.

Despite using the English language in the user interface the locale settings of the operating system will be used. So, e.g. on a German version of Windows you will see comma as a decimal separator instead of the English dot.

The language and locale settings can be forced to English in the options dialog on the page User Interface.

6.23. Map Legend

The legend explains the Map Display and the Elevation Profile symbols. It is available in Map Legend.

6.24. Airport Rating

Airports get a zero to five star rating depending on facilities which is shown in airport search, map tooltips and the information window.

Airports that have no rating will be displayed using a gray symbol below all other airports on the map (`Empty Airport`). This behavior can be switched off in the options dialog on the page Map.

This helps to avoid airports with no scenery elements.

The criteria below are used to calculate the rating. Each item gives one star:

1. Add-on (or 3D for X-Plane)
2. Parking positions (ramp or gate)
3. Taxiways
4. Aprons
5. Tower building (only if at least one of the other conditions is met).

All airports that are not located in the default `Scenery` directory of FSX/P3D or are located in the `Custom Scenery` directory of X-Plane are considered add-on airports which raises the rating by one star.

Airports having the `3D` label in X-Plane are 3D airports which raises the rating by one star too.

All additional airports in MSFS `Community` and `Official` directories are considered add-on. Star airports in Microsoft Flight Simulator 2020 will always get a five star rating.

Add-on airports are highlighted on the map with a yellow ring which can be disabled in the options dialog on page Map Display.

Using emphasized (bold and underlined) text highlights add-on airports in the search result table, flight plan table, information windows and map tooltips.

7. Dock Windows

The user interface of *Little Navmap* consists of a main window and several dock windows which can be detached from the main window or arranged within the main window.

The docked windows can be moved around in their docked position and can be detached from the main window by simply dragging them outside of the main window (click the title bar to drag), by double-clicking their title bar or by clicking on the window symbol on the top right.

Double click on the docked window's title bar or click on the window symbol again to move the windows back into their docked position in the main window.

All docked windows, except the map window, can be closed if they are not needed. You can also drop docked windows on each other to create a tabbed view. The tabs will appear at the bottom of the dock stack in this case.

Note that related dock windows open automatically when selecting functions like `Show Information` or clicking on the user aircraft, for example.

You can save and load dock window layouts in the `Window` menu. See also Window Layout for details.

Note that the windows `Flight Plan Calculation` (Flight Planning), `Flight Plan Route Description` (Flight Plan Route Description) and `Logbook Statistics` (Logbook Statistics) cannot be docked into the mai window and are independent and do not block the main application.

Dock window related menu items in menu `Window` :

- Keep in Foreground
- Show all floating Dock Windows
- Allow Window docking
- Allow Dock Window moving
- Show Dock Window Title Bars

More dock window settings like auto activation on mouse over can be found in the options on page User Interface.

Tip

You can use `Window` -> Reset Window Layout to Default if the main window of *Little Navmap* is not or only partially visible. Activate the main window of *Little Navmap* by either clicking on the visible part or by using the `Alt+Tab` function of your operating system. The window only needs to be active and not visible.

Then press the shortcut `Ctrl+Alt+Shift+W` to reset the window layout which brings the main window back on screen.

Tip

Hold `Ctrl` while clicking on the window title bar to prevent a window from going back into the docked state in the main window and keep it floating.

You can also deselect `Window` -> Allow Window docking in the main menu to prevent the dock windows from snapping back into the main window.

Note

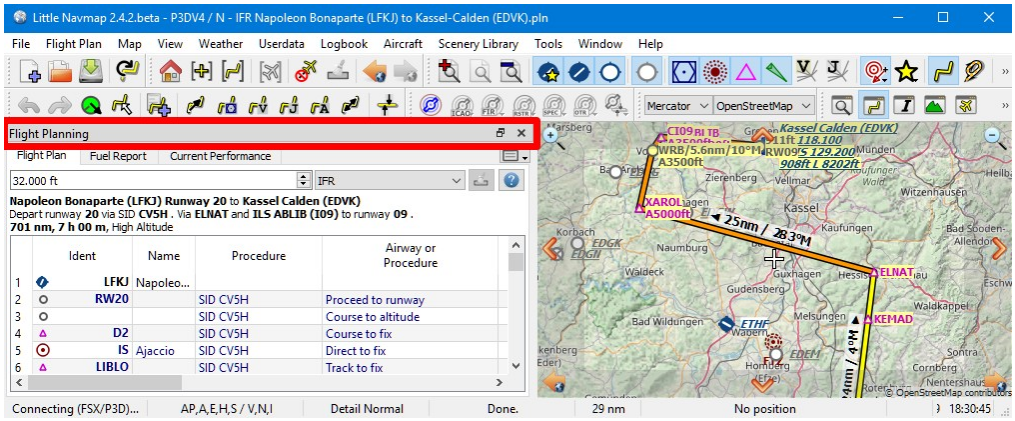
Use the `Window` menu in the in the main menu to save, load or restore closed windows, toolbars and tabs.

The menu item Reset Window Layout to Default in the menu `Window` can be used to reset the state and positions of all dock windows and toolbars back to their default.

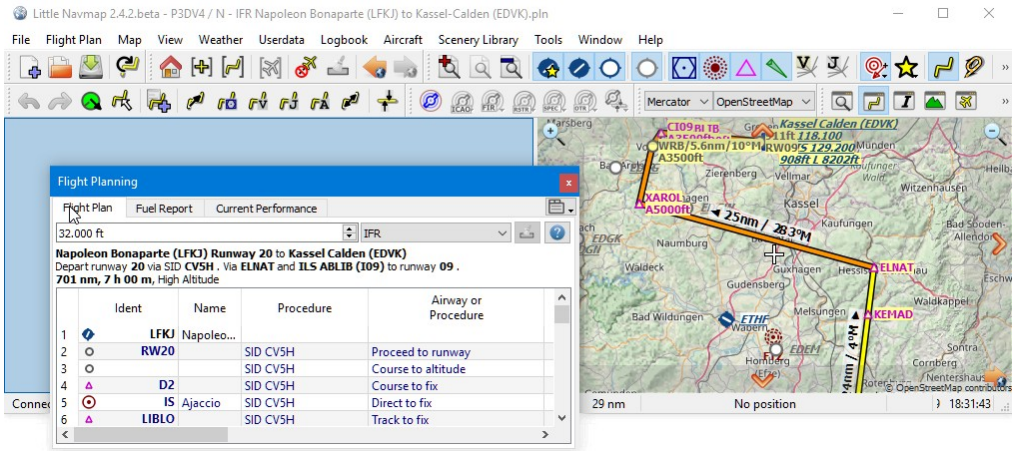
Use Reset Tabs to Default to reset the tab visibility and order back to default.

7.1. Dock Windows

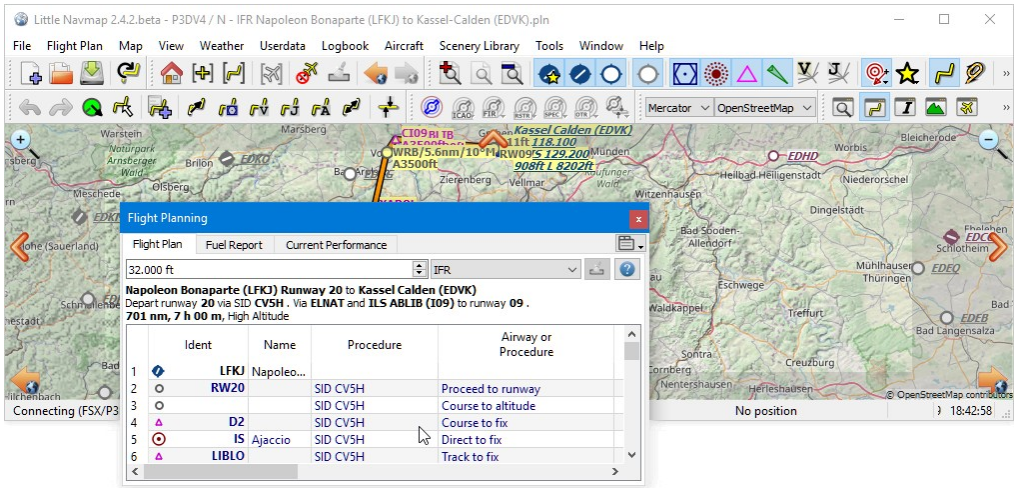
Click images to enlarge.



Title bar of a dock window marked red. *Click image to enlarge.*

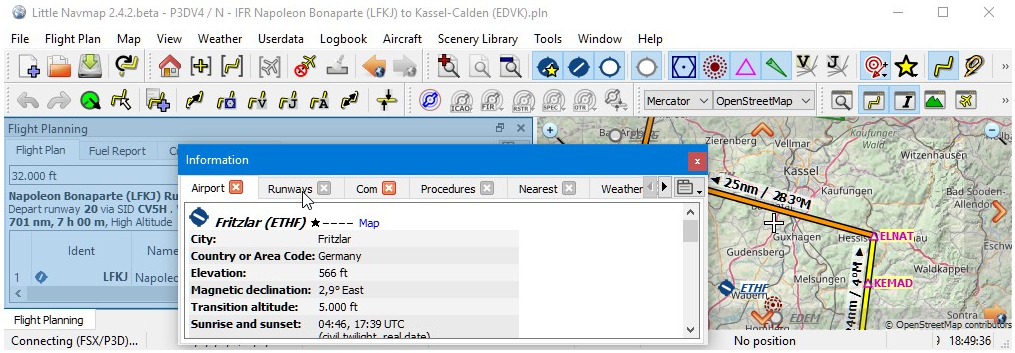


Moving a dock window around. The blue background opens to indicate a space in the main window where the dock can be dropped in. *Click image to enlarge.*

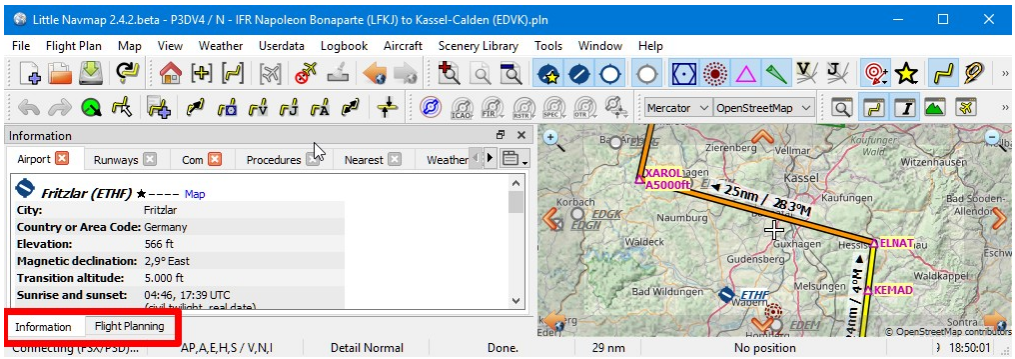


Dock window in floating state detached from main window. *Click image to enlarge.*

7.2. Dock Window Stacks



Dropping a dock window on another to create a stack. *Click image to enlarge.*



A stack of two dock windows. The tab bar is marked red at the bottom of the stacked dock windows. *Click image to enlarge.*

Note

You must click on the title bar of a dock window to remove it from the stack, not on the tab bar.

8. Tabs

The dock windows `Flight Planning`, `Information`, `Simulator Aircraft` and `Search` have tab bars that allow to close, open and move tabs.

Tooltips give more information about the function of a tab.

Note that you cannot move a tab to another window.

The `Window` -> Reset Tabs to Default menu item in the main menu also resets the tab visibility and order to default.

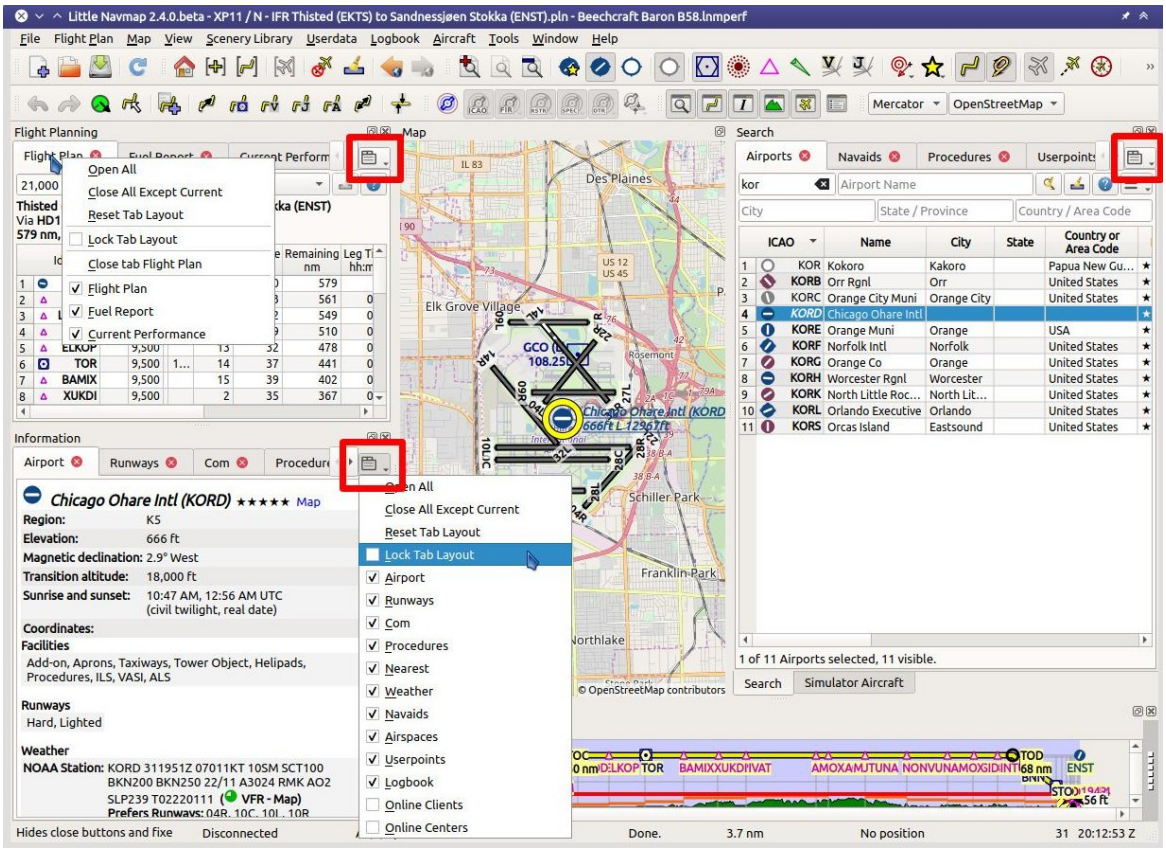
8.1. Context Menu Tab Bar

The context menu above the tab bar (right click on one of the tabs) and the tab button have the following menu items:

- `Open All`: Opens all tabs. All closed tabs are opened again and added to the right side of the tab bar.
- `Close all Except Current`: All tabs are closed except the currently active.
- `Reset Tab Layout`: Opens all closed tabs again and restores the default order.
- `Lock Tab Layout`: Hides the close buttons to avoid accidental closing. Moving by click and drag as well as closing by double click are disabled. A locked tab bar also occupies less space. You can still close and open tabs using the context menu or menu button.
- `Close Tab`: Only visible in the context menu. Closes the tab below the click spot.
- One menu item for each tab: Toggles tab visibility. A tab is always opened to the right of the current one.

8.2. Mouse actions

- Click and drag a tab to move it.
- Double click a tab to close it.
- Right click a tab to open the context menu.
- Use the mouse wheel above a tab bar to cycle between tabs.



Drop down button menus and context menus on tab bars marked red. *Click image to enlarge.*

8.3. Stacked Dock Window Tabs

Tabs at the bottom of a window appear when you drop dock windows on each other. Grab a window title bar to move a window out of the stacked display. You can also change the order of these tabs by dragging them around.

See Dock Windows for more information about stacked dock windows.

9. Main Menu and Toolbars

This chapter describes all the menu items of *Little Navmap*. You will find some of this functionality on the toolbars as well which are not be described separately. Keyboard shortcuts can be seen on the menu items. See Keyboard Shortcuts for a complete list.

All toolbar buttons have an equivalent function in the menu.

Drop down menus in the toolbar can be torn off by clicking on the dashed line on top of them. See Tear off Dropdown Menus for more information.

Menu and toolbars docked in default positions. Screenshot based on *Little Navmap* 2.6.

Tip

Look at the left side of this online user manual to see all the menus and menu items in a tree structure.

9.1. File Menu

9.1.1. New Flight Plan

Clears the current flight plan and shows the flight plan table.

You have to use Context Menu Search, Context Menu Map or Flight Plan Route Description dialog to create a new flight plan.

Note

You can exit *Little Navmap* without saving the current plan. All will be restored on next startup. See Load last used flight plan for more information and how to disable this behavior.

9.1.2. Open Flight Plan

Opens a flight plan with one of the following formats:

- LNMPLN. This is the default format of *Little Navmap* which supports all flight plan features like remarks. See Little Navmap LNMPLN Format for information about this format.
- PLN: FSX, FS9, FSC or MSFS.
- FLP
- FMS: X-Plane FMS 11 (used by X-Plane 11 and X-Plane 12) or FMS 3
- FlightGear FGFP
- Garmin FPL and GFP

The file type is determined by content and not file extension. See Flight Plan Formats for more information.

An opened flight plan file will be reloaded on start up (reload and centering can be switched off in the options dialog on page Startup and Updates and User Interface).

You can also drag and drop files from a file manager like Windows Explorer or macOS Finder into the *Little Navmap* main window to load them. Single flight plan files of all allowed formats as well as aircraft performance files are accepted.

Little Navmap has to guess or correct the cruise altitude if it is invalid or cannot be read from the flight plan. This is needed to avoid restriction violations and resulting error messages in the Error Messages Footer.

You will see a notification dialog if this is the case. Adjust the cruise altitude manually if needed (Cruise altitude).

This correction applies to all plans which are loaded manually by an user. The change is stored in the undo/redo stack and can be undone to revert to the previously invalid cruise altitude. The corrected altitude depends on plan type (IFR or VFR), used procedures and used airways.

Note

Keep in mind that most flight plan formats are limited and not all information is provided or can be loaded from a file. For example, cruise altitude might not be loaded from X-Plane FMS in some cases, airways and departure parking spots cannot restored for several formats, transitions cannot be loaded from MSFS PLN and more.

Important

Always save a copy of the flight plan in LNMPLN format to be able to reload all information. Exporting to and reading from other formats like X-Plane FMS might result in information loss.

9.1.3. Append Flight Plan

Adds departure, destination and all waypoints to the current flight plan.

Using `Append Flight Plan` allows to load or merge complete flight plans or flight plan snippets into a new plan. All waypoints are added at the end of the current flight plan. Then you can use the `Delete selected Legs` and `Move selected Legs up/down` context menu items to arrange the waypoints and airports as required. See Context Menu Flight Plan.

All current arrival procedures will be removed when appending a flight plan. The new flight plan will use arrival and approach procedures from the loaded plan, if any are present.

The appended legs are selected after loading the flight plan.

9.1.4. Recent Flight Plans

Shows all recently loaded flight plans for quick access. You can clear the list by selecting `Clear Menu`.

Little Navmap will show an error message if you try to load a deleted file.

9.1.5. Save Flight Plan

Saves the flight plan into the current LNMPLN file. This format allows to store all flight plan attributes of *Little Navmap*. Disabled if no flight plan has been loaded or created.

Little Navmap opens the `Save as` dialog (see below Save Flight Plan as LNMPLN) if departure, destination or any other value used in the flight plan name has changed. This helps to avoid overwriting LNMPLN files with wrong plans after reversing direction, for example.

You can disable this behavior in the options dialog on page Files by deselecting `Avoid overwriting Flight Plan with not matching departure and destination`.

Tip

Enable the export option `Little Navmap native flight plan format` in the Multiexport Options Dialog and adapt the export path. Then use `Files` -> Multiexport Flight Plan to save your flight plan and all selected export formats with one click. See Exporting Little Navmap native flight plan format for more information.

Note

Little Navmap will not ask to save the file on exit but will instead save the changes to a temporary file. The changes will be restored on next startup. See Load last used flight plan for more information and how to disable this behavior.

9.1.6. Save Flight Plan as LNMPLN

Saves the flight plan to a LNMPLN file. This format allows to save all flight plan attributes of *Little Navmap*. Disabled if no flight plan has been loaded or created.

See Little Navmap LNMPLN Format for information about this format.

`Save Flight Plan as PLN` changes the current file name in *Little Navmap* which means that all further saves will go into the new LNMPLN file.

Little Navmap proposes a new file name based on the pattern set in options on page Files.

Tip

You can save the flight plan files in any place. I recommend a directory in `Documents` like `Documents\Little Navmap\Flight Plans`.

You can also use the directory which is suggested by the dialog window Directories.

Important

Always save a copy of the flight plan in the default LNMPLN format to be able to reload all information. Writing to and reading from other formats like X-Plane FMS might result in information loss. See Flight Plan Formats for more information.

9.1.7. Reset all for a new Flight

Opens a dialog which allows to reset functions in *Little Navmap* for a new flight. See Reset all for a new Flight for more information.

9.1.8. Export Flight Plan as MSFS 2020 PLN

Saves a flight plan for Microsoft Flight Simulator 2020. Disabled if no flight plan has been loaded or created.

Little Navmap can read and write this format.

This does not change the current file name and type. Further saves will still use the same LNMPLN file name and format as before.

The proposed file name can be defined in the Multiexport Options Dialog for format `Microsoft Flight Simulator 2020`.

MSFS flight plans can be saved to and loaded from any location but the default directories are:

- Microsoft Store installation: `C:\Users\YOURLOGINNAME\AppData\Local\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState`
- Steam installation: `C:\Users\YOURLOGINNAME\AppData\Roaming\Microsoft Flight Simulator\LocalState`

See also Flight Plan Formats and Microsoft Flight Simulator 2020.

9.1.9. Export Flight Plan as P3D or FSX PLN

Saves a flight plan for FSX or Prepar3D. Disabled if no flight plan has been loaded or created.

Little Navmap can read and write this format.

This does not change the current file name and type. Further saves will still use the same LNMPLN file name and format as before.

The proposed file name can be defined in the Multiexport Options Dialog for format `FSX and Prepar3D`.

See also Flight Plan Formats.

9.1.10. Export Flight Plan as FMS for X-Plane 11 and 12

Saves the flight plan using the new X-Plane FMS 11 format which is usable in X-Plane 11 and X-Plane 12. Disabled if no flight plan has been loaded or created.

Little Navmap can read and write this format.

See Flight Plan Formats for more information on limitations.

This does not change the current file name and type. Further saves will still use the same file name and format as before.

The proposed file name can be defined in the Multiexport Options Dialog for formats `X-Plane 11`. Note that the two export format entries for X-Plane 11 and 12 use the same file format but a different directory.

Tip

Store FMS files into the `Output/FMS plans` directory inside the X-Plane directory if you would like to use the flight plan in the X-Plane GPS, the X1000 or the FMS.

You have to load the FMS flight plans from the stock FMS or GPS when sitting in the cockpit and avionics switched on. Do not try to it as a `.sit`, `.rep` or other file type from the X-Plane menu.

See here in the user manuals for the respective units: X-Plane User Manuals [https://www.x-plane.com/support/manuals/] Look for a chapter `Loading a (saved) Flight Plan` in the PDF manual for the navigation device.

9.1.11. Export Flight Plan as FlightGear FGFP

A flight plan format which can be loaded into the RouteManager of the free flight simulator FlightGear [http://www.flightgear.org]. Disabled if no flight plan has been loaded or created.

Little Navmap can read and write this format.

See Flight Plan Formats for more information on limitations.

This does not change the current file name and type. Further saves will still use the same file name and format as before.

You can save the files into any directory and load it within FlightGear.

The proposed file name can be defined in the Multiexport Options Dialog for format `FlightGear`.

9.1.12. Open Flight Plan from SimBrief

Opens a dialog that allows to import a flight plan from SimBrief [https://www.simbrief.com/].

See Open Flight Plan from SimBrief for more information.

9.1.13. Export Flight Plan to SimBrief

Opens a dialog that allows to export a flight plan to SimBrief [https://www.simbrief.com/]. Disabled if no flight plan has been loaded or created.

See Export Flight Plan to SimBrief for more information.

9.1.14. GPX Exchange Format (GPX)

This sub-menu allows to load and save the flow trail of the user aircraft. See Aircraft Trail for more information.

9.1.14.1. Load Aircraft Trail from GPX

Loads and replaces the current aircraft trail after asking the user. Routes in the GPX file are ignored. GPX track is centered after loading if enabled in options on page Files. See Aircraft Trail for more information.

9.1.14.2. Append Aircraft Trail from GPX

Loads and appends to the current aircraft trail. Routes in the GPX file are ignored. GPX track is centered after loading if enabled in options on page Files. See Aircraft Trail for more information.

9.1.14.3. Export Flight Plan and Trail as GPX

Exports the current flight plan into a GPS Exchange Format file which can be read by Google Earth and most other GIS applications. Disabled if no flight plan has been loaded or created.

The flight plan is exported as a route and the flown aircraft trail as a track including simulator time and altitude.

The route has departure and destination elevation and cruise altitude set for all waypoints. Waypoints of all procedures are included in the exported file. Note that the waypoints will not allow to reproduce all parts of a procedure like holds or procedure turns.

See Aircraft Trail for more information.

Note

Do not forget to clear the aircraft trail (Delete User Aircraft Trail or Reset all for a new Flight) before a flight to avoid old trail segments in the exported GPX file. Or, disable the reloading of the trail in the options dialog on page Startup and Updates.

9.1.15. Export Flight Plan to Other Formats

9.1.15.1. Show Flight Plan in SkyVector

Opens the default web browser and shows the current flight plan in SkyVector [https://skyvector.com]. Procedures are not shown. Disabled if no flight plan has been loaded or created.

Note that the flight plan will not be shown if a small airport is unknown to SkyVector.

Example: ESMS NEXI2B NILEN L617 ULMUG M609 TUTBI Z101 GUBAV STM7C ENBO [https://skyvector.com/?fpl=ESMS%20NILEN%20L617%20ULMUG%20M609%20TUTBI%20Z101%20GUBAV%20ENBO]. Note missing SID and STAR in SkyVector.

9.1.15.2. Export Flight Plan as HTML Page

Saves the flight plan table as shown to HTML file which can be viewed in a web browser. Icons are embedded in the page. Disabled if no flight plan has been loaded or created.

The exported file will reflect changes of the flight plan table view like column order. Columns which are hidden or shrunk to minimum width are excluded.

9.1.15.3. Export Flight Plan for vPilot, xPilot or SWIFT

Export the flight plan for the VATSIM vPilot online network client. Disabled if no flight plan has been loaded or created.

Flight Plan Online Network Export will appear before where you can add all needed information.

9.1.15.4. Export Flight Plan as IvAp FPL

9.1.15.5. Export Flight Plan as X-IvAp FPL

Export flight plan format for IVAO online network clients IvAp or X-IvAp [https://www.ivao.aero/softdev/ivap.asp]. Disabled if no flight plan has been loaded or created.

Flight Plan Online Network Export will appear before where you can add all needed information.

9.1.16. Export Options

Sub-menu with several actions that affect export to most flight plan formats. This does not affect the saving of flight plans into the LNMPLN format.

Warning

Note that saving flight plans with one or more of these methods has limitations:

- Several approach leg types like holds, turns and procedure turns cannot be displayed properly by using just waypoints or coordinates.
- Speed and altitude limitations are not included in the exported legs.

Normally you should not use these export options.

See Convert Procedure to Waypoints for information about converting procedures to a list of waypoints in the flight plan.

9.1.16.1. Export Waypoints for Approaches

Save procedure waypoints instead of procedure information if checked. This affects all flight plan export formats except the native LNMPLN format.

Use this if your simulator, GPS or FMC does not support loading or display of approach procedures, SID or STAR.

Procedure information is replaced with respective waypoints that allow to display procedures in limited GPS or FMS units.

9.1.16.2. Export Waypoints for SID and STAR

As above Export Waypoints for Approaches but only for SID and STAR procedures.

9.1.16.3. Export Waypoints for Airways

Enabling this function will omit all airway information in the exported flight plan formats. A chain of waypoints will be exported instead of waypoint/airway/waypoint triplets.

9.1.17. Multiexport Flight Plan

Exports all selected flight plan formats at once. You have to configure paths and select formats for exporting before by selecting Multiexport Flight Plan Options below. Also disabled if no flight plan has been loaded or created.

Disabled if no flight plan format is selected for export.

See Flight Plan Multiexport for details.

9.1.18. Multiexport Flight Plan Options

Opens a dialog which allows to configure paths and select formats for flight plan exports with the Multiexport Flight Plan function above.

See Flight Plan Multiexport for details.

Note

Note that the multiexport dialog window is also used to define default file names for the export options Export Flight Plan as MSFS 2020 PLN, Export Flight Plan as P3D or FSX PLN, Export Flight Plan as FMS for X-Plane 11 and 12 and Export Flight Plan as FlightGear FGFP.

9.1.19. Add Google Earth KML

Allows addition of one or more Google Earth KML or KMZ files to the map display. All added KML or KMZ files will be reloaded on start up. Reload and centering can be switched off in the options dialog on pages Startup and Updates and Files.

Due to the variety of KML files it is not guaranteed that all files will show up properly on the map.

Use GPX instead of KML to import a trail into *Little Navmap*. You can convert the KML to GPX using one of the numerous online tools or Google Earth.

9.1.20. Clear Google Earth KML from Map

Removes all loaded KML files from the map.

9.1.21. Save Map as Image

Saves the current map view as an image file. Allowed formats are JPEG, PNG and BMP. The image does not include the map overlays.

Map Image Export will show up before saving which allows to select the image size.

9.1.22. Save Map as Image for AviTab

Saves the current map view as an image file for AviTab [https://github.com/fpw/avitab]. Allowed formats are JPEG and PNG.

Map Image Export will show up before saving which allows to select the image size.

The saved file is accompanied by a calibration file in JSON-Format [https://en.wikipedia.org/wiki/JSON]. It has the same name as the image with an additional `.json` extension.

The files have to be saved to `.../X-Plane 11/Resources/plugins/AviTab/MapTiles/Mercator` or `.../X-Plane 12/Resources/plugins/AviTab/MapTiles/Mercator`.

See here in the AviTab documentation for more information how to load the map image: Map App - Mercator [https://github.com/fpw/avitab/wiki/Map-App#mercator].

9.1.23. Copy Map Image to Clipboard

Copies the current map image to the clipboard. The image does not include the map overlays.

Map Image Export will show up before copying the image which allows to select the image size.

9.1.24. Print Map

Allows to print the current map view. See Print Map for more information.

9.1.25. Print Flight Plan

Opens a print dialog that allows you to select flight plan related information to be printed. See Print Flight Plan for more information.

9.1.26. Quit

Exits the application. Will ask for confirmation if there are unsaved files.

9.2. Flight Plan Menu

9.2.1. Flight Plan

Opens and raises the flight planning dock window and flight plan tab. Also activates the flight plan table for quick navigation. Same as `Window` -> `Shortcuts` -> `Flight Plan` or pressing `F7`.

See Window for a full list or shortcuts.

9.2.2. Fuel Report

Opens and raises the flight planning dock window and Fuel Report tab. Same as `Window` -> `Shortcuts` -> `Fuel Report` or pressing `F8`.

See Window for a full list or shortcuts.

9.2.3. Undo and Redo

Allows undo and redo of flight plan changes. The last action is shown in the menu item like `Add Waypoint`, for example. The undo information is cleared when restarting *Little Navmap*.

9.2.4. Select a Start Position

Select a parking spot (airport center, gate, ramp, fuel box), a runway or a helipad as a start position at the departure airport. A parking position can also be selected in the map context menu item Set as Departure when right-clicking on the center of a parking position. If no position is selected the airport center is automatically selected as a start position.

See Select Start Position for more information.

9.2.5. Select Departure Runway or Procedure

Same as Set Departure Runway in the map context menu. Only active if the current flight plan has a departure airport. See more about this in chapter Departure and Destination Runway.

The button `Show Departure Procedures` jumps directly to Search Procedures where you can view and select a SID.

9.2.6. Select Destination Runway or Procedures

Same as Set Destination Runway in the map context menu. Only active if the current flight plan has a departure airport. See more about this in chapter Departure and Destination Runway.

The button `Show Arrival Procedures` jumps directly to Search Procedures where you can view and select a STAR or an approach.

9.2.7. Edit Flight Plan on Map

Toggles the flight plan click-and-drag edit mode on the map. See Map Flight Plan Editing.

9.2.8. Flight Plan Calculation

Opens the flight plan calculation dialog window which allows to automatically generate a flight plan by various criteria. The window is pulled into foreground if already open.

The altitude from the current flight plan is transferred to the calculation window but not vice versa.

See chapter Flight Plan Calculation for more information.

9.2.9. Generate Random Flight

Shows the airport search tab and enables the controls for the random flight generation from the airport search result.

See Random Flight Generation for more information.

9.2.10. Calculate Direct

Deletes all intermediate waypoints and connects departure and destination using a great circle line.

This function does not delete procedures from the current flight plan but will connect procedure exit and entry directly, if any.

Tip

You can calculate a flight plan between any kind of waypoints, even user defined waypoints (right-click on the map and select Add Position to Flight Plan to create one). This allows the creation of snippets that can be merged into flight plans.

9.2.11. Reverse Flight Plan

Swaps departure and destination and reverses order of all intermediate waypoints. The departure airport will be assigned as start position.

Procedures are removed by this function.

This function also removes all airway references since the result would not be valid due to one-way restrictions.

9.2.12. Adjust Flight Plan Altitude

Changes the flight plan altitude according to a simplified East/West rule and the current route type (IFR or VFR). Rounds the altitude up to the nearest even 1,000 ft (or meter) for westerly flight plans or odd 1,000 ft (or meter) for easterly flight plans. Adds 500 ft for VFR flight plans.

The rule can be changed in the options on page Flight Plan.

9.2.13. Flight Plan Route Description

Opens a dialog with the ATS route description of the current flight plan that also allows to modify the current flight plan or enter a new one.

Flight Plan Route Description gives more information about this topic.

9.2.14. Copy Flight Plan Route Description to the Clipboard

Copies the route description of the current flight plan to the clipboard using the current settings from Flight Plan Route Description.

9.2.15. Download Oceanic Tracks on Startup

Downloads tracks immediately and instructs *Little Navmap* download tracks on startup.

See Tracks for more information.

9.2.16. Download Oceanic Tracks

Downloads Oceanic or other tracks which are NAT, PACOTS and AUSOTS.

Tracks are shown on the map and a message is shown in the Statusbar once the download is finished.

Tracks are removed when closing the program. Use the function `Download Tracks on Startup` above to always have tracks available.

See Tracks for more information.

9.2.17. Delete Oceanic Tracks

Remove downloaded Oceanic and other tracks from the track database.

9.2.18. Track Sources

9.2.18.1. NAT

9.2.18.2. PACOTS

9.2.18.3. AUSOTS

Allows to select the track systems to download. The download is triggered automatically after changing one of these options.

See Tracks for more information.

9.3. Search Menu

This provides a shortcut to jump to the respective search window and tabs. See Search for more general information about airport, navaid and other search functions.

9.3.1. Airport Search and Navaid Search

See Search for general information about these two search tabs.

9.3.2. Procedure Search

See Search Procedures for more information about procedure search and display as well as Procedures for general information about SID, STAR and approaches.

9.3.3. Userpoint Search

See Userpoints for more information about userpoints.

9.3.4. Logbook Search

See Logbook for more information about the logbook.

9.4. Map Menu

9.4.1. Go to Home

Shows the home area that was set using Set Home View in the sub-menu `More` in the map context menu. It will show the map using the saved position and zoom distance. The center of the home area is highlighted by a symbol.

Note that the symbol is only an indicator for the home view center position and does not have any context menu or mouse actions attached.

The symbol cannot be hidden. Set it at a remote position if you like to hide it.

9.4.2. Go to User Aircraft

Moves and zooms the map to the user aircraft. Disabled if not connected to a simulator.

9.4.3. Center Flight Plan

Centers the whole flight plan on the map.

9.4.4. Go to Center for Distance Search

Go to the center point used for distance searches. See Set Center for Distance Search.The center for the distance search is highlighted by a symbol.

The center symbol cannot be hidden. Set it at a remote position if you like to hide it.

9.4.5. Jump to Coordinates

Opens a dialog allowing to place the map at the given coordinates at the given zoom distance.

See Jump to Coordinates about the dialog and Coordinate Formats about the accepted formats.

9.4.6. Map follows User Aircraft

Zooms to the user aircraft if connected to a flight simulator or *Little Navconnect* and keeps the aircraft centered on the map.

See User Aircraft Centering for general information about aircraft centering while flying.

9.4.7. Delete User Aircraft Trail

The global aircraft trail is saved and will be reloaded on program startup.

This menu item and toolbar button removes the user aircraft trail from both the map and the elevation profile.

See Aircraft Trail for more information.

9.4.8. Map Position Back/Forward

Jumps forward or backward in the map position history which is a result of all map movements or zoom actions. Movements from the user or the program (like aircraft centering) are recorded.

The complete history is saved and restored when starting *Little Navmap*.

9.4.9. Remove all Highlights and Selections

Deselect all entries in the flight plan table, all search result tables and removes all highlight marks from the map. Also clears the procedure preview enabled with Preview all Procedures in the window Search Procedures.

Use this to get a clean view of the map while flying.

9.4.10. Remove all Range Rings

Removes the respective user features which are range rings, navaid range rings, measurement lines, airport traffic patterns, user placed MSA diagrams and user holdings from the map.

This cannot be undone.

A warning dialog is shown before removing the user features.

The options are disabled if the respective features are not present the map.

See also Range Rings.

9.4.11. Remove all Measurement Lines

See also Measure Distance.

9.4.12. Remove all Traffic Patterns

See also Traffic Patterns.

9.4.13. Remove all Holdings

See also Holdings.

9.4.14. Remove all MSA Diagrams

See also Minimum Sector Altitude.

9.4.15. More Details

9.4.16. Default Details

9.4.17. Less Details

Increases or decreases the detail level for the map. More details means more airports, more navaids, more text information and bigger icons.

Map details have an equivalent button on the toolbar which allows to change the detail level with a slider. The drop down menu of the toolbar button can be torn off by clicking on the dashed line in the menu (Tear off Dropdown Menus).

The detail level is shown in the Statusbar. Range is -2 for least detail to +5 for most detail.

Warning

Map information will be truncated if too much detail is chosen. A red warning message `Too many objects` will be shown in the Statusbar if this is the case.

Tip

You can also quickly change the detail level with the mouse wheel using `Ctrl+Wheel` or with the keyboard shortcuts `Ctrl++`, `Ctrl+-` or `Ctrl+0` (default details).

9.5. View Menu

9.5.1. Reset Display Settings

Resets all map display settings which can be changed in the menu `View` back to default.

9.5.2. Airports

This sub-menu has an equivalent button on the toolbar containing the same items as this sub-menu. The toolbar buttons additionally allows to limit the display of airports to a minimum runway length. The drop down menu of the toolbar button can be torn off by clicking on the dashed line in the menu (Tear off Dropdown Menus).

Note that airports might be hidden on the map depending on zoom distance and airport type.

ILS and GLS/RNP feathers are hidden with the related airports too.

Display, labels and airport diagram features can be changed in options on the pages Map Display and Map Labels.

9.5.2.1. Add-on Airports

Little Navmap has several filter modes to keep add-on airports visible. See Add-on no override, Add-on override zoom, Add-on override zoom and filter and Show only add-on airports for information and examples of the related functions.

Add-on airports are highlighted with a yellow ring which is independent of these filter functions. You can disable the yellow ring in the options dialog on page Map Display by deselecting `Highlight add-on airports`.

You can also mark airports as add-on using the map context menu Mark Airport as Add-on which will overlay an userpoint over the airport. Note that this userpoint will not adhere to the filters mentioned here.

Further add-on related scenery library functions to exclude add-ons from recognition can be found in options on page Scenery Library Database.

9.5.2.2. Show Airports

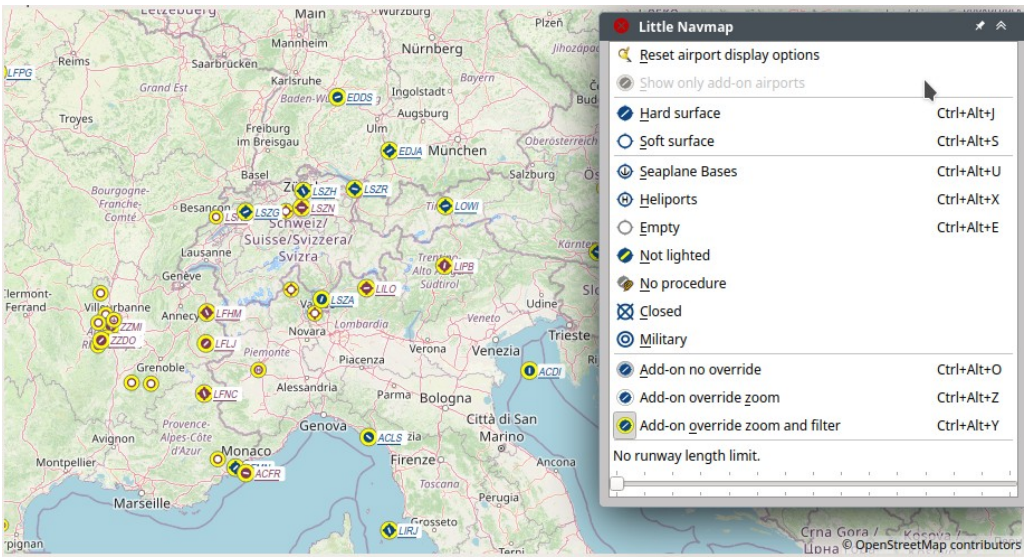
Disable or enable the display of all airports. This also covers add-on airports.

9.5.2.3. Reset airport display options

Reset airport display to default settings, i.e. display all airports.

9.5.2.4. Show only add-on airports

Disables all filters and enables Add-on override zoom and filter to show only add-on airports on the map. All other airports are hidden with this preset.



`Show only add-on airports` preset clicked. Add-on airports are shown on all zoom levels and are not affected by filters.
Click image to enlarge.

9.5.2.5. Hard surface

Show airports that have at least one runway with a paved surface. Note that this affects the other map display airport filters as well.

9.5.2.6. Soft surface

Show airports that have only unpaved runways. Note that this affects the other map display airport filters as well.

9.5.2.7. Seaplane Bases

Show airports that have only water runways.

9.5.2.8. Heliports

Show airports that have no runways but only helipads or are marked as a heliport.

9.5.2.9. Empty

Show empty airports. This button or menu item might be disabled depending on settings in the options dialog on page Map. The status of this button is combined with the other airport buttons. This means, for example: You have to enable soft surfaced airport display and empty airports to see empty airports having only soft runways.

An empty airport is defined as one which has neither parking nor taxiways nor aprons and is not an add-on. These airports are treated differently in *Little Navmap*. Empty airports are drawn gray and behind all other airports on the map.

This function helps the user to avoid airports that have no scenery elements.

Airports having only water runways are excluded from this definition to avoid unintentional hiding.

X-Plane and 3D airports

The function can be extended to X-Plane airports which are not marked as `3D`. This can be done by checking `X-Plane 2D airports are shown as empty` in the options dialog on page Map. All airports not being marked as `3D` will be shown in gray on the map and can be hidden like described above if enabled.

An airport is considered 3D if its source file contains `3D` in the `gui_label`.

The definition of `3D` is arbitrary, though. A `3D` airport may contain just a single object, such as a light pole or a traffic cone or it may be a fully constructed major airport.

9.5.2.10. Not lighted

Show airports which have no lighted runway.

9.5.2.11. No procedure

Show airports which have no approach or other procedures.

9.5.2.12. Closed

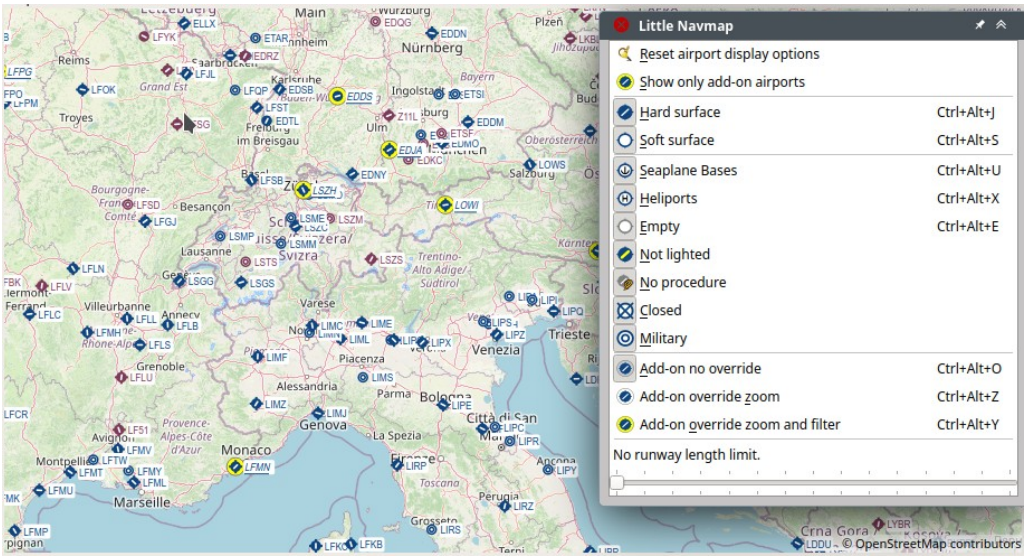
Show airports which are marked closed or have only closed runways.

9.5.2.13. Military

Show military airports. Note that military airports are detected by name patterns like `AB` and therefore not all military airports can be detected. This also applies to airports with both military and civil use.

9.5.2.14. Add-on no override

Add-on airports are highlighted on the map but show up like all other airports. This means that they are affected by all airport filters above and disappear on higher zoom levels like normal airports.



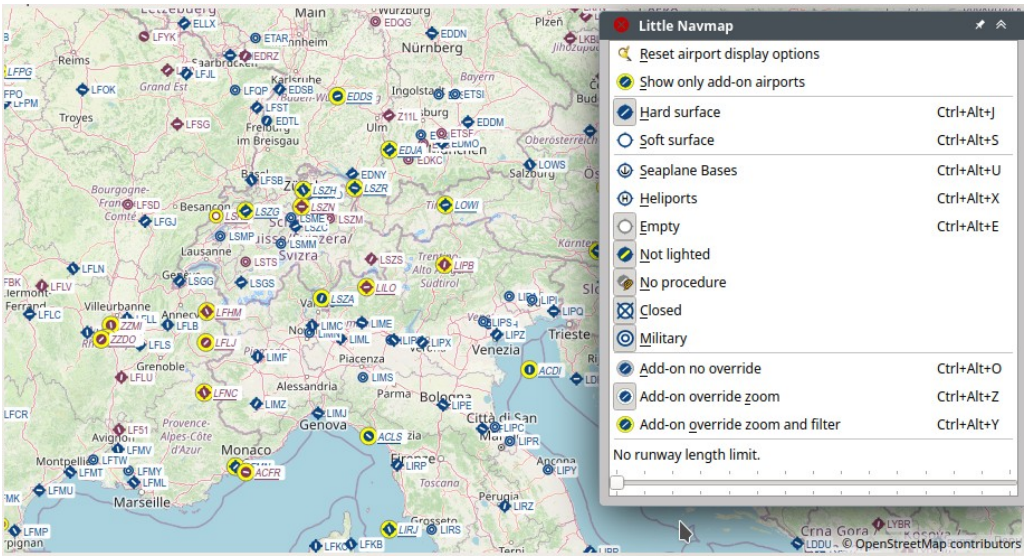
Only large add-on airports are shown on the map with a yellow highlight if `Add-on no override` is selected. Filters and zoom distance affect add-ons like normal stock airports.

9.5.2.15. Add-on override zoom

Add-on airports are always shown independently of the zoom level if this option is selected.

You can still use the type filters and runway length filter to limit the display of add-on airports. This means you can hide all add-on airports having grass runways by deselecting Soft surface, for example. You can also limit the display by selecting the minimum runway length.

Enabling this function allows to see even small add-on airstrips in large continental zoom levels.



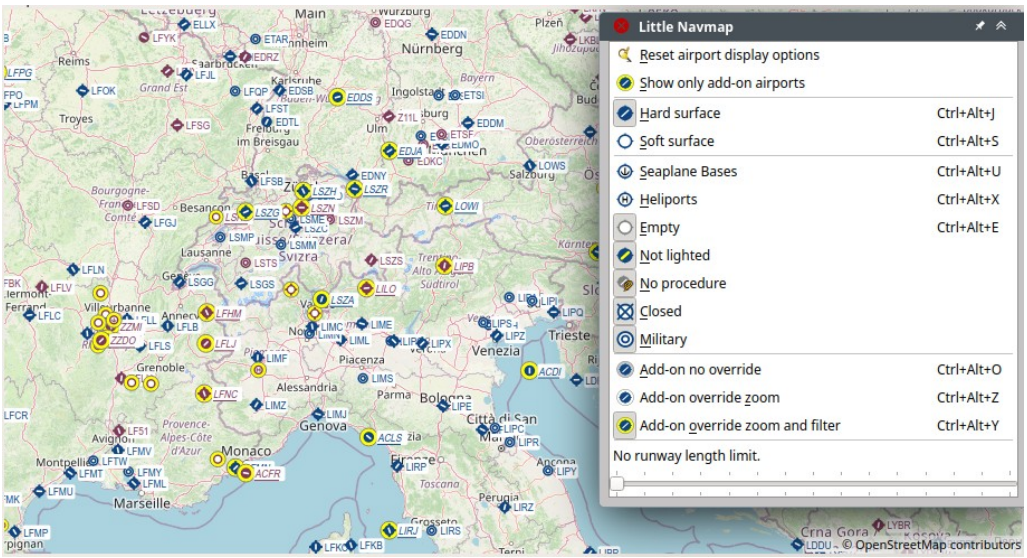
`Add-on override zoom` selected: All large add-on airports and additionally small add-on airstrips are shown on the map with a yellow highlight. Airports with soft surfaces, seaplane bases and heliports are hidden which affects add-ons too.
Click image to enlarge.

9.5.2.16. Add-on override zoom and filter

Add-on airports are shown independently of the zoom level if this option is selected. This function also overrides the filters like Soft surface above and does not allow to hide add-on airports on the map.

The runway length limitation filter can still be used to limit the display add-on airports.

Click Show only add-on airports to select a preset which shows add-on airports only.



`Add-on override zoom and filter` selected: All large add-on airports and additionally small add-on airstrips are shown on the map with a yellow highlight. Airports with soft surfaces, seaplane bases and heliports are shown since the filters `Soft surface`, `Seaplane bases` and `Heliports` affect only stock airports. *Click image to enlarge.*

9.5.3. Navaids

Show or hide these navaids on the map. Navaids might be hidden on the map depending on zoom distance.

Display and labels can be changed in options on the pages Map Display and Map Labels.

Note

Navaids related or being part of a flight plan and its procedures are always shown together with the flight plan. You can disable the display of all VOR, NDB, waypoints and ILS to get a more clean display when flying.

9.5.3.1. Show VOR Stations

Toggle display of VOR, VORDME, VORTAC, DME and TACAN stations.

9.5.3.2. Show NDB Stations

Toggle display of NDB navaids.

9.5.3.3. Show Waypoints

Show or hide intersections or waypoints.

9.5.3.4. Show ILS Feathers

Toggles the display of ILS, localizer, IGS, LDA and SDF feathers.

Note that this setting also affects the ILS glideslope display in the elevation profile and can be used to force the display of the ILS slope for all approach types. The feathers are hidden if the related airport is not shown. See Show ILS or GLS/RNP for more information.

9.5.3.5. Show GLS/RNP Approach Paths

Toggles the display feathers for GLS, RNP and other approach types.

Note that this setting also affects the GLS/RNP glidepath display in the elevation profile and can be used to force the display of a glidepath for all approach types. The feathers are hidden if the related airport is not shown. See Show ILS or GLS/RNP for more information.

Note

GLS/RNP approach paths are not available when using the setting Do not use Navigraph Database in the menu `Scenery Library` -> `Navigraph` with FSX, P3D or MSFS. See also Load Scenery Library, Navigation Databases and Scenery Library Menu.

9.5.3.6. Show Holdings

Show or hide en-route holdings. Note that these are a part of the navdata and do not cover user placed holdings which can be added from the map display context menu using Add Holding.

Note

En-route holdings are not available when using the setting Do not use Navigraph Database in the menu `Scenery Library` -> `Navigraph` with FSX, P3D or MSFS. See also Load Scenery Library, Navigation Databases and Scenery Library Menu.

9.5.3.7. Show MSA Sectors

Toggle display of MSA (minimum sector altitude) icons. This does not cover the user placed MSA sector diagrams.

See Minimum Sector Altitude for more information.

Note

MSA sectors are not available when using the setting Do not use Navigraph Database in the menu `Scenery Library` -> `Navigraph` with FSX, P3D or MSFS. See also Load Scenery Library and Navigation Databases.

9.5.3.8. Show Low Airways

Toggles display of low airways (also Victor) and the attached waypoints.

9.5.3.9. Show High Airways

Toggles display of high airways (also Jet) and the attached waypoints.

9.5.3.10. Show Oceanic Tracks

Show or hide Oceanic or other tracks which are NAT, PACOTS and AUSOTS.

This function is disabled if no tracks are downloaded.

See Tracks for more information.

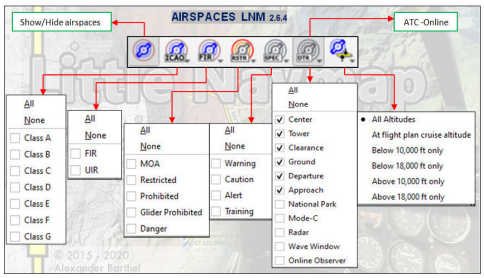
9.5.4. Airspaces

This sub-menu and toolbar button allow the selection of individual airspace categories.

Airspace data sources can be selected in menu `Scenery Library` -> Airspace Libraries.

The dropdown menu of the toolbar buttons can be torn off (Tear off Dropdown Menus).

Airspace display and labels can be changed in options on the pages Map Display and Map Labels.



Airspace selection toolbar with all drop down menus. *Click image to enlarge.*

9.5.4.1. Show Airspaces

Allows to enable or disable the display of all airspaces with one click. Use the menu items below this one or the toolbar buttons to display or hide the various airspace types.

The airspaces toolbar contains buttons each having a drop down menu that allows to configure the airspace display like showing or hiding certain airspace types. Each drop down menu also has `All` and `None` entries to select or deselect all types in the menu.

The previous selection state is restored by clicking the `All` or `None` items a second time in the toolbar button dropdown menu.

Additionally a minimum and maximum altitude can be selected in the toolbar button . Only airspaces overlapping with these limits are shown.

9.5.4.2. All altitudes

Show airspaces for all altitudes.

9.5.4.3. At flight plan cruise altitude

Show only airspaces touching the flight plan cruise altitude (set in Cruise altitude).

9.5.4.4. For minimum and maximum altitude

Show only airspaces touching the altitude range set in the toolbar button .

9.5.4.5. ICAO Airspaces

Allows selection of Class A to Class E airspaces.

9.5.4.6. FIR Airspaces

Allows selection of the Class F and Class G airspaces or flight information regions.

9.5.4.7. Restricted Airspaces

Show or hide MOA (military operations area), restricted, prohibited and danger airspaces.

9.5.4.8. Special Airspaces

Show or hide warning, alert and training airspaces.

9.5.4.9. Other Airspaces

Show or hide center, tower, mode C and other airspaces.

9.5.5. User Features

The menu item has an equivalent button on the map options toolbar. The dropdown menu of the toolbar button can be torn off (Tear off Dropdown Menus).

The previous selection state is restored by clicking the `All User Features` or `No User Features` items a second time in the toolbar button dropdown menu.

9.5.5.1. Range Rings

See also Range Rings.

9.5.5.2. Measurement Lines

See also Measure Distance.

9.5.5.3. Traffic Patterns

See also Traffic Patterns.

9.5.5.4. Holdings

See also Holdings.

9.5.5.5. MSA Diagrams

See also Minimum Sector Altitude.

Hides or shows the respective user features.

The respective option is automatically enabled after an user feature is added to the map.

User features can also be toggled with the toolbar button .

The previous selection state is restored by clicking the `All Userpoints` or `No Userpoints` items a second time in the toolbar button dropdown menu.

9.5.6. Userpoints

Allows to hide or show user defined waypoints by type.

The menu item `Unknown Types` shows or hides all types which do not belong to a known type.

The type `Unknown` shows or hides all userpoints which are exactly of type `Unknown`.

User features can also toggled with the toolbar button .

You can tear off the drop down menu from the toolbar by clicking on the dashed line on top of it.

The previous selection state is restored by clicking the `All Userpoints` or `No Userpoints` items a second time in the toolbar button dropdown menu.

The respective type is automatically enabled after a userpoint is added to the map.

Custom userpoint categories show up in this menu too.

See Userpoints for more information on user defined waypoints.

9.5.7. Show Flight Plan

Show or hide the flight plan. The flight plan is shown independently of the zoom distance.

Note that the flight plan is also hidden in the elevation profile if you switch it off here.

Related navaids for procedures are forced with the flight plan display. All navaids needed for procedures are still shown if you disable the display of VOR, NDB and waypoints. This helps to keep an uncluttered map display.

9.5.8. Show Alternate Airports

Alternate airports and the related flight plan legs can be hidden on the map using this option.

The alternate airport symbols might disappear depending on airport filter settings.

9.5.9. Show Top of Climb and Top of Descent

Hides the climb and descent slopes as well as the top of climb and top of descent indicators when disabled. This affects the map and elevation profile display but not the altitude calculation in the fuel report or elevation profile.

9.5.10. Show Missed Approaches

Show or hide the missed approaches of the current flight plan or the procedure preview (Preview and Highlights).

Note

This function changes the active flight plan leg sequencing: Sequencing the active leg will stop if the destination is reached and missed approaches are not displayed. Otherwise sequencing will continue with the missed approach and the simulator aircraft progress will show the remaining distance to the end of the missed approach instead.

9.5.11. Show User Aircraft

Shows the user aircraft and keeps it centered on the map if connected to the simulator. The user aircraft is always displayed regardless of the zoom distance.

The icon color and shape indicates the aircraft type and whether the aircraft is on ground (gray border on ground).

User aircraft in flight.

A click on the user aircraft shows more information in the `Simulator Aircraft` dock window.

More settings to change the map behavior while flying can be found on page Simulator Aircraft in options.

9.5.12. Show User Aircraft Trail

Show the user aircraft trail. The trail is always displayed regardless of the zoom distance. It is saved and will be reloaded on program startup. You can clear the trail using Delete User Aircraft Trail.

See Aircraft Trail for more information.

9.5.13. Show Selected Altitude Range Arc

Shows a distance arc that predicts reaching the selected autopilot altitude. This is shown for descent and climb.

The option Show Vertical Trail in the elevation profile provides similar functionality.

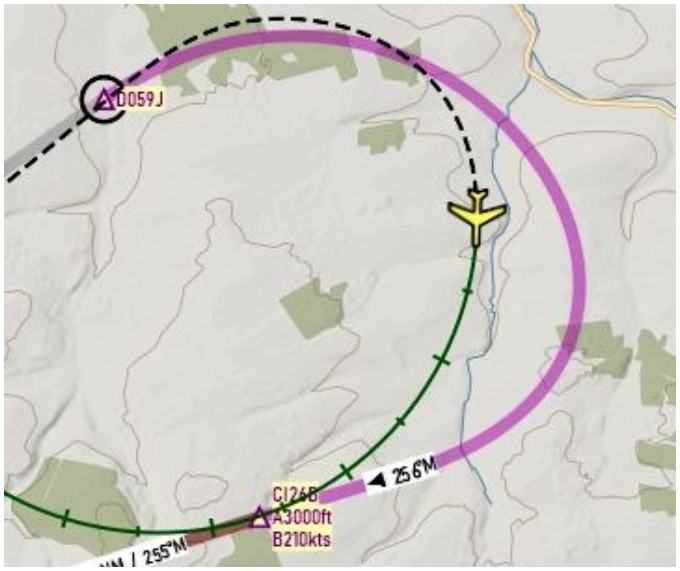
The selected autopilot altitude value can be seen in Tab Progress when enabling `Autopilot Selected` in Aircraft Progress Display Options.

Note that some add-on aircraft do not provide an useful autopilot altitude and use the value for their own purposes.

A jet aircraft climbing and about to reach the top of climb before waypoint `ASKJA`.

9.5.14. Show Turn Flight Path

Enables a turn indicator which shows the predicted path if the given turn rate of the aircraft is kept. The arc is limited to 5 NM length and a turn maximum of 180°. Tick marks show distance in 1 NM steps.



An aircraft turning in a procedure about to intercept the ILS after waypoint `CI26B`

9.5.15. Show Aircraft Endurance

A dotted circle showing the maximum endurance is shown around the user aircraft if enabled. A label display endurance in NM and hours/minutes. The label turns orange if the endurance is below 45 minutes and to red if endurance is below 30 minutes. The endurance can be seen in Tab Progress when enabling `Endurance` in Aircraft Progress Display Options.

The endurance is based on fuel on board, current fuel flow and groundspeed considering reserves and contingency as set in the Aircraft Performance file. It is only shown if the user aircraft is airborne. You will see limited endurance if climbing to cruise altitude since the range depends on the current fuel flow and speed.

Running below fuel reserves might also result in zero endurance shown even with fuel on board.

Note that you will see red or orange endurance warnings if the wrong aircraft performance file is used.

Aircraft endurance shown with label. 384 NM and 3 hours and 18 minutes to go.

9.5.16. Show Compass Rose

Show a compass rose on the map which indicates true north and magnetic north. Aircraft heading and aircraft trail are shown if connected to a simulator.

The rose is centered around the user aircraft if connected to a simulator. Otherwise it is centered on the map view.

See Compass Rose for details.

9.5.17. Attach Compass Rose to Aircraft

The compass rose is centered in the current view if not connected to a simulator.

Once connected, the compass rose will be attached to the user aircraft and follow its position.

This can be disabled with this menu item which detaches the rose from the user aircraft and keeps it centered on the screen.

9.5.18. AI and Online Aircraft

9.5.18.1. Show AI and Multiplayer Aircraft

Shows AI and multiplayer aircraft on the map. Multiplayer vehicles can be displayed from e.g. FSCloud, VATSIM or Steam sessions.

The icon color and shape indicates the aircraft type and whether the aircraft is on ground (gray border).

Two types of traffic are shown:

AI or multiplayer aircraft from the simulator:

This includes aircraft traffic that is injected by online network clients. A click on the AI aircraft or ship shows more information in the `Simulator Aircraft` dock window in the tab Tab AI / Multiplayer.

Multiplayer aircraft/client from an online network:

A click on the online aircraft shows information in the `Information` dock window in the separate tab `Online Clients`. See also Online Networks.

The displayed vehicles are limited by the used multiplayer system if *Little Navmap* is not connected to an online network like VATSIM or IVAO. Multiplayer aircraft will disappear depending on distance to user aircraft.

Little Navmap limits the display of AI vehicles depending on size and type. Zoom close to see small aircraft or boats.

Aircraft labels are forced to show independently of zoom level for the next five AI/multiplayer aircraft closest to the user that are within 20 NM distance and 5,000 ft elevation. Other labels appear depending on zoom distance.

On the lowest zoom distance all aircraft and ships are drawn to scale on the map.

All aircraft icons can be customized: User, AI and Multiplayer Aircraft Icons.

Note

Currently MSFS multiplayer traffic cannot be shown since MSFS is lacking the required programming interfaces.

9.5.18.2. Show Online Aircraft

As Show AI and Multiplayer Aircraft but shows online network aircraft on the map if enabled. This setting affects all traffic from online networks like IVAO, VATSIM or custom networks which can be enabled in the options dialog on page Online Flying.

See Online Networks for an overview and Aircraft and Ships for information on aircraft colors and symbols.

9.5.18.3. Show AI and Multiplayer Ships

As Show AI and Multiplayer Aircraft but enables or disables AI or multiplayer ships on the map. `Fetch AI or multiplayer ships` has to be enabled in the Connect Dialog to see AI ships.

This option also affects the frigate and carrier ships from X-Plane.

See also Aircraft and Ships for information on ship colors and symbols.

9.5.19. Show Map Grid

Show a latitude/longitude grid as well as the Meridian [https://en.wikipedia.org/wiki/Prime_meridian] and 180th Meridian or Anti-meridian [https://en.wikipedia.org/wiki/180th_meridian] (near the date line) on the map.

A 30, 5 or 1 degree grid is shown depending on zoom distance.

9.5.20. Show Map Grid Options

Shows a dialog window which allows to configure the map grid colors and labels.

9.5.21. Show Country and City Names

Show country, city and other points of interest. Availability of these options depends on the selected map theme. See Map Themes and Map Layers for details.

9.5.22. Show Minimum off-route Altitude Grid

Toggles the display of minimum off-route altitude grid on the map.

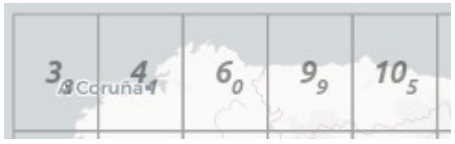
The minimum off-route altitude grid provides an obstacle clearance altitude within an one degree grid. The altitudes clear all terrain and obstructions by 1,000 ft in areas where the highest elevations are 5,000 ft MSL or lower. Where the highest elevations are above 5,000 ft MSL or higher terrain is cleared by 2,000 ft.

The large number is 1,000 ft and small number 100 ft minimum altitude.

Note

The MORA grid is not available when using the setting Do not use Navigraph Database in the menu `Scenery Library` -> `Navigraph` with FSX, P3D or MSFS.

See also Load Scenery Library and Navigation Databases.



MORA grid: 3,300, 4,400, 6,000, 9,900 and 10,500 ft.

9.5.23. Show Airport Weather

Shows icons for airport weather where a weather station is available. Select source for display with Airport Weather Source below.

See Airport Weather for an explanation of the symbols and Airport Weather for more information.

9.5.24. Wind levels

Enables or disables wind aloft display for different layers as well as at flight plan waypoints. Select wind data source for display with Wind source below.

See Winds Aloft for an explanation of the wind symbols and Winds Aloft for more information.

9.5.25. Show Sun Shading

Enables the display of sun shading on the globe. This works in both projections `Mercator` and `Spherical`.

You can change the time source with the `Sun Shading Time` menu below. The shadow darkness can be changed in the options dialog on page Map.

Note that offline maps cannot display a sun shadow.

See Sun Shading for more information.

9.5.26. Sun Shading Time

You can choose between three time sources for the sun shadow.

9.5.26.1. Simulator Time

Uses the time of the connected flight simulator and falls back to real time if not connected. Updates the shadow if the simulator time changes.

9.5.26.2. Real UTC Time

Use real time.

9.5.26.3. User defined Time

Allows to use the user defined time as set by using `Set User defined Time` below.

9.5.26.4. Set User defined Time

Opens a dialog to set an user defined time in UTC as a source for the sun shading.

See Set User defined Time for more information.

9.5.27. Projection

See Map Projection for details.

9.5.28. Theme

Selects the map background theme. See Map Themes and Map Layers for details.

9.6. Weather Menu

This sub-menu allows to change or enable weather source.

Note that some weather sources depend on the selected scenery library. For example:

- **X-Plane 11 scenery selected:** X-Plane 11 `METAR.rwx` weather file and `global_winds.grib` wind file in the X-Plane 11 base path are loaded.
- **X-Plane 12 scenery selected:** The directory `Output/real weather` in the X-Plane 12 base bath is checked for METAR and wind files.

The same applies to ActiveSky weather files for X-Plane where the files are selected automatically. This does not apply to FSX, P3D and MSFS where the weather is loaded using the simulator connection.

See also on options page Weather Files for configuration of download addresses and file paths.

9.6.1. Airport Weather Source

Selects the source for the airport weather symbol display on the map. See also Airport Weather and options page Weather.

The selection in this menu also determines the source for runway and procedure wind display in Departure and Destination Runway and Search Procedures.

See Airport Weather for an explanation of the symbols

The following options are available:

9.6.1.1. Disabled

Disables the weather source which also disables all file accesses and online downloads. The menu item Show Airport Weather and the toolbar button will disabled if this is selected.

9.6.1.2. Flight Simulator

FSX, Prepar3D or X-Plane. Display for FSX/Prepar3D and on remote connections is slower and might cause stutters when scrolling.

Display for X-Plane remote connections is not supported except by sharing the X-Plane 11 `METAR.rwx` weather file or the X-Plane 12 directory `Output/real weather` on the network.

9.6.1.3. Active Sky

Use Active Sky as source for weather display.

9.6.1.4. NOAA

Most up-to-date option for weather (National Oceanic and Atmospheric Administration [https://www.noaa.gov/]).

9.6.1.5. VATSIM

Use this for online flying in the VATSIM network.

9.6.1.6. IVAO

Use this for online flying in the IVAO network.

9.6.2. Wind source

Choose the source for winds aloft forecast data here. This affects the calculation of top of descent, top of climb and fuel planning as well as display of wind barbs on the map. See also Winds Aloft and options on page Weather.

A manual wind setting on Tab Fuel Report for cruise altitude can also be used. See Buttons on tab `Fuel Report`.

The selected wind source is shown in the Tab Fuel Report in the `Average wind` line as well as in all tooltips on wind barbs.

This is the same function as the `Manual Wind` menu button in the Tab Fuel Report.

9.6.2.1. Manual Wind

This menu item allows to set the average wind direction and speed manually. Three input fields for direction, speed and level altitude are shown in the Tab Fuel Report if this is checked.

Note that the wind is set for given altitude and is interpolated down to zero for MSL. Placing a flight plan cruise level below the wind layer will result in lower winds. Placing the cruise level above will result in the same wind.

9.6.2.2. Disabled

No wind will be downloaded and processed and no files are checked for updates.

9.6.2.3. Flight Simulator (X-Plane only)

Uses the `global_winds.grib` file which is downloaded and used by X-Plane 11 or checks the X-Plane 12 directory `Output/real weather` for changes. The files use less wind layers and are therefore not as accurate and not as recent as the NOAA option.

Display for X-Plane remote connections is not supported except by sharing the X-Plane 11 `global_winds.grib` weather file or the X-Plane 12 directory `Output/real weather` on the network.

9.6.2.4. NOAA

Downloads weather files from National Oceanic and Atmospheric Administration [https://www.noaa.gov/]. This is the most accurate and most recent option since it downloads data for several wind layers as well as the ground level.

9.7. Userpoint Menu

See Userpoints for more information on user defined waypoints.

9.7.1. Userpoint Search

Raise the dock window `Search` and the tab `Userpoints` where you can edit, add delete and search user-defined waypoints.

9.7.2. Undo and Redo Userpoint

Same as Undo and Redo Userpoint in the context menu of the userpoint table.

9.7.2.1. Cleanup Userpoints

Same as Cleanup Userpoints in the context menu of the userpoint table.

9.7.3. Import CSV

Import a CSV file that is compatible with the widely used format from Plan-G and adds all the content to the database.

Note that the CSV format is the only format which allows to write and read all supported data fields.

See CSV Data Format for a more detailed description.

9.7.4. Import X-Plane user_fix.dat

Import user defined waypoints from the file `user_fix.dat`. The file does not exist by default in X-Plane and has to be created either manually or by exporting from *Little Navmap*.

The default location is `Custom Data/user_fix.dat` in the X-Plane base directory.

The imported userpoints are of type `Waypoint` which can be changed after import using the bulk edit functionality.

For additional information see X-Plane user_fix.dat Data Format.

9.7.5. Import Garmin GTN

Reads user defined waypoints from the Garmin `user.wpt` file. Refer to the manual of the Garmin unit you are using for more information about format and file location.

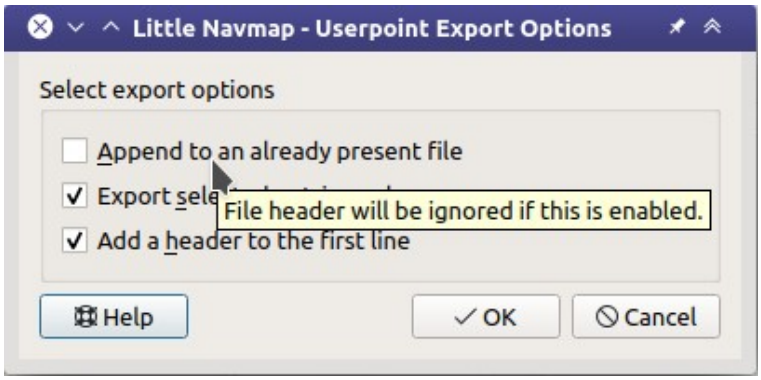
The imported userpoints are of type `Waypoint` which can be changed after import using the bulk edit functionality.

See Garmin user.wpt Data Format for more information.

9.7.6. Export CSV

Create or append user defined waypoints to a CSV file. A dialog asks if only selected userpoints should be exported, if the userpoints should be appended to an already present file or if a header should be added.

Note that the exported file contains extra columns compared to the Plan-G format. The description field supports more than one line of text and special characters. Therefore, not all programs might be able to import this file. If needed, adapt the file in *Microsoft Excel* or *LibreOffice Calc*.



Userpoint export dialog with tooltip help on first option.

9.7.7. Export X-Plane user_fix.dat

Only selected userpoints or all can be exported. The exported data can optionally be appended to an already present file.

Not all data fields can be exported to this format. The ident field is required for export.

Also, you have to make sure that the user waypoint ident is unique within the `user_fix.dat`.

See X-Plane user_fix.dat Data Format for more information about limitations.

9.7.8. Export Garmin GTN

Only selected userpoints or all can be exported. The exported data can optionally be appended to an already present file.

Not all data fields can be exported to this format. The ident field is required for export. Some fields like the name are adapted to limitations.

See X-Plane user_fix.dat Data Format for more information about limitations.

9.7.9. Export XML for FSX/P3D BGL Compiler

This export options creates an XML file which can be compiled into an BGL file containing waypoints.

The region and ident fields are required for this export option.

See the Prepar3D SDK documentation for information on how to compile the BGL and how to add this to the simulator.

9.8. Logbook Menu

9.8.1. Logbook Search

Raise the dock window `Search` and the tab `Logbook` where you can edit, add delete and search logbook entries.

See Logbook for more information.

9.8.2. Undo and Redo Logbook Entry

Same as Undo and Redo Logbook Entry in the context menu of the logbook table.

9.8.3. Cleanup Logbook Entries

Same as Cleanup Logbook Entries in the context menu of the logbook table..

9.8.4. Show Statistics

Shows the logbook statistics dialog. See Logbook Statistics.

9.8.5. Import CSV

Import logbook entries from a CSV file. The entries are added to the logbook database.

9.8.6. Export CSV

Allows to export the full logbook or the selected entries to a CSV (comma separated value) text file which can be loaded in *LibreOffice Calc* or *Microsoft Excel*. See Import and Export.

9.8.7. Import X-Plane Logbook

Import the X-Plane logbook file `.../X-Plane 11/Output/logbooks/X-Plane Pilot.txt` into the *Little Navmap* logbook database. Note that the X-Plane logbook format is limited and does not provide enough information to fill all *Little Navmap* logbook fields.

See X-Plane Import.

9.8.8. Convert Log Entries from Userpoints

Automatically converts all legacy log entries that were collected as userpoints and copies them to the new logbook.

9.8.9. Create Logbook entries

Enables automatic logbook entry creation for takeoff and landing.

See also Create Logbook Entries.

9.9. Aircraft Menu

This menu contains functionality for aircraft performance profiles which allow fuel planning and traveling time estimation.

See Aircraft Performance and Aircraft Performance Edit for more information.

9.9.1. New Aircraft Performance

Creates a new performance profile with default values, shows the fuel report and opens the edit dialog. A simple default profile for a Cessna C172 is default.

9.9.2. Open Aircraft Performance

Loads a LNMPERF aircraft performance profile and shows the fuel report. You can also load a profile by dragging the file from a file manager like Windows Explorer into the main window of *Little Navmap*.

9.9.3. Save Aircraft Performance

Saves the current profile. Opens a file dialog if not saved before.

9.9.4. Save Aircraft Performance as

Allows to save the current profile using a new filename.

9.9.5. Recent Aircraft Performance Files

Shows all recently loaded aircraft performance files for quick access. You can clear the list by selecting the sub-menu item `Clear Menu`.

9.9.6. Edit Aircraft Performance

Opens Aircraft Performance Edit for the current performance profile.

9.9.7. Open Aircraft Performance and Merge

Opens a file loading dialog and subsequently Aircraft Performance Merge which allows to merge or copy data from the opened file to the current aircraft performance.

9.9.8. Merge collected Aircraft Performance

Opens Aircraft Performance Merge which allows to merge or copy data from the collected aircraft performance to the currently loaded aircraft performance.

See also Aircraft Performance Collection.

9.9.9. Restart Aircraft Performance Collection

Resets all collected values for aircraft performance to zero and starts the performance collection over.

See also Aircraft Performance Collection.

9.9.10. Warning for Aircraft Type Mismatch

A warning in the fuel report and the flight plan table footer will be shown if this is enabled and the simulator aircraft type does not match the loaded performance file.

See Aircraft Type for more information on changing the type in the aircraft performance edit dialog window.

Note

Note that MSFS delivers wrong values for the ICAO designator through the SimConnect interface. Keep this warning disabled if you use MSFS.

9.10. Scenery Library Menu

See Navigation Databases for general information about navigation and simulator data.

9.10.1. Flight Simulators

One menu item is created for each flight simulator installation or database found. These menu items allow switching of databases on the fly.

The menu shows the simulator name as a disabled menu item as an indicator if only one flight simulator was found.

Note

The selection in the scenery library menus also affects the selection of weather files for ActiveSky and X-Plane.

Note

While *Little Navmap* tries to keep all information and search results when switching simulators, some information in the information window Information and the Search Procedures windows may be lost when switching.

The loaded AIRAC cycle is only shown for X-Plane and Navigraph data since the information is not available for FSX, P3D and MSFS.

The menu items are suffixed with the following depending on status:

- `prev. version - reload advised`: The found database was created with a previous version of *Little Navmap* and should be reloaded to benefit from bug fixes or improvements.
- `99 days old - reload advised`: The scenery library database was loaded 99 days ago. Scenery changes in the simulator are very likely (installed add-on airports, simulator updates and more) and might not be reflected in the database.
- `no simulator`: A scenery library database was found but no related simulator installation. This database cannot be loaded but can be updated by manual copying from another computer, for example. This will be shown for a Network Setup where the simulator is not available on the remote computer. See Databases for file locations if you wish to remove a database.

This menu is synchronized with simulator selection in Load Scenery Library. Once a database is successfully loaded, the display, flight plan and search will switch over to the newly loaded simulator data.

Important

Little Navmap does not keep you from using a X-Plane scenery database while being connected to FSX/Prepar3D/MSFS or vice versa, for example. You will get unwanted effects like wrong weather information if using such a setup.

An orange warning message is shown in the connect dialog (Connecting to a Flight Simulator) if a mismatch is detected.

Some functions like access to weather source files depend on the selected scenery library database. X-Plane 11 weather files are read if enabled and the X-Plane 11 scenery library is selected, for example.

Note

The program might change a loaded flight plan if you switch between different databases. This can happen if a departure position is set in the plan which does not exist in the other database. Select New Flight Plan in the menu `File` before switching to avoid this.

9.10.2. Navigraph

This sub-menu also shows the AIRAC cycle if a Navigraph database is found in the database directory. Use this indication to verify if an database update was successful. See Little Navmap - Install Navigraph Updates [https://albar965.github.io/littlenavmap_navigraph.html] for installation options if you run into issues..

The right navdata mode is selected automatically per default. See below for more information.

The recommended selection depends on the simulator setup. *Little Navmap* will show dialog windows describing the recommended modes after loading a scenery library database or after selecting Validate Scenery Library Settings if `Select automatically` is not enabled.

Note

Note that the Navigraph selection in this menu is remembered separately for each simulator selection. This means that the Navigraph selection is automatically changed when switching between simulators if `Select automatically` is not enabled.

Use the menu item *Scenery Library* -> Validate Scenery Library Settings to check your settings.

See the chapter Navigation Databases for more information about scenery databases and the three different display modes below.

Note that airspaces are not affected by this selection. See Airspace Libraries below.

9.10.2.1. Select automatically

Selects the right mode of the Navigraph navdata library database automatically, if checked. This function is enabled per default and it is recommended to keep it enabled. The selection of the right mode depends on the following criteria:

1. Selected simulator (X-Plane, MSFS, etc.)
2. Simulator database status (empty or not)
3. Navdata AIRAC cycle
4. Navdata update installed in MSFS or not
5. Simulator data AIRAC cycle (if available)

The navdata mode is applied when switching between simulators or after compiling a database.

The automatically selected mode can be seen in the disabled menu items in menu `Navigraph` or in the Window Title.

The mode `Use Navigraph for all Features` is enabled if the simulator database is empty to have airports available for planning. This mode is selected after a fresh installation, for example. It is independent of the AIRAC cycle.

9.10.2.2. Use Navigraph for all Features

Completely ignores the simulator database and takes all information from the Navigraph database.

This mode is automatically selected if the simulator navigation database is empty.

Note

Airport information is limited in this mode. This means that aprons, taxiways, parking positions, runway surface information and other information is not available. Also, smaller airports will be missing. Runway layout might not match the runway layout in the simulator if you use stock or older airport scenery.

The *Little Navmap* window shows a `(N)` in the title bar and white runway surfaces if this is selected.

9.10.2.3. Use Navigraph for Navaids and Procedures

This mode blends navaids from the Navigraph database with airports from the simulator database. This affects the map display, all information and all search windows.

9.10.2.4. Do not use Navigraph Database

Ignores the Navigraph database and shows only information read from the simulator scenery.

Note

Navdata read from FSX, P3D or MSFS has limitations. The airway network might not be correct and procedures can have errors.

9.10.3. Airspace Libraries

Enables or disables various airspace databases for display.

9.10.3.1. Simulator

Toggles display of simulator airspaces. These also change when changing the simulator database in the `Scenery Library` menu.

See also X-Plane Airspaces and FSX, Prepar3D and MSFS Airspaces.

9.10.3.2. Navigraph

Shows the airspaces from the included or updated Navigraph database. This is independent of the selected simulator.

9.10.3.3. User

Selects user airspaces for display. This source is independent of the selected simulator.

See also Loading Airspaces and Load User Airspaces.

9.10.3.4. Online

Selects the online centers for display. Only enabled if connected to an online service like VATSIM or IVAO.

9.10.4. Load User Airspaces

Shows a dialog window where user airspaces can be loaded.

See Loading Airspaces for information about loading airspaces into the *Little Navmap* database and Airspace Libraries for information how to select airspace sources to display.

9.10.5. Validate Scenery Library Settings

Tests if the currently selected scenery library selection corresponds to the recommended modes. Shows a dialog window describing the recommended selection if changes are required.

See the chapter Navigation Databases and Load Scenery Library for more information.

9.10.6. Load Scenery Library

Open the `Load Scenery Library` dialog which loads all files from a simulator scenery library like navaids, airports and more into an internal database. See Load Scenery Library for more information.

9.11. Tools Menu

9.11.1. Connect to Flight Simulator

Opens the `Connect` dialog allowing *Little Navmap* to connect directly to a flight simulator, the *Little Xpconnect* X-Plane plugin, or remotely using the *Little Navconnect* agent.

See Connecting to a Flight Simulator for more information and Install Little Xpconnect in X-Plane Plugins and Little Xpconnect below for more information about X-Plane.

9.11.2. Toggle Flight Simulator Connection

Switches the simulator connection on and off without opening the connection dialog.

9.11.3. Create Directory Structure for saving Files

Little Navmap creates a recommended directory structure when selecting this menu item.

See chapter Directories for more information.

Note that *Little Navmap* does not require a fixed directory structure for its files. You can always save and load all files to and from arbitrary places.

9.11.4. Install Little Xpconnect in X-Plane Plugins

This function installs or updates the X-Plane plugin *Little Xpconnect* which is needed for *Little Navmap* to connect to the simulator.

You can use this to avoid the manually copying. Additionally the function checks for wrongly installed plugins.

See chapter Little Xpconnect for more information.

Important

You have to keep the directory structure intact when installing/extracting *Little Navmap* from a Zip archive. Otherwise this menu item will be disabled if *Little Navmap* cannot find *Little Xpconnect* in its installation folder.

9.11.5. Run Web Server

Starts the internal web server of *Little Navmap* using the first valid IPv4 address. Access the web page using the menu item `Open Web server Page in Browser` below.

See chapter Web Server for detailed information and options page Web Server for configuration options.

9.11.6. Open Web Server Page in Browser

Only enabled if the web server is running. Opens the web server page in your default browser. The default address is like `http://YOUR_COMPUTER_NAME:8965` or `http://localhost:8965`.

This function might not work depending on your network setup. Enter the computer name as above manually in your browser if this is the case.

9.11.7. Reset all Messages

Re-enable all dialog windows that were disabled by selecting `Do not show this dialog again` or similar messages.

All warning and notification dialogs will show up again after selecting this menu item. Hide the dialog windows manually again by selecting the `Do not show this dialog again` buttons.

Note that a few important messages are enabled again when updating *Little Navmap*.

9.11.8. Reset all Settings and Restart

This will reset all options, window layout, dialog layout, aircraft trail, map position history and file histories back to default values and restart *Little Navmap* after showing a warning dialog.

User features like range rings, traffic patterns, holds as well as scenery, logbook and userpoint databases are not affected.

A backup copy of the settings file `little_navmap.ini` is created in the configuration directory. See Configuration.

Use this function instead of deleting the settings directory if you see crashes or other issues with the program.

9.11.9. Save Options and Application State

Saves all options, dialog settings, tab arrangements and the window layout. This is normally only done when exiting *Little Navmap*.

9.11.10. Create Issue Report

Manually creates an issue report Zip archive containing all needed files to reproduce a problem.

See chapter Issue Report for more information.

9.11.11. Files and Directories

9.11.11.1. Open Log File

Shows the log file `abarthel-little_navmap.log` in the default text editor. This can be used to track down errors or crashes.

See also Logs for details.

Note

This file combined with Open Configuration File below is the best way to report an issue.

Immediately save this log to another file if you'd like to report problems with *Little Navmap*. The log file might be overwritten if you continue your flight. See How to report a Bug for more information about reporting bugs.

9.11.11.2. Open Configuration File

Shows the main `little_navmap.ini` configuration file in the default text editor.

See also Configuration for details about the used files.

Warning

There is usually no need to edit this file directly. Editing this file the wrong way might crash *Little Navmap*.

9.11.11.3. Show Map Cache

Opens the file manager with the disk cache directory that is used to store all the downloaded online map tile images.

See also Disk Cache for details.

9.11.11.4. Show Map Theme Installation

Opens the file manager with the installation directory for additional map themes.

See also Installing Map Themes for more information about additional map themes.

9.11.11.5. Show Database Files

Open *Little Navmap*'s database directory in a file manager. See Running without Flight Simulator Installation for more information on copying database files between different computers.

See also Databases for details about the different database files.

9.11.11.6. Show GLOBE offline elevation Data Installation

Opens the installation directory of the offline elevation data. See GLOBE Offline Elevation Data for installation instructions.

9.11.12. Flight Plan Table Display Options

See Flight Plan Table Display Options.

9.11.13. Aircraft Progress Display Options

See Aircraft Progress Display Options.

9.11.14. Elevation Profile Display Options

See also Elevation Profile Display Options.

9.11.15. Options

Opens the dialog window Options which allows to change the user interface, map display, weather and more.

Note

The menu entry which is referenced as `Tools` -> `Options` in this manual for Windows and Linux can be found in the application menu at `Little Navmap` -> `Preferences` on macOS.

9.12. Window Menu

9.12.1. Shortcuts

A list of menu items that open and raise the respective dock window and tab. See Window shortcuts for a full list.

Some shortcuts also activate search fields or tables like the airport ICAO search when using `Airport Search` or pressing `F4`. This allows to quickly look for an airport or other feature by just pressing a function key and entering the ICAO code.

9.12.2. Map Overlays

Show or hide floating map overlays, like the overview on the top left or the compass on the top right corner of the map window.

You can also right click on a map overlay to hide it from the context menu.

See also Overlays for more information about map overlays.

9.12.3. Style

Allows to switch the style of the graphical user interface on the fly. A restart is not needed.

The user interface styles contain a mode `Dark` which can be used for flights in a dark environment. You can also dim the map and elevation profile display for this style in the options dialog on page Map (scroll down to `Map dimming in dark style` at the bottom of the dialog).

The colors for the styles `Fusion` and `Dark` can be changed by editing configuration files. See Customize for more information.

The available styles depend on the operating system except for `Fusion` and `Dark` which are always available.

9.12.4. Open Window Layout

Opens a LNMLAYOUT file and applies the changes like visibility, position and floating status directly to the dock windows. Size and position of the main window is also restored.

Fullscreen and normal layouts are both loaded from this file.

See Window Layout for more information.

9.12.5. Save Window Layout as

Saves visibility, position and floating status of all dock windows as well as the size and position of the main window to a LNMLAYOUT file.

Note that the layout for the fullscreen and normal view are save together in this file.

See Window Layout for more information.

9.12.6. Recent Window Layouts

List of recently saved or loaded window layout files. Select one to load and apply the layout.

9.12.7. Reset Window Layout to Default

Reset the main window layout back to default. This involves visibility, position and state of all dock windows as well as the Toolbars and the Statusbar.

Tabs are not affected by this. Use Reset Tabs to Default below to reset all tabs.

This function can be helpful if a dock window gets lost on multi monitor setups or other issues.

Note that the dock windows `Search` and `Simulator Aircraft` are stacked in the default layout. You can access both using the tabs at the lower right position of the main window.

See Window Layout for more information on window layouts.

Tip

You can use `Window` -> Reset Window Layout to Default if the main window of *Little Navmap* is not or only partially visible. Activate the main window of *Little Navmap* by either clicking on the visible part or by using the `Alt+Tab` function of your operating system. The window only needs to be active and not visible.

Then press the shortcut `Ctrl+Alt+Shift+W` to reset the window layout which brings the main window back on screen.

9.12.8. Reset Tabs to Default

Resets all tabs to default. Opens all closed tabs, unlocks the tab layout and restores the default order.

This is the same as clicking `Reset Tab Layout` in each tab context menu.

See Tabs for more information on tabs.

9.12.9. Fullscreen Map

Maximizes the map window and hides all dock windows as well as the toolbars.

See Fullscreen for more information on fullscreen mode.

9.12.10. Keep in Foreground

Forces the main window of *Little Navmap* to remain in foreground of all other applications.

9.12.11. Show all floating Dock Windows

Raises all undocked (i.e. floating) windows before the main window. This can be helpful if a window got lost. See Dock Windows for more information about floating dock windows.

9.12.12. Allow Window docking

This is enabled per default. Disable this if you do not want floating (i.e. undocked) dock windows to snap back into the main window while moving them around. See also Dock Windows.

9.12.13. Allow Dock Window moving

Enabled per default. Disable this to avoid moving dock windows around when accidentally clicking and dragging the title bar which can mess up the window layout. Disabling this function still allows to move floating (i.e. undocked) windows around.

You can still resize the docked windows at the border between them and you can still turn a docked window into a floating window by double clicking on the title bar. See also Dock Windows.

9.12.14. Show Dock Window Title Bars

Hides the title bars of all docked (i.e. not floating) windows to save screen space if not checked. You can still resize the docked windows at their borders but you cannot drag them around. Dock windows can still be opened from the toolbar or using keyboard shortcuts.

Enable this if you'd like to undock windows or drag them around. See Dock Windows for more information.

9.12.15. Statusbar

Show or hide the statusbar. See Statusbar for more on the shown information.

9.12.16. Toolbars

9.12.16.1. File, Map, Map Options, Map Options Other, Flight Plan, Map Options Flight Plan and Aircraft, Map Airspaces, Dock Windows and Tools and Options

Show or hide these Toolbars.

You can also hide toolbars in the context menu that appears when right clicking on them.

9.12.17. Dock Windows

Open or close these dock windows. The map dock window cannot be closed. The whole dock window stack is closed if a dock window is part of a stack. See Dock Windows for more information about stacked dock windows.

Note that the windows `Flight Plan Calculation` (Flight Planning), `Flight Plan Route Description` (Flight Plan Route Description) and `Logbook Statistics` (Logbook Statistics) cannot be docked into the main window and are independent and do not block the main application.

9.12.17.1. **Flight Planning**

9.12.17.2. **Search**

9.12.17.3. **Simulator Aircraft**

9.12.17.4. **Flight Plan Elevation Profile**

9.12.17.5. **Information**

9.13. Help Menu

9.13.1. **User Manual (Online)**

Show the online user manual in the default web browser. The English user manual is shown if it is not available in your language.

You can install additional language packs for *Little Navmap* which can include a translated manual.

9.13.2. Helpful Chapters (Online)

9.13.2.1. **Start and first Steps**

Shows the page Start which opens automatically in your browser after updating or first installation of *Little Navmap* and is a part of the *Little Navmap* online manual.

It gives valuable links and information for first time users and provides a list of first steps.

9.13.2.2. **Tutorials**

Shows the online tutorials in the default web browser.

9.13.2.3. **User Interface**

Opens chapter User Interface which provides information about the user interface of *Little Navmap* in general.

9.13.2.4. **Main Menu and Toolbar Items**

Opens this chapter Main Menu and Toolbars which describes all the menu items of *Little Navmap*.

Tip

Look at the left side of this online user manual to see all the menus and menu items in a tree structure.

9.13.2.5. Flight Planning

Opens chapter Flight Planning describing the flight plan table and context menu.

9.13.2.6. Aircraft Performance

Opens chapter Aircraft Performance which gives information about aircraft performance management in *Little Navmap*.

9.13.2.7. Map Display and Context Menu

Opens chapter Map Display which provides information about the map display and the context menu.

9.13.2.8. User Manual - NavMap Legend (Online)

Show the navigation related map legend in the default web browser.

9.13.3. User Manual (Offline, PDF)

Show the included PDF user manual in the default PDF viewer.

You can install additional language packs for *Little Navmap* which can include a translated PDF manual.

This menu item is only shown if the PDF user manual is present in the directory `help` in the installation directory.

You can download the user manual for offline user here: Little Navmap - User Manuals [https://albar965.github.io/manuals.html]

9.13.4. Frequently asked Questions (Online)

Shows the page Little Navmap - Frequently asked Questions [https://albar965.github.io/littlenavmap-faq.html] in the web browser.

Tip

Look at the frequently asked questions first if you have a question or problem.

9.13.5. Downloads (Online)

Opens the page Little Navmap Downloads [https://www.littlenavmap.org/downloads/] in the default web browser where you can get aircraft performance files, airspace boundaries, flight plans, map themes or userpoints provided by the community.

9.13.6. Download User Manuals

Opens the page Little Navmap - User Manuals [https://albar965.github.io/manuals.html] in the default web browser. You can download the user manual in formats usable for printing and offline reading like PDF, ePUB, MOBI and a Zip archive of the HTML user manual.

9.13.7. Changelog (Offline, Text)

Opens the included file `CHANGELOG.txt` in a text editor. This file lists all changes made for each release. Refer to this file if you think that a function is missing or has been moved.

9.13.8. About Little Navmap

Show version and revision number for *Little Navmap*, also contains links to the database directory, configuration file, log file and the author's contact address.

9.13.9. About Marble

Display information about the Marble widget [https://marble.kde.org] that is used to download and show the maps.

9.13.10. About Qt

Display information about the Qt application framework [https://www.qt.io] that is used by *Little Navmap*.

9.13.11. Donate for this Program

Opens the donation web page in your default browser.

If you would like to show your appreciation you can donate using PayPal.

Donations are purely optional but greatly appreciated.

[https://albar965.github.io/donate.html]

9.13.12. Check for Updates

Allows to manually check for updates. This will also show updates that were recently ignored by pressing the `Ignore this Update` on the notification dialog.

See Updates for more information.

10. Statusbar

The statusbar at the bottom of the window shows various information. Shown or hide it in the menu `Window` -> Statusbar.

Status bar fields are compacted after a timeout if the mouse cursor is not inside the map, i.e. the coordinate display is empty.

The statusbar at the bottom of the main window shows various indications (from left to right):

Messages, last action or quick help

> explaining a menu item or toolbar button. When inactive the field shows the number of messages, if any. Messages cover background tasks like weather updates or the simulator connection state. Messages are shown in the tooltip when clicking into the field or hovering the mouse above. A maximum of ten messages is shown.

Connection status

> for a local or remote connection. The tooltip provides more detail about the status, like the host name for remote connections as well as the connection status for online networks.
>
> - `Connecting...`: The program is trying to establish a connection which was initiated either manually or automatically.
> - `Connected`: A connection was established.
> - `Disconnected`: The simulator or *Little Navconnect* exited.

Map content indicator

> that shows airport types, airspaces, navaids or AI vehicles currently visible on the map. The tooltip gives more details.
>
> - A red warning message `Too many objects` is be shown if too many objects are displayed on the map due to too high a detail level. The map display might be incomplete if this happens.
> - A red `Database empty` message will be shown if the currently selected database has no content and needs to be loaded. See Load Scenery Library for more information how to load the scenery library for a simulator.

Map detail level.

> Range is -2 for least detail to +5 for most detail. See More Details, Less Details and Default Details in menu `View`.

Online map download progress indicator.

> This shows the state of the current map download. The text is prefixed with a red `Offline.` indication if offline mode is enabled.
>
> - `Done`: All map data loaded successfully.
> - `Loading`: Map data is missing in the cache and was requested. Now waiting for reply.
> - `Updating`: Map data is already loaded but expired after two weeks. Waiting for new data after requesting an update.
> - `Incomplete`: Download failed.

Zoom distance

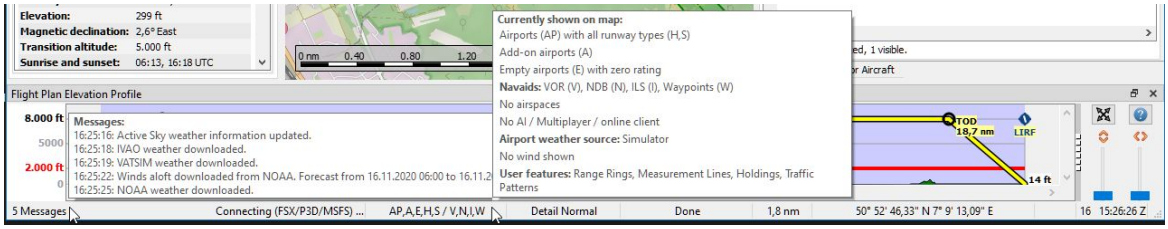
> viewpoint distance to earth surface in NM or kilometers.

Coordinates

> at cursor position on map as latitude and longitude depending on selected unit in the options dialog on page Units. The status bar is compacted after a timeout if this field is empty since the mouse cursor is not inside the map.
>
> - Ground elevation below the cursor after a short delay if the GLOBE [https://ngdc.noaa.gov/mgg/topo/globe.html] offline elevation data is selected. See GLOBE Offline Elevation Data.
> - Magnetic declination at the cursor position in degrees West or East. See also Magnetic Declination for more information.

Current date of month and UTC time

> `hours:minutes:seconds`. This is the real world time and not the simulator time. The tooltip gives more date and time information.



Status bar with messages in tooltip about the last weather updates, the connection status `Connecting (FSX/P3D/MSFS)` and a tooltip that indicates what is currently shown on the map. The map detail level is unchanged and the map coordinates at the cursor position are shown on the bottom right. Altitude at cursor is not shown since offline elevation data is not installed. The online map download progress indicator shows `Done` indicating all map tiles were downloaded. Zoom distance is 1.8 NM.

11. Directories

Little Navmap suggests to create a recommended directory structure on startup. This is purely optional. You can choose to ignore this and save your *Little Navmap* files in arbitrary places. The program does not require a fixed directory structure for its files.

Menu `Tools` -> Create Directory Structure for saving Files allows to create the directory structure later or manually. The dialog can also be used to create missing directories in the structure. No data is deleted while doing so.

All default directories are adjusted if you create the directory structure. This means that file dialogs will initially point to the right place when saving files.

The following directories are suggested to be created:

- `Flight Plans`: For flight plans in *Little Navmap*'s own format LNMPLN. See Flight Plan Multiexport for exporting flight plans to other formats usable by simulators, aircraft or tools. See also Little Navmap LNMPLN Format for information about this format.
- `Aircraft Performance`: Directory for aircraft performance files LNMPERF. See Aircraft Performance for more information.
- `Window Layouts`: For saved window layouts LNMLAYOUT. See Window Layout or Dock Windows.
- `Airports`: A place to store PDF, text, image or other files that are linked in the airport information. Chapter Files gives more information about this feature.
- `User Airspaces`: User defined airspaces in OpenAir format. See Load Scenery Library.
- `GLOBE Elevation Data`: A place for the GLOBE data used by the flight plan elevation profile. Look at chapter See Install GLOBE elevation data for installation instructions.
- `Map Themes`: This directory is used to lookup additional map themes for the background map layer. See Map Themes for installation instructions. The path can also be set manually in options on page Cache and Files, section Map Display Themes.

Note

The directory names depend on the chosen user interface language. See options on page User Interface for information how to change the program language.

12. GLOBE Offline Elevation Data

Using the recommended freely downloadable GLOBE - Global Land One-km Base Elevation Project [https://ngdc.noaa.gov/mgg/topo/globe.html] elevation data has several advantages:

- Faster updates
- World wide coverage
- No known errors
- Display of altitude below the cursor in the status bar
- Correct altitude if using non-airport departure and destination points

Resolution is slightly lower than the online data.

12.1. Installation

The online elevation data which is used per default contains several known errors. Therefore, it is recommended to use the freely downloadable GLOBE offline elevation data.

The bottom part of the page Cache and Files in the options dialog allows to install the elevation data from the GLOBE - Global Land One-km Base Elevation Project [https://ngdc.noaa.gov/mgg/topo/globe.html] .

Follow the instructions below to install the GLOBE elevation data:

1. Click the link in the dialog or click here [https://ngdc.noaa.gov/mgg/topo/globe.html] to open the page. Click `Get data` on the web page and then `Any or all 16 "tiles"`. Then click `All Tiles in One .zip file` to download the file.

   The direct download link is all10g.zip [https://ngdc.noaa.gov/mgg/topo/DATATILES/elev/all10g.zip].

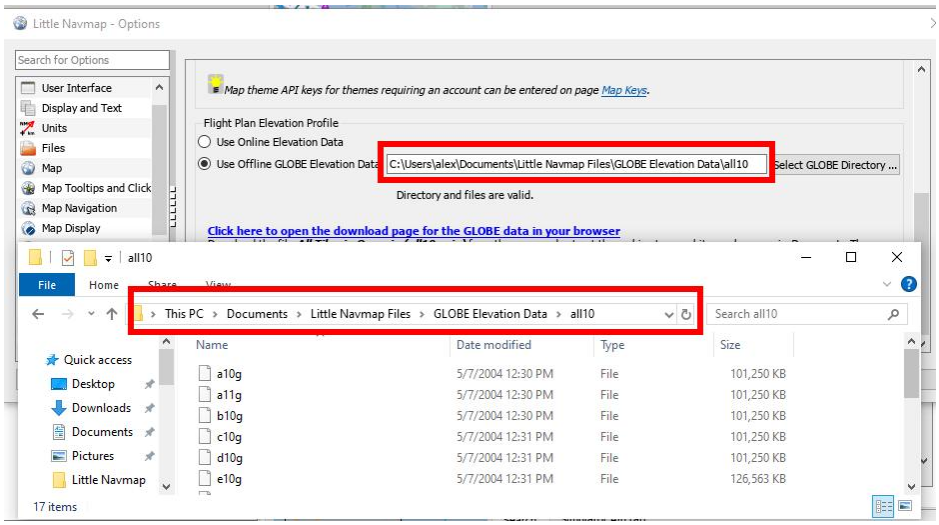
2. Extract the downloaded file `all10g.zip` to an arbitrary place like `...\Documents\Little Navmap\GLOBE`. You can also use the directory which is suggested by the Directories dialog. As a result, you will get a directory `all10` containing files `a10g` to `p10g`.

3. Open the options dialog in *Little Navmap* and click on `Cache and Files` on the left side.

4. Select `Use Offline GLOBE Elevation Data` on the `Cache and Files` page in the options dialog.

5. Now select the extracted directory `all10` using the `Select GLOBE Directory ...` button on this options page. The label in the options dialog will show an error if the path is not correct.

6. Click `Ok` if the path was recognized and the label below shows `Directory and Files are valid`.



Correct installation in the directory `C:\Users\alex\Documents\Little Navmap Files\GLOBE Elevation Data\all10` which is also selected in the options dialog of *Little Navmap*. *Click image to enlarge.*

13. Map Display

13.1. Map Layers

Little Navmap uses two layers to display the map.

13.1.1. Background Map Layer

This is defined by offline or online map themes like the OpenStreetMap [https://www.openstreetmap.org]. You can change the background by selecting another Theme. The background maps cannot be modified or configured since they are fetched from third party online services. *Little Navmap* downloads prerendered image tiles from these services to draw the background map.

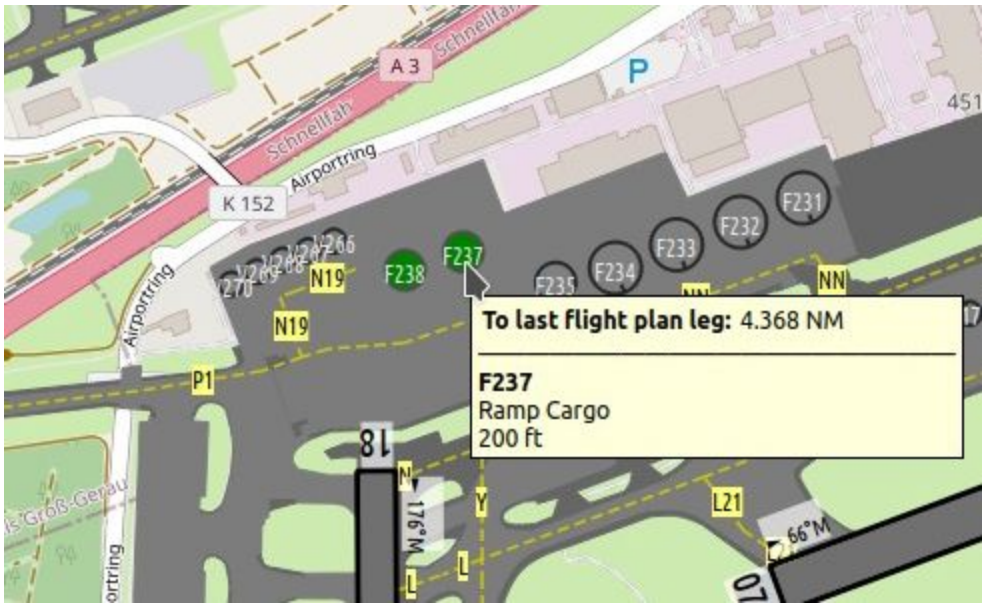
See Map Themes for more information about how to install additional map themes.

The OpenStreetMap background map showing aprons and taxiways of EDDF. These might not reflect what you see in the simulator and are not taken from your scenery library including add-on airports. You can see the same here on the OpenStreetMap [https://www.openstreetmap.org/#map=16/50.0357/8.5300] web page which delivers the background map tiles for *Little Navmap*.

13.1.2. Foreground Map Layer

The foreground layer which is drawn by *Little Navmap* and can be customized in the options dialog on the map pages. It consists of airports, navaids, airways, airspaces, userpoints, measurement lines, range rings, holds, traffic patterns, MSA diagrams and all moving objects like AI and the user aircraft. This layer reflects airports as stored in the scenery library of your simulator. This applies to stock and add-on airports.

Only this layer provides the objects which enable tooltips and the functionality of the context menus to build a flight plan.



Aprons, taxiways and runways drawn by *Little Navmap*. These reflect your simulator stock or add-on scenery. Tooltips are available. Airport features can be disabled on options page Map Labels. See Map Legend for details about the various symbols shown by the map.

13.2. Moving

See Mouse Clicks and Key Commands in the map legend for information about how to move around the map using the mouse or keyboard.

Note

Do not forget to activate the map window by clicking into it or pressing `F2` before using keys for movement.

13.3. Mouse Clicks

A single click shows details about all map objects at the clicked position in the `Information` dock window. Windows and tabs are raised depending on clicked objects.

The procedure search window can be raised optionally if clicking an airport. This can be enabled in the options dialog on page Map Tooltips and Clicks. Check `Show procedures on airport click` to enable this function.

A single click on an user aircraft, AI aircraft or multiplayer aircraft shows details in the `Simulator Aircraft` dock window.

A double-click zooms in showing either the airport diagram or the navaid closely and also shows details in the `Information` dock window. The same applies for all AI or multiplayer aircraft or ships.

The double-click and single-click functionality does not work for flight plan waypoints or airports if the flight plan edit mode is enabled. The edit mode can be disabled using the toolbar or `Flight Plan` -> Edit Flight Plan on Map in the main menu. See also Map Flight Plan Editing.

The mouse click sensitivity can be adjusted in the options dialog on the page Map Tooltips and Clicks.

Note

The center of the airport symbol is the hotspot for right or left click actions as well as for tooltip display. This is also the case if the whole airport diagram is visible.

The same applies to all navaids as well as airport parking spots where the center is the hotspot for clicks.

13.4. Mouse Click Hotspots

Map marks like range rings or measurement lines have hotspots to indicate that a modifier-click like `Ctrl+Click` can remove them or an action is available in the context menu. The same applies to the flight plan click-and-drag editing mode.

The mouse cursor changes into a hand to indicate a click spot.

Click spots and hotspots for tooltips are:

- Center of all airport, airport parking and navaid symbols.
- Navaids for the procedure preview (Preview and Highlights).
- Center of range rings (small circle).
- Center of MSA diagrams (small circle).
- Start and end of a measurement line (circle and cross).
- Runway threshold point (small circle) for airport traffic patterns.
- Holding fix (small triangle) of an user holding.

13.5. Mouse Clicks and Modifiers

You can use the keyboard and mouse clicks to get quick access to some functions.

See Mouse Clicks in the map legend for more information about this.

Clicking again on a hotspot removes the mark, measurement line or flight plan waypoint, for example.

13.6. Aircraft

The user aircraft and AI or multiplayer aircraft or ships will be shown on the map if the program is connected to a flight simulator. Color indicates user or AI or multiplayer vehicle and the symbol shape indicates if the aircraft is an piston/turboprop, jet, helicopter or a ship. The symbol outline changes to gray if an aircraft is on ground.

Note that not all simulators and online networks provide enough information to show the correct aircraft shape.

Little Navmap limits the display of AI vehicles depending on size. Zoom close to see small aircraft or boats

AI and multiplayer aircraft on ground are shown only on small zoom distances to avoid cluttered airports. This means that an AI aircraft can disappear from the map when landing on an airport.

Labels are shown depending on zoom level and distance to user aircraft as well. Zooming out drops the less important aircraft labels, for example. Flight number and registration are always shown.

A yellow wind arrow and labels for the situation around the user aircraft can be displayed on the top center of the map. The displayed labels for aircraft can be configured in the options dialog on page Map Labels. No labels are shown for ship traffic.

See Aircraft and Ships for details about the aircraft type.

Tip

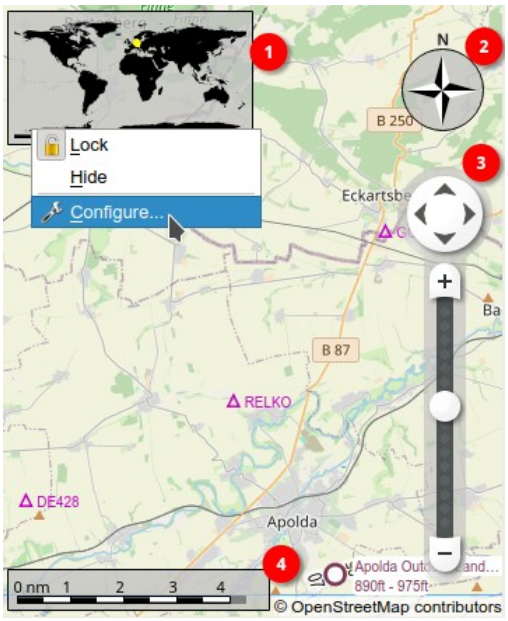
On the lowest zoom distance all aircraft are drawn to scale as are the parking spots which means you can easily check if your aircraft fits on an apron, parking spot or taxiway.

13.7. Overlays

Map overlays provide additional functionality to move around the map and more. You can show or hide them by right clicking on them and selecting `Hide`. Overlays can also be shown in menu `Window` -> Map Overlays.

Deselect `Lock` from the overlay context menu to allow moving the overlay around the map.

The context menu also has menu items which allow to customize the appearance and function of an overlay.



Map window with all overlays shown. Right-click context menu on overlay `Overview` is opened. *Click image to enlarge.* The overlays are:

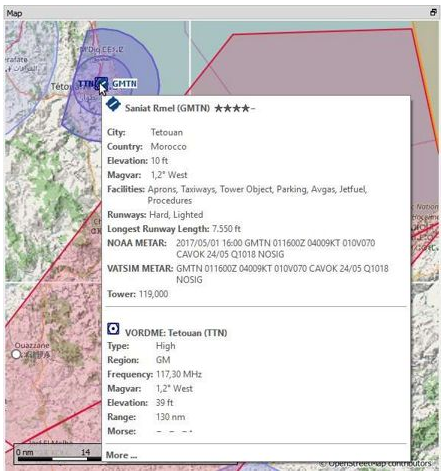
1. Overview
2. Compass
3. Scalebar
4. Navigation

13.8. Tooltips

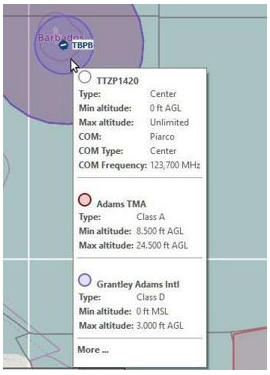
Hovering the mouse over the map will show tooltips for all map objects including airports, VOR, NDB, airways, parking, fuel box, towers, aircraft and ships. The tooltip is truncated and shows a message `More ...` if it gets too long. In that case reduce details or zoom in closer. Disable `Verbose tooltips` in options on page Map Tooltips and Clicks if you do not like the large tips.

The sensitivity for the tooltip display can be adjusted in the options dialog on page Map Tooltips and Clicks.

You can select which tooltips to show in options on page Map Tooltips and Clicks.



Tooltip with information for an airport and a VOR. *Click image to enlarge.*



Tooltip with information about airspaces. *Click image to enlarge.*

13.9. Highlights

Airports, navaids or other features that are selected in the flight plan table or in a search result table are highlighted on the map with a green/black or a yellow/black ring respectively (colors at default settings).

Waypoints that are selected in the procedure preview are highlighted with a blue/black ring using default colors.

These highlight circles provide all functionality of visible map objects, even if the objects are not shown at the current zoom distance (ring is empty). This allows double-click for zoom in, single-click for information dock window and all context menu entries.

You can use `Map` -> Remove all Highlights and Selections to remove all highlights from the map.

Colors and appearance can be customized in options on page Map User.

13.10. Flight Plan

You can enable or disable the display of the flight plan as well as missed approaches in the menu and toolbar.

All features which are part of the flight plan are forced to be shown even if they are disabled in the menu. This means that destination, departure and alternate airport symbols as well as diagrams are shown even if airport display is disabled. The same applies to all navaids and approach ILS.

Colors and appearance of the flight plan can be customized in options on page Map Flight Plan. Labels can be changed on options page Map Labels.

Tip

Hide all map features from the toolbar to get a clean view on flight plan related airports and navaids only. This will get rid of all unneeded map objects but keeps all navaids and related navaids for procedures like ILS for the approach on the map.

13.11. Airport Diagram

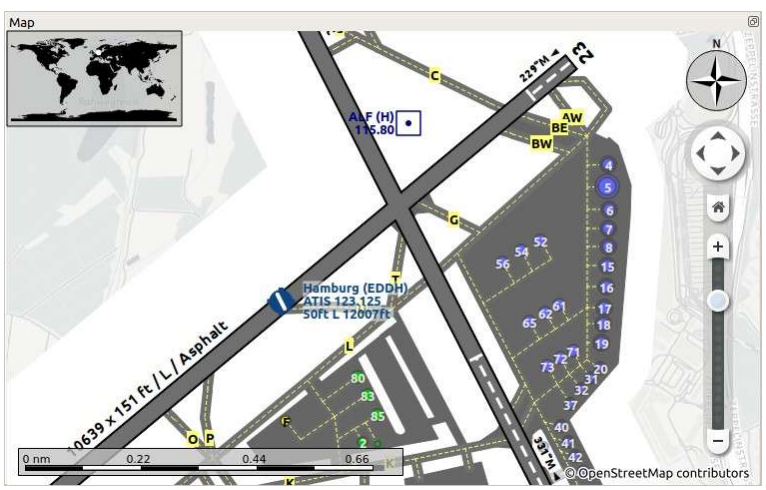
The display will change from a single icon to an airport diagram if you zoom in deep enough to an airport. The diagram shows all taxiways, parking positions, gates, runways and more.

The airport diagram provides more information through tooltips at the center of parking and tower positions. A right-click on a parking position opens the context menu and allows to select the start position for flight plan departure.

See Airport Diagram for details about the airport diagram.

Airport labels and diagram features can be changed on options page Map Labels. Disable all airport features except runways if you'd like to rely on the airport diagrams of the OpenStreetMap background map, for example.

High level view of the airport diagram of EDDH. *Click image to enlarge.*



Detailed view of the airport diagram. Shows blue gates on the right and green general aviation ramp parking spots on the left. Long displaced threshold of runway 33 is visible. Dashed yellow lines indicate taxi paths. *Click image to enlarge.*

13.12. Declutter

Having to much content on the map display makes it confusing, unclear and slows down the program. There are different needs for flight planning and flying a map.

For planning keep these visible:

- Airports filtered according to your aircraft (Airports). This means that you hide unpaved airports, helipads and more when flying an airliner, for example.
- VOR, NDB, waypoints, airways (if used) and probably airspaces.
- ILS and RNP/GLS slopes if needed to find a suitable airport.

When flying after building a flight plan disable all unneeded features. All related navaids are always shown with the flight plan.

- Limit airport display to the ones which can be used as alternates. Adjust filter as needed or keep them off.
- Maybe enable VOR and NDB to cross check your position while flying if desired. Related navaids like VOR are forced to be shown when using procedures anyway.
- Disable airways and waypoints. These are already a part of the plan and are not needed for flying.
- Disable ILS and RNP/GLS slopes. These are already forced to display with the flight plan if used.
- Limit the airspace display to the relevant airspaces (Airspaces) also limiting by flight plan altitude.

13.13. Map Projection

The map projection can also be changed in the main menu `View` -> Projection or with the toolbar button . Note that the drop down menu of the toolbar button can be torn off by clicking on the dashed line in the menu (Tear off Dropdown Menus).

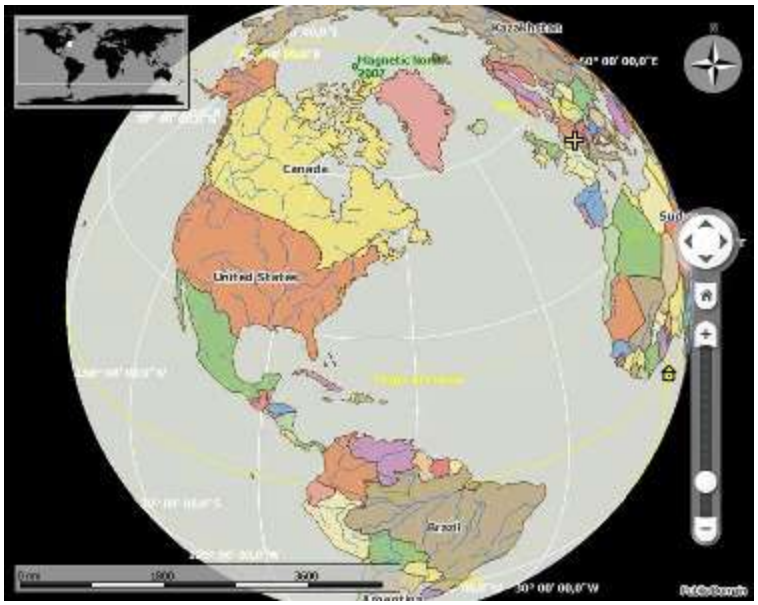
Two projections can be selected in *Little Navmap*:

Mercator

> A flat projection that gives the most fluid movement and the sharpest map when using picture tile based online maps themes like *OpenStreetMap* or *OpenTopoMap*.
>
> Note that this projection cannot be used near the poles. Use the spherical projection if you fly in Antarctica, for example.

Spherical

> Shows earth as a globe which is the most natural projection. Movement can stutter slightly when using the picture tile based online maps themes like *OpenStreetMap* or *OpenTopoMap*. Use the `Simple`, `Plain` or `Atlas` map themes to prevent this.
>
> Online maps can appear slightly blurred when using this projection. This is a result from converting the flat image tiles to the spherical display.



Spherical map projection with `Simple` offline map theme selected.

13.14. Map Themes

The map theme can be changed in main menu `View` -> Theme or with the toolbar button which can be torn off by clicking on the dashed line in the menu (Tear off Dropdown Menus).

This allows to change the map theme which defines the look and feel of the background map (Map Layers).

See options page Map Keys for more information on themes requiring a login or an account. Map Themes explains how to create your own themes and how to install additional themes.

Tip

Also check out the Little Navmap Support Forum at AVSIM [https://www.avsim.com/forums/forum/780-little-navmap-little-navconnect-little-logbook-support-forum/] and Little Navmap Downloads - Map Themes [https://www.littlenavmap.org/downloads/Map%20Themes/] for more map themes.

Note

Please note that all the online maps are delivered from free services therefore fast download speeds and high availability cannot be guaranteed.

In any case it is easy to deliver and install a new online map source without creating a new *Little Navmap* release. See Map Themes for more information.

13.14.1. Free map themes that are included per default and don't need an account at the respective map provider

CARTO Dark Matter

> A dark map. Map tiles and style by CARTO [https://carto.com/]. Data by OpenStreetMap [https://www.openstreetmap.org], under ODbL [https://www.openstreetmap.org/copyright].

CARTO Positron

> A very bright map called *Positron* which allows to concentrate on the aviation features on the map display. Map tiles and style by CARTO [https://carto.com/]. Data by OpenStreetMap [https://www.openstreetmap.org], under ODbL [https://www.openstreetmap.org/copyright].

open flightmaps

A high quality VFR map provided by open flightmaps [https://www.openflightmaps.org/]. Note that details are visible at lower zoom distances smaller than 50 NM or 100 km.

OpenStreetMap

This is an online raster (i.e. based on images) map without hill shading. The tiles for this map are provided by OpenStreetMap [https://www.openstreetmap.org]. Data by OpenStreetMap [https://www.openstreetmap.org], under ODbL [https://www.openstreetmap.org/copyright].

OpenTopoMap

An online raster map that mimics a topographic map. Includes integrated hill shading and elevation contour lines at lower zoom distances. The tiles for this map are provided by OpenTopoMap [https://www.opentopomap.org].

View at the eastern Alps using *OpenTopoMap* theme. A flight plan is shown north of the Alps.

Political Map (Offline)

This is an offline political map using colored country polygons. Boundaries and water bodies are depicted coarse. The map included in *Little Navmap* has an option to display city and country names.

Plain Map (Offline)

A very simple offline map. The map is included in *Little Navmap* and has an option to display city and country names. Boundaries and water bodies are depicted coarse.

Atlas (Offline)

A very simple offline map including coarse hill shading and land colors. The map is included in *Little Navmap* and has an option to display city and country names. Boundaries and water bodies are depicted coarse.

13.14.2. Map themes are included per default but need a free acccout at the respective map provider

Mapbox Dark, Mapbox Light, Mapbox Outdoors, Mapbox Satellite, Mapbox Satellite Streets, Mapbox User, MapTiler Topo, Stadia StamenTerrain, Thunderforest Atlas and Thunderforest Landscape

These maps require a registration at the respective sites to get access to the map tiles. You can enter the keys in the options dialog on page Map Keys which also contains direct links to the login pages.

Note

All accounts above are free but try to guide you to a paid subscription when subscribing. Simply ignore this. Do enter payment information anywhere.

You can preview the maps at the respective sites.

13.15. Context Menu Map

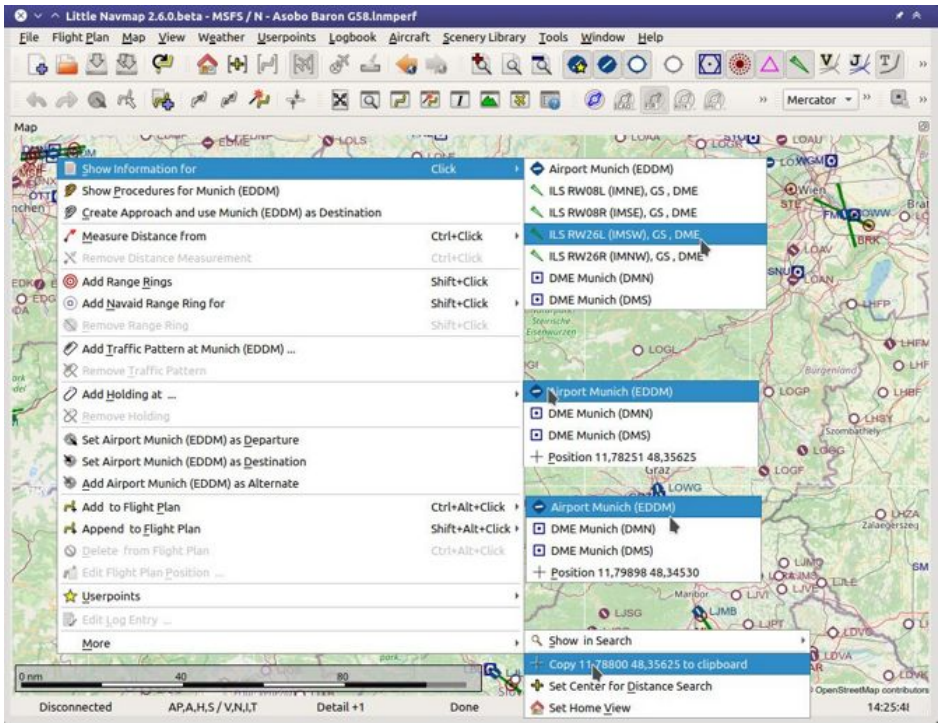
The map context menu can be activated using right-click or the menu key. Menu items are enabled or disabled depending on selected object and some menu items contain the name of the selected map object for clarification.

Mouse click modifiers like `Ctrl+Click` are shown as a hint on the right side of the context menu.

Little Navmap automatically inserts a sub-menu replacing the menu item if more than one appropriate map object was found below the cursor. This helps to select the right airport from a dense map which displays many airports in one spot, for example.

Some menus add an additional item `Position` to the sub-menu which inserts a plain position instead of the navaid or an airport at the clicked position.

Menu items are disabled if their function does not apply to the clicked map object. Hints showing the reason are appended to the menu text like `(has not procedure)` for an airport.



The various sub-menus of the map context menu. Image based on *Little Navmap* 2.6.19. *Click image to enlarge.*

Tip

Look at the left side of this online user manual to see all the menu items in a tree like structure.

13.15.1. Show Information

Show detailed information in the `Information` dock window for the nearest airport, airway, airspace, navaid or aircraft which name is shown in the menu item.

If you like to see information on all objects nearby a click position do a single left click into the map.

See Information for details.

13.15.2. Set as Departure

This is active if the click is at an airport symbol center, an airport parking position center or a fuel box. It will either replace the current flight plan departure or add a new departure if the flight plan is empty.

The airport and parking position will replace both the current departure and start position if a parking position is clicked within an airport diagram.

13.15.3. Set as Destination

This menu item is active if the click spot is at an airport. It will either replace the flight plan destination or add the airport to the plan if the flight plan is empty.

13.15.4. Set as Alternate

This menu item is active clicked at an airport. Selecting this item adds the airport as an alternate to the current flight plan.

More than one alternate can be added to the flight plan. Legs to the alternate airports originate all from the destination.

This menu item is disabled if airport is selected as destination or already an alternate.

The distance to the farthest alternate is considered in the fuel calculation.

Note that you have to activate an alternate leg manually if you would like to fly it (see Activate Flight Plan Leg).

13.15.5. Set Departure Runway

Selecting a departure runway also adds a departure flight plan leg depicting the extended runway center line. The length of the extended center line can be adjusted in the dialog window. See Departure and Destination Runway for more information.

The text of this menu item varies depending if the airport is already the departure in the flight plan or not.

13.15.6. Set Destination Runway

Selecting a destination runway add a final approach leg and which can be customized by changing altitude at final, length and offset angle. This allows *Little Navmap* to give vertical guidance and to show ILS and/or VASI slopes at the destination. See Departure and Destination Runway for more information.

The text of this menu item varies depending if the airport is already the destination in the flight plan or not.

13.15.7. Show Procedures

Opens the procedure search tab of the search dock window and displays all procedures for the airport.

The menu item text varies depending if the airport is a part of the flight plan and if the airport is departure or destination. Depending on this you will see `Show Departure procedures ...` or `Show Arrival/Approach procedures ...`

The procedure search tab expands procedure branches already added to the flight plan. Procedures and/or respective transitions are expanded when showing procedures for departure or destination airport.

See Search Procedures for more information.

13.15.8. Insert Procedure

Active if clicked on a waypoint of the procedure preview (see Preview all Procedures and Search Procedures). Allows to add a SID, STAR or approach procedure with their respective transitions to the flight plan.

13.15.9. Add Position to Flight Plan

Insert the clicked object into the nearest flight plan leg. The object will be added before departure or after destination if the clicked position is near the flight plan end points.

The text `Position` in the menu is replaced with an object name if an airport, navaid or userpoint is at the clicked position.

An user defined flight plan position (green square) is added to the plan if no airport or navaid is near the clicked point.

A userpoint is converted to an user defined flight plan position if added to the plan.

Note

You cannot edit flight plan legs that are a part of a procedure or between procedures. Procedures will not be deleted or modified by this function.

Tip

All information from a userpoint like remarks, ident, region and name are copied to the flight plan position if you right click on a userpoint and select `Add Position to Flight Plan` or `Append Position to Flight Plan`.

13.15.10. Append Position to Flight Plan

Same as `Add Position to Flight Plan` but will always append the selected object or position after the destination or last waypoint of the flight plan. Otherwise the same as Add Position to Flight Plan.

This will remove STAR and approach procedures from the current flight plan, if any.

13.15.11. Delete from Flight Plan

Delete the selected airport, navaid or user flight plan position from the plan. This can be departure, destination, alternate airport, an intermediate waypoint or a procedure.

Deleting a waypoint of a procedure removes the procedure and its transition. Deleting a waypoint of a transition removes only the transition but not the related procedure.

This also applies to the runway extension legs when selecting a departure or destination runway (Departure and Destination Runway).

13.15.12. Edit Flight Plan Position or Edit Flight Plan Position Remarks

Two options exist depending on the waypoint type:

- `Edit Flight Plan Position Remarks`: Add remarks to a flight plan waypoint which is not an alternate airport and not a part of a procedure. See Edit Flight Plan Remarks.
- `Edit Flight Plan Position`: Change the ident, name, remarks or position of an user defined flight plan waypoint. See Edit Flight Plan Position. You can edit the coordinates directly instead of dragging the flight plan position (Map Flight Plan Editing). See Coordinate Formats for a list of formats that are recognized by the edit dialog.

13.15.13. Convert Procedure to Waypoints

This function converts a procedures into a list of waypoints. Right click on a procedure leg in the flight plan table or the map display and select `Convert to Waypoints`. A warning will be shown to indicate limitations of the conversion. After converting, you can edit the procedure waypoints like any other flight plan waypoint list.

You can undo this conversion.

Note

Converting a procedure to waypoints loses information:

- Several approach procedure leg types like holds and turns cannot be converted and will appear as straight lines.
- Speed and altitude restrictions are included as remarks and are not followed in the elevation profile.

13.15.14. Direct to Here

The direct to function is availabe in all related context menus in flight plan table, map and search result table.

This function is only enabled if you are connected to a simulator. You can select a direct to any waypoint ahead of the active leg, the destination airport or an alternate airport. Furthermore you can direct to any position, navaid or airport which are not a part of the flight plan.

Using `Direct to` adds a waypoint `PPOS` (present position) at the aircraft location and a direct line to the clicked position.

Note

You cannot select a direct to a waypoint in a procedure. Use the function Convert Procedure to Waypoints above before.

Also, you cannot select a passed waypoint of the flight plan as direct to.

13.15.15. Measure Distance from here

Starts to draw a measurement line which gets fixed on a second click.

See Measure Distance and User Features for more information.

13.15.16. Add Range Rings

Opens a dialog which allows to set the parameters for one or more range rings.

See Range Rings and User Features for more information.

The display of range rings is automatically enabled in menu `View` -> `User Features` -> Range Rings after using this function.

13.15.17. Add Navaid Range Ring

Show a ring around the clicked radio navaid (VOR or NDB) indicating the range of the navaid. A label shows ident and frequency and the ring color indicates the navaid type.

The display of range rings is automatically enabled in menu `View` -> `User Features` -> Range Rings after using this function.

See Range Rings and User Features for more information.

Note that the accuracy of radio navaid range varies across different simulators.

13.15.18. Add Traffic Pattern

This menu item is enabled if clicked on an airport. Shows a dialog that allows to customize and display an airport traffic pattern on the map.

See Traffic Patterns and Airport Traffic Pattern in the map legend.

The display of traffic patterns is automatically enabled in menu `View` -> `User Features` -> Traffic Patterns after using this function.

13.15.19. Add Holding

Display a holding pattern at any position on the map. The hold may also be attached to navaids. Opens a dialog for customization if selected.

See chapter Holdings and Holding in the map legend for more information.

The display of user holdings is automatically enabled in menu `View` -> `User Features` -> Holdings after using this function.

13.15.20. Add MSA Diagram

Adds a to-scale MSA diagram when right clicking on the smaller MSA symbol at an airport, navaid or other feature.

The display of user MSA diagrams is automatically enabled in menu `View` -> `User Features` -> MSA Diagrams after using this function.

See Minimum Sector Altitude and Navaids in the map legend for more information.

13.15.21. Remove User Feature

Removes a map feature added by the user.

- Removes the selected **measurement line**. This menu item is active if you right-click on the end point of a distance measurement line (small cross).
- Removes the selected **range rings** from the map. This menu item is active if you right-click on the center point of a range ring (small circle).
- Enabled if clicked on the airport **traffic pattern** hotspot (white filled circle at runway threshold) which is indicated by a hand cursor.
- Enabled if clicked on the **holding** hotspot (holding fix, white filled triangle) which is indicated by a hand cursor.
- Removes the selected **MSA diagram** from the map. This menu item is active if you right-click on the hotspot of an user added MSA diagram (small circle in center).

13.15.22. Mark Airport as Add-on

Marks an airport with a yellow circle as add-on.

This function will add a userpoint of type `Addon` filled with the airport information at the clicked airport position.

You can add you own userpoint type names starting with `Addon` to create more add-on categories. See Icons for more information.

See chapter Userpoints for more information how to edit or remove the highlight.

Note

The userpoint is not attached to the airport, is independent of the simulator selection and will not be hidden with airports and is not affected by airport filters.

13.15.23. Userpoint

13.15.23.1. Add Userpoint

Add an user defined point to the userpoints. A dialog shows up where more information can be entered. Some fields of the userpoint dialog are populated automatically depending on the clicked map object and previously added userpoints.

Coordinates are always filled-in. If the selected object is an airport or navaid, a userpoint of type `Airport` or `Waypoint` respectively is created and the fields Ident, Region, Name and Altitude are filled-in. The same applies to NDB, VOR and other navaids.

If the selected position is empty map space, a userpoint of type `Bookmark` is created at this position. Altitude is only filled-in if the GLOBE Offline Elevation Data is installed.

See Add Userpoints for more information.

13.15.23.2. Edit Userpoint

Open the edit dialog for a userpoint. Only enabled if the selected object is a userpoint. See Edit Userpoints.

13.15.23.3. Move Userpoint

Move the userpoint to a new position on the map. Only enabled if the selected object is a userpoint.

Left-click to place the userpoint at the new position. Right-click or press the escape key to cancel the operation and return the userpoint to its previous position.

13.15.23.4. Delete Userpoint

Remove the user defined waypoint from the userdata. The action can be undone in the main menu `Userpoint`. Only enabled if the selected object is a userpoint.

13.15.24. Edit Log Entry

Active when clicked on the blue great circle line, the blue flight plan preview or an airport of a logbook entry highlight.

Allows to edit the respective logbook entry. See Edit Logbook Entry.

13.15.25. Fullscreen Map

Same as Fullscreen Map. Only visible in fullscreen mode.

13.15.26. More

13.15.26.1. Jump to Coordinates

Same function as in main menu `Map` -> Jump to Coordinates.

See Jump to Coordinates for more information.

13.15.26.2. Show in Search

Show the nearest airport, navaid, userpoint, online client or online center in the search dialog. The current search parameters are reset in the respective tab.

13.15.26.3. Select Leg in Flight Plan

This will select and show a flight plan leg in the flight plan table if you right-click on a plan waypoint in the map and select `More -> Select Leg in Flight Plan` in the context menu.

You can enable selection of a flight plan leg for a single click onto a flight plan waypoint in the map in options on page Map Tooltips and Clicks.

13.15.26.4. Copy to Clipboard

Copies the coordinates at the clicked position into the clipboard.

The coordinate format depends on the selection in the options dialog on page Units.

13.15.26.5. Set Center for Distance Search

Set the center point for the distance search function. See Distance search. The center for the distance search is highlighted by a symbol.

The symbol cannot be hidden. Set it at a remote position if you like to hide it.

Note that the symbol is only an indicator for the search center position and does not have a context menu or a mouse action attached.

13.15.26.6. Set Home View

Set the currently visible map view as your home view. The center of the home area is highlighted by a symbol.

You can jump to the home view by using main menu `Map` -> Go to Home.

The symbol cannot be hidden. Set it at a remote position if you like to hide it.

Note that the symbol is only an indicator for the home view center position and does not have a context menu or a mouse action attached.

14. Map Legend

By default, all speeds are given in knots (kts), distances in nautical miles (NM), altitudes and elevations in feet (ft). The units can be set to imperial or metric in the options dialog on page Units.

Colors, size and text labels of map elements can be changed in the options dialog on pages Map Display, Map Flight Plan, Map User and Map Labels. This legend shows the default values.

Heading and course are suffixed with `°T` for true course or `°M` for magnetic course. `°T/M` is shown if both courses are equal.

See also Map Display.

14.1. Mouse Clicks

The display of a map feature class will be enabled if you use on of these mouse clicks. A `Shift+Click` will enable display of range rings after adding one, for example. A second `Shift+Click` into the center (active point) will remove the range rings.

You can enable or disable visibility in menu `View` -> User Features or the toolbar.

A click in the map on the active spot (Mouse Click Hotspots) of a feature like a range ring removes it. The cursor changes to a hand symbol to indicate an active spot which allows to remove a feature by click or remove/edit it in the context menu.

Mouse	Description
`Single Click`	Show information about all features near the cursor position.
`Double Click`	Zooms to the clicked feature and shows information.
`Shift+Click`	Add or remove range rings or navaid range rings.
`Ctrl+Click`	Start great circle line measurement or delete measurement line.
`Ctrl+Shift+Click`	Add or edit a userpoint.
`Ctrl+Alt+Click`	Insert airport, navaid, userpoint or position into the nearest flight plan leg.
`Shift+Alt+Click`	Append airport, navaid, userpoint or position to flight plan.
`Wheel`	Zoom in or out.
`Shift+Wheel`	Zoom in or out in small steps.
`Ctrl+Wheel`	Increase or decrease map details.

14.2. Key Commands

You have to activate the map window (i.e. click into it or press the key `F2`) before you can use the keyboard shortcuts.

See Keyboard Shortcuts for a complete list of shortcuts.

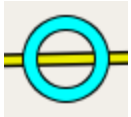
Key	Description
Cursor keys	Scroll the map.
`+` and `-`	Zoom in and out.
`*` and `/`	Zoom in and out in small steps.
`Alt+Left` and `Alt+Right`	Go forward or backward in the map position history.
`Ctrl++` and `Ctrl+-`	Increase or decrease map details.
`Ctrl+Home`	Go to home position.
`Ctrl+End`	Go to center for distance search.
`Ctrl+PgUp`	Jump to user aircraft.
`Ctrl+PgDown`	Center flight plan.
`Ctrl+Shift+Home`	Jump to coordinates.

14.3. Highlights

Selecting a row in the flight plan table or a search result table causes the related feature to be highlighted on the map. Hovering the mouse over the elevation profile will highlight the related flight plan position on the map.

Highlights can be customized in the options dialog on page Map User. See also Highlights.

Symbol	Description
	Center of the home position. The position can be set in context menu -> `More` -> Set Home View
	Center point that will be used for distance searches. Can be set in context menu -> `More` -> Set Center for Distance Search.
	Shows map center. Useful for `Click and Center` navigation mode. Also shows map navigation click/touch areas if enabled. Can be enabled in the options dialog on page Map Labels.

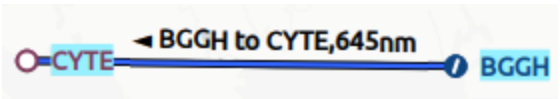
Symbol	Description
	A highlighted airport or navaid selected in the search result table. See also Search.
	A highlighted airport or navaid selected in the flight plan table. See also Flight Planning.
	Highlighted positions of a procedure leg in the preview. Small circle show *from* and large circle *to* position. See also Search Procedures.
	Thin circle shows the recommended or related navaid of a procedure leg. This can be a VORDME for a DME arc approach leg for example. See also Search Procedures.
	This shows the related position on the flight plan when hovering the mouse above the elevation profile. See also Elevation Profile.

14.4. Logbook Preview

Selecting rows in the logbook table shows a preview of the related logbook entries. The flight plan preview and the aircraft trail are only shown for one selected entry.

Direct connection between departure and destination as well as flight plan preview and flown trail is shown for selected logbook entries. Any of the above can be disabled in the logbook search context menu.

See also Logbook.



Airports and great circle path between departure and destination for a logbook entry selected in the search result table. Label shows departure, destination and great circle distance between airports.

Flight plan preview as stored with the logbook entry. Waypoint names and flying direction indicated by arrows. Note that complex procedures are not visible.

Flown user aircraft trail stored with the logbook entry.

14.5. User Features

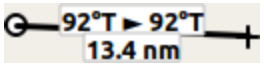
User features are all objects which can be added to the map by the user. This includes Holding, Airport Traffic Pattern and more.

User features can be customized in the options dialog on page Map User.

Display of user features can be enabled or disabled in menu `View` -> User Features.

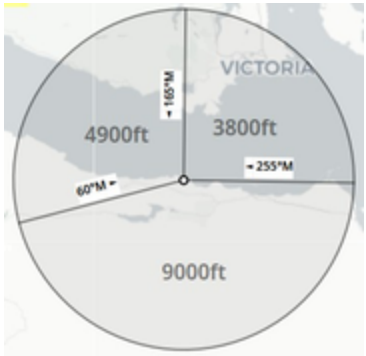
Range rings labeled with distance. This feature can be added from the map context menu using Add Range Rings.

VOR or NDB range rings labeled with ident and frequency. Color indicates Navaid type. This feature can be added from the map context menu using Add Navaid Range Ring.



Great circle [https://en.wikipedia.org/wiki/Great-circle_distance] distance and course measurement line indicating length and true heading at start and destination. The two heading values will be equal for small distances. For shorter distances length is also shown in feet or meter. The width of distance measurement lines can be changed in the options dialog on page Map Labels. The labels can be changed in the tree view on the right side of the same page. This feature can be added from the map context menu using Measure Distance from here.

Measurement lines starting from an airport or navaid have the same color and additional ident and frequency labels. Course will consider calibrated magnetic declination of a navaid. This feature can be added from the map context menu using Measure Distance from here.

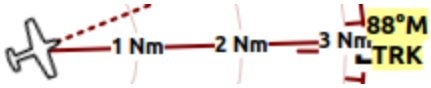
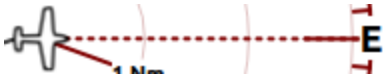


MSA diagram to scale. Right click on a MSA symbol and select Add MSA Diagram to show this. See Minimum Sector Altitude for more information.

14.6. Compass Rose

Line thickness can be changed in options dialog on the pages Map User and Map Labels.

The colors for flight plan leg course and heading indicator depend on settings for active flight plan leg which can be changed in the options dialog on pages Map Flight Plan.

Symbol	Description
	True north.
	Magnetic north.
	Distance circles and marks from user aircraft if connected.
	Solid line shows aircraft track in degrees magnetic if connected.
	Dashed line shows aircraft heading if connected.
	Magenta line segment shows the course to next waypoint of the active flight plan leg. Hidden if no flight plan loaded.
	Heading indicator. Shows the heading that has to be flown towards the next waypoint of the active flight plan leg considering cross wind. Hidden if no flight plan loaded.

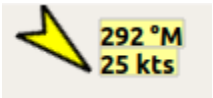
14.7. Aircraft and Ships

Labels for the user and AI aircraft can be configured in options on the page Map Labels.

Note that AI/multiplayer aircraft labels have a … appended if label texts are suppressed due to higher zoom distances or lower detail levels.

Display of traffic can be enabled or disabled in menu View Menu.

Symbol	Description
	Current user vehicle if connected to the flight simulator. The user aircraft depends on selected aircraft (jet, piston/turboprop or helicopter).
	User aircraft on ground or ship.
	Aircraft carrier and frigate (X-Plane only)
	Needle showing the current ground track of the aircraft. Aircraft nose shows heading. Can be disabled in the options on page Map Labels.
	Selected altitude range arc. Position where the selected autopilot altitude will be reached. This display can be disabled in menu `View` -> Show Selected Altitude Range Arc.
	Aircraft turn flight path line. This predicts the flight path. This display can be disabled in menu `View` -> Show Turn Flight Path.
	Aircraft endurance with distance and hours:minutes to go. This uses reserve fuel, contingency fuel, current fuel flow, fuel on board and ground speed to calculate the endurance This display can be disabled in menu `View` -> Show Aircraft Endurance.
	User aircraft trail. Display can be toggled in menu `View` -> Show User Aircraft Trail See chapter Aircraft Trail.

Symbol	Description
	Wind around the user aircraft with direction in degrees magnetic and speed.
	AI or multiplayer aircraft. Labels vary and can be customized in the options dialog on the page Map Display. The symbol depends on aircraft type (jet, piston/turboprop, helicopter or ship).
	Dark red color indicates online network aircraft/client. Labels vary and can be customized as above.

14.8. Airports

Airports having control towers are shown in dark blue others in magenta. Add-on airport names and idents are shown italic and underlined throughout the whole program. Airports that are part of the flight plan have a light yellow text background.

The symbol is shown smaller if an airport has no runways. This is the case for some add-on airports that use another techniques like photo scenery to display runways.

Labels and diagram elements for airports can be configured in options on the page Map Labels.

Display of airports can be enabled or disabled in menu `View` -> Airports.

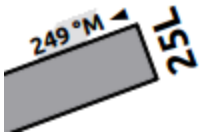
Symbol	Description
	Airports with hard surface runways longer than 8,000 ft or 2,400 m. All runways longer than 4,000 ft or about 1,200 m are shown. Only for lower zoom distances.
	Airports with hard surface runways. White line shows heading of longest runway.
	Airports with soft surface runways.
	Empty airports shown in gray. No taxiways, no parking spots and no aprons.
	Seaplane base having only water runways.
	Military airport.
	Heliport having only helipads and no runways.

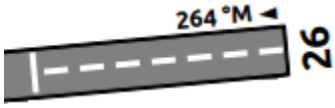
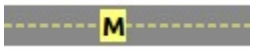
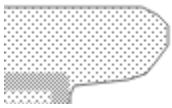
Symbol	Description
	Abandoned airport. All runways are closed.
	Airports that have fuel available.
	Add-on airports are always highlighted. You can disable this in the options dialog on page Map Display by deselecting `Highlight add-on airports`.
	Weather at airport. See chapter Airport Weather below.
	Airport label showing name, ident, ATIS frequency, elevation, lighted runways (`L`) and length of longest runway. The text labels for airports can be changed in the options dialog on the page Map Labels.
	Airport runway overview shown before the full airport diagram when zooming in.

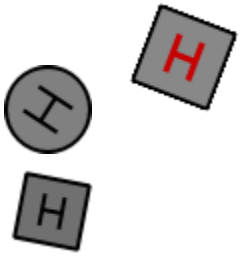
14.9. Airport Diagram

Runway, taxiway, helipad and apron colors indicate surface type. White is used for an unknown or invalid surface type given by an add-on developer.

Diagram elements for can be enabled or disabled in the options dialog on the page Map Labels.

Symbol	Description
	Runway with length, width, light indicator (`L`) and surface type.
	Runway end with ident and magnetic heading.

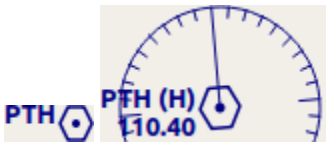
Symbol	Description
	Displaced threshold. Do not use for landing.
	Overrun area. Do not use for taxi, takeoff or landing.
	Blast pad. Do not use for taxi, takeoff or landing.
	Taxiway with name and center line.
	Closed taxiway.
	Semi transparent dotted aprons and taxiways indicate that no surface is drawn. It might use a photo texture or simply the default background.
	Tower. Red if a tower frequency is available. Otherwise just view position.
	Fuel
	GA ramp with parking number and heading tick mark.
	Gate with number and heading tick mark. Second ring indicates availability of jetway.

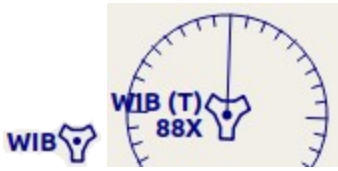
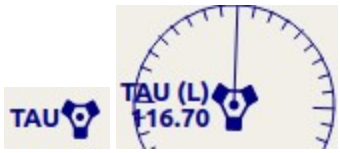
Symbol	Description
	Cargo ramp
	Military combat parking.
	Military cargo parking.
	Helipads. Red text indicates medical helipad. Color indicates surface.

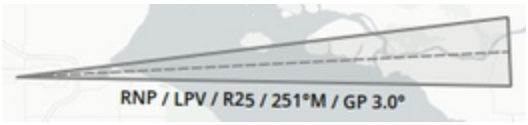
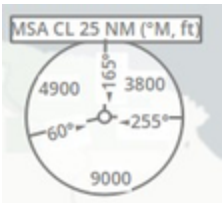
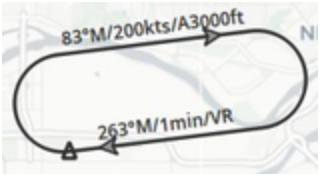
14.10. Navaids

Navaids that are part of the flight plan have a light yellow text background.

Display of navaids can be enabled or disabled in menu `View` -> Navaids.

Symbol	Description
	VOR DME including ident, type and frequency. Compass rose shows magnetic declination on lower zoom distances. Small blue rectangle at high zoom levels. The type defines the reception range: `H` is high, about 200 NM, `L` is low, 40 NM to 60 NM and `T` is terminal, about 25 NM.
	VOR including ident, type and frequency. Tiny blue rectangle at high zoom levels.
	DME including ident, type and frequency. Small blue rectangle at high zoom levels.

Symbol	Description
	TACAN including ident, type (High, Low or Terminal) and channel. Compass rose shows magnetic declination on lower zoom distances. Small blue rectangle at high zoom levels.
	VORTAC including ident, type (High, Low or Terminal) and frequency. Compass rose shows magnetic declination on lower zoom distances. Small blue rectangle at high zoom levels.
	NDB including ident, type and frequency. Small dark red circle at high zoom levels. The type defines the reception range: HH is very high, about 75 NM, H is high, about 50 NM, MH is middle, about 25 NM and CL is compass locator, about 12 NM.
	Waypoint with name. Small magenta triangle at high zoom levels.
	User defined flight plan waypoint with name.
	Invalid airport, waypoint, VOR or NDB that is part of the flight plan but could not be found in the Scenery Database.
	Marker with type and heading indicated by lens shape.
	High airway (also Jet) with label showing name, type (High or Both), minimum and maximum altitude. Text depends on zoom distance. A preceding arrow will show the allowed direction if the airway is one-way.
	Low airway (also Victor) with label showing name, type (Low or Both), minimum and maximum altitude. Text depends on zoom distance. A preceding arrow will show the allowed direction if the airway is one-way.
	Eastbound PACOTS track with flying direction, name 2 and type. Tracks having no east/west direction are shown in gray color.
	Westbound PACOTS track with flying direction, name H and type.

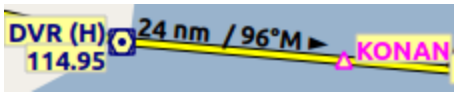
Symbol	Description
	ILS with glideslope and markers. Label shows ident, frequency, magnetic heading, glideslope pitch and DME indication if available.
	Localizer. Label shows ident, frequency, magnetic heading and DME indication if available.
	GLS/RNP approach glidepath indicating a precision approach. Can be disabled in menu `View` -> `Navaids` -> Show GLS/RNP Approach Paths. The label shows type, performance, runway/approach, magnetic inbound course and glidepath.
	MSA symbol (minimum sector altitude). Can be attached to an airport, a runway or other navaids. Right click on this symbol to add a diagram which is to scale. Labels shows `MSA`, navaid ident and radius in NM. Sector bearings shown in degree magnetic and sector safe altitudes in feet. Can be disabled in menu `View` -> `Navaids` -> Show MSA Sectors.
	En-route holding. Labels are outbound course, speed and altitude. Inbound label shows inbound magnetic course, leg time and navaid name.

14.11. Flight Plan

Flight plan display labels can be changed in the options dialog on page Map Labels. Look can be changed on page Map Flight Plan.

Note that labels of procedure waypoints have a … appended if additional labels texts like restrictions are suppressed due to higher zoom distances or lower detail levels.

See also Flight Planning.

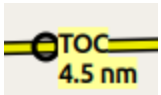
	Flight plan with distance, direction and magnetic course at each leg. `°M` and `°T` indicate magnetic or true course, respectively.
	Blue fixed course labels show inbound and outbound course for VOR also depending on the calibrated declination. Blue indicates VOR inbound and outbound course with VOR calibrated declination. Otherwise black. See Magnetic Declination for more information on flight plan course and magnetic declination.

Flight plan procedure leg with the same information as above.

Active flight plan leg.

Wind direction and speed at flight plan waypoint. See chapter Winds Aloft below for details about wind barbs.

Flight plan departure position on airport. Either parking, fuel box, helipad, water or runway.



Top of climb point with distance from departure. Can be disabled in menu `View` -> Show Top of Climb and Top of Descent

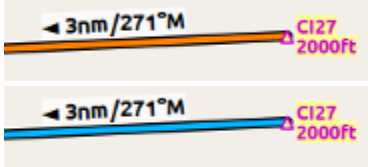
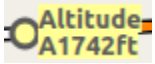
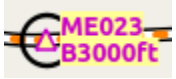
Top of descent point with distance to destination. Can be disabled in menu `View` -> Show Top of Climb and Top of Descent

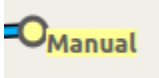
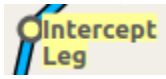
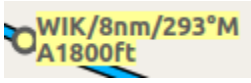
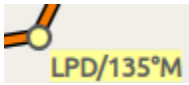
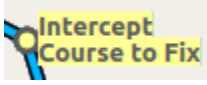
14.12. Procedures

See chapter Procedures and Search Procedures for more detailed information on all the legs.

The ellipsis … indicates that additional information, such as altitude restrictions is available, which is not visible due to the zoom factor. Zoom in closer to see the details.

Symbol	Description

Symbol	Description
	SID, STAR, approach or transition leg for flight plan and in preview with distance, direction and magnetic course at each leg.
	Missed approach leg for flight plan and preview.
	Dotted line indicates circle-to-land or straight-in part of a procedure leading to a runway end. Here part of flight plan.
	Vector leg indicating course to an initial fix. Here part of flight plan.
	Manual leg. Fly according to ATC instructions. Here shown as preview.
	Leg to alternate destination.
	Gray yellow filled circle indicates a procedure point which is not a navaid but defined by course and/or distance from a navaid, an altitude restriction or manual termination.
	A black circle indicates an overfly waypoint. Can be a procedure point or a navaid.
	The Maltese cross highlights the final approach fix or the final approach course fix.
	Prefix `GS` is not an altitude restriction but an indicator for the ILS glideslope altitude. Can mean `at` or `at or above`.

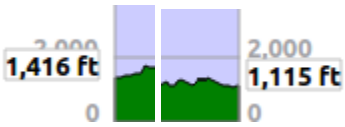
Symbol	Description
	Fly a heading, track or a hold until manually terminated by ATC.
	Intercept the next approach leg at a course of about 45 degrees.
	Procedure leg that is terminated when reaching the given altitude.
	A fix defined by a course or heading and distance to a navaid.
	Turn to intercept a radio navaid radial.
	This fix is defined by a heading or track which is terminated by reaching a DME distance.
	Intercept a course to the next fix at an angle of about 45 degrees.

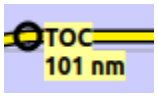
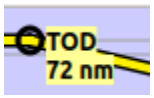
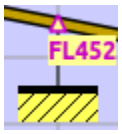
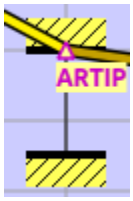
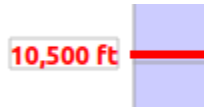
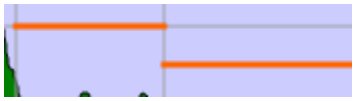
14.13. Elevation Profile

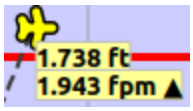
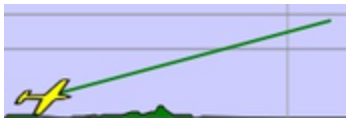
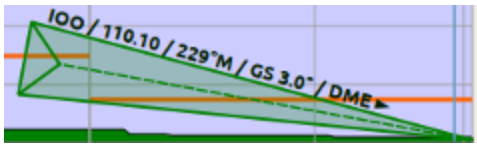
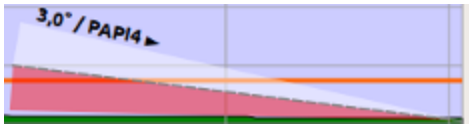
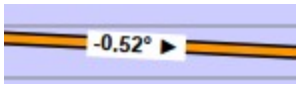
The colors and symbols of the elevation profile follow the style of the main map as set in the options dialog on page Map Flight Plan. Colors, patterns and symbols for airports, navaids, procedures, active and passed flight plan legs are the same. The profile display also follows other map settings like visibility of flight plan line, aircraft and aircraft trail.

See also Elevation Profile Display Options for customization options.

See Elevation Profile for more information.

Symbol	Description
	Ground with departure elevation on the left and destination airport elevation on the right.

Symbol	Description
	Flight plan altitude.
	Top of climb with distance from departure.
	Top of descent with distance to destination.
	At altitude restriction of a procedure with waypoint name.
	At or above altitude restriction of a procedure.
	At or below altitude restriction of a procedure.
	At or above and at or below (between) altitude restriction of a procedure.
	Minimum safe altitude for flight plan. This is elevation plus 1,000 ft rounded up to the next 500 ft. The 1,000 ft buffer can be changed in the options dialog on the page Flight Plan.
	Minimum safe altitude for a flight plan segment. The same rules apply as to the minimum safe altitude for flight plan.

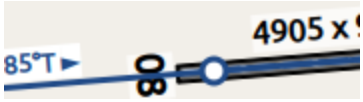
Symbol	Description
	User aircraft if connected to the simulator. Labels show actual altitude and climb/sink rate.
	User aircraft trail if connected to the flight simulator.
	Projected vertical path by current climb or sink rate
	ILS slope. Label shows ident, frequency, magnetic heading, glideslope pitch and DME indication if available. Only shown if an approach is selected and runway end has an ILS. Opening angle has no relation to actual slope precision.
	GLS/RNP approach path indicating a precision approach. Can be disabled in menu `View` -> `Navaids` -> Show GLS/RNP Approach Paths. The label shows type, performance, runway/approach, magnetic inbound course and glidepath.
	Visual Approach Slope Indicator. Label shows slope pitch and VASI type. Only shown if an approach is selected and runway end has a VASI. Opening angle has no relation to actual slope precision.
	Calculated vertical descent path angle during the descent phase.
	Required vertical descent path angle in a procedure. This is a procedure restriction.

14.14. Airport Traffic Pattern

Color and indicators depend on user choice in Traffic Patterns dialog.

This feature can be added from the map context menu using Add Traffic Pattern.

Symbol	Description

Symbol	Description
	Downwind leg of airport traffic pattern with altitude and magnetic course.
	Final leg of airport traffic pattern with runway and magnetic course.
	Arrow and dashed line shows path for pattern entry.
	Dashed line and arrows show path for pattern exit.
	White circle is active point at the runway threshold of the pattern. Mouse cursor changes above and allows to remove the pattern in the context menu.

14.15. Holding

Color depends on user choice in Holdings dialog.

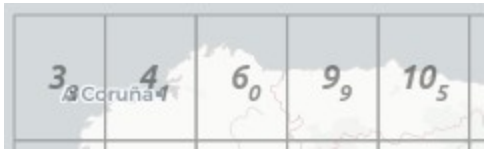
This feature can be added from the map context menu using Add Holding.

Symbol	Description
	Holding fix, magnetic and true inbound course, time for straight leg and navaid ident (`LBU`). Ident is only shown if holding is attached to navaid. True course display depends on options.
	Magnetic and true outbound course, speed and altitude as given in the dialog. True course display depends on options.
	Active point and holding fix. Mouse cursor changes above and allows to remove the holding in the context menu.

14.16. MORA Grid

The minimum off-route altitude grid provides an obstacle clearance altitude within an one degree grid. The altitudes clear all terrain and obstructions by 1,000 ft in areas where the highest elevations are 5,000 ft MSL or lower. Where the highest elevations are above 5,000 ft MSL terrain is cleared by 2,000 ft.

Display of the MORA grid can be toggled in menu `View` -> Show Minimum off-route Altitude Grid.

Symbol	Description
	MORA grid. Large number is 1,000 ft and small number 100 ft. Example here: 3,300, 4,400, 6,000, 9,900 and 10,500 ft.

14.17. Airport Weather

Display of airport weather symbols can be toggled in menu `View` -> Show Airport Weather. The weather source can be selected in menu `Weather` -> Airport Weather Source.

See also Weather.

14.17.1. Flight Rules

Symbol Color	Description
	VFR. Visual flight rules.
	MVFR. Marginal VFR. Visibility equal or below 5 statue miles or lowest ceiling at or below 3,000 ft.
	IFR. Instrument flight rules. Visibility below 3 statue miles or lowest ceiling below 1,000 ft.
	LIFR. Limited IFR. Visibility below 1 statue miles or lowest ceiling below 500 ft.

14.17.2. Cloud Cover

Symbol	Description
	No clouds.
	Few
	Scattered

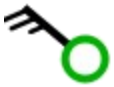
Symbol	Description
	Broken ceiling
	Overcast

Weather stations with invalid reports are shown crossed out on the map.

14.17.3. Wind

The source for winds aloft forecasts can be selected in menu `Weather` -> Wind source.

See also Winds Aloft.

Symbol	Description
	No pointer indicates wind below 2 knots.
	Pointer without wind barb shows wind below 5 knots from north-west.
	Short barb is 5 knots wind.
	Long barb is 10 knots wind.
	50 knots wind.
	Example: 25 knots.
	Example: 65 knots.
	Example: 15 knots steady wind (black) gusting to 30 knots (red).

14.18. Winds Aloft

Symbol	Description
	No pointer indicates wind below 2 knots.
	Below 5 knots from west.
	Example: 25 knots.

15. Aircraft Trail

Little Navmap stores the trail of the user aircraft when flying. Time, actual flown altitude and coordinates are stored in the trail.

Three types of trails are stored:

- The most important aircraft trail on the map which can be exported to GPX and loaded in menu GPX Exchange Format (GPX). It can be cleared using the menu item Delete User Aircraft Trail.
- A trail recording all movements between takeoff and landing is attached to each logbook entry and can be saved there using the context menu item Save attached GPX Trail as.
- The elevation profile stores a temporary trail which is deleted on takeoff and landing to avoid cluttering up the display. This cannot be saved. You can clear it manually using the context menu item Delete Aircraft Trail.

The GPS exchange format can be read by Google Earth and most other GIS applications.

Trail points are created dynamically depending on aircraft flight path to result in a trail having less points on straight legs but more points in turns or when doing altitude changes. This helps to improve map display performance. As a result, the trail points are not evenly spaced.

The length of the trail is limited for performance reasons. If it exceeds the maximum length, the trail is truncated and the oldest segments are lost. The maximum number of points can be changed in options on page Map Aircraft Trail.

Tip

Use GPX instead of KML to import a track into *Little Navmap*. You can convert the KML to GPX using one of the numerous online tools ot Google Earth.

15.1. Saving and loading the Aircraft Trail to and from GPX

The saved GPX files (menu items Export Flight Plan and Trail as GPX or Save attached GPX Trail as) contain a route and a track.

The route has departure and destination elevation and cruise altitude set for all waypoints. Waypoints of all procedures are included in the exported file. Note that the waypoints will not allow to reproduce all parts of a procedure like holds or procedure turns.

The track contains the simulator time, altitude and coordinates.

Note

Little Navmap shows a warning dialog when loading large GPX files having too many points. You will also see a warning if the result is truncated due to a lower setting in the option `Maximum number of aircraft trail points` on page Map Aircraft Trail in options.

Tip

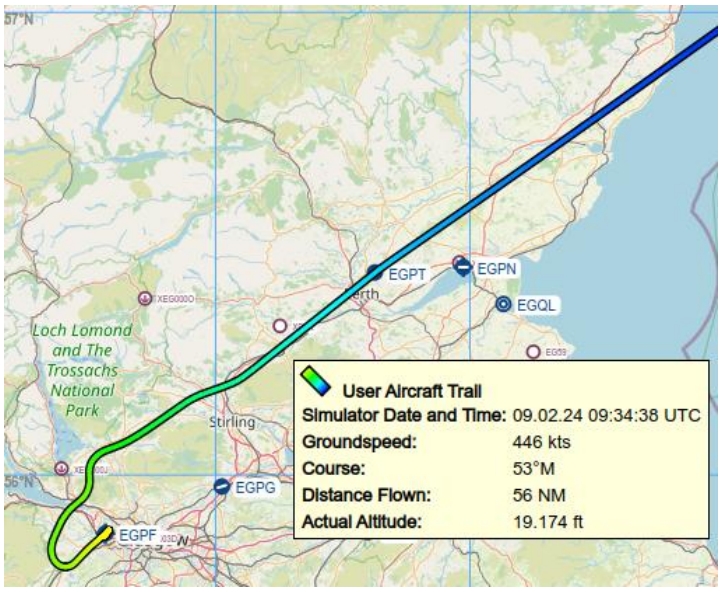
Enable the export option `Garmin GPX exchange format for Google Earth and others` in the Multiexport Options Dialog and adapt the export path. Then select `Files` -> Multiexport Flight Plan after each flight to save your aircraft trail and all other selected export formats with one click. See Flight Plan Multiexport for more information.

15.2. Aircraft Trail Display

An option to use color or black and white gradients for aircraft trail indicating flown altitude besides line pattern can be changed options on page Map Aircraft Trail. The gradient is also used in the elevation profile.

The gradient maximum altitude is either the maximum stored in the trail or the flight plan cruise altitude if present.

Tooltips are shown for aircraft trail and logbook trail preview if enabled. This is off per default. You can enable the trail tooltips in options on page Map Tooltips and Clicks.



Flown trail with tooltip and color gradient `Yellow, Green, Cyan to Blue`. *Click image to enlarge.*

Note

Long aircraft trails having too many points can reduce the performance of map display significantly even more when using the gradient color option.

Clear trails after flying and use the trails stored in the Logbook if you like to see the trails of previous flights.

16. Traffic Patterns

Little Navmap can display an airport traffic patterns for guidance on the map.

Right click at the center of an airport symbol in the map, flight plan table or airport search result table and select Add Traffic Pattern.

This will show a dialog where you can select a runway and customize the pattern.

The display of traffic patterns is automatically enabled in menu `View` -> `User Features` -> Traffic Patterns after using this function.

Little Navmap shows a tooltip with information about the traffic pattern when hovering the mouse above the hotspot (white filled circle) at runway threshold.

Traffic patterns can be removed by either selecting `Map` -> Remove all Traffic Patterns, `File` -> Reset all for a new Flight or by right click on the hotspot (circle) at the runway threshold.

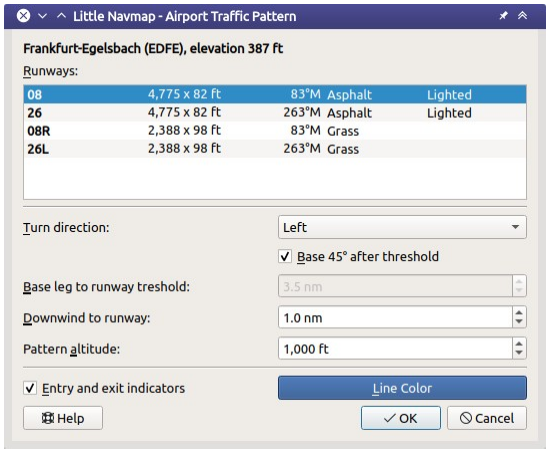
16.1. Create Traffic Pattern

Dialog input and selection fields:

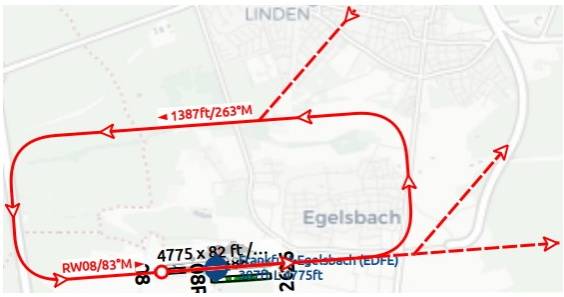
- Dialog header: Shows airport name and its ICAO ident as well as field elevation.
- `Runways`: List of available runways for the airport. Shows runway name, length, width, magnetic heading, surface and attributes like lighting status or approach types.
- `Turn direction`: Select to choose between left or right turn pattern. This is automatically updated when selecting a runway from FSX or P3D.
- `Base 45° after threshold`: Calculates the final leg length automatically when checked.
- `Base leg to runway threshold`: Enabled if `Base 45° after threshold` is checked. Length of the final leg. Measured from turn to final to the runway threshold.
- `Departure from threshold`: Enabled if `Base 45° after threshold` is checked. Distance from runway threshold to turn to crosswind. Measured from the start of the runway, i.e. the end of the final leg.
- `Downwind to runway`: Parallel distance from downwind leg to runway.
- `Pattern altitude`: Pattern altitude above airport elevation. This is automatically updated when selecting a runway from FSX or P3D.
- `Entry and exit indicators`: Shows dashed lines and arrows giving hints for entry and exit points.
- `Line Color`: Color of the pattern lines and labels. Can be different for each traffic pattern.

A click on `OK` or a double click into the list `Runways` closes the dialog and creates the traffic pattern.

See Airport Traffic Pattern in the map legend for details about the displayed numbers in the pattern.



Traffic pattern dialog for EDFE runway 08 at 1,000 ft above airport elevation. *Click image to enlarge.*



Traffic Pattern for the settings in the dialog above. Downwind leg shows pattern altitude above MSL and course and final leg shows runway name and course. White filled circle is the hotspot that can be right clicked to remove the pattern in the context menu. *Click image to enlarge.*

17. Holdings

Little Navmap can display a holding pattern at any place or navaid on the map.

User placed holdings can be added at any map position. Attaching a holding to a navaid will use the magnetic declination of the navaid and show its ident in the holding label.

Right click in the map, flight plan table, airport, navaid or userpoint search result table and select Add Holding.

This will show a dialog where you can select a runway and customize the holding.

The display of holdings is automatically enabled in menu `View` -> `User Features` -> Holdings after using this function.

Little Navmap shows a tooltip with information about the holding when hovering the mouse above the hotspot (white filled triangle) at the holding fix.

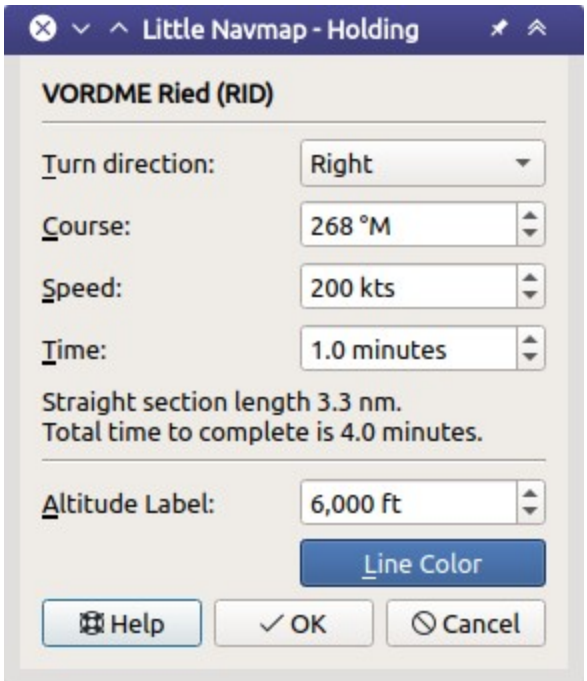
Holdings can be removed by right click on the hotspot (triangle) at the holding fix and selecting `Map` -> Remove User Feature, selecting Remove all Holdings in the menu `View` or or by using `File` -> Reset all for a new Flight

17.1. Create Holding

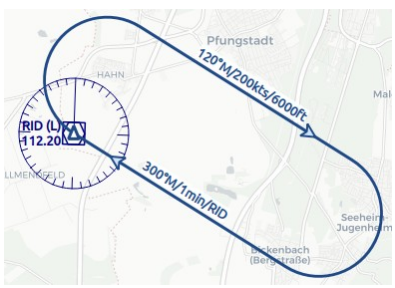
Dialog input and selection fields:

- Dialog header: Shows navaid name and ICAO ident or coordinates if holding is not attached to a navaid.
- `Turn direction`: Select to choose between left or right turn.
- `Course`: Course of the inbound (towards fix) leg of holding in magnetic degree.
- `Speed`: Intended holding speed. Used together with time to calculate holding size.
- `Time`: Time of the straight legs in the holding. Used together with speed to calculate holding size.
- Label `Straight section length`: Calculated length of the straight inbound and outbound sections.
- Label `Total time to complete`: Total time to complete one holding.
- `Altitude label`: Altitude to display at the holding.
- `Line Color`: Color of the holding lines and labels.

See Holding for details about the displayed numbers in the pattern.



Holding dialog for VORDME `RID`.



Holding at VORDME `RID`. Inbound label shows inbound magnetic course, holding time and navaid ident. Outbound track has outbound magnetic course, speed and altitude as label. While filled triangle is the hotspot and holding fix. *Click image to enlarge.*

18. Minimum Sector Altitude

Minimum Sector Altitude (MSA) is the lowest altitude which will provide a minimum clearance of 1,000 feet above all objects located within a sector of a circle of mostly 25 NM radius. The sector can be centered on an airport, a runway end or a navaid.

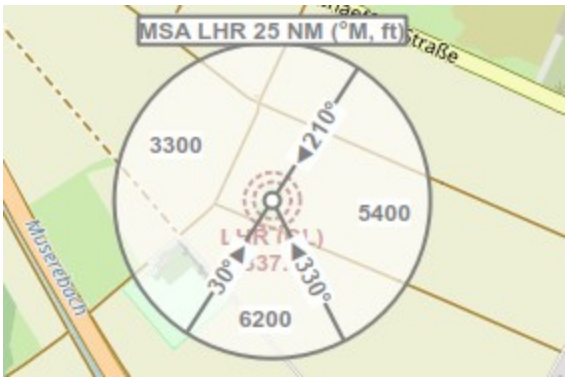
Little Navmap shows the MSA sectors are symbols attached to an airport, a runway end or a navaid. These MSA symbols are also shown in the Tab Navaids and in tooltips on the map. Labels shows `MSA`, navaid ident and radius in NM. Sector bearings are shown in degree magnetic and sector safe altitudes shown in feet. Disable MSA symbols in menu `View` -> `Navaids` -> Show MSA Sectors.

Right click on the MSA symbol and select Add MSA Diagram from the map context menu to show a to scale MSA diagram. The display of user MSA diagrams is automatically enabled in menu `View` -> `User Features` -> MSA Diagrams after using this function. Remove MSA diagrams by clicking on the center and selecting Remove User Feature.

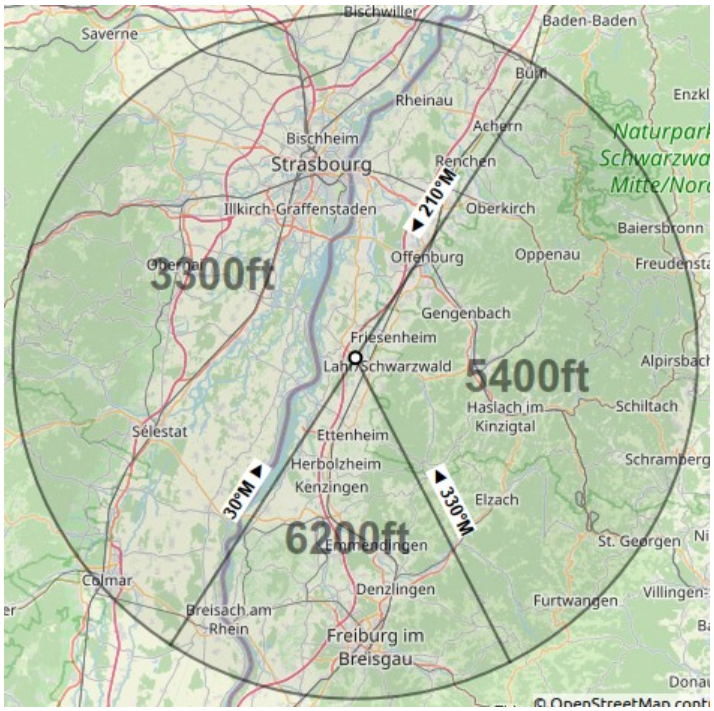
See also Navaids in the map legend.

Note

MSA sectors are not available when using the setting Do not use Navigraph Database in the menu `Scenery Library` -> `Navigraph` with FSX, P3D or MSFS. See also Load Scenery Library and Navigation Databases.



An 25 NM MSA symbol at NDB LHR having three sectors. Sectors denoted by magnetic bearing to navaid and altitudes in feet.



To scale MSA diagram after selecting Add MSA Diagram. *Click image to enlarge.*

19. Compass Rose

The compass rose indicates true north, magnetic north, aircraft heading and aircraft track.

User aircraft heading, track, distance rings and markers are shown if *Little Navmap* is connected to a simulator. The rose is centered around the user aircraft if connected.

The compass rose is kept centered in the current view if not connected to a simulator. Magnetic declination is based on the declination in the center.

Once connected to a simulator, the compass rose will be attached to the user aircraft and follow its position. This can be disabled in menu `View` -> Attach Compass Rose to Aircraft.

The size is adapted to the map view size but not larger than 500 NM and not smaller than 0.2 NM.

Line thickness and other display options can be changed in the options dialog on pages Map Labels and Map User.

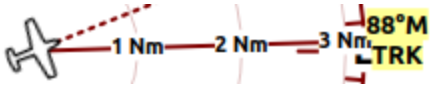
The colors for flight plan leg course and heading indicator depend on settings for active flight plan leg which can be changed in the options dialog on page Map Flight Plan.

19.1. Indicators

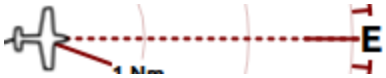
True north.

Magnetic north.

Distance circles and marks from user aircraft if connected.



Solid line shows aircraft track in degrees magnetic if connected.

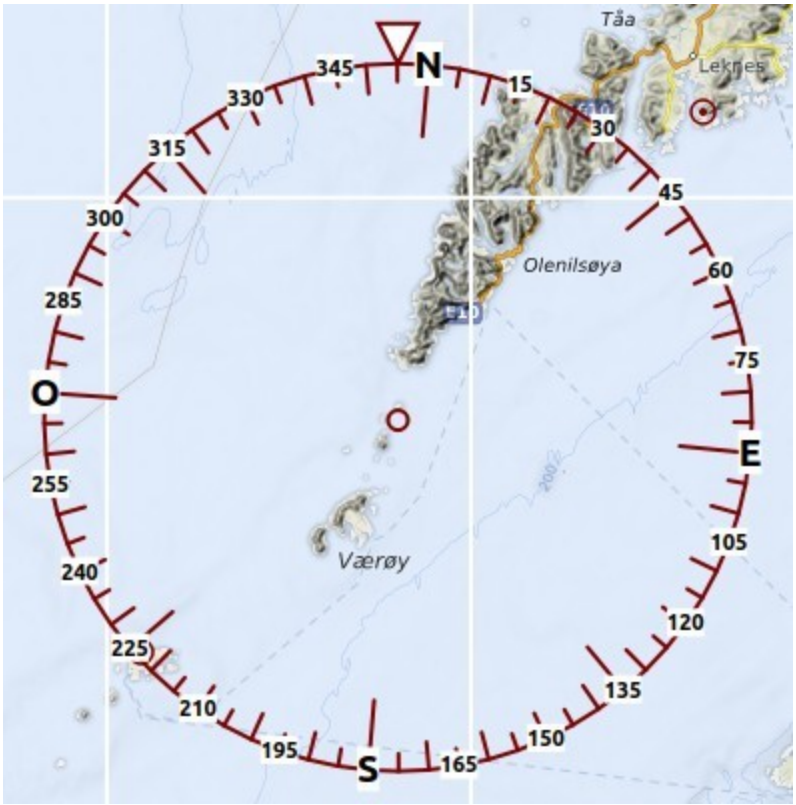


Dashed line shows aircraft heading if connected.

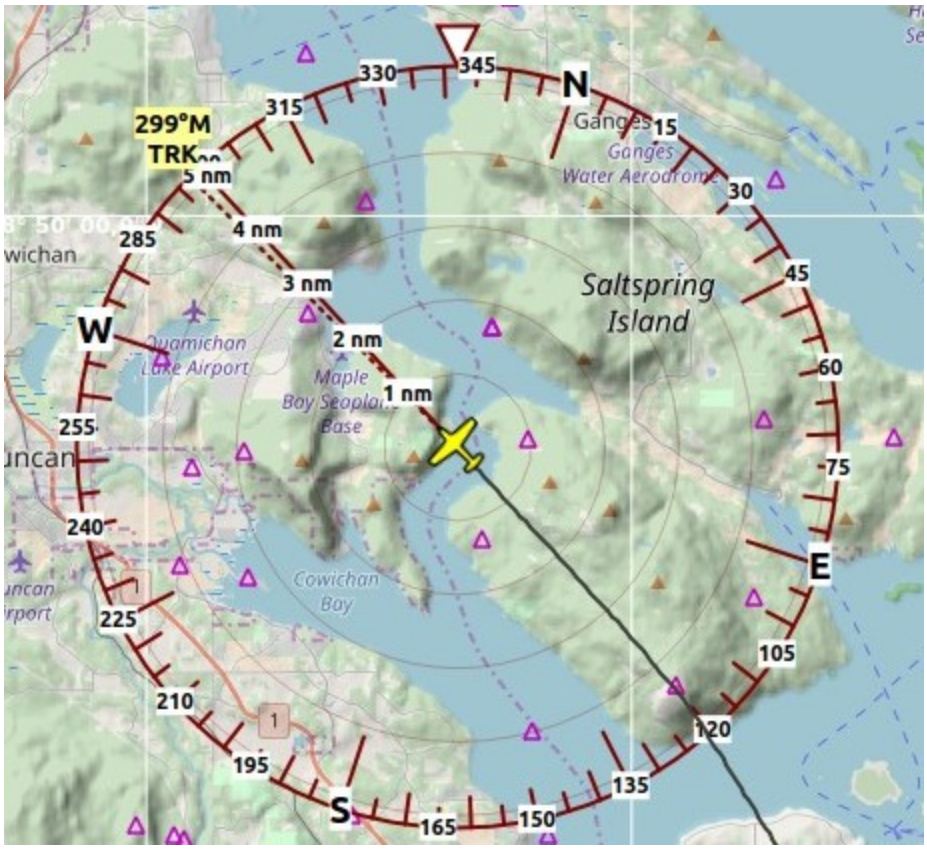
Magenta line segment shows the course to next waypoint of the active flight plan leg. Hidden if no flight plan loaded.

Heading indicator. Shows the heading that has to be flown towards the next waypoint of the active flight plan leg considering cross wind. Hidden if no flight plan loaded.

19.2. Examples



Compass rose without simulator connection. Distance rings disabled.



Compass rose centered around user aircraft. No flight plan loaded. Therefore, heading and next waypoint indicators hidden.

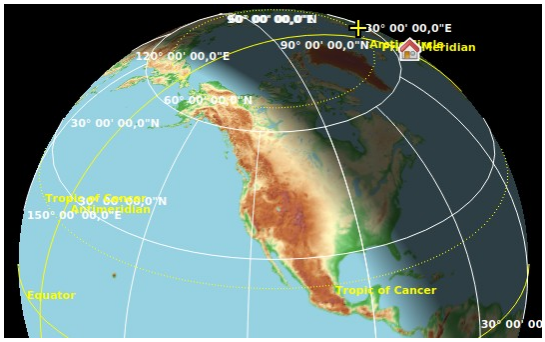
20. Sun Shading

Little Navmap allows to display the sun shadow on the globe. This works in both projections `Mercator` and `Spherical`.

Enable the shadow in the menu `View` -> Show Sun Shading.

You can change the time source for the sun shading in `View` -> Sun Shading Time.

The shadow darkness can be changed in the options dialog on page Map, `Sun shading Darkness` at the bottom of the dialog.



Sun shading on the northern hemisphere. *Click image to enlarge.*

20.1. Time Sources

You can choose between three time source for the sun shading. Time is not fixed and will advance for all sources or updated from simulator time.

- `Simulator`: Uses the time of the connected flight simulator. Falls back to real time if not connected to a simulator. Automatically updates the shadow if the simulator time changes.
- `Real UTC Time`: Always use real time.
- `User defined Time`: Allows to use the user defined time as changed by `Set User defined Time` below.

20.2. Set User defined Time

The menu `View` -> `Sun Shading Time` -> `Set User defined Time` opens a dialog to set an user defined time in UTC as a source for the sun shading.

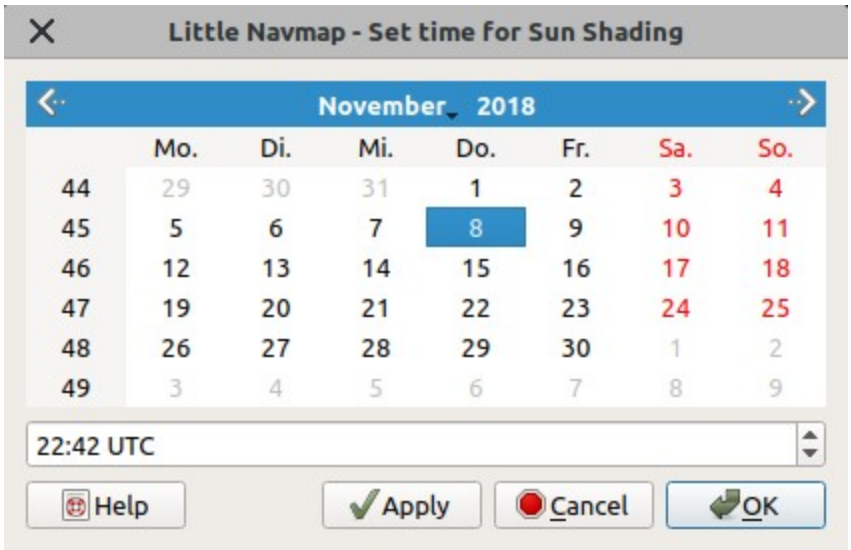
Tip

You can move the dialog away from the map window and see the results immediately by clicking the button `Apply`.

Note

Do not forget to click on a date when changing months or years. Otherwise the old date will be used.

Note that the user defined time is reset to current real time when restarting *Little Navmap*.



Date and time for sun shading on November 8 at 10:42 pm UTC Time.

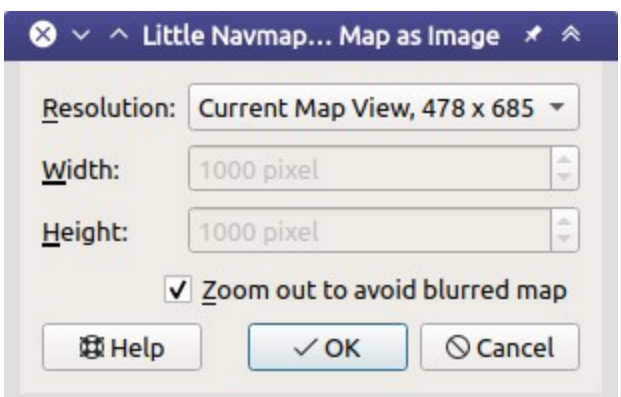
21. Map Image Export

This dialog appears when saving the map view to an image file, for AviTab or copying it to the clipboard.

Dialog input and selection fields:

- `Resolution`: Select the desired resolution in pixels here. The following options are available:
    - `Current Map View`: Export the map view as shown. The current pixel size of this image is shown in the list entry.
    - `Custom Resolution`: Use the pixel size from the input fields `Width` and `Height`.
    - `720p, 1280 x 720, 16:9,`
    - `1080p, 1920 x 1080, 16:9,`
    - `1440p, 2560 x 1440, 16:9,`
    - `2160p, 3840 x 2160, 16:9` and
    - `4320p, 7680 x 4320, 16:9`: Predefined typical image and monitor resolutions.
- `Width` and `Height`: Use this to define the pixel size for the image if `Custom Resolution` is selected.
- `Zoom out to avoid blurred map`: Checking this option helps to get a sharp background image for online maps (e.g. from *OpenStreetMap*). This works best with the map projection `Mercator`. As a result, the map might be zoomed out farther than expected in some cases.

Little Navmap will update the map image tiles for online maps if another option than `Custom Resolution` is selected. A progress dialog running for maximal 60 seconds will appear while updating the map in background. You can decide to cancel the download and proceed to export the image without updating all tiles.



Dialog shown after choosing `Save Map as Image ...`.

Note

All options except `Current Map View` will change visible details. Navaids might appear which are not shown in the map on screen, for example.

Warning

Choosing a too high resolution might result in missing map features due to cache overflow. You can notice this by missing airports on half of the image, for example.

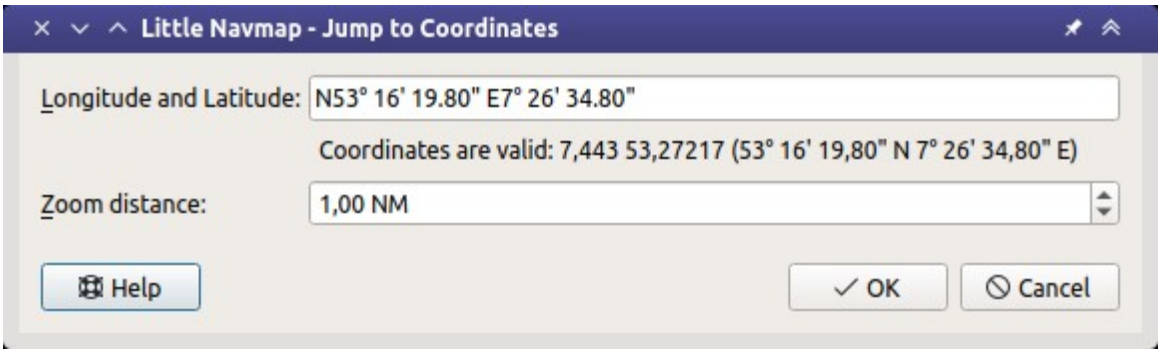
22. Jump to Coordinates

This function is available from the map display context menu -> `More` -> Jump to Coordinates and the main menu `Map` -> Jump to Coordinates.

Selecting this function opens a dialog where a coordinate using the recognized formats and a zoom distance can be entered. The coordinate is validated and shown in the user selected format (options page Units). A red error message is shown if the coordinate is not recognized.

The map moves and zooms to the point using the given information when clicking `Ok`.

See Coordinate Formats about recognized coordinate formats.



Jump to coordinates dialog open with valid coordinates.

23. Measure Distance

Draw a measurement line after selecting Measure Distance from here in the map context menu or doing a `Ctrl+Click` in the map. Click a second time to finish the measurement and fix the line.

See User Features in the map legend for more information.

All measurement lines are saved and will be restored on next start up. Remove the lines by `Ctrl+Click` on the hotspot (small cross at the end) or by right clicking on the hotspot and selecting Remove User Feature.

You can use the keyboard, mouse wheel or the map overlays to scroll and zoom while dragging a line.

Right-click, press the escape key or click outside of the map window to cancel the measurement line editing.

Measurement lines use nautical miles, kilometers or statue miles as unit. Feet or meter will be added as unit if the lines are short enough.

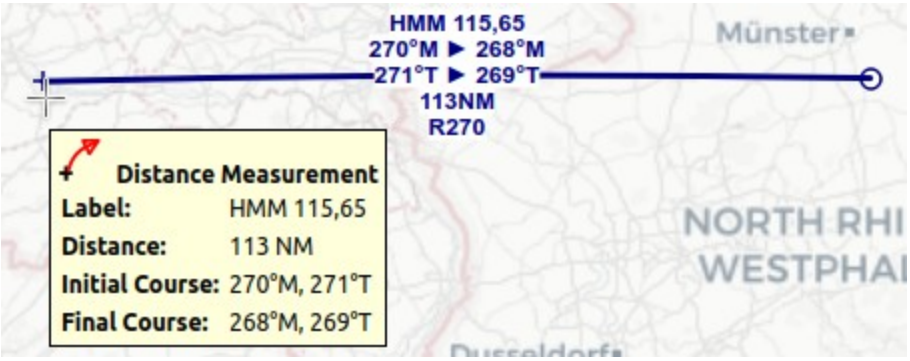
A great circle gives the shortest distance from point to point on earth but does not use a constant course. For that reason the measurement line will show two course values. One for the start and one for the end position if they are different. Short lines have mostly equal start and end course.

The width of distance measurement lines can be changed in the options dialog on page Map User. The labels on the options page Map Labels.

A measurement line starting at a VOR, VORDME, VORTAC or TACAN takes the calibrated declination of the navaid to calculate the magnetic course. See also Magnetic Declination for more information about magnetic declination.

The display of measurement lines is automatically enabled in menu `View` -> `User Features` -> Measurement Lines after adding a line.

Little Navmap shows a tooltip with information about the measurement line when hovering the mouse above the hotspot (cross at line end).



A measurement line with all labels enabled starting at VOR `HMM` (not shown on the right). Labels shown are navaid ident and frequency, magnetic start and end course, true start and end course, distance and VOR radial. Tooltip with cross mouse cursor at the hotspot.

24. 🎯 Range Rings

Opens a dialog which allows to set the parameters for one or more range rings.

The dialog window contains the following input fields:

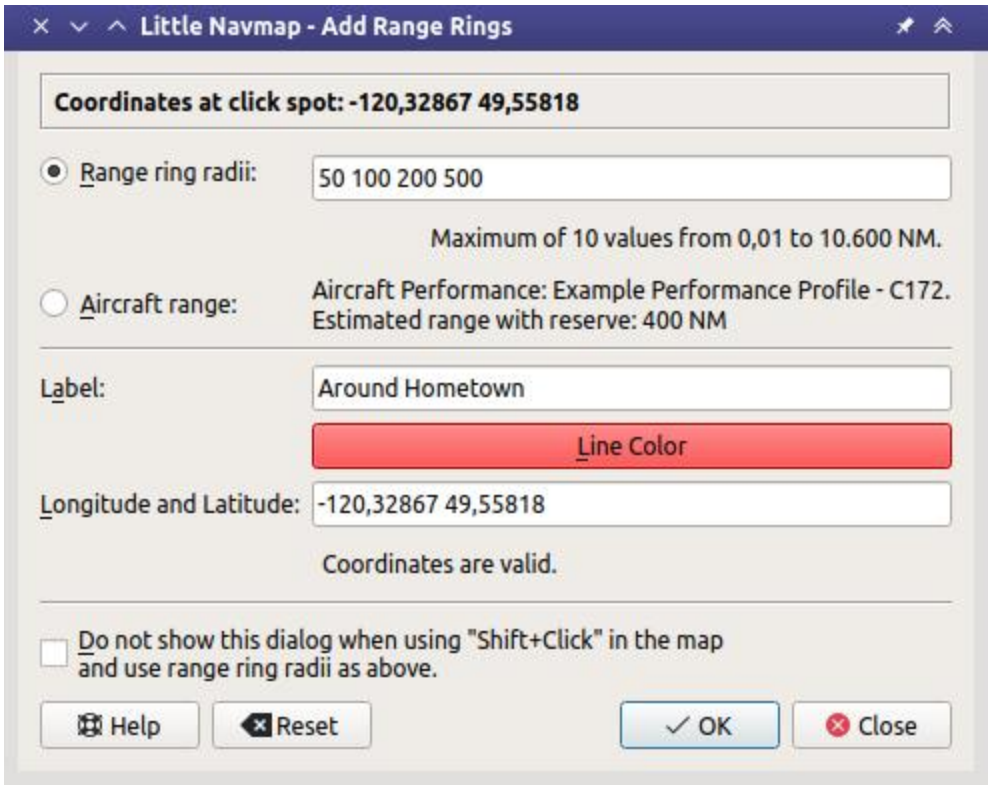
- `Range ring radii`: Radii for the ranges. A ring and an attached label is drawn for each number. A maximum of 10 values from 0.01 to 10,600 NM can be entered.
- `Aircraft range`: Displays one range ring for the aircraft endurance based on the current aircraft performance profile. The endurance is static and does not change with current user aircraft parameters. It is calculated from usable fuel, cruise fuel flow, true airspeed at cruise, reserve fuel and contingency fuel as set in the Aircraft Performance file. See also Show Aircraft Endurance for another way to display a dynamic range based on actual user aircraft parameters like fuel on board.
- `Label`: An additional label which is attached to the rings.
- `Line Color`: Color for range rings and labels.
- `Latitude and Longitude`: Prefilled with the coordinates at the click spot but can be changed freely. See Coordinate Formats for supported formats. The label below shows the translated coordinates as selected in the options dialog on page Units or an error message.
- `Do not show this dialog when using "Shift+Click" in the map and use range ring radii as above.`: Places a range ring with the given parameters at the click position `Shift+Click` without showing this dialog when checked. Use the map context menu item Add Range Rings to force the dialog to show up.
- `Help`: Shows this help page in the online user manual.
- `Reset`: Resets all options like numbers and color back to default.
- `Ok`: Closes dialog and adds one or more range rings. The dialog keeps all settings.
- `Close`: Closes the dialog without adding range rings but keeps all settings.

Little Navmap shows a tooltip with information about the range ring when hovering the mouse above the hotspot (white filled circle) in the center.

The width of all range ring lines can be changed in the dialog `Options` on page Map User.

The display of range rings is automatically enabled in menu `View` -> `User Features` -> Range Rings after using this function.

Remove a ring by doing a second `Shift+Click` at the center or right click on the center and select Remove User Feature.



Range rings dialog.

A label indicates the radius of each ring and tooltip shown at center hotspot.

25. Elevation Profile

This dock window shows the ground elevation, flight plan with cruise, climb, descent legs and altitude restrictions together with all flight plan waypoints. It is only available when a valid flight plan is loaded. The user aircraft will be shown if *Little Navmap* is connected to the simulator.

The elevation profile does not cover missed approaches and legs to alternate airports. Create a new flight plan from the destination to the alternate airport if you wish to use the elevation profile.

Note

The elevation display covers only the flight plan and will not change the depiction if you get off the flight plan with your simulator aircraft. You need a valid flight plan (i.e. a departure and destination airport) and a valid aircraft performance file to see the elevation profile.

25.1. Top Label

Following information is shown in the top label if connected to a flight simulator with a valid flight plan:

- Distance from user aircraft to flight plan destination
- Estimated time en-route in hours and minutes
- Distance from user aircraft to the top of descent
- Estimated time to top of descent in hours and minutes

Example: `Destination: 47 NM (0 h 28 m). Top of Descent: 26 NM (0 h 15 m).`

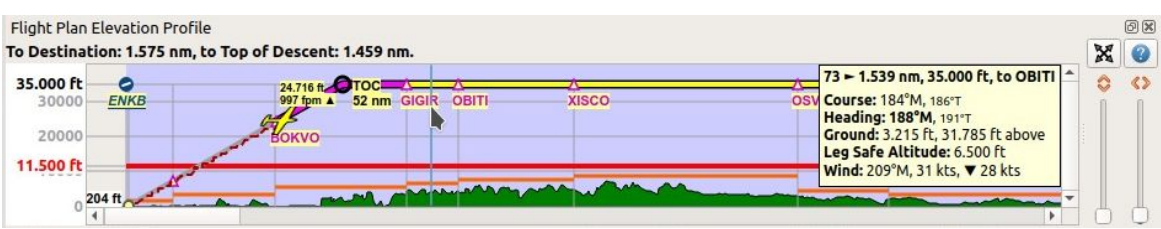
The label is hidden if not connected to a simulator.

25.2. Tooltip Label

Additional information is shown in a tooltip label at the right or left side in the window if the mouse is hovered over the diagram. The corresponding position is highlighted on the map with a black/cyan circle. The label changes the side depending on mouse position.

The label shows the following information for the mouse position:

- Distance from departure and to destination plus calculated altitude and next waypoint.
- `Course` for the flight plan leg at the cursor position.
- `Heading` for this flight plan leg at the position. This is calculated based on wind conditions and omitted if it is the same as course.
- The `Flight path angle` is only shown in the descent phase and shows the vertical angle. The label changes to `Required flight path angle` if a descent path is reqired by a procedure.
- `Ground` altitude and calculated altitude above ground.
- `Leg safe altitude` of the flight plan leg at the cursor position (orange line).
- `Wind` direction and speed as well as head- (▼) or tailwind (▲) component.



Information for position between waypoints `GIGIR` and `OBITI`. Indicating a headwind of 28 knots at this position. User aircraft still climbing. Note the image showing German number format with dot as thousands separator.

25.3. Zoom Sliders

The right side of the elevation profile contains the zoom sliders. The following controls are available:

- `Splitter`: You can resize the right part of the elevation profile window using this splitter button. The part containing the sliders will be collapsed if you drag it to the far right. You can open the collapsed part again by dragging the splitter to the left. The look of the splitter might be different on another operating system.
- `Expand to Window`: Resets the view back to 100 percent showing the whole flight plan.
- `Display Options`: See Elevation Profile Display Options.
- `Help`: Opens this online help page.
- `Zoom Vertically`: Move the slider up to zoom in vertically. Maximum zoom results in 500 ft height for the whole profile window.
- `Zoom Horizontally`: Move the slider up to zoom in horizontally. Maximum zoom results in about 4 NM distance for the whole profile window.

25.4. Mouse Movement

- Hover: The corresponding position within the flight plan is highlighted on the map with a black/cyan circle.
- `Wheel`: Zoom in and out horizontally.
- `Shift+Wheel`: Zoom in and out vertically.
- `Left Click and drag`: Move map up, down, left or right.
- `Left Double Click`: Zoom to position on main map.
- `Right Click`: Show context menu.

25.5. Keyboard Movement

Click on the elevation profile window to activate it before using the keyboard.

- Cursor keys: Move map up, down, left or right.
- `+` and `-`: Also on numpad. Zoom in and out horizontally.
- `*` and `/`: Also on numpad. Zoom in and out vertically.
- `0` or `Ins` : Reset view to 100 percent and show the whole flight plan.
- `Home` and `End`: Jump to departure or destination.
- `PageUp` and `PageDown`: Move forward or backward one page.

25.6. Elevation Profile Display Options

Choose `Elevation Profile Display Options` from the elevation profile context menu to customize labels and other display features.

The dialog uses a tree. See Trees for more information about this type of input element.

Same as main menu `Tools` -> Elevation Profile Display Options.

25.7. Context Menu Elevation Profile

25.7.1. Show Position on Map

Zooms to the corresponding position on the map. This is the same as double clicking into the elevation profile.

25.7.2. Expand to Window

Resets the view back to 100 percent showing the whole flight plan.

25.7.3. Keep User Aircraft Centered

If this option is selected, the aircraft remains centered on the left of the altitude profile during flight.

The aircraft will be kept on the upper part of the window if the aircraft is descending and on the lower part if climbing. You can move around the profile manually. After a time without manual movements it will jump back to the aircraft.

The vertical and horizontal zoom distances set by the user are not changed while *Little Navmap* keeps the aircraft visible.

See also for more information on jump back in the options dialog on page Simulator Aircraft which partially affects this function. See the related tooltips for more information.

This function is independent of the related Map follows User Aircraft.

25.7.4. Center on Aircraft and Destination

Same as Keep User Aircraft Centered above but additionally zooms the elevation profile to keep aircraft and destination visible when checked. This hides the unneeded passed flight plan legs.

The vertical and horizontal zoom distances set by the user are not changed while *Little Navmap* keeps the aircraft visible until the destination is visible on the right side of the map. The elevation profile starts to zoom in horizontally and vertically as much as possible to keep the destination and the user aircraft visible then.

The function Keep User Aircraft Centered has to be enabled to use this function.

Note that the elevation profile starts zooming fairly late after at least half of the flown flight distance.

25.7.5. Delete Aircraft Trail

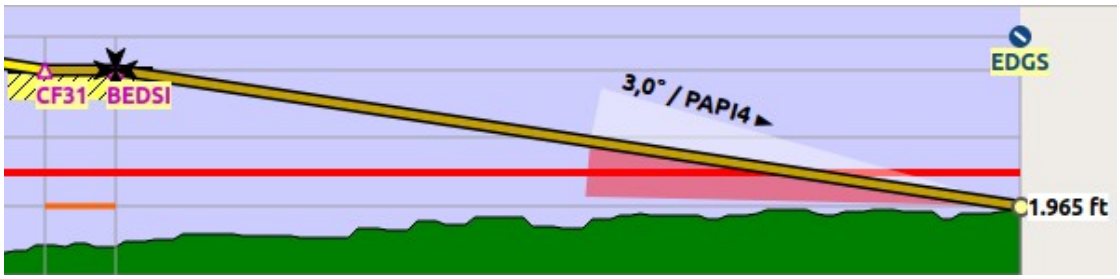
This menu item removes the user aircraft trail from the elevation profile only. It does not remove the trail from the map. Use this if the trail appears in the wrong place or wrong shape in the elevation profile after creating of modifying a flight plan.

See Aircraft Trail, ref:*menu-gpx* and Aircraft Trail for more information.

25.7.6. Show VASI

Shows a VASI slope if an approach procedure with a runway (not circle-to-land) is selected in the flight plan and if the runway has a VASI.

The slope is drawn with the correct angle to be usable as an approach guide. The vertical opening angle is only meant for depiction and has no relation to the real VASI accuracy.



Display of VASI slope at destination airport. Slope is 3 degrees and VASI type is PAPI4. Final approach fix is marked with a Maltese cross.

25.7.7. Show ILS or GLS/RNP

Shows an ILS glideslope or GLS/RNP approach paths if an approach with a runway is selected in the flight plan and if the runway has the related navaid or approach type.

Drawing of approach guidance depends on selected approach procedure type. An ILS approach will show the ILS feathers while a localizer approach without vertical guidance will not. Note that no vertical navaid guidance is shown for circle-to-land approaches.

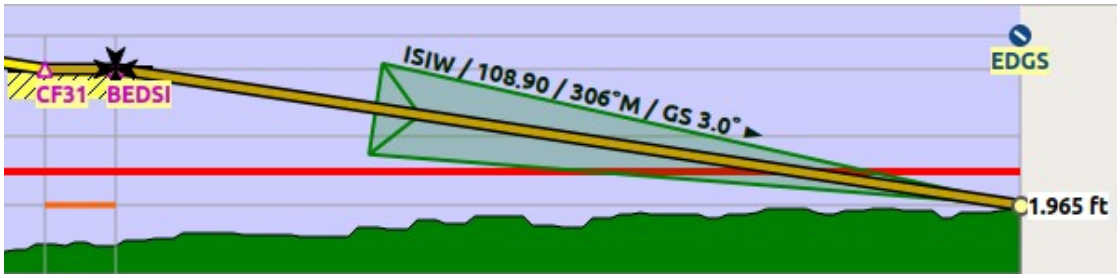
The slope is drawn with the correct angle to be usable as an approach guide. The vertical opening angle is only meant for depiction and has no relation to the real ILS accuracy.

A label on top shows name, frequency, heading, glideslope angle and DME indicator if available

Note

The ILS glideslope and GLS/RNP glidepaths can be forced to display for all approach types:

- Disable ILS or GLS/RNP on the toolbar or in the menu `View` -> Navaids to see only flight plan related navaids on the map and approach related navaids in the elevation profile. This means you won't see an ILS glideslope for a VOR approach in the elevation profile, for example.
- Enable ILS or GLS/RNP to see slopes in the elevation profile independent of the approach type. A destination runway (Select Destination Runway or Procedures) or an approach (Search Procedures) has to be selected to see the slope.



Display of ILS at destination airport. Final approach fix is marked with a Maltese cross.

25.7.8. Show Top of Climb and Top of Descent

Hides the climb and descent slopes as well as the top of climb and top of descent indicators when disabled. This affects the map and elevation profile display but not the altitude calculation in the fuel report or elevation profile.

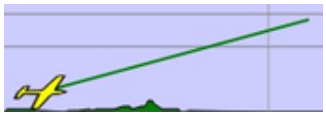
This is the same function as Show Top of Climb and Top of Descent in the menu `View`.

25.7.9. Show Vertical Trail

Shows a vertical aircraft trail line indicating the flight path based on current descent or climb rate as well as ground speed.

Use this to aim at the right altitude at the next flight plan waypoint. This is especially useful at descent.

Related function for the map is Show Selected Altitude Range Arc in the map context menu.



Vertical aircraft trail line in elevation profile window indicating climb rate.

25.7.10. Follow on Map

The map view will be centered - not zoomed in - on the position below the cursor if hovering above the elevation profile when this option is selected.

25.7.11. Show Zoom Sliders

Show or hide the zoom sliders and buttons at the right side of the elevation profile. You can still zoom using the mouse or the keyboard.

25.7.12. Show Scrollbars

Show or hide the scroll bars at the bottom and the right side of the elevation profile. You can still use the mouse or keyboard to navigate.

25.7.12.1. Elevation Profile Display Options

See Elevation Profile Display Options above.

25.8. Profile Display

The colors, symbols and font of the elevation profile follow the style of the main map as set in the options dialog. Colors, patterns and symbols for airports, navaids, procedures, active and passed flight plan legs are the same. The profile display also follows other map settings like visibility of flight plan line, aircraft and aircraft trail.

Display options for the flight plan can be changed in options page Map Flight Plan. Not all of the flight plan options affect the elevation profile which is noted in the related tooltips.

Aircraft heading will turn if a backward movement relative to the active flight plan leg is detected.

For more information see the Elevation Profile in the map legend.

The elevation profile uses actual altitude for display of restrictions, slope and cruise.

The aircraft icon is shown using indicated altitude to ensure matching to cruise altitude line at the higher flight levels.

You might see vertical aircraft movement of the aircraft symbol and jumps in the trail when adjusting barometric pressure in the simulator altimeter.

Note

Keep in mind that actual altitude shown in *Little Navmap* might differ from indicated altitude even with a correct baro setting.

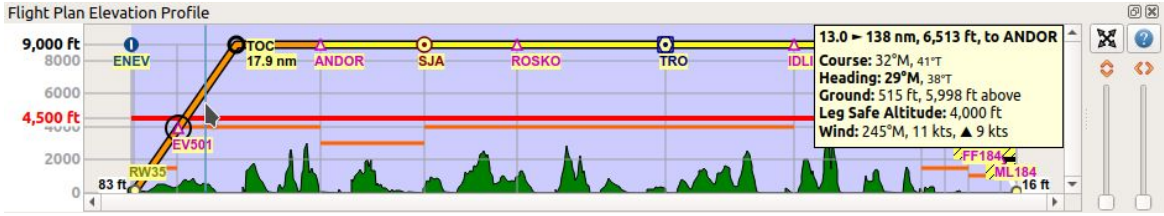
This is an effect of the outside air temperature (OAT) on actual altitude where low temperatures affect the aircraft altimeter. When temperature is less than ISA conditions an aircraft will be lower than the altimeter reading.

This effect is currently modeled in X-Plane 12 and MSFS.

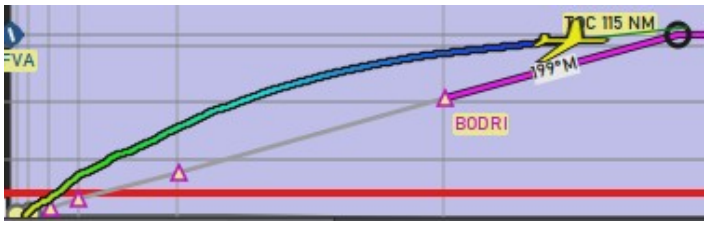
Corrections have to be applied when the aerodrome temperature is 0°C or colder:

- DH/DA or MDH/MDA and step-down fixes inside the final approach fix (FAF).
- All low altitude approach procedure altitudes in mountainous regions (terrain of 3000 ft AMSL or higher)

See SKYbrary - Altimeter Temperature Error Correction [https://skybrary.aero/articles/altimeter-temperature-error-correction] for more information.



Flight plan elevation profile with line indicating the mouse hovering position. Orange lines show minimum safe altitude for flight plan segments. Red line shows overall minimum safe altitude. Top of climb and top of descent points shown including slope. Orange flight plan lines show procedure legs. Waypoint `EV501` has an overfly condition and there are several altitude restrictions shown for the approach procedure below the tooltip.



A depiction of the climb phase which shows the typical climb or a large aircraft where vertical speed is lower when getting close to cruise altitude when flying constant speed/Mach. In contrast to this the flight plan line shows the average climb across the whole profile.

25.9. Aircraft Trail

The trail is shown using the same settings as on the main map. You can change the display in options on page Map Aircraft Trail.

Note that the aircraft trail in the elevation profile is deleted on takeoff to avoid a cluttered profile display. This does not affect the trail on the map display which can be saved and loaded and is is independently stored.

Movement of the aircraft and the trail in the elevation profile is tied to the active flight plan leg and will not be correct if flying away from the active.

See Aircraft Trail, ref:*menu-gpx* and Aircraft Trail below for more information.

25.10. Top of Climb and Top of Descent Paths

The elevation profile also displays the top of climb and top of descent which are calculated based on the current Aircraft Performance profile and Winds Aloft situation.

Note that the TOC and TOD calculation is influenced by altitude restrictions in procedures. *Little Navmap* will calculate a climb or descent path always adhering to these restrictions. The resulting path might use a higher or lower climb or descent speed than expected.

The path is also forced to the lowest allowed altitude at the final approach fix (`FAF`) and the final approach course fix (`FACF`) to avoid arriving above the ILS glide slope or too high at the destination runway.

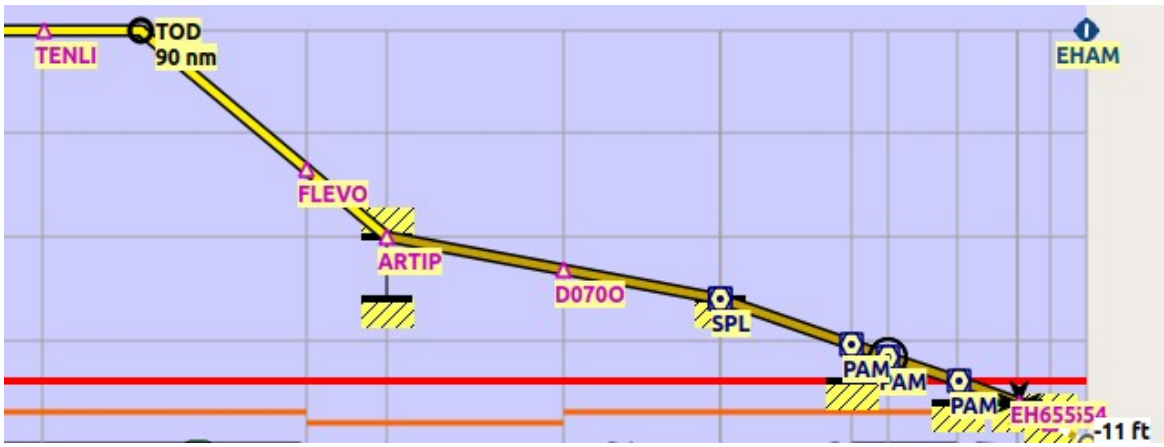
You can safely follow the descent path as shown by *Little Navmap*, provided you can manage your aircraft speed at the same time. For large aircraft you might want to descent around 10 nm earlier to reduce speed to 250 knots below 10,000 ft.

I recommend to make the descent path manually more shallow (i.e. use a lower sink rate) to take the deceleration phases into account.

The climb and descent paths are affected by wind and are moved accordingly for strong head- or tailwinds. The climb path will be steeper in the elevation profile if you climb in a strong headwind, for example.

See chapter Winds Aloft for more information.

The plan will switch to a flat display showing only a flight plan line at cruise altitude if the TOC and/or TOD cannot be calculated or if the plan violates altitude restrictions. A red warning message is shown in the Error Messages Footer on the flight plan tab if this is the case. Click the message for more information.



An approach procedure which requires the aircraft to descent early due to a restriction between 7,000 and 10,000 ft at `ARTIP`.

25.11. Elevation Data

Elevation processing is done in the background since online data has to be downloaded and computation is CPU intensive. Therefore, the update of the elevation display can take from a few seconds up to half a minute. This background update is started after creating or changing the flight plan or when new elevation data was downloaded. The display will be updated accordingly whenever new data is available.

25.11.1. Online Elevation Data

Note that the third party online elevation data does not cover all countries and currently ends at 60 degrees north. The data contains several known errors which cannot be fixed.

The calculation of online elevation points is limited to flight plan segments not longer than 2,000 NM to avoid overloading. Add more waypoints or calculate a flight plan to avoid this limitation.

25.11.2. Offline Elevation Data

Using the freely downloadable GLOBE - Global Land One-km Base Elevation Project [https://ngdc.noaa.gov/mgg/topo/globe.html] elevation data is recommended.

See GLOBE Offline Elevation Data for details and installation instructions.

26. Search

The search dock window contains several tabs with similar functionality that allows to search for objects by name, ident or other criteria.

Filters are defined by various controls which are mostly self explaining. Only text filters and the tri-state checkboxes like `Lighted`, `Approach` or `Closed` need a few extra remarks below.

All filters can be used together where all conditions have to be met (`and` operator). All filters except the distance search filter are applied immediately. The distance search is applied after a short delay for each change.

A tooltip on the blue help button on the top right shows information about searching.

See Tables for more information how to rearrange columns in tables.

Tip

You can use the cursor key `Down` to jump from the input fields into the result table.

Using keyboard shortcuts like `Ctrl+I` for `Show Information` or `Ctrl+M` for `Show on map` are usable directly from the input fields and will apply to the topmost airport in the result table.

The same applies to other tabs like navaid and logbook search as well.

26.1. Text filters

The standard is to look for partial text matches. This means that a search term of `Chicago` will find the airports Gary Chicago as well as O'Hare (due to city Chicago).

`EDDE` will find the airports Erfurt-Weimar (EDDE) as well as Wedderburn.

Use stars `*` as wildcards matching any text and double quotes `"` for exact word match. Using `"EDDE"` will find the the airport Erfurt-Weimar (EDDE) only.

The search is negated (i.e. find all entries that do **not** match) if the first character of a search term is a `-`.

Note that all of the above does not apply to numeric fields like `Runways: Min` or `Altitude: Max`.

26.2. Airport and Navaid Ident Text filters

The airport search has a special search field for all airport idents and names (ICAO, FAA, IATA, local, name, city, state/province and country) using partial match for quick search.

Separate search fields are available in the drop down menu under `Names`. The same rules as mentioned in Text filters above apply.

Entering three or four characters in the `ICAO Code` field of the airport search tab will trigger a quick search which ignores all other filters.

The fields `Ident, name, city, state, province, country or area code` for the airport and navaid `Ident` search allow more functionality besides the one described above:

- Put an search term in double quotes `"` to force an exact search, i.e. avoid partial matches. Example: `SEA` finds two airports one being `SEAM` while `"SEA"` finds only `KSEA` because of the matching IATA code SEA.
- Separate several idents by space to do a search for each ident. `EDDF EDDM` find the two airports Frankfurt and Munich, for example.

26.3. Tri state checkboxes

These are used to filter airports by presence of certain facilities or properties.

Below are the states as they are shown in Windows 10:

- **Black Box:** Condition is ignored.
- **Checked:** Condition must match.

- **Empty Box:** Condition must not match.

Colors and look of these checkboxes vary with theme and operation system. So instead of gray another color might be used (red fill on Linux or a – for macOS).

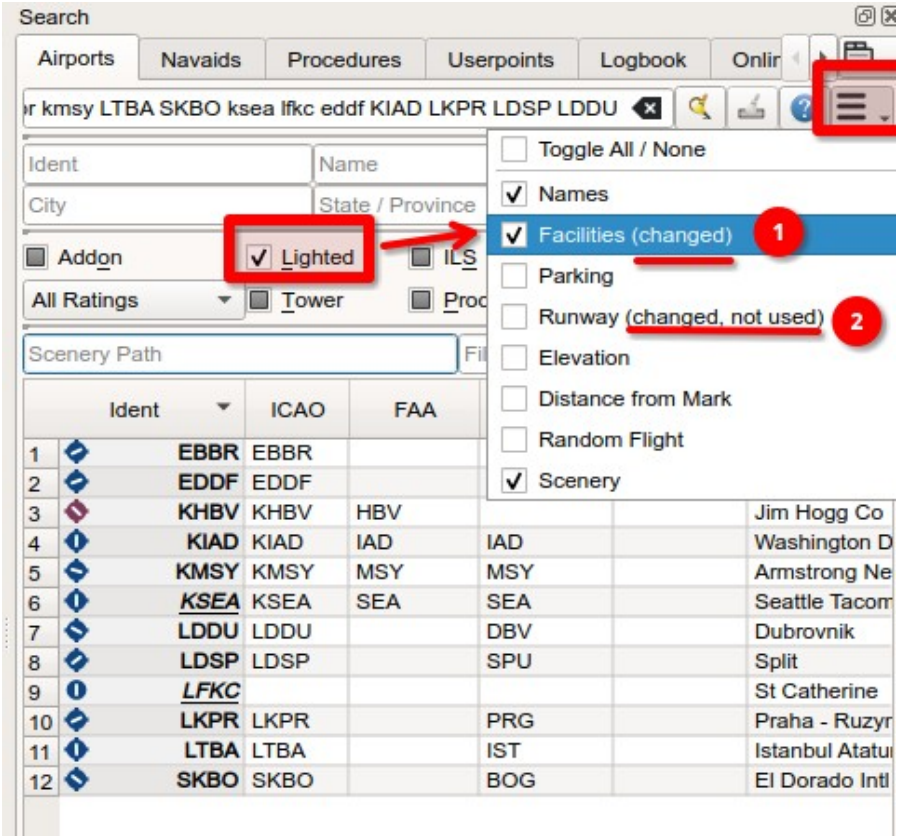
26.4. Menu Button

Airport, navaid, userpoint and online search tabs contain multiple sections of search filters. These sections can be switched on and off with the drop down menu on the menu button on the top right.

The drop down menu prefixes menu items with a change indicator to show that the related filter section has modifications. The menu item suffix `(changed)` shows an option is modified and visible to the user. `(changed, not used)` indicates a modified option which is not used since the related fields are hidden from the dropdown menu button.

Tip

If you do not get the expected results or no results at all use the Reset Search menu item, the button `Reset Search` or press `Ctrl+R` to clear all search criteria.



Click the dropdown menu. This will indicate if there are changes in the related section. Facilities are all the airport properties like add-on, tower and so on in this example. *Little Navmap* ignores sections in the search which are not visible (deselected in the drop down menu). (1) has changes in a visible section (`Lighted`) and (2) has changes in a hidden section (`Runway`) which are ignored.

26.5. Distance search

This function is only available in the airport and navaid search.

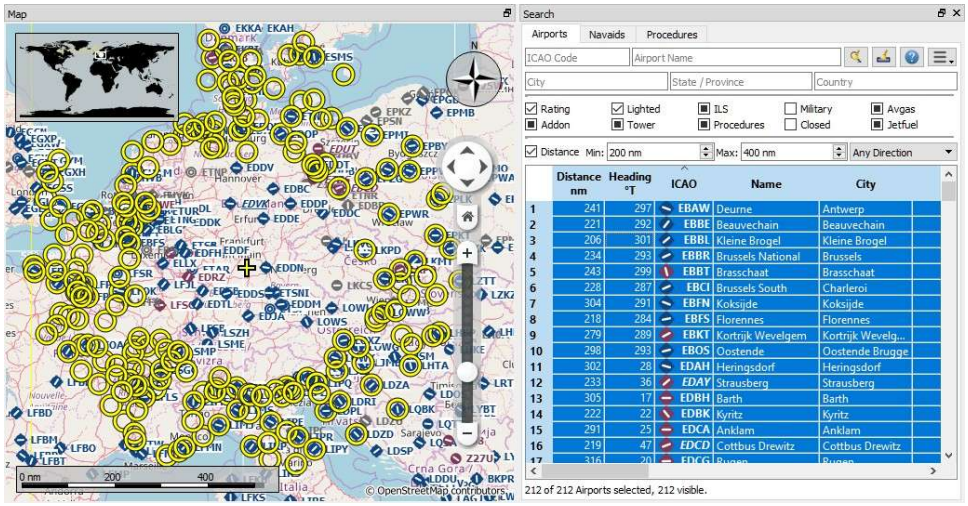
This function allows you to combine all other search options with a simple spatial search.

The checkbox `Distance` has to be selected to enable this search. The result will include only airports or navaids that are within the given minimum and maximum range of NM from the search center. This allows you to quickly search for a destination that is within the range of your aircraft and fulfills other criteria like having lighted runways and fuel.

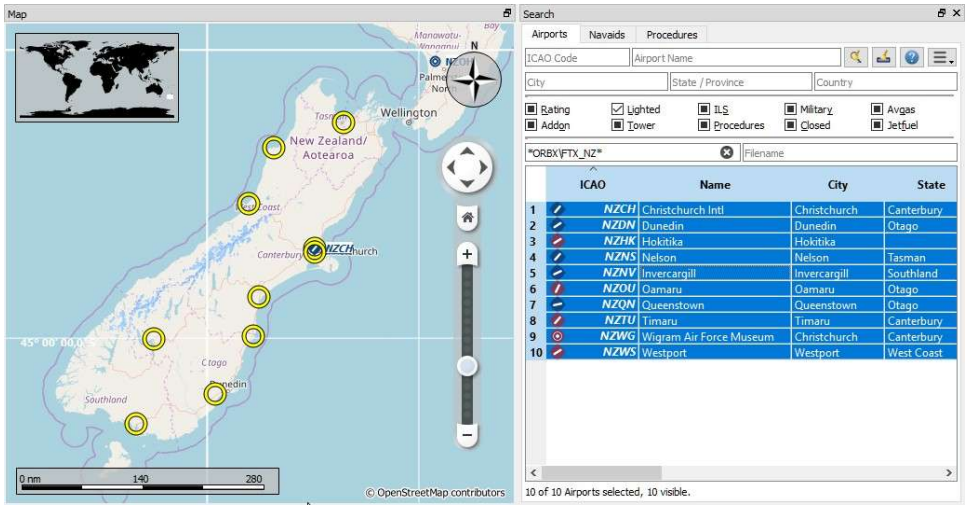
The center for the distance search is highlighted by a symbol.

To restrict the search further you can select a direction (North, East, South and West).

Check the drop down menu for the suffix `(changed)` and the search fields for any remaining text if the distance search does not give any or unexpected results. Use the [Reset Search]() menu item, the button `Reset Search` or press `Ctrl+R` to clear all search criteria.



A complex distance search: Find all airports within a distance between 200 and 400 NM from Frankfurt (EDDF). Airports should have a rating greater than 0 and should have at least one lighted runway. Military and closed airports are excluded. The resulting airports are highlighted on the map by selecting them in the search result table. *Click image to enlarge.*



A complex search for scenery: This example shows how to find specific add-on scenery by using the `Scenery Path` search field. This shows all airports of the Orbx New Zealand South Island add-on scenery that have lighted runways. *Click image to enlarge.*

26.6. Random Flight in Airport Search

Selects a flight using a random departure and a random destination based on the current airport search result.

See [Random Flight Generation]() for more information about this function.

26.7. Ident and Names in Airport Search

The input field `Ident, name, city, state, province, country or area code` in the airport search tab searches for all available airport identifiers and names.

- `Ident`: Mostly equal to ICAO code but can be different especially for small airfields. X-Plane uses partially an unofficial code in this field like `XPA000B`. Available for all simulators and Navigraph navdata.
- `ICAO`: Four letter ICAO code [https://en.wikipedia.org/wiki/ICAO_airport_code]. Only available in X-Plane.
- `FAA`: Airport code used in the United States given by the Federal Aviation Administration [https://www.faa.gov/]. The FAA code is only available in X-Plane.
- `IATA`: Three letter IATA airport code [https://en.wikipedia.org/wiki/IATA_airport_code]. Available in X-Plane and Navigraph navdata.
- `Local Code`: Official local airport code mostly used for small airfields. Only available in X-Plane.
- `Name`, `City`, `State/Province`, `Country/Area Code`: Airport names and administrative names. Note that not all names are available depending on simulator.

The airport codes and names are also shown in the information windows, tooltips and in the map labels as well as in Flight Plan Route Description. ICAO, FAA, IATA, and local codes are shown and the internal ident is avoided if possible.

Example:

`Akutan` is shown as `Akutan (PAUT)` with its official ICAO code `PAUT` instead of the internal X-Plane code `XPA000B`.

Tip

Hide the additonal airport codes if you do not use X-Plane or if you are not interested in these columns. You can do this by moving the columns to the rightmost position or by shrinking them to minimum size. See Search Result Table View.

26.8. Country, State/Province and City in Airport Search

Note that quality and availability for administrative data depends on the selected simulator.

MSFS provides names in the local language as selected in the options dialog on page User Interface but country names are not available.

X-Plane airports are community work and therefore administrative names have varying quality if set at all. Country names are often used in several variants like `USA`, `U.S.A.`, `United States` and more.

26.9. Override in Airport Search

Entering an airport ident using three letters or more ignores all other search options and shows only airports matching this ident.

This is indicated by the message `Ident overriding other search options.` in the search window footer.

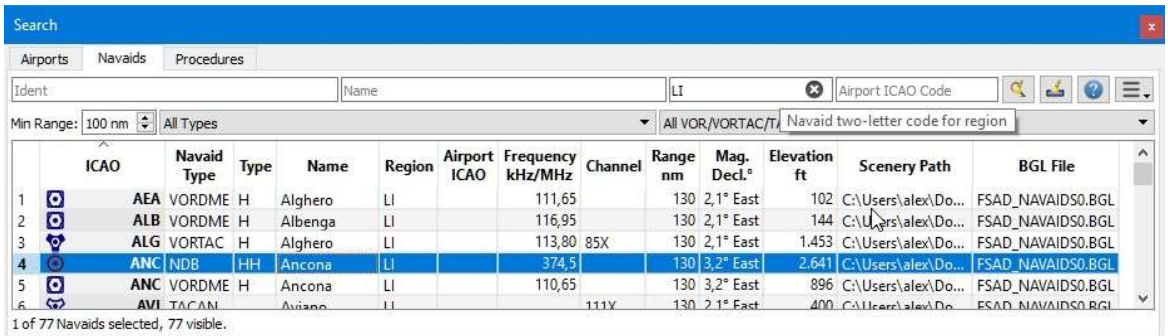
26.10. Search Result Table View

All selected elements in the table view will be highlighted on the map using a black/yellow circle. See Highlights in the map legend for more information.

Use `Shift+Click` or `Ctrl+Click` to select two or more elements (multi-selection).

See Tables for more information how to rearrange columns in tables.

Airport search result table. All additional search options are hidden by using the drop down menu of the menu button on the top right.



Navaid search limited to ICAO region `LI` (Italy) and VOR, VORTAC and TACAN stations that have a range of 100 or more NM.

26.10.1. Footer

The footer shows the number of selected, loaded and visible entries considering search and filter criteria.

Note that you to select Show All from the table context menu or have to scroll down to see all entries:

26.10.2. Mouse Clicks

A double-click on an entry in the table view shows either an airport diagram or zooms to the navaid or other feature. Additionally, details are shown in the `Information` dock window. Single click selects an object and highlights it on the map using a black/yellow circle.

26.11. Top Buttons

Available buttons and menu items depend on search tab. This chapter explains common buttons and menu items.

26.11.1. Reset Search

Same as Reset Search in the context menu.

26.11.2. Clear Selection

Same as Clear Selection in the context menu.

26.11.3. Help

Display a quick help in the tooltip. Click to open this chapter of the manual in the default browser.

26.11.4. Menu Button

Drop down menu button that allows to hide or show search options.

See Menu Button for details.

The drop down menu suffixes menu items with an indicator `(changed)` to show that the related filter section has modifications. You can use this to find out why a search does not give the expected results.

26.12. Context Menu Search

Available menu items depend on search tab.

Many menu items are mirrored from the Context Menu Map and provide the same functionality for the selected item below the cursor or the selected rows in the result tables. These are omitted here.

26.12.1. Show on Map

Show either the airport diagram or zooms to the navaid, userpoint or other features on the map. The zoom distance can be changed in the dialog the options dialog on the page Map Navigation.

26.12.2. Mark Airport as Add-on

Marks an airport with a yellow circle as add-on. Same as Mark Airport as Add-on. Enabled for all airports at the clicked position.

26.12.3. Filter by Entries including/excluding

Use the field under the cursor to set a search filter that includes or excludes the text of the field. This is only enabled for text columns.

26.12.4. Reset Search

Clear search filters and revert to showing all entries in the search result table view.

26.12.5. Show All

The table view does not show all entries initially for performance reasons. This menu item allows to load and show the whole search result. The view switches back to the limited number of entries after a search filter is modified or the sort order is changed. The number of all, visible and selected entries is shown at the bottom of the tab.

Be aware that showing all navaids and airports can take some time especially if they are highlighted on the map when selecting all entries in the search result. The program does not crash but needs a few seconds to highlight all the objects on the map.

26.12.6. Follow Selection

The map view will be centered, but not zoomed in, on the selected feature if this function is enabled.

26.12.7. Copy

Copy the selected entries in CSV format to the clipboard. This will observe changes to the table view like column order and sort order. The CSV includes a header line. Columns which are hidden or shrunk to minimum width are excluded.

Import the CSV-Text into spreadsheet programs using UTF-8 encoding and a semicolon as a separator.

See Tables for more information how to rearrange or hide columns in tables.

26.12.8. Select All

Select all visible entries. To select all available entries the function `Show All` has to be used first.

26.12.9. Clear Selection

Deselect all entries in the table and remove any highlight circles from the map.

26.12.10. Reset View

Reset sort order, column order and column widths to default.

27. Random Flight Generation

This function is a part of the airport search tab and can be started from the menu item `Flight Plan` -> Generate Random Flight. See Search for more information about the airport search.

This allows to select a random departure and destination based on the current airport search result and the departure and destination airport in the flight plan.

A progress dialog allowing to cancel the selection is shown if the process takes longer. Once done the user can accept the departure/destination pair or start a new calculation.

Adjust the airport search to get appropriate airports for your random flight. You can select a minimum runway length or procedures required, for example.

A dialog window is shown where you can select either a fixed departure or a fixed destination airport for the random flight generation. Add at least one airport to your flight plan to enable this function.

The random flight generation puts the change on the undo/redo stack once you accept a generated flight. This is the same behavior as used in the flight plan route description which allows to restore a previous flight plan and its changes by clicking the item Undo and Redo in the menu `Flight Plan`.

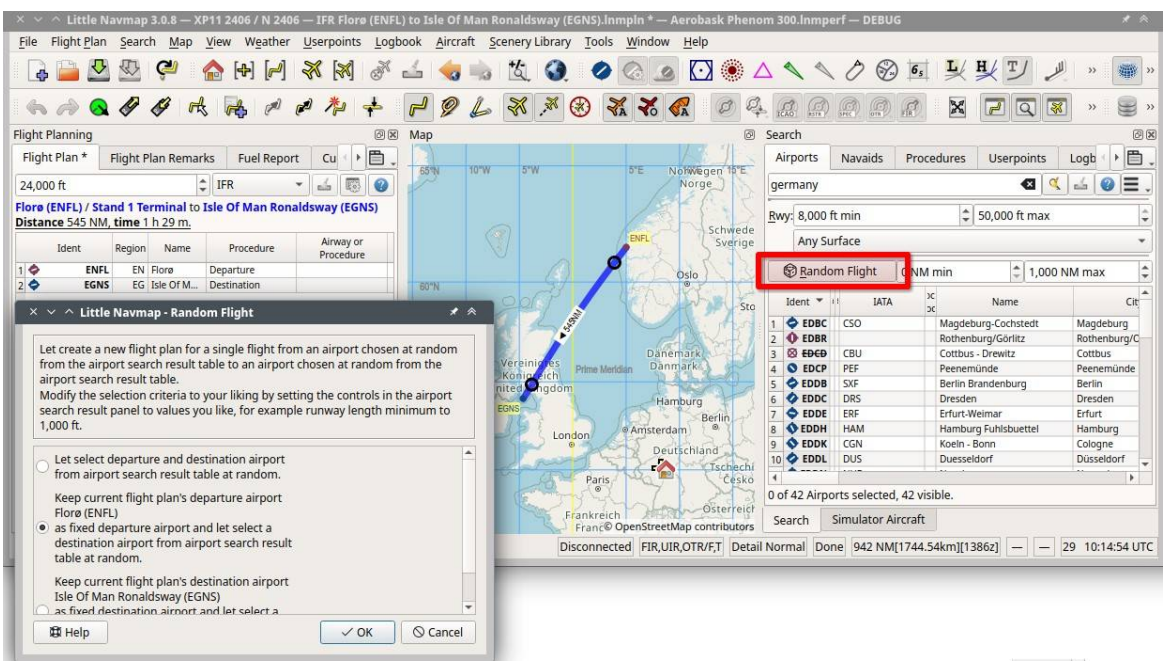
Note that the maximum distance for random flight plan is 10.800 NM.

You can refine the flight plan further by running the Flight Plan Calculation to get airways or intermediate navaids, selecting procedures (Search Procedures) or Select Start Position.

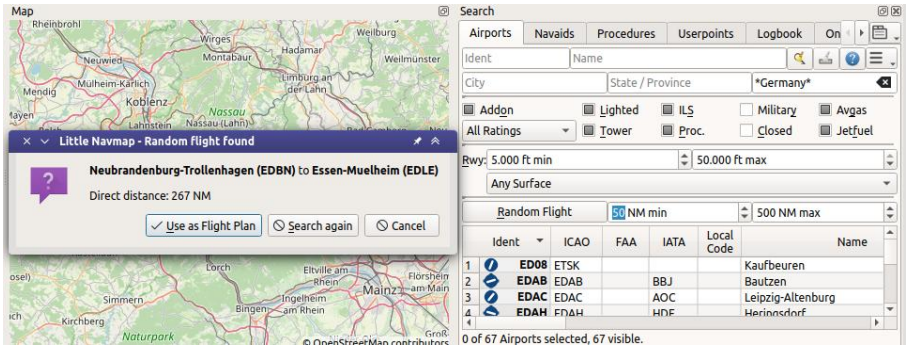
Note

The random flight generation does not work with a distance filtered airport list (Distance search).

The distance filter is not needed for random flight generation from an airport. Add the airport in the center of the distance search point to the flight plan so that the plan consists of only of this airport. Then adjust the maximum distance of the random search. Select `Use current flight plan`s departure airport as fixed departure airport ...` in the next dialog window. This will give you a random destination from your current airport in the flight plan.



Generating a random flight from a search result showing all airports in Germany, having 8,000 feet minimum runway length. The selection will generate a random flight from the current departure airport Florø (ENFL) with a maximum lenght of 1,000 NM. *Click image to enlarge.*



Generating a random flight from a search result showing all airports in Germany, having 5,000 feet minimum runway length and are neither closed nor military. *Click image to enlarge.*

28. Search Procedures

The tab `Procedures` allows previewing and adding approach, arrival (STAR) and departure procedures (SID) to the flight plan. Procedures of a selected airport are arranged in a tree which indicates the dependency between procedure and transition.

The dialog uses a tree element. See Trees for more information about this type of input element.

See Procedures for general information about SID, STAR, approaches and transitions.

Procedure legs are shown when a procedure node is expanded in the tree. Procedures can be filtered by runway, name and type.

Right-click on a procedure or a procedure leg to show a context menu.

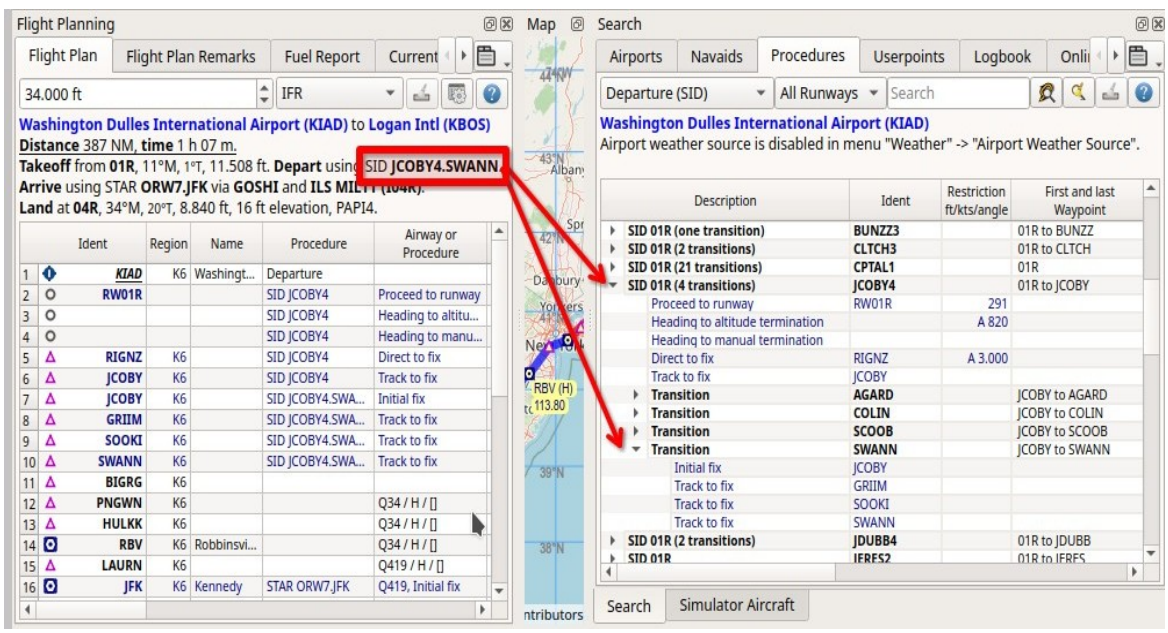
Use the context menu item Delete Selected Legs or Procedure of the flight plan table or the map context menu item Delete from Flight Plan to remove procedures from a flight plan.

Procedure legs are highlighted in red if one or more navaids could not be resolved. A warning dialog will be shown if you try to add this procedure to a flight plan.

Note that the SID and STAR names are limited to 5 characters in FSX and P3D due to a limitation in the BGL file format. Therefore procedure names are slightly modified. However, this does not apply to procedures from a Navigraph or X-Plane scenery database.

All information in the procedure search tab reloaded on startup if the setting `Restore information window content` is enabled on the page Startup and Updates in options. The information is also kept when switching between simulators in the Scenery Library Menu, provided the airport exists and has procedures in the selected simulator database.

The procedure search tab expands procedure branches that are already present in the flight plan. This means that procedures and/or their respective transitions are expanded when showing procedures for departure or destination airport.



Expanding the tree elements for SID JCOBY4 via SWANN after selecting Show Procedures from the context menu when right-clicking on KIAD on the map or in the flight plan table. *Click image to enlarge.*

Tip

You can use the cursor key `Down` to jump from the input fields into the result tree and navigate there using the keyboard shorcuts shown in the Context Menu Procedures.

Note

Note that the shown runway numbers might differ compared to airport runways. This happens when an add-on airport and the navigation data have different runway numbers which is a result of renumbered runways due to changes in magnetic declination (magnetic pole drift).

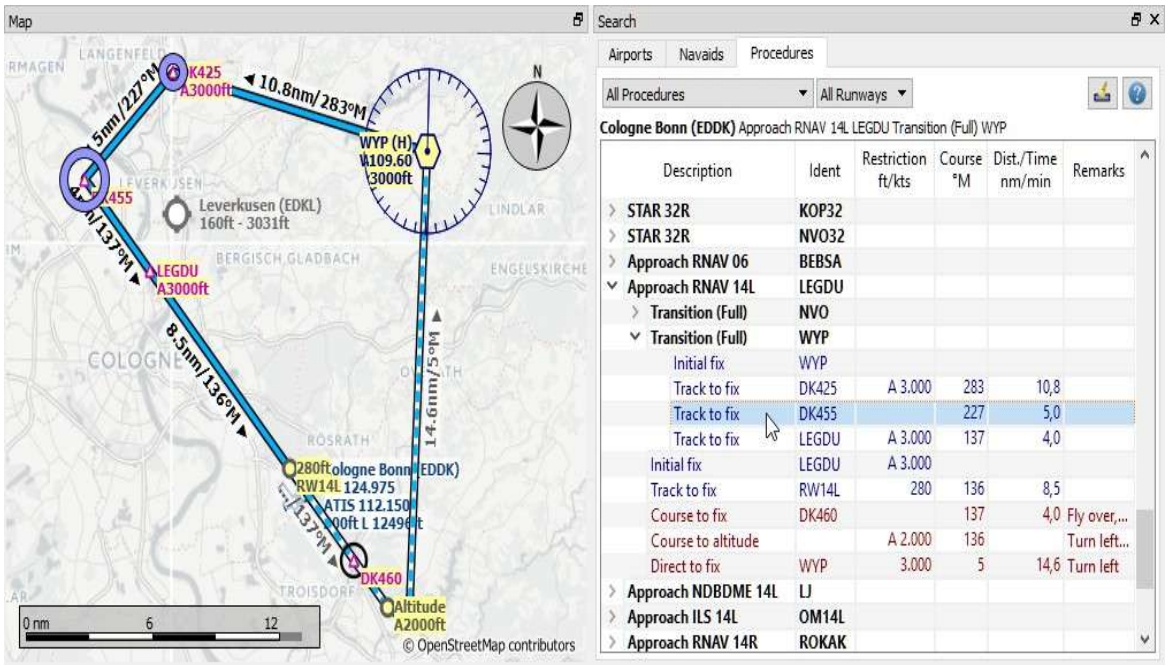
Little Navmap resolves these mismatches internally and still allows to work with procedures. You might expect issues when loading flight plans containing such discrepancies into add-on aircraft or simulators.

Important

It is up to the user to combine the correct procedures with the flight plan.

Little Navmap will not keep you from choosing north bound procedures for a route going south, for example. Also check the resulting route to avoid accidental zig-zag routing which can happen if you combine the wrong approach/transition with a STAR, for example.

Check the flight plan for reversals, zig-zag guidance, too close waypoints or other issues. Delete waypoints manually if you find such cases.



Showing a transition and a RNAV approach. Start and endpoint of a transition leg are highlighted on the map. Screenshot based on *Little Navmap* 2.6. *Click image to enlarge.*

28.1. Runways

Runways are assigned automatically for STAR and approaches if possible to avoid error messages about runway mismatches. This means that a selected STAR runway changes automatically to the one used by a newly selected approach if the STAR allows multiple runways.

The runway of a multi-runway STAR will also be automatically selected for an approach runway already inserted avoiding the runway selection dialog.

28.2. Header

The header shows various information like the airport, warning messages and information for the selected procedure or transition.

28.2.1. Preferred Runways

A preferred runway indication is shown in the header label if available.

The indication is based on the selection in menu `Weather` -> Airport Weather Source and shows the best runways for the airport METAR based on station or interpolated weather.

Head and crosswind for each runway is also shown in the selection table.

See Weather for more information about weather reports.

28.2.2. First and last Waypoint

The header shows the entry and exit waypoints for a procedure and its transition, if selected. This helps to find matching procedures for an airway waypoint or to find an approch matching a STAR and vice versa.

Examples:

STAR selected in tree:

```
STAR 21R VARI3A. From VARIX to KRO.
```

The transition `PELAG` of the approach `D03RY` is selected in the tree. The header shows the entry and exit for the full flight path including procedure and transition:

```
Approach VORDME-Y 03R FD03R (D03RY) via transition PELAG. From PELAG to 03R.
```

28.2.3. Runway Mismatches between Simulator and Navigation Data

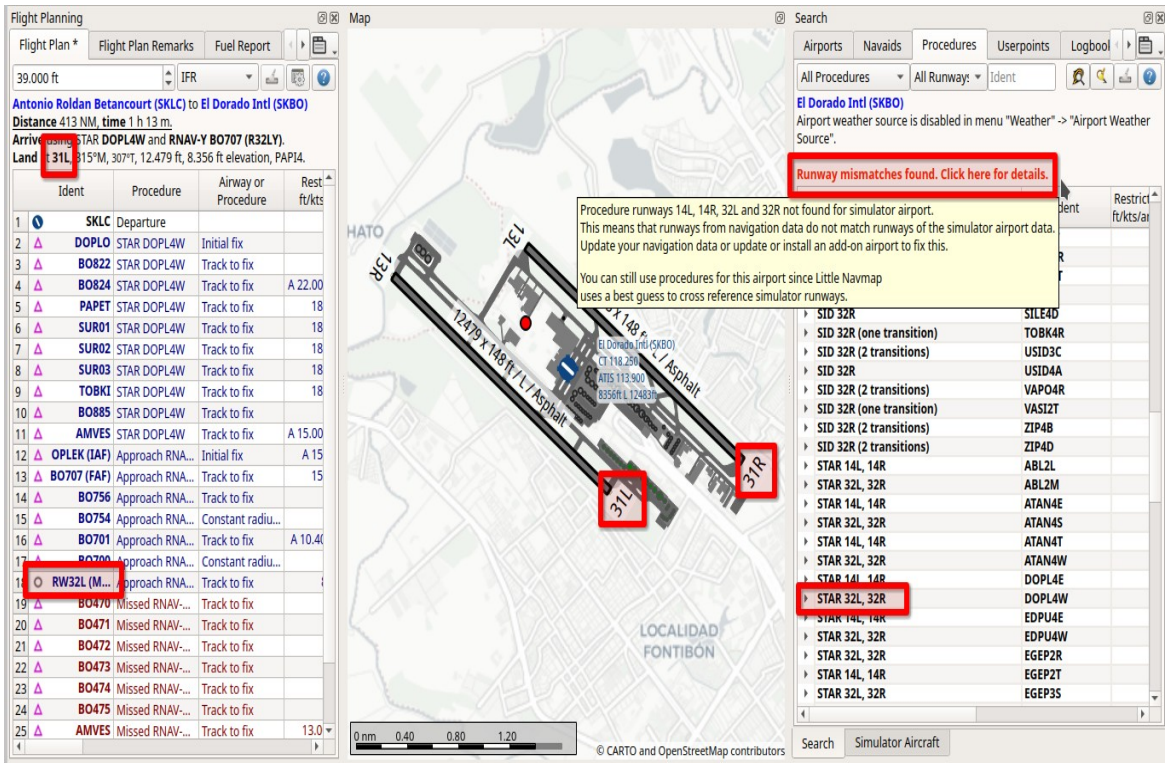
A warning message is shown if procedure runways from the navdata cannot be not found for simulator airport. This means that runways from navigation data do not match runways of the simulator airport data.

You can update the navigation data or update or install an add-on airport to fix this.

Procedures can still be used for such airports since Little Navmap uses a best guess to cross reference simulator runways. As a result, you will see slightly differing runway numbers in portions of the program.

Issues with add-ons or simulators using exported flight plans might show up, though.

See chapter Navigation Databases for more information on simulator and navigation databases.



This image shows place where runway mismatches show up in *Little Navmap*. In December 2022 the runways of El Dorado Intl (SKBO) were renamed due to magnetic heading drift. This can occasionally happen at airports. The airport SKBO has the runways 13L, 13R, 31R and 31L in the simulator while the latest navigation data refers to 14L, 14R, 32L and 32R. *Click image to enlarge.*

28.3. Preview and Highlights

Little Navmap displays a preview of the selected procedure or transition.

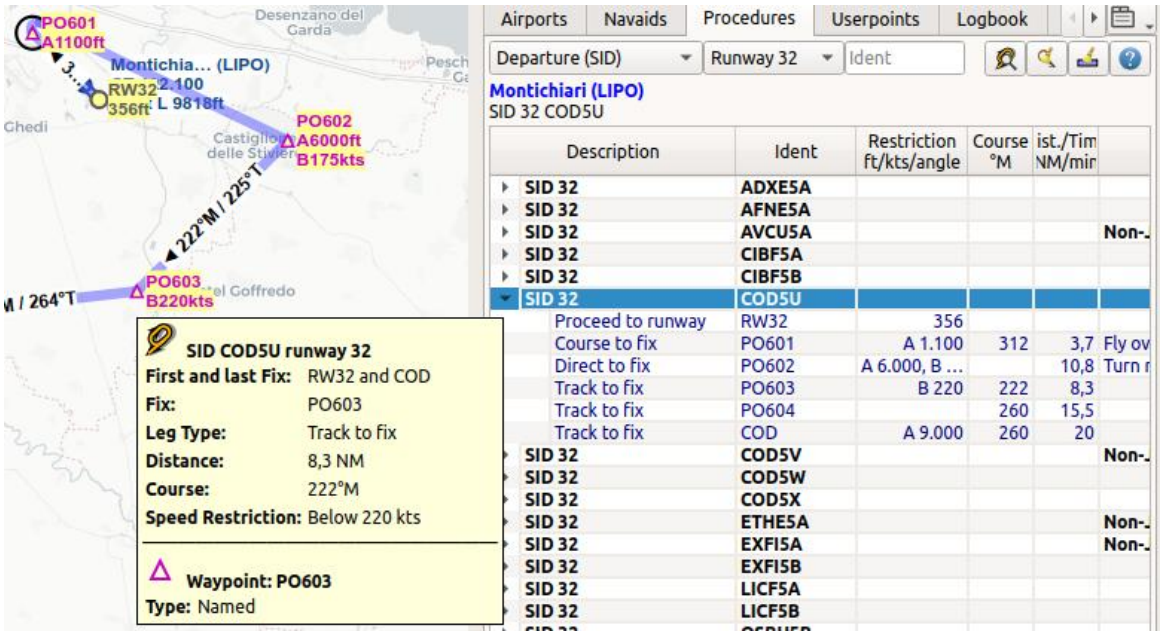
- Click on a procedure in the procedure tree to see the preview of the procedure.
- Click on a transition in the procedure tree to see the preview of the transition and its related procedure.
- Click on a procedure or transition leg to see additional highlighted navaids.

Tooltips give information about navaids in the preview.

The preview of missed approaches can be changed by toggling Show Missed Approaches in the menu `View`.

Procedures can be added to the flight plan by either using Insert Procedure on the preview from the map context menu (right click on a navaid) or the Context Menu Procedures.

Note that labels of procedure waypoints have a … appended if additional labels texts like restrictions are suppressed due to higher zoom distances or lower detail levels.



Previewing a SID at LIPO with tooltip information on procedure and related waypoint. The preview also uses the `Transparent line` setting for flight plans in the options dialog on page Map Flight Plan. *Click image to enlarge.*

28.4. Procedure Tree

Legs are shown in dark blue while missed approach legs are shown in dark red color.

Bold red text indicates an error in the leg. The procedure is incomplete and should not be used in a flight plan. *Little Navmap* might refuse to use the procedure depending on the error since inconsistencies can result in crashes.

- `Description`: Description, type and number of available transitions. Parallel runways are indicated by a list of runways like `STAR 07L, 07R, 07C`. The suffix `All` is added if a procedure applies to all runways of an airport.
- `Ident`: Ident of the initial fix and ARINC code in brackets or name of SID or STAR. See ARINC Approach Types for an explanation of the ARINC type codes. Otherwise ident name of a procedure leg, if expanded.
- `Course °M`: Magnetic course for a leg if expanded.
- `Restriction`: Either procedure altitude restriction, procedure speed limit or a required vertical path angle. The following altitude restrictions exist for procedures:
    - **Number only:** Fly at altitude or speed. Example: `5,400` or `210`.
    - **Prefix** `A`: Fly at or above altitude or speed. Example: `A 1,800`.
    - **Prefix** `B`: Fly at or below altitude or speed. Example: `B 10,000` or `B 220`.
    - **Range:** Fly at or above altitude one and at or below altitude two. Example: `A 8,000, B 10,000`.

    - **Altitude, optional speed limit and optional path angle:** List of values. Example: `A 8,000, B 10,000, B220, -3.5°`.

- `First and last Waypoint`: The entry and exit waypoint of a procedure or transition. The exit for approaches is usually the runway number like `21R` or the airport in case of a circle-to-land approach.
- `Dist./Time`: Distance of flying time for a leg. Holds can have a leg time in minutes or a leg distance in NM.
- `Remarks`: Shows number of transitions, fly-over, turn direction, related navaid, RNP indicator and allowed aircraft categories for a procedure.

28.4.1. ARINC Approach Types

The ARINC procedure type is shown in *Little Navmap* in brackets after the approach name/fix.

The first letter of the ARINC approach type defines the type and the following two digits define the runway plus the optional runway designators `L`, `C` or `R`.

An opional suffix like `X`, `Y` or `Z` separated by a dash can be used to have approaches of the same type unique for airport and runway.

Types:

- `B`: Localizer backcourse
- `D`: VORDME
- `F`: Flight management system (FMS)
- `G`: Instrument guidance system (IGS). Similar to ILS, but not aligned with the runway. Requires a visual turn at the end.
- `H`: RNP approach. Based on GPS.
- `I`: Instrument landing system (ILS). Precision approach.
- `J`: GNSS landing system (GLS). GBAS landing system, combining GPS with a ground station enhancing precision.
- `L`: Localizer only (LOC)
- `M`: Microwave landing system (MLS). Obsolete.
- `N`: Nondirectional beacon (NDB)
- `P`: Global positioning system (GPS)
- `Q`: Nondirectional beacon and DME (NDBDME)
- `R`: Area navigation (RNAV)
- `S`: VOR using a VORDME or VORTAC
- `T`: TACAN. Military only.
- `U`: Simplified directional facility (SDF). Less precise than a localizer
- `V`: VOR
- `W`: Microwave landing system (MLS), type A. Obsolete.
- `X`: Localizer directional aid (LDA). Like a localizer but not aligned with the runway. Requires a visual turn.
- `Y`: Microwave landing system (MLS), type B and C. Obsolete.

Examples:

- `I20-Z`: ILS approach Z to runway 20.
- `D18C`: VORDME approach to runway 18C.
- `R02` RNAV approach to runway 02.
- `L03-Y` Localizer approach Y to into runway 03.

28.5. Top Buttons

28.5.1. Type Filter (All Procedures)

The type filter is not available for an FSX or P3D stock database.

This filter is always available for X-Plane or MSFS databases which contain SIDs and STARs already in the stock data.

The type filter allows the selections below:

- `All Procedures`: SID, STAR and approaches
- `Departure (SID)`: Only SID
- `Arrival (STAR)`: Only STAR
- `Arrival and Approaches`: STAR and approaches
- `Approaches`: Approaches prefixed with type like `RNAV Approaches`.

The respective transitions are always shown.

28.5.2. Runway Filter (All Runways)

This filter is always available and helps to find procedures for a certain departure or arrival runway.

The selection `No Runway` allows to find circle-to-land approaches which have no runway assigned.

28.5.3. Ident, Type and Waypoint Filter

Filter result by approach, SID, STAR or approach ARINC name as well as entry and exit waypoints beginning with the entered text.

The approach `DACNA (R06)` will be found when entering `DAC` or `R06`, for example.

The search function also looks for the first and the last waypoint of procedures as shown in the tree. Procedures and and transitions are hidden if no criteria matches the text search.

Procedures are shown and expanded if a transition name or waypoint matches the search text. For example, you can find a matching STAR for a selected approach and vice versa.

28.5.4. Preview all Procedures

Same as Preview all Procedures in context menu.

28.5.5. Clear Selection

Same as Clear Selection in context menu.

28.5.6. Help

Opens this chapter of the manual in the default browser.

28.6. Context Menu Procedures

28.6.1. Show on Map

Center the map on the selected procedure.

28.6.2. Insert into Flight Plan, Use as Destination and Use as Departure

Text and functionality of this menu item depends on the selected procedure type and whether the procedure's airport is already the departure or destination airport of the current flight plan.

A Runway Selection dialog might pop up for SID or STAR procedures which are applicable for more than one runway.

Use the context menu of the flight plan table or the map to remove procedures. See Delete Selected Legs or Procedure and Delete from Flight Plan.

If a transition is selected, the corresponding procedure (approach, SID or STAR) is added or replaced as well.

`Insert ... into Flight Plan`:

This menu item will add the selected procedure to the current flight plan. A procedure of the same type (SID, STAR or approach with or without transition) will be replaced if already present in the flight plan.

`Use ... as Destination` or `Use ... as Departure`:

This will add or replace the destination or departure airport and add the selected procedure.

If the flight plan is empty, the departure or destination airport is added to the flight plan as well.

A leg entry will drawn red if a navaid was not resolved during the scenery database loading process. This happens only when the source data is not valid or incomplete. In this case, the resulting procedure is not usable and a warning dialog will be shown if essential navaids are missing.

Little Navmap might refuse to use the procedure depending on error.

28.6.3. Show Information for Airport

Show detailed information in the `Information` dock window for the airport.

See the Information for details.

Same as Show Information in map context menu.

28.6.4. Show Airport on Map

Show the airport on the map. The zoom distance can be changed in the options dialog on the page Map Navigation.

28.6.5. Show Airport in Search

Shows the airport in the airport search tab. Same as Show in Search in map context menu.

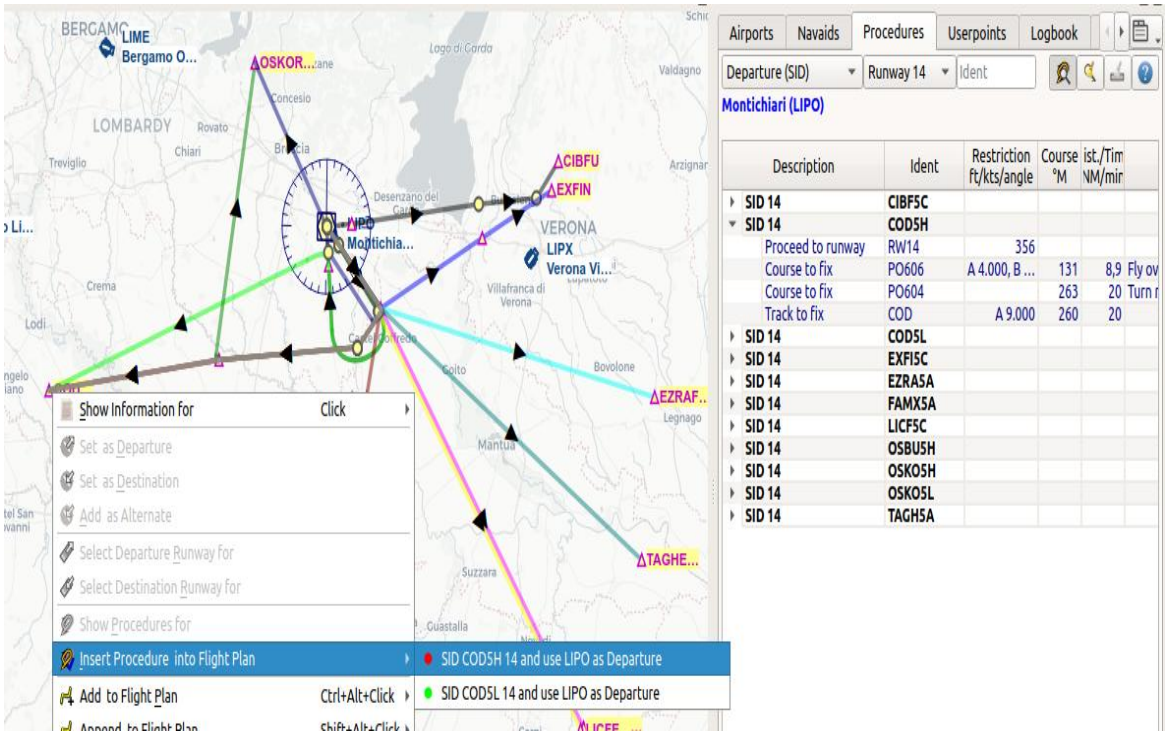
28.6.6. Preview all Procedures

This highlights all procedures and their transitions currently shown in the procedure tree on the map. Note that the map display is updated automatically when changing filters.

Tooltips give information about navaids in the preview.

Note that missed approaches are not shown when previewing all procedures.

Procedures can be added to the flight plan by either using Insert Procedure on the preview from the map context menu (right click on a navaid) or the Context Menu Procedures.



Previewing all SID at LIPO from runway 14. Context menu open to add SID and airport as departures. The preview also uses the `Transparent line` setting for flight plans in the options dialog on page Map Flight Plan. *Click image to enlarge.*

28.6.7. Follow Selection

The map view will be zoomed on the selected procedure or procedure leg if this function is enabled.

28.6.8. Expand All / Collapse All

Expand all procedures so that their legs and transitions are shown or collapse the tree.

28.6.9. Reset Search

Clear search filters and revert to showing all procedures in the tree.

28.6.10. Clear Selection

Deselect the currently selected procedure and remove the preview from the map.

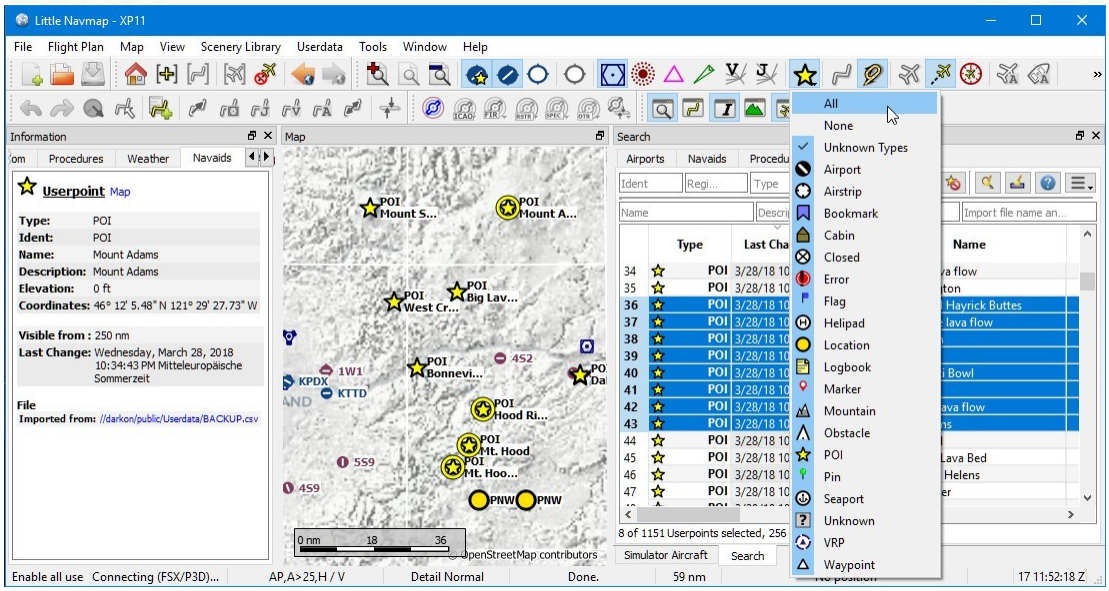
Also clears the procedure preview enabled with Preview all Procedures.

28.6.11. Reset View

Reset column order and column widths to default.

29. Userpoints

User defined waypoints (or userpoints) allow for adding, editing, searching, exporting, and importing bookmarks, points of interest, waypoints and more. You can pick freely which types you want to see as icons on the map.



An overview of userpoint functionality showing information on the left dock window, highlighted userpoints on the map, userpoints selected in the search window on the right, and the drop down menu opened by clicking the userpoint icon in the dock window. Screenshot based on *Little Navmap* 2.4. *Click image to enlarge.*

Tip

See Important Files to Backup for more information about backing up userpoints and other information of *Little Navmap*.

29.1. Userpoint Search

The functionality of the search filters and the result table is similar to the airport and navaid search. See Search for information about search filters and buttons.

Additional context menu items and buttons allow adding, editing, and deleting of userpoints.

29.1.1. Top Buttons and additional Menu Items

See Context Menu Search for a description of common context menu items across all search dialogs. All buttons have an equivalent in the result table context menu.

29.1.1.1. Undo and Redo Userpoint

Allows undo and redo of all userpoint changes. The last action is shown in the menu item like `Undo deleting of tow Userpoints`, for example. The undo information is kept when restarting *Little Navmap* and only deleted if a certain amount of undo steps is exceeded.

Also in main menu `Userpoint` -> Undo and Redo Userpoint.

29.1.1.2. Add Userpoint

Add an user-defined waypoint to the userpoint database.

Some fields of the new userpoint dialog are populated automatically depending on a selected userpoint or, if nothing is selected in the search result table, based on previous additions. This allows to quickly add similar userpoints to the database without the need to re-enter all the information.

Note that you have to add the coordinates manually if the dialogs starts empty i.e. nothing was selected in the result table. Add userpoints with the map context menu (Add Userpoint) to avoid this and have the coordinates set automatically.

See below for more information about the add dialog: Add Userpoints.

29.1.1.3. Edit Userpoint

Open the edit dialog for one or more userpoints.

The edit dialog shows a column of checkboxes on the right side if more than one userpoint is selected. These allow to choose the fields to change for a bulk edit.

See below for more information about the add dialog.

29.1.1.4. Delete Userpoint

Remove the selected userpoints. The action can be undone in the main menu `Userpoint`.

29.1.1.5. Cleanup Userpoints

Opens a dialog window where the userpoint database can be cleaned up. The dialog contains the following options:

Delete userpoints having no information except coordinates and type

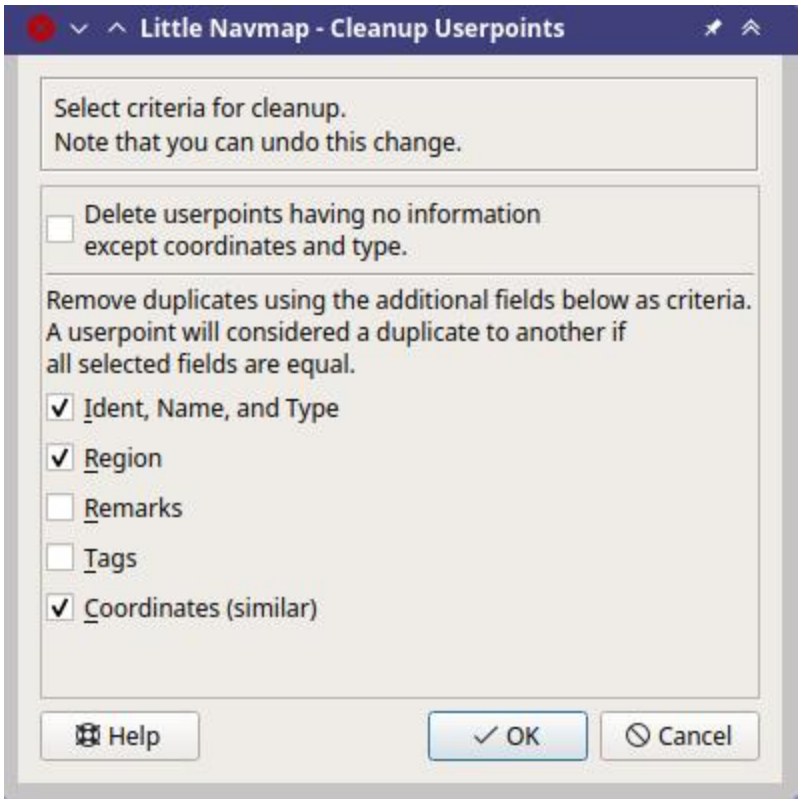
> Removes empty userpoints without any information.

Remove duplicates using additional fields as criteria.

> A userpoint will considered a duplicate to another if all selected fields are equal. The following fields can be checked:
>
> - Ident, Name, and Type
> - Region
> - Remarks
> - Tags
> - Coordinates

Show a preview before deleting userpoints

> Shows a table with the userpoints to remove before deleting. You can cancel the operation in the preview.



Cleanup up userpoints dialog. Empty userpoints will not be deleted. Duplicates are removed if ident, region, name, type and coordinates are the same.

29.1.1.6. Menu Button

See Menu Button.

29.2. Add Userpoints

The dialog is shown when selecting Add Userpoint in the map context menu, using the top button in the userpoint search tab, or selecting `Add Userpoint` from the context menu in the search result table.

The dialog will be populated automatically depending on the selected map context, the selection in the search result table or previous additions.

`Type` can be selected from a drop down list or entered freely.

`Name` and `Tags` can be selected freely. Note that some of these fields have a special meaning for X-Plane import and export. See below for more information.

The field `Description` allows multi line text and special characters. Formatting like italic or bold is not supported. See Remarks for more information about using web links in this field.

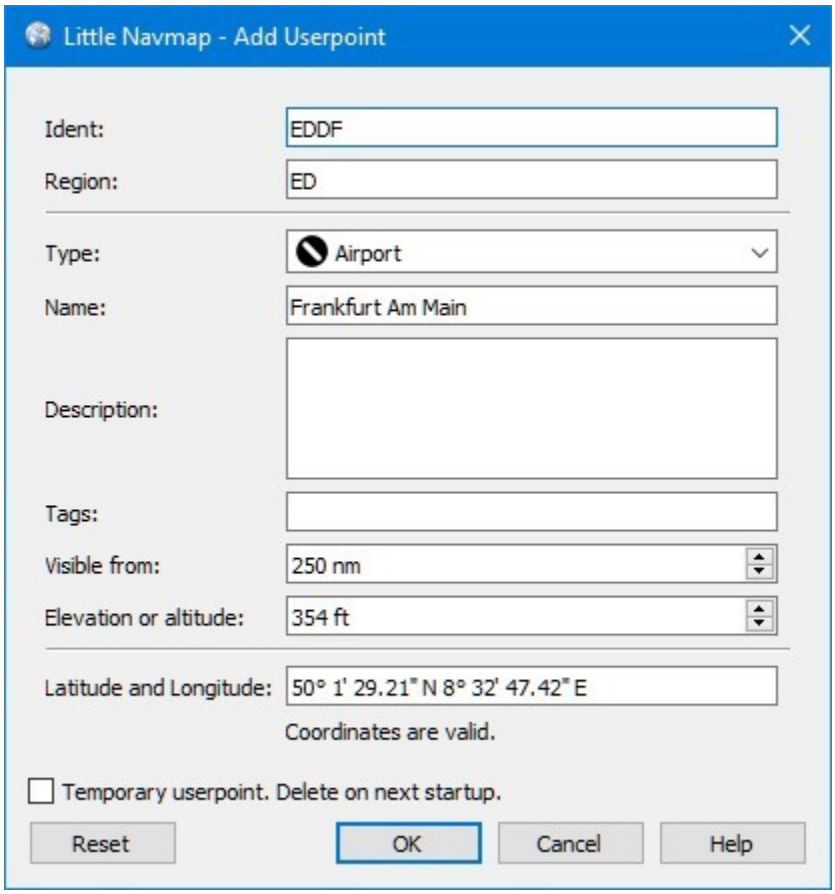
The field `Visible from` allows to define visibility on the map depending on zoom distance. The zoom distance (viewpoint distance to earth surface) for the current map view is shown in the Statusbar. The userpoint will be visible for all zoom distances smaller than the value in `Visible from`. Maximum value is 3,000 NM and minimum value is 1 NM.

Valid coordinates are required to confirm the dialog. See Coordinate Formats for a detailed description of the recognized coordinate formats. A label below the coordinates displays the parsed coordinates or an error message in case the coordinates are invalid.

The userpoint is removed on next startup of *Little Navmap* when `Temporary userpoint. Delete on next startup.` is checked.

The button `Reset` clears all fields with exception of the coordinates and sets the type of the userpoint to `Bookmark`.

Note that all fields are optional. Only coordinates are required.



Add dialog that has been populated automatically by context. The user right-clicked on an airport and selected `Add Userpoint Airport Frankfurt am Main (EDDF)`.

29.3. Edit Userpoints

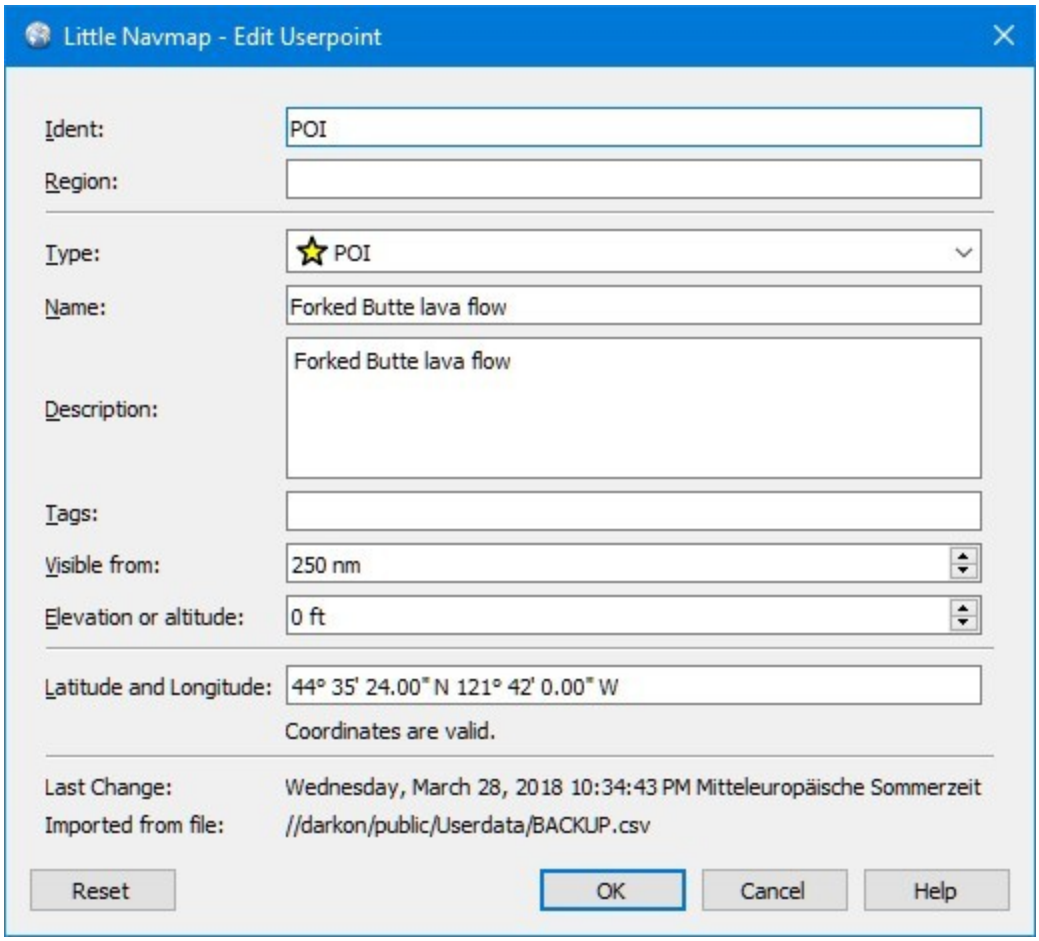
29.3.1. A single Userpoint

The edit dialog shows the same edit fields as the dialog used to add userpoints above.

Additional metadata shown at the bottom:

- **Last Change:** Date and time of import, creation or change.
- **Imported from file:** File and path of source file from CSV, X-Plane or Garmin import. You can filter the userpoint search for this name.
- **Temporary userpoint - will be deleted on next startup.** This indicates a temporary userpoint.

The button `Reset` undoes all manual changes and reverts all fields to their original state.



Edit dialog for a single userpoint.

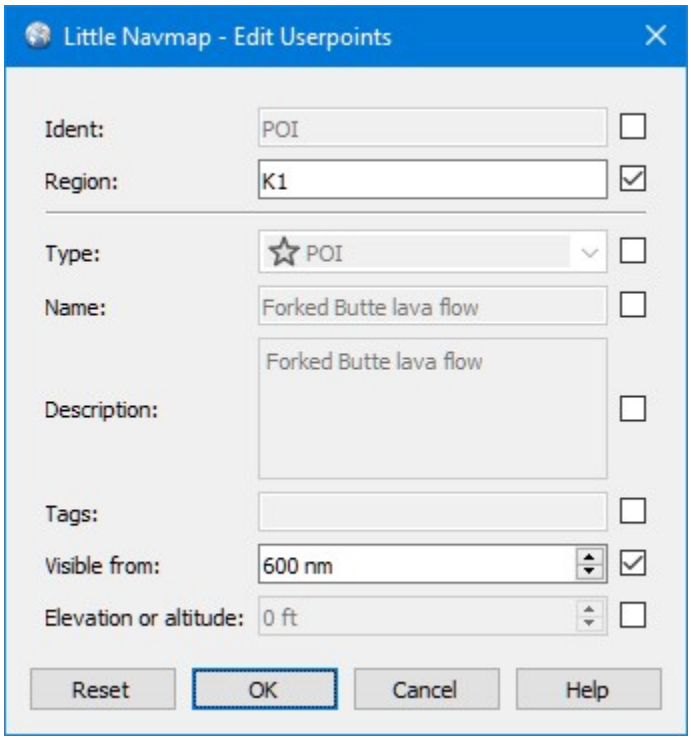
29.3.2. Multiple Userpoints

If more than one userpoint was selected for editing, the edit dialog shows a column of checkboxes on the right side.

If checked, the field to the left is unlocked and any text entered will be assigned to the respective field in all selected userpoints. Deselected fields will not be altered for any of the userpoints.

In combination with the search function, this allows for bulk changes like fixing an invalid region and simultaneously changing the visibility range for the affected userpoints:

1. Search for all userpoints with the invalid region.
2. Select all the resulting userpoints, e.g. by clicking on one of the userpoints among the search results and pressing `Ctrl+A` or by clicking on the top left corner of the column header.
3. Right-click one of the highlighted userpoints and select `Edit Userpoints` from the context menu.
4. Click the checkbox to the right of the `Region:` field and change the region.
5. Click the checkbox to the right of the `Visible from:` field and adjust the value.
6. Click `OK`.



Edit dialog for more than one userpoint. The fields `Region` and `Visible from` will be changed for all selected points. All other fields remain unchanged.

29.4. Types

The userpoint type can be any text string. If the text matches an entry from the list below, the appropriate icon is used. Otherwise, the icon for `Unknown` is used.

Types and icons can be customized and new types can be added. See Userpoint Category Icons for information on how to do this.

Some types are used as defaults when adding new userpoints. This depends on the context, i.e. what was below the cursor when right-clicking on the map.

Note that the userpoint types cannot be translated to other languages for now.

Below a list of the most important userpoint types.

29.4.1. Addon

The userpoint type `Addon` and all other user defined type names starting with `Addon` are used to highlight add-on airports. The built-in type `Addon` can be added using Mark Airport as Add-on from the map and other context menus. You can add you own userpoint type names starting with `Addon` to create more add-on categories. See Icons for more information.

29.4.2. Airports

- **Addon**: Can be used to mark airports manually as add-on. Does not show labels to avoid overlap with marked airport.
- **Airport**: Default when creating a userpoint on top of an airport.

- **Airstrip**
- **Closed airport**
- **Helipad**
- **Seaport**

29.4.3. Navaids

- **DME**: Distance measuring equipment. Default when creating a userpoint on top of a DME.
- **NDB**: Non-directional beacon. Default when creating a userpoint on top of a NDB.
- **Radio Range**: Old radio range navigation aid.
- **TACAN**: Tactical air navigation system. Default when creating a userpoint on top of a DME.
- **VORDME**: VHF omnidirectional range and DME. Default when creating a userpoint on top of a VORDME.
- **VORTAC**: VOR and TACAN. Default when creating a userpoint on top of a VORTAC.
- **VOR**: VHF omnidirectional range. Default when creating a userpoint on top of a VOR.
- **VRP**: Visual reporting point.
- **Waypoint**: Default when creating a userpoint on top of a navaid. Default when creating a userpoint on top of a waypoint.

29.4.4. Points of Interest

- **Bookmark**: Default type for new userpoints.
- **Cabin**
- **Error**
- **Flag**

- **Lighthouse**
- **Location**
- **Logbook**. Also legacy logbook entry.
- **Marker**
- **Mountain**
- **Obstacle**
- **Oil Platform**
- **POI**
- **Pin**

Unknown: Type named `Unknown` and all types which do not match the default types in this list.

29.5. CSV Data Format

The CSV data format is aligned to the format already used around the flight simulator community and other applications.

Each row in the file represents an user defined waypoint.

The recommended minimum fields for import are `Type`, `Name`, `Ident`, `Latitude` and `Longitude`.

Only `Latitude` and `Longitude` are required.

All twelve fields are saved when exporting userpoints as CSV. Also, the multi line field `Remarks` is enclosed in quotes if needed and preserves line breaks.

English number format (dot `.` as decimal separator) is used in import and export to allow exchange of files on computers with different language and locale settings.

Little Navmap uses UTF-8 [https://en.wikipedia.org/wiki/UTF-8] encoding when reading and writing files. This is only relevant if you use special characters like umlauts, accents or others. Otherwise encoding does not matter.

If an application fails to load a CSV file exported by *Little Navmap*, use LibreOffice Calc [https://www.libreoffice.org], *Microsoft Excel* or any other spreadsheet software capable of reading and writing CSV files to adapt the exported file to the format expected by that application.

See Comma-separated values [https://en.wikipedia.org/wiki/Comma-separated_values] in the Wikipedia for detailed information on the format.

29.5.1. Examples

Example for an absolute minimal userpoint consisting of coordinates only:

```
,,,49.0219993591,7.8840069771
```

`Visible from` will be set to the default of 250 NM and the userpoint will be shown using the `Unknown` icon after import.

Example for a minimal userpoint record with type `Mountain` , ident and name for import:

```
Mountain,My Point of Interest,MYPOI,49.0219993591,7.8840069771
```

`Visible from` will be set to the default of 250 NM after import.

Example for an exported userpoint with type `Mountain` and all fields set:

```
Mountain,My Point of
Interest,MYPOI,49.0219993591,7.8840069771,1200,2.0085027218,"View,Interesting,Point","Interesting point
""Eselsberg"" - nice view",ED,250,2018-05-17T17:44:26.864
```

Note of the following when parsing the CSV files:

In the field `Tags`, the list `"View,Interesting,Point"` is enclosed in double quotes since it contains commas. The field description `"Interesting point ""Eselsberg"" - nice view"` is enclosed in double quotes since the text itself contains a pair of double quotes (`"Eselsberg"`) which are, in turn, escaped by another double quote each.

29.5.2. CSV Fields

The full header if enabled on export is:

```
Type,Name,Ident,Latitude,Longitude,Elevation,Magnetic Declination,Tags,Description,Region,Visible From,Last
Edit,Import Filename
```

Position	Name	Required	Empty Allowed	Comment
1	Type	Yes	Yes	One of the predefined or user defined types. The icon for *Unknown* is used if the type does not match one of the known types.
2	Name	Yes	Yes	Free to use field. Used for Garmin export.
3	Ident	Yes	Yes	Required only for Garmin and X-Plane export. Has to be an unique valid identifier with maximum of five characters for these exports.
4	Latitude	Yes	No	Range from -90 to 90 degrees using dot `.` as decimal separator
5	Longitude	Yes	No	Range from -180 to 180 degrees using dot `.` as decimal separator.
6	Elevation	No	Yes	Must be a valid number when used. A suffix `f` indicates an elevation unit feet and `m` indicates meter. The default unit with no suffix given is feet.
7	Magnetic declination	No	Yes	Ignored on import and set to a valid calculated value on export.
8	Tags	No	Yes	Free to use field. GUI has no special tag search.
9	Description	No	Yes	Free to use field which allows line breaks.

Position	Name	Required	Empty Allowed	Comment
10	Region	No	Yes	Two letter ICAO region of a userpoint or waypoint. Used for X-Plane export. Replaced with default value *ZZ* on X-Plane export if empty.
11	Visible From	No	Yes	Defines from what zoom distance in NM (shown on Statusbar) the userpoint is visible. Set to 250 NM if empty on import.
12	Last Edit	No	Yes	ISO date and time of last change. Format is independent of system date format settings. Format: *YYYY-MM-DDTHH:mm:ss*. Example: *2018-03-28T22:06:16.763*. Not editable in the user interface.
13	Import Filename	No	Yes	Full path and file name the userpoint was imported from. Not editable in the user interface.

29.6. X-Plane user_fix.dat Data Format

This allows to read and write the X-Plane `user_fix.dat` file for user defined waypoints. The file does not exist by default and has to be saved to `XPLANE/Custom Data/user_fix.dat`.

The format is described by *Laminar Research* in a PDF file which can be downloaded for X-Plane 11 XP-FIX1101-Spec.pdf [https://developer.x-plane.com/wp-content/uploads/2019/01/XP-FIX1101-Spec.pdf] and X-Plane 12 XP-FIX1200-Spec.pdf [https://developer.x-plane.com/wp-content/uploads/2021/09/XP-FIX1200-Spec.pdf].

The file consists of a header and a number of rows for the user fixes. Each row has five columns which are separated by space or tab characters.

There are five columns of data in the file which are mapped to the userpoint data as shown below:

1. Latitude: From and to userpoint field `Latitude`.
2. Longitude: From and to userpoint field `Longitude`.
3. Ident: From and to userpoint field `Ident`.
4. Airport ident: From and to first space separated entry of userpoint field `Tags`. Optional.
5. Region: From and to userpoint field `Region`.
6. Waypoint type as defined by the 3 columns of ARINC 424.18 field definition. From and to second space separated entry of userpoint field `Tags`. See remarks below. Optional.
7. Name (only X-Plane 12): From and to userpoint field `Name`.

Field decoding for X-Plane 11 and 12:

> The *Little Navmap* userpoint tags field is used to load and save the ID of the airport terminal area as well as the waypoint type.
>
> The waypoint type is based on ARINC 424 field type definition 5.42. Spaces from this field are replaced by underscores _ for userpoint tags. Alternatively double quotes and spaces can be used. *Little Navmap* decodes and encodes the field when exporting and importing `user_fix.dat`.
>
> Example tags in *Little Navmap*: `EDDF V__` is a VFR Waypoint at airport EDDF, `ENRT "I  "` is an en-route unnamed charted intersection and `ENRT R__` is an en-route named intersection. These tags are encoded to the numeric values on export.

The user defined waypoints are shown on the X-Plane map if the correct type (VFR or other) matches the X-Plane map type. Waypoints can be selected and used to build flight plans in the X-Plane stock GPS and FMS.

Example for `user_fix.dat` **:**

```
I
1101 Version - data cycle 1704, build 20170411, metadata FixXP1101. NoCopyright (c) 2017 useruser

 50.88166689    12.58666711   PACEC ENRT ZZ
-36.29987200   174.71089013   N0008 NZNI ZZ
  6.000000000  159.000000000  06E59 ENRT ZZ 2115159
  6.000000000  160.000000000  06E60 ENRT ZZ 2115159
 51.801667      -8.573889     VP001 ENRT EI 2105430 HALFWAY ROUTE
 51.816389      -8.390833     VP002 ENRT EI 2105430 CARRIGALINE
99
```

Important

Keep in mind that waypoints are loaded from the Navigraph database if the default mode Use Navigraph for Navaids and Procedures is enabled in *Little Navmap*. Therefore, user defined waypoints from the file `user_fix.dat` are not shown in *Little Navmap* after loading the scenery library from X-Plane.

29.6.1. Import

Example line from `user_fix.dat` **above:**

```
50.88166700  12.58666700 PACEC ENRT ZZ
```

- The coordinates are read into the *Little Navmap* userpoint coordinates.
- The fix ident `PACEC` is read into the **Ident** field in *Little Navmap*.
- The fix airport `ENRT` (en-route: no airport here) is read into the **Tags** field in *Little Navmap*.
- The region `ZZ` (invalid or no region) is read into the **Region** field in *Little Navmap*.
- **Type** will be set to `Waypoint` for all imported fixes.

29.6.2. Export

The mapping is the same as for the import.

See X-Plane user_fix.dat Data Format above for waypoint type mapping.

All other fields are ignored.

The ident is adjusted to match an up to five digit and letter combination. A generated ident is used if that is not possible or the ident is empty.

Fix airport is always `ENRT` when exporting.

The region is adjusted for a two letter digit and letter combination. `ZZ` is used if that is not possible or the region is empty.

Note

The ident has to be unique in the `user_fix.dat`. Therefore it is recommended to set an unique ident for each waypoint manually or leave the field empty so *Little Navmap* can generate an ident during export.

29.7. Garmin user.wpt Data Format

The Garmin user waypoint file is a CSV file. Each row in the file represents an unique user waypoint.

There must be four columns of data in the file:

1. Waypoint ident
2. Waypoint name or description
3. Latitude

4. Longitude

Example of a `user.wpt` file:

```
MTHOOD,MT HOOD PEAK,45.3723,-121.69783
CRTRLK,CRATER LAKE,42.94683,-122.11083
2WTER,2NM WEST TERRACINA,41.28140000,13.20110000
1NSAL,1NM NORTH SALERNO TOWN,40.69640000,14.78500000
```

The waypoint ident can be up to 10 numbers or capital letters but the GTN will shorten the name to the first 6 characters. No special characters or symbols can be used. *Little Navmap* adjusts the ident accordingly.

The waypoint name can be up to 25 numbers, capital letters, spaces, or forward slash `/` characters. The name is displayed when selecting waypoints to provide additional context to the pilot. *Little Navmap* adjusts the name according to limitations.

29.7.1. Import

Example line from `user.wpt` above:

```
MTHOOD,MT HOOD PEAK,45.3723,-121.69783
```

- The ident `MTHOOD` is read into the **Ident** field in *Little Navmap*.
- The name `MT HOOD PEAK` is read into the **Name** field in *Little Navmap*.
- The coordinates are read into the *Little Navmap* userpoint coordinates.
- **Type** will be set to `Waypoint` for all imported waypoints.

29.7.2. Export

Mapping of fields is same as import but all fields are adjusted to limitations.

Note

If an imported waypoint ends up being within 0.001° latitude and longitude of an existing user waypoint in the GTN, the existing waypoint and name will be reused.

29.7.3. Export XML for FSX/P3D BGL Compiler

This export option creates an XML file which can be compiled into an BGL file containing waypoints.

The region and ident fields are required for this export option. If region is empty or otherwise invalid `ZZ` is used. All waypoints are of type `NAMED`.

See Prepar3D SDK documentation for information on how to compile and add the BGL to the simulator.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<FSData version="9.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="bglcomp.xsd">
    <!--Created by Little Navmap Version 2.0.1.beta (revision 2b14e14) on 2018 05 17T12:24:36-->
   <Waypoint lat="47.40833282" lon="15.21500015" waypointType="NAMED" waypointRegion="ZZ" magvar="4.02111530"
waypointIdent="WHISK"/>
   <Waypoint lat="47.39666748" lon="15.29833317" waypointType="NAMED" waypointRegion="ZZ" magvar="4.01835251"
waypointIdent="SIERR"/>
</FSData>
```

29.8. Database Backup Files

Little Navmap creates a full database backup on every start since undo functionality is not available for userpoints.

You can also use the CSV export to create backups manually since CSV allows to export the full dataset.

See Files - Userpoints Database for information about database backup files.

30. Logbook

Little Navmap creates logbook entries for each flight automatically when detecting a takeoff or landing. A logbook entry containing only departure is created on takeoff and finalized with destination and more information on landing.

Create Logbook entries has to be checked to enable this functionality.

Note that fuel consumption and other values are measured between takeoff and landing, as it is not possible to reliably determine the beginning and end of a flight.

You can speed up the flight or to warp to another position without breaking the logbook record.

Little Navmap remembers a takeoff across restarts and completes the logbook entry accordingly when landing.

An incomplete takeoff only entry with the same aircraft is required for this to work.

A coordinate in degrees/minutes format like `N44124W122451` is used if the flight is recorded by an off-airport takeoff or landing .

Use Reset all for a new Flight to be sure that the logbook flight detection is set up for a new flight.

Editing functionality in the logbook is similar to the userpoints editing (Userpoint).

Tip

See Important Files to Backup for more information about backing up the logbook and other information of *Little Navmap*.

30.1. Create Logbook Entries

Little Navmap creates logbook entries for each flight automatically if this menu item Create Logbook entries is checked. A logbook entry containing only departure is created on takeoff and finalized with destination, track and more information on landing.

The content of the field `Simulator` in the logbook entries is determined by the selected scenery library and not by the connected simulator.

Note

Always use Reset all for a new Flight before doing a flight.

30.2. Logbook Files

Each logbook entry has a reference using the full path to the used flight plan and aircraft performance files. Keep in mind that these references break if the files are moved or renamed. Update them manually if needed.

Additionally, the flight plan file, the aircraft performance file and the flown track are directly inserted into logbook entry. These attachments can be saved as LNMPLN, LNMPERF or GPX files.

See Little Navmap LNMPLN Format for information about the LNMPLN format.

The GPX trail contains coordinates, flown altitude and time as well as the simplified flight plan with airport and navaid idents, coordinates and calculated altitude.

The flight plan file contains all plan information like procedures or remarks just as the loaded LNMPLN file.

You can access and modify the referenced and attached files in the context menu of the search result table and edit dialog.

Note

Unfinished flights will not have trail information and show only the departure airport.

30.3. Logbook Search

The functionality of the search filters and the result table is equal to the airport and navaid search. See Search for information about search filters and buttons.

A search field `Airport Ident` allows to search entries having either a matching destination or departure airport. The fields `Departure Airport Ident` and `Destination Airport Ident` allow to search exactly for departure and destination airports or combinations of these.

Additional context menu items and buttons allow adding, editing, and deleting of logbook entries as well as saving or loading the attached flight plan or track.

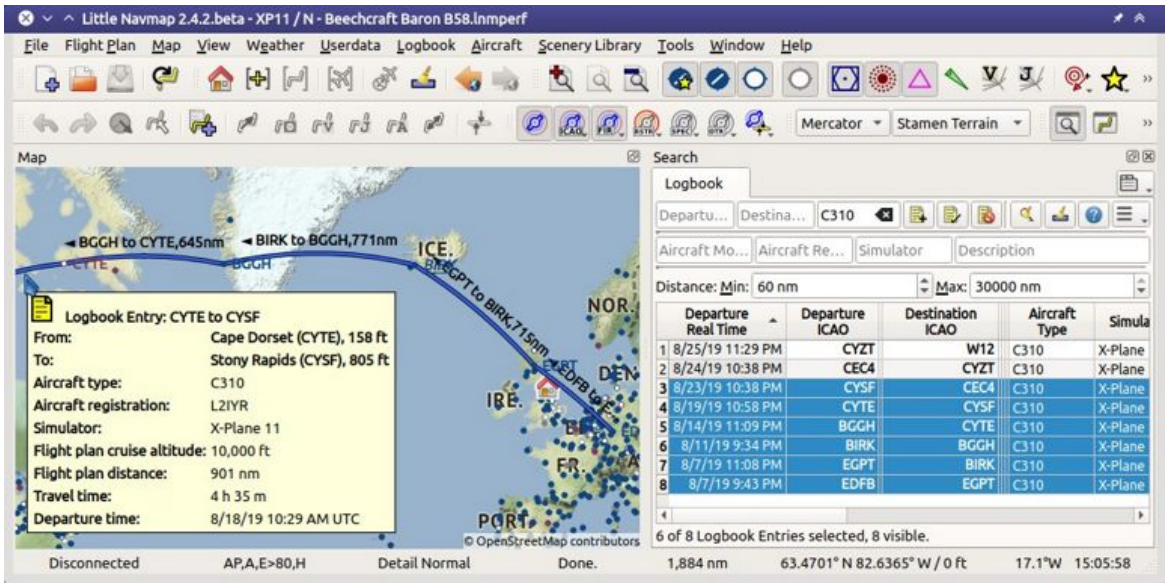
One or more logbook entries are highlighted on the map with blue lines connecting departure and destination as well as the two airports once selected in the search result table.

The label at the connecting great circle line shows departure airport ident, destination airport ident and great circle distance. A tooltip is shown if hovering the mouse over the blue direct connection or flight plan preview lines.

The trail preview shows tooltips with time, distance and flown altitude when hovering the mouse cursor above, if enabled.

Note

Logbook details (route preview and trail) on the map are only shown if one single entry is selected in the logbook search result table. Selecting more than one entry shows only the direct connection lines if enabled.



Map showing several logbook entries selected and highlighted. Departure and destination of each entry is connected by a great circle line. A tooltip shows more information.

A selected logbook entry and the flight plan preview showing the waypoints and flying direction. The dashed line shows the flown track.

30.3.1. Footer

The footer shows the number of selected, loaded and visible logbook entries considering search and filter criteria.

Note that you to select Show All from the table context menu or have to scroll down to see all entries:

Example : `9 of 3667 Logbook Entries selected, 256 visible.`

A second footer line shows up if one or more logbook entries are selected. This line shows the total real travel time, the total simulator travel time and the accumulated distance for the selected entries.

Example: `Travel Totals: Real time 2 h 13 m. Sim. time 6 h 48 m. Dist. 1.298 NM.`

30.3.2. Top Buttons and additional Menu Items

See Context Menu Search for a description of common context menu items across all search dialogs. All buttons have an equivalent in the result table context menu.

30.3.2.1. Undo and Redo Logbook Entry

Allows undo and redo of all logbook changes. The last action is shown in the menu item like `Undo Adding of one Logbook Entry`, for example. The undo information is kept when restarting *Little Navmap* and only deleted if a certain amount of undo steps is exceeded.

Also in main menu `Logbook` -> Undo and Redo Logbook Entry.

30.3.2.2. Add Logbook Entry

Add a logbook entry manually.

See Add Logbook Entry and Edit Logbook Entry below for more information about the add/edit dialog.

30.3.2.3. Edit Logbook Entry

Open the edit dialog for one or more logbook entries.

The edit dialog shows a column of checkboxes on the right side if more than one logbook entry is selected. These allow to choose the fields to change for all selected entries.

See Edit Logbook Entry below for more information about the add/edit dialog.

30.3.2.4. Delete Logbook Entry

Removes the selected logbook entries. The action can be undone in the main menu `Logbook`.

30.3.2.5. Cleanup Logbook Entries

Removes invalid logbook entries. The dialog contains the following fields:

Shorter than 5 NM

> Removes all entries where the distance flown is below 5 NM.

Departure and destination ident equal

> Delete all entries where departure ident is the same as the destination ident (which can happen when doing pattern work). Airport names or other attributes are not compared.

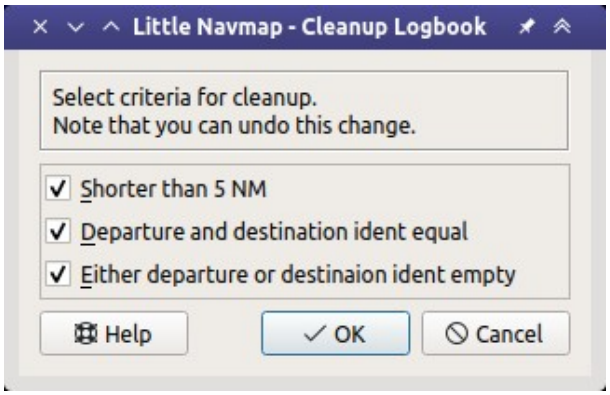
Either departure or destination ident empty

> Remove all entries where departure or destination is empty or off-airport. Off-airport departures or landings show coordinates like `2956N10702E` or `4831N12255W` instead of an airport ident. This can happen when running simulator replay, redoing landings or interrupting flights.

Show a preview before deleting logbook entries

> Shows a table with the logbook entries to remove before deleting. You can cancel the operation in the preview.

You can undo the change using Undo and Redo Logbook Entry in the logbook table context menu.



> Logbook cleanup dialog.

30.3.2.6. Airport

Sub-menu for departure and destination airport.

30.3.2.6.1. **Show Information for Airport**

30.3.2.6.2. **Show on Map**

30.3.2.6.3. **Set as Flight Plan Departure**

30.3.2.6.4. **Set as Flight Plan Destination**

30.3.2.6.5. **Set as Flight Plan Alternate**

These menu items are only enabled for a right click on a departure or destination airport name or airport ident. Same functionality as in Context Menu Map and in Context Menu Flight Plan.

30.3.2.7. Files

Sub-menu for referenced and attached files.

30.3.2.7.1. **Open Flight Plan**

Opens the referenced flight plan file. This menu item is disabled if the referenced file cannot be found. This can be the case if the file was renamed or moved.

Same as Open Flight Plan.

30.3.2.7.2. **Open Aircraft Performance**

Opens the referenced aircraft performance file. This menu item is disabled if the referenced file cannot be found. This can be the case if the file was renamed or moved.

Same as Open Aircraft Performance.

30.3.2.7.3. Open attached Flight Plan

Opens the attached flight plan file replacing the currently loaded flight plan.

30.3.2.7.4. Save attached Flight Plan as

Saves the attached LNMPLN flight plan to a new file.

30.3.2.7.5. Open attached Aircraft Performance

Opens the attached performance file replacing the currently loaded aircraft performance file.

30.3.2.7.6. Save attached Aircraft Performance as

Saves the attached LNMPERF flight plan to a file.

30.3.2.7.7. Save attached GPX Trail as

Saves the attached GPX to a file which contains the flown trail as well as the flight plan preview.

30.3.2.8. View Options

These three options activate or deactivate the respective preview functions for selected logbook entries.

The start and destination airports are always highlighted. This is also the case when all three options are deactivated.

30.3.2.8.1. Show direct connection

Shows a direct connection line between start and destination.

Displayed for one or more selected logbook entries.

30.3.2.8.2. Show flight plan preview

Shows a simplified preview of the flight plan used.

This is only shown when a single logbook entry is selected.

30.3.2.8.3. Show aircraft trail

Shows the flight path.

This is only shown if a single logbook entry is selected.

30.4. Add Logbook Entry

This dialog window is used to create a new log entry manually. The dialog layout and functionality is the same as for editing logbook entries. The button `Reset` clears all fields.

30.5. Edit Logbook Entry

The dialogs for editing and adding are equal and contain three tabs.

Most fields have a tooltip explaining the meaning, are optional and can be freely edited.

The button `Reset` undoes all manual changes and reverts all fields back to the original state.

30.5.1. Tab Logbook Entry

Additional notes about some fields on this page:

- `Departure` and `Destination`: These are automatically resolved to an airport. Coordinates (not shown and not editable) are assigned to the departure or destination airport if found. The dialog will show the airport name and elevation if the airport ident can be resolved. Otherwise an error message is shown.
- `Date and Time in Simulator UTC`: Time set in the simulator on takeoff or touchdown. Always UTC.
- `Real local Time`: Real world time on takeoff or touchdown. Stored in your local time.
- `Route Description`: Flight Plan Route Description extracted from the flight plan.
- `Flight plan file` and `Aircraft performance file`: Used flight plan and performance files. These are only references which will turn invalid if the files are moved or renamed. Update manually if needed.

30.5.2. Tab Fuel and Weight

Block fuel and trip fuel are extracted from Tab Fuel Report.

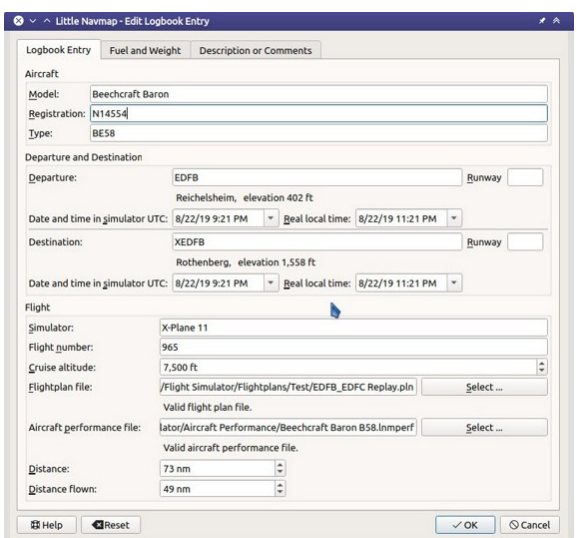
Used fuel is the fuel consumption between takeoff and touchdown.

30.5.3. Tab Remarks

Free text input field which is also shown in the tooltip and the information window on tab `Logbook`.

See Remarks for more information about using web links in this field.

30.5.4. Edit a single Logbook Entry



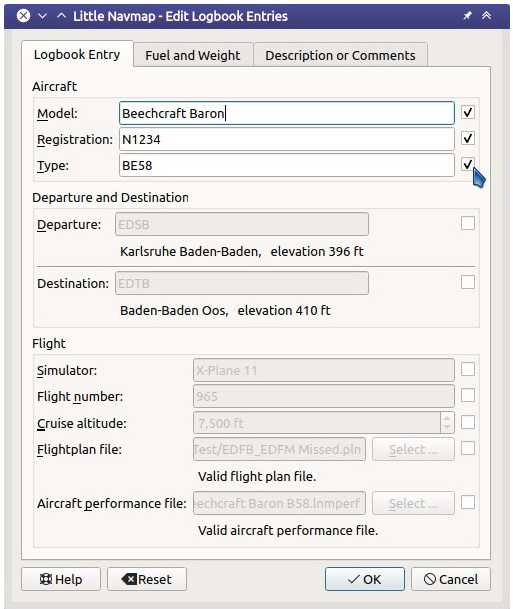
Editing a logbook entry. *Click image to enlarge.*

30.5.5. Edit multiple Logbook Entries

If more than one logbook entry was selected for editing, the edit dialog shows a column of checkboxes on the right side of available fields. Not all fields are available for bulk edit.

If checked, the field to the left is unlocked and any text entered will be assigned to the respective field in all selected logbook entry. Deselected fields will not be altered for any of the selected entries.

In combination with the search function, this allows for bulk changes like fixing an invalid aircraft type for more than one entry.



Editing more than one logbook entry. Three fields are to be changed for the selected entries. *Click image to enlarge.*

30.6. Logbook Statistics

This dialog shows two tabs:

1. `Overview` contains a general report which can be copied as formatted text to the clipboard.
2. `Grouped Queries` has a button on top which shows different reports in the table below. The content of the table can be copied as CSV to the clipboard.

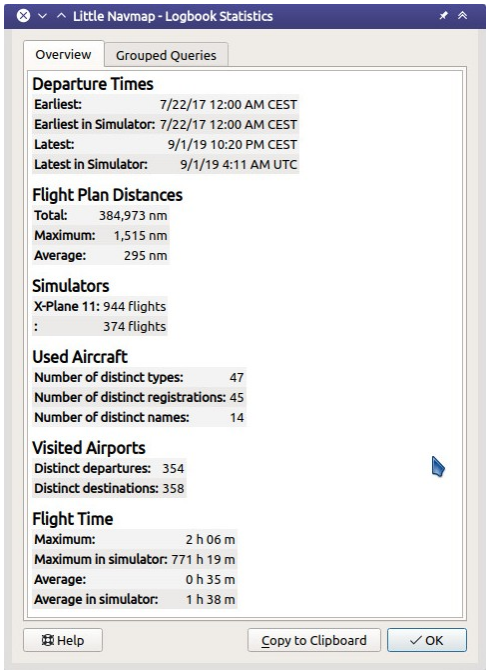
Some simulators report a wrong departure and arrival time in rare cases which can result in negative flying time for some flights.

The logbook statistics ignore these invalid simulator time intervals.

Correct the simulator departure or arrival time manually if you find such cases.

You can click on the top table header to sort the related column in ascending or descending order.

Scroll down in the table to load more values.



Overview tab of logbook statistics dialog. *Click image to enlarge.*

30.7. Import and Export

The full logbook or selected logbook entries can be imported and exported to a CSV (comma separated value) text file which can be loaded in *LibreOffice Calc* or *Microsoft Excel*. All data can be exported and imported which allows to use this function for backup purposes.

Export and import can be done by using the menu items Import CSV and Export CSV.

See chapter CSV Data Format below for more information on the format.

30.8. X-Plane Import

Imports the X-Plane logbook file `.../X-Plane 11/Output/logbooks/X-Plane Pilot.txt` into the *Little Navmap* logbook database. Note that the X-Plane logbook format is limited and does not provide enough information to fill all *Little Navmap*

logbook fields.

The imported logbook entries get remarks containing `Imported from X-Plane logbook X-Plane Pilot.txt` which allows to search for the imported entries. Use a pattern like `*Imported from X-Plane logbook X-Plane Pilot.txt*` in the description search field to look for all imported entries.

Available information in the X-Plane logbook:

1. Date of flight
2. Departure airport
3. Destination airport
4. Number of landings - added to description.
5. Duration of flight
6. Time spent flying cross-country, in IFR conditions and at night - added to description.
7. Aircraft tail number
8. Aircraft type

X-Plane logbook example:

```
I
1 Version
2 190917    EDDN    ESNZ   4   0.8   0.0   0.0   0.0  C-STUB  727-100
2 190917    ESNZ    ESNZ   0   0.1   0.0   0.0   0.0  C-STUB  727-100
2 190920    LSZR    LSZR   0   0.2   0.0   0.0   0.0    SF34
```

30.9. Database Backup Files

Little Navmap creates a full database backup on every start since undo functionality is not available for logbook entries.

You can also use the CSV export to create backups manually since CSV allows to export the full dataset.

See Files - Logbook Database for information about database backup files.

30.10. CSV Data Format

English number format (dot `.` as decimal separator) is used in import and export to allow exchange of files on computers with different language and locale settings.

Little Navmap uses UTF-8 [https://en.wikipedia.org/wiki/UTF-8] encoding when reading and writing files. This is only relevant if you use special characters like umlauts, accents or others. Otherwise encoding does not matter.

If an application fails to load a CSV file exported by *Little Navmap*, use LibreOffice Calc [https://www.libreoffice.org], *Microsoft Excel* or any other spreadsheet software capable of reading and writing CSV files to adapt the exported file to the format expected by that application.

See Comma-separated values [https://en.wikipedia.org/wiki/Comma-separated_values] in the Wikipedia for detailed information on the format.

Altitudes are always feet and distances are always nautical miles in the exported CSV.

The first line of the CSV contains the field names if chosen for export.

Field name	Description
Aircraft Name	Free name like `Cessna 172`

Field name	Description
Aircraft Type	ICAO type descriptor like `B732`
Aircraft Registration	e.g. `N12345`
Flightplan Number	Flight number if available
Flightplan Cruise Altitude	Flight plan cruise altitude in feet
Flightplan File	Full path to flight plan file
Performance File	Full path to performance file
Block Fuel	From aircraft performance - lbs
Trip Fuel	As above
Used Fuel	As above
Is Jetfuel	Calculated from aircraft fuel, `1` is jet fuel
Grossweight	Weight at takeoff, lbs
Distance	Flight plan distance in NM
Distance Flown	Actual flown distance in NM
Departure Ident	Airport ident
Departure Name	Airport name
Departure Runway	Runway if available
Departure Lonx	Coordinates if available and airport resolves
Departure Laty	As above
Departure Alt	Elevation in ft
Departure Time	Real world departure time in local time

Field name	Description
Departure Time Sim	Simulator departure time in UTC
Destination Ident	Same as above for destination
Destination Name	As departure
Destination Runway	As departure
Destination Lonx	As departure
Destination Laty	As departure
Destination Alt	As departure
Destination Time	As departure
Destination Time Sim	As departure
Route string	ICAO route description
Simulator	`X-Plane 11`, `Prepar3D v4`, etc.
Description	Free text by user
Flightplan	The flight plan in LNMPLN XML format
Aircraft Perf	The aircraft performance in LNMPERF XML format
Aircraft Trail	The flown trail and flight plan preview in GPX format

31. Online Networks

The online network functionality allows to connect to VATSIM [https://www.vatsim.net], IVAO [https://ivao.aero], PilotEdge [https://www.pilotedge.net/] or other online networks which publish information using `whazzup.txt` or JSON files. This covers display of information for centers, clients and servers on the map.

Network specific information like user names, active centers/towers, frequencies, flight plans and much more are displayed world wide without limits like distance to the user aircraft.

Access to online networks can be enabled and configured on options page Online Flying. Predefined options for the well known networks are available as well as freely configurable ones.

Online network related functionality can be found in the following places:

- Search dock window, tabs `Online Clients`, `Online Centers` and `Online Server`.
- Information dock window, tabs `Online Clients` and `Online Centers`.
- Options dialog, page Online Flying.

See Search for general information on the search tabs.

31.1. Simulator and Online Aircraft Duplicates

Little Navmap fetches data from online networks using an interval of 15 seconds up three minutes depending on settings and network.

The program also fetches AI or multiplayer aircraft from the simulator which are updated about several times a second. These aircraft are injected into the simulator by the various online clients so they are visible in the sim.

Therefore, the user aircraft and other client aircraft can appear duplicated on the map. *Little Navmap* removes these duplicates by matching the position, speed and other parameters against each other. The de-duplication can be disabled in the options dialog on page Online Flying.

31.2. Map Display

31.2.1. Clients

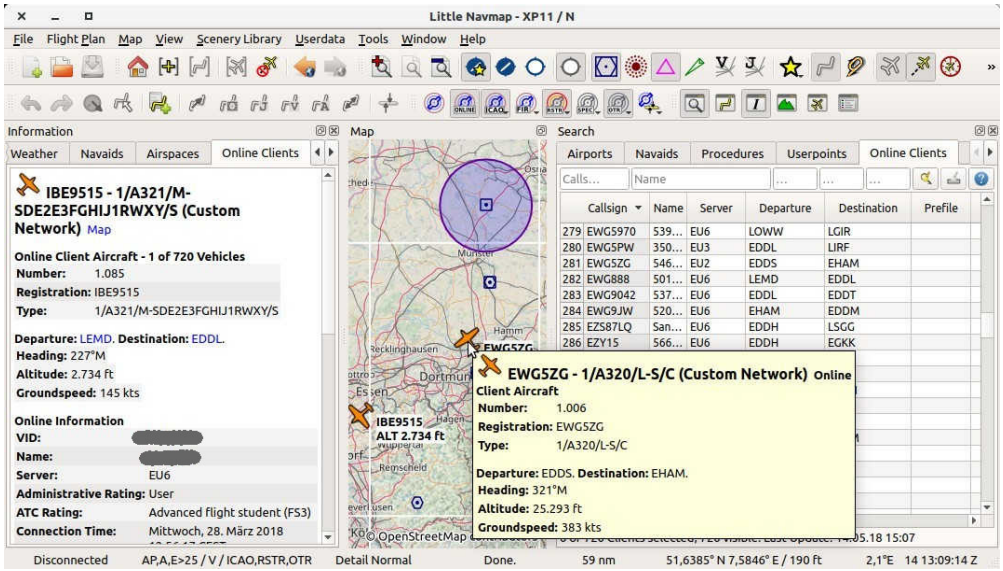
Online network clients or their aircraft are displayed on the map using the symbol. This includes simulator aircraft that were recognized as online network clients.

The user aircraft is always displayed using the yellow or a similar symbol depending on aircraft type and simulator. Use the Show in Search map context menu item to see your own aircraft in the list of online clients.

Information for online aircraft is shown on the tab `Online Clients` in Information.

All other functionality like context menu, double-click, tooltips, map highlights and other are the same as for the other aircraft.

See Aircraft and Ships in the legend for all symbols.



Online network clients/aircraft in search tab, map, tooltip and information window. Image based on *Little Navmap* 2.4. *Click image to enlarge.*

31.2.2. Centers

Online centers are displayed as circular airspaces in *Little Navmap* and provide the same functionality as the other airspaces (tooltips, information and more). They can be enabled separately from the other airspaces by selecting `Online` as airspace source (Airspace Libraries)

Note

The circles do not represent the real airspaces and are only used to indicate the presence of an active center, tower, ground or other position. See below how to assign airspace boundaries to a center.

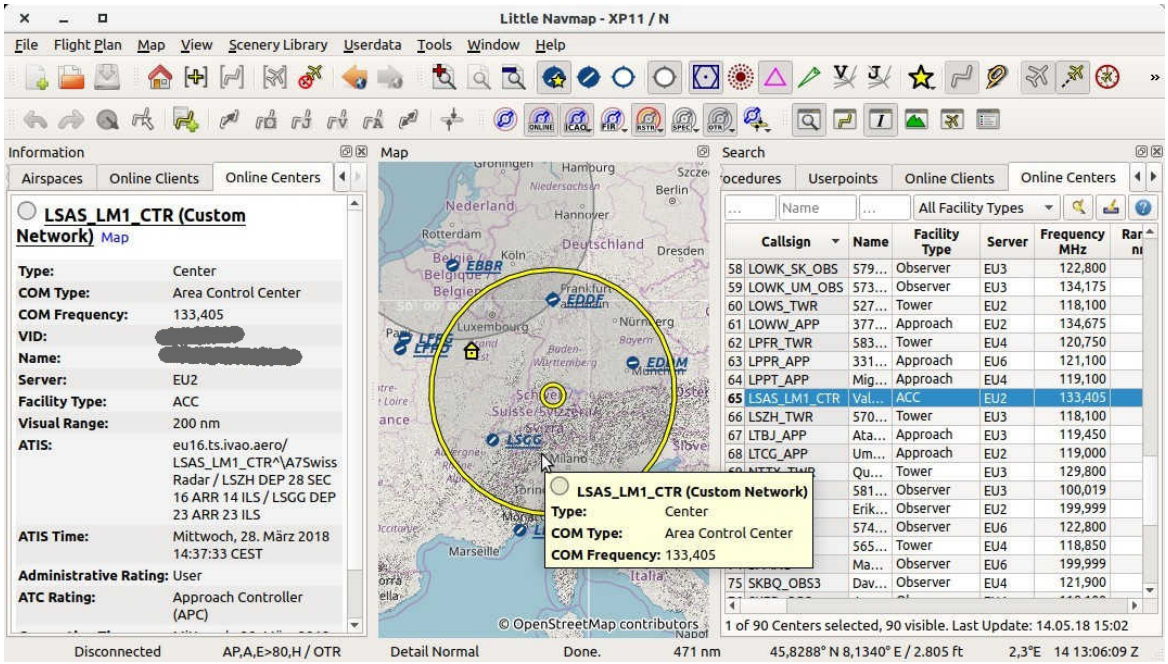
Detailed information for online centers/airspaces is shown in the Information window.

The following types are available and can be enabled in the drop down menus on the airspace toolbar or sub-menu Airspaces:

- `Observer`: Circle size is taken from the visual range value of the center.
- `Flight Information (Center)`: Uses the visual range.
- `Delivery (Clearance)`: Uses the visual range.
- `Ground`: Shows a circle with a diameter of 10 NM.
- `Tower`: 20 NM circle.
- `Approach`: 40 NM circle.
- `ACC (Center)`: Uses the visual range.
- `Departure`: Uses the visual range.

The size of the circle shapes and the lookup type can be changed in the options dialog. See options on page Map Online.

You can also assign centers to a boundary shape using imported OpenAir, JSON or GEOJSON airspaces from the user airspace database. See Online Airspaces for more information about this. The airspace geometry is assigned to the centers by ident and type.



Online network center/ATC in search tab, map, tooltip and information window.

31.3. Online Search

31.3.1. Online Network Client Search

31.3.2. Online Network Center Search

The functionality of the search filters in these two tabs and the result tables are similar to the airport and navaid search. See Search for information about search filters, buttons and context menu items.

31.3.3. Online Server Search

Displays all online servers in a table and has no search functionality. You can use the context menu to copy parts of the result table like the IP address.

32. Information

32.1. General

This dock window contains text information about airports in several tabs as well as information for one or more navaids, airways in another tab plus an additional tab showing airspace information.

All information can be copied to the clipboard as formatted text. Use the context menu of the text fields or use `Ctrl+A` to select all and `Ctrl+C` to copy the content to the clipboard.

Note that the formatted clipboard content is removed when *Little Navmap* is closed.

Bearing and distance to the user aircraft is shown for airports, navaids and userpoints if connected to a simulator and if the distance is below 500 NM.

The display of additional units for fuel and weight as well as true course can be enabled in the options dialog on page Units.

32.2. Reloading

All information in the information window is reloaded on startup if the setting `Restore information window content` is enabled on the page Startup and Updates in options.

Airport, VOR, NDB, waypoint, userpoint and logbook information is kept if possible when switching between simulators in the Scenery Library Menu. Other information is dropped.

32.3. Dock Window and Tabs

Information for only one airport, navaid or userpoint is shown when selecting one of the `Show Information for ...` context menu items in the map, flight planning dock window or the search result table.

All tabs are filled for airport, all navaids, all userpoints or all airspaces which are close to the cursor for a left click in the map.

Little Navmap shows tabs based on priorities and selected objects and tries to minimize tab changes.

Example: If you click on an airport, a VOR, a NDB and a userpoint at the same position:

1. *Little Navmap* fills all airport (several tabs), navaid and userpoint tabs with information. The tab `Navaids` gets information for the NDB and the VOR.
2. The dock window `Information` is opened and raised if not visible.
3. The tab `Userpoints` is opened and raised if not visible. Userpoints are activated since user features like map highlights, logbook entries or userpoints have priority before airports, navaids and others.

Use the map context menu for an easier selection of map objects through the sub-menus.

32.4. Links

A blue link `Map` in the information allows jumping to and/or highlighting the shown object on the map. A link `Remove Airway Highlights` or `Remove Airspace Highlights` can be used to remove the corresponding highlights on the map.

The links `Procedures`, `Departure Proc.` or `Arrival Proc.` (text depends on airport position in flight plan) allow to jump directly to the Search Procedures window.

Other links open web pages with airport information in the web browser or a file manager like Windows Explorer with directories or files.

32.5. Data Sources

All information about airports and navaids includes one or more links at the bottom of the object information in section `Data Sources`. These links point to the matching BGL (FSX, P3D and MSFS) or `apt.dat` (X-Plane) files that contain information about the airport or navaid. Click the links to open the containing directory in your file manager (e.g. Windows Explorer). If possible, the matching file will be selected automatically.

The data source `Navigraph` is shown if a navaid or airport originates from the Navigraph database.

Multiple links can appear for airports since these can be updated by several files from different add-on sceneries or navdata updates.

Note

The links shown as plain text with an additional remark like `File not found` if the file or directory is missing. This can happen if you copy databases between computers. This is only a remark has no further consequences.

32.6. Tabs in Information Dock Window

32.6.1. Airport

A tab that has several sub-tabs (see chapters below) for airport information.

The six tabs `Overview`, `Runways`, `Com`, `Procedures`, `Nearest` and `Weather` below the airport tab show information for one selected airport.

Airports can have several idents/codes depending on simulator. Unofficial internal idents are avoided in the *Little Navmap* user interface but can still show up in some cases.

See also Ident and Names in Airport Search for airport search options.

- **Ident or code shown in parentheses after airport name:** Either ICAO, FAA, IATA, local code or internal code depending on simulator and availability.
- `ICAO`: Four letter ICAO code [https://en.wikipedia.org/wiki/ICAO_airport_code]. Only available in X-Plane.
- `FAA`: Airport code used in the United States given by the Federal Aviation Administration [https://www.faa.gov/]. The FAA code is only available in X-Plane.
- `IATA`: Three letter IATA airport code [https://en.wikipedia.org/wiki/IATA_airport_code]. Available in X-Plane and Navigraph navdata.
- `Local Code`: Official local airport code mostly used for small airfields. Only available in X-Plane.
- `X-Plane Ident:`: Internal identifier for X-Plane airports.

The airport codes are also shown in the information windows, tooltips and optionally in the map labels as well as in Flight Plan Route Description. ICAO, FAA, IATA, and local codes are shown and the internal ident is avoided if possible.

Example:

`Akutan` is shown as `Akutan (PAUT)` with its official ICAO code `PAUT` on the map instead of the internal X-Plane code `XPA000B`.

32.6.1.1. Overview

Sunrise and sunset for the airport are calculated based on current real date if no simulator is connected. Otherwise the simulator date is used. This is indicated by the text `(civil twilight, real date)` or `(civil twilight, simulator date)`.

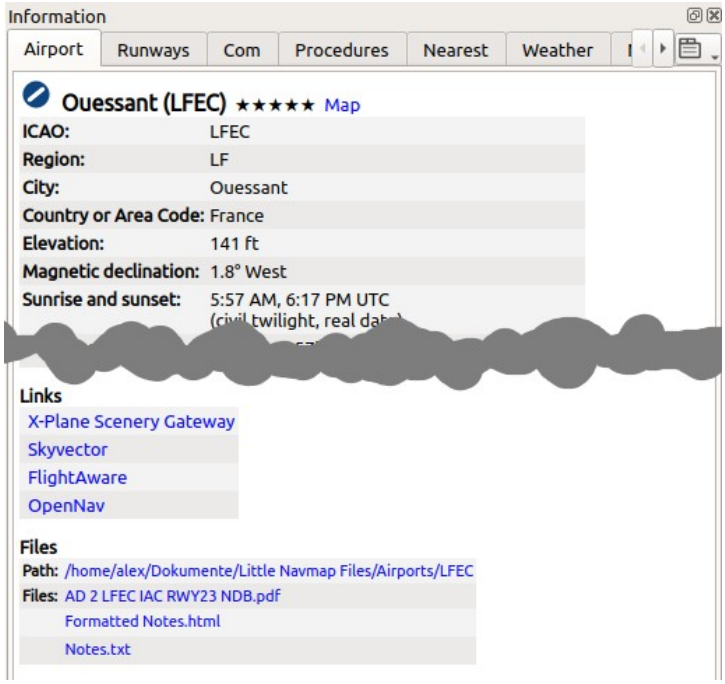
Preferred runways depending on wind are shown after the METAR. More details about preferred runways are on the tab Airport Weather.

METAR reports: This tab shows also undecoded station, nearest and/or interpolated METAR reports for the selected airport. See Weather for more information about weather reports.

32.6.1.1.1. Links

Links to several online services like SkyVector [https://skyvector.com/] or the The X-Plane Scenery Gateway [https://gateway.x-plane.com/] open a web browser with information for the airport using the respective online service.

The links are shown in the tab `Overview`.



Airport information with linked web-sites in the `Links` section and links to user files in the `Files` section. *Click image to enlarge.*

32.6.1.1.2. Files

Little Navmap will show extra links to local files if you put these into a special directory with the name of the airport ICAO ident.

The path to the airport files is shown in the `Files` section.

You can use any file type. A file will be opened with the default application like a PDF reader if you click on the link.

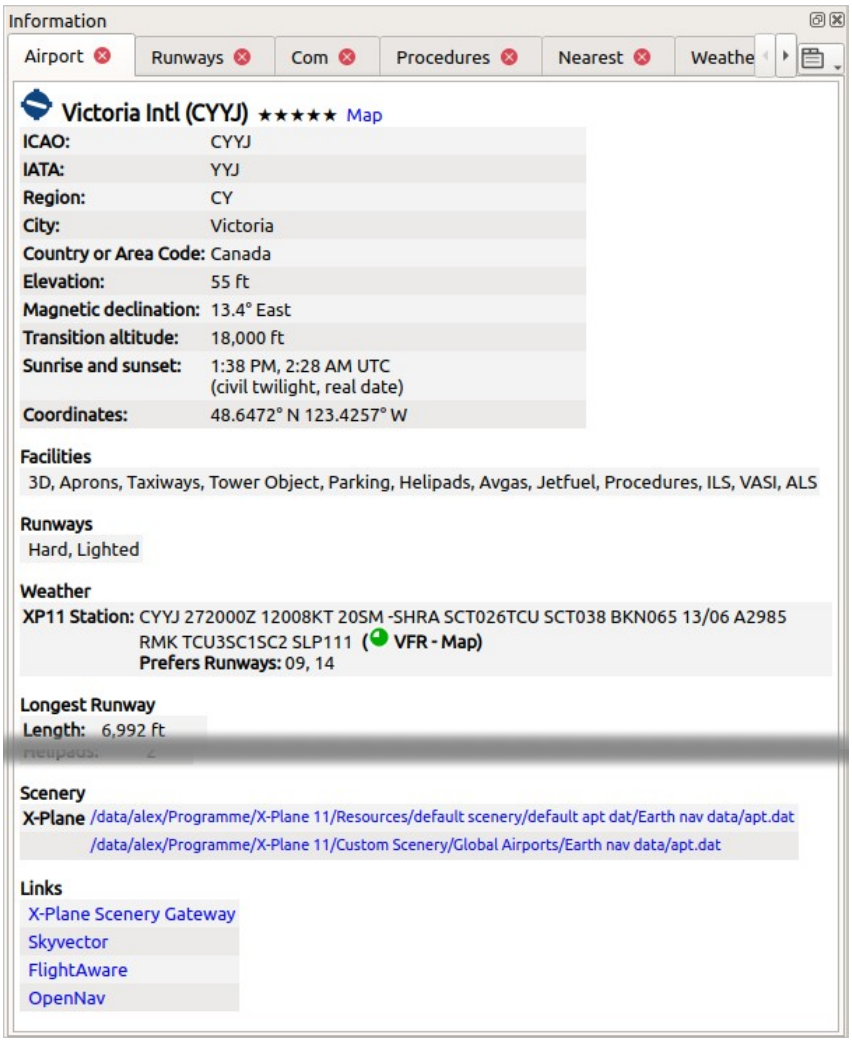
Examples for airport Ouessant (`LFEC`):

- `/home/YOURUSERNAME/Documents/Little Navmap Files/Airports/LFEC`: Linux
- `/home/YOURUSERNAME/Dokumente/Little Navmap Dateien/Flugplätze/LFEC`: Linux with German translation
- `/Users/YOURUSERNAME/Documents/Little Navmap Files/Airports/LFEC`: macOS
- `/Users/YOURUSERNAME/Documents/Little Navmap Dateien/Flugplätze/LFEC`: macOS with German translation
- `C:\Users\YOURUSERNAME\Documents\Little Navmap Files/Airports/LFEC`: Windows
- `C:\Users\YOURUSERNAME\Dokumente\Little Navmap Dateien/Flugplätze/LFEC`: Windows with German translation

You can use the translated directory names or the English variant. Translated directory names depend on the program and system language. *Little Navmap* will only use the English names if you set the user interface language to English.

Little Navmap looks for files using both the translated path and the English path like: `...\Little Navmap Files\Airports\LFEC` and `...\Little Navmap Dateien\Flugplätze\LFEC`.

The links are shown in the tab `Overview`.



Airport information overview. Additional tabs show information for runways, COM frequencies, approaches and weather. Weather symbols user NOAA weather as source. Sunset and sunrise is based on real date since not connected to a simulator. Wind direction prefers runways 09 and 14. *Click image to enlarge.*

32.6.1.2. Runways

Shows all available runways and helipads with detailed information for the selected airport. Related ILS information for runways is shown too.

32.6.1.3. COM

All COM frequencies from the airport.

32.6.1.4. Procedures

A detailed list of all procedures. You can select and look at procedures by clicking on the link `Procedures` which will show the Search Procedures tab.

32.6.1.5. Nearest

This tab shows airports having approach procedures nearby as well as the closest navaids relative to the selected airport. Click on the blue links to jump to airports or navaids.

32.6.1.6. Weather

The tab `Weather` shows decoded station, nearest and/or interpolated weather information for the selected airport. The flight rules icon (Airport Weather) has a suffix – `Map` if the shown weather source is the source for airport weather icons on the map. Detailed information for best runways for takeoff and landing based on wind conditions is shown as well.

This tab shows decoded METAR reports for the selected airport.

The time is shown in warning orange color if older than three hours and in red error color if older than six hours.

See Weather for more information about weather reports.

32.6.2. Tab Navaids

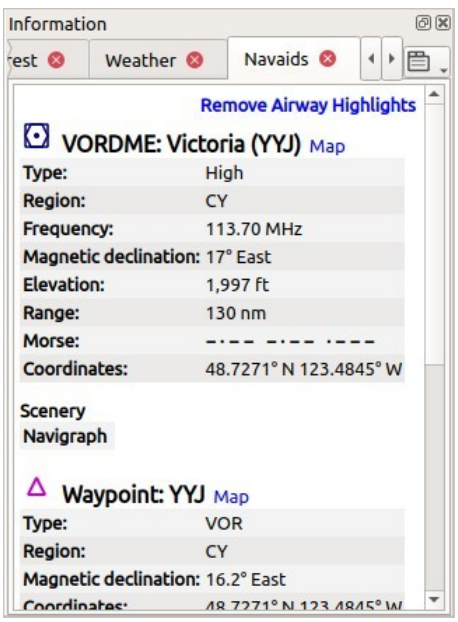
More than one navaid or airway can loaded into this tab on left click. VOR, NDB, waypoint, airway and ILS information is shown in this tab.

An airway or oceanic track is always shown with all its waypoints. Click any blue waypoint link to center the map around the waypoint.

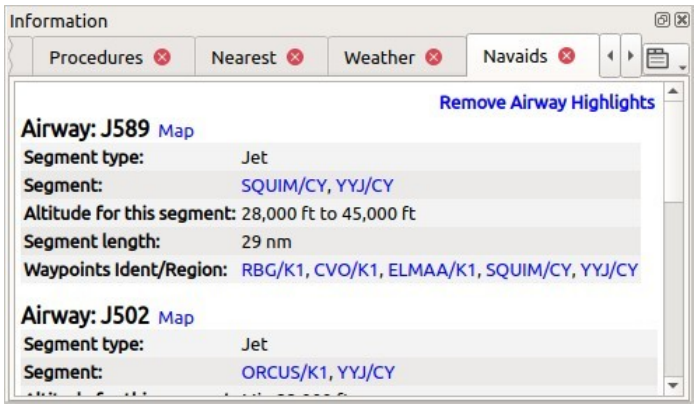
Airways and tracks are highlighted and shown on the map when clicking the `Map` link in the information window.

Highlighted airways as well as tracks have their own tooltip which is also shown if all other airways are hidden.

Click the link `Remove Airway and Track Highlights` in the information window to remove them from the map.



Navaid information. Two navaids were close to the cursor when clicked. *Click image to enlarge.*



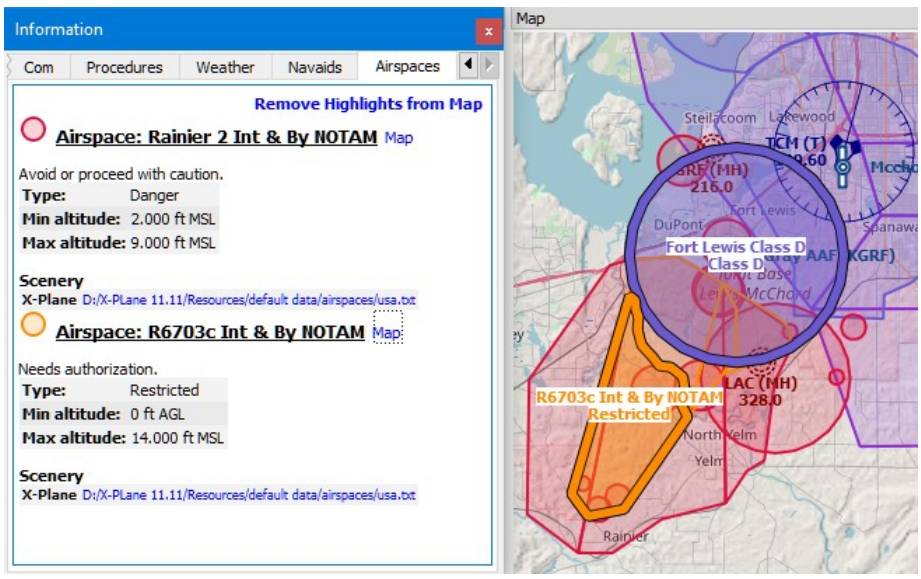
Navaid information. Display of several airways with altitude restrictions and list of clickable waypoints. Clicking on the link `Map` highlights a whole airway. *Click image to enlarge.*

32.6.3. Tab Airspaces

Airspaces are highlighted on the map with their boundary and a text label when clicking the `Map` link in the information window.

Highlighted airspaces have their own tooltip which is also shown if all other airspaces are hidden.

Click the link `Remove Airspace Highlights` in the information window to remove the highlights from the map.



Two airspaces that are shown in the information after clicking into the map. Two airspaces are highlighted on the map after clicking onto the `Map` link in the information text. *Click image to enlarge.*

32.6.4. Other Tabs

- `Userpoints`: Shows information about user defined waypoints or points of interest.
- `Logbook`: Details about logbook entries.
- `Online Clients`: Online network clients/aircraft but not AI aircraft.
- `Online Centers`: Online network centers/airspaces.

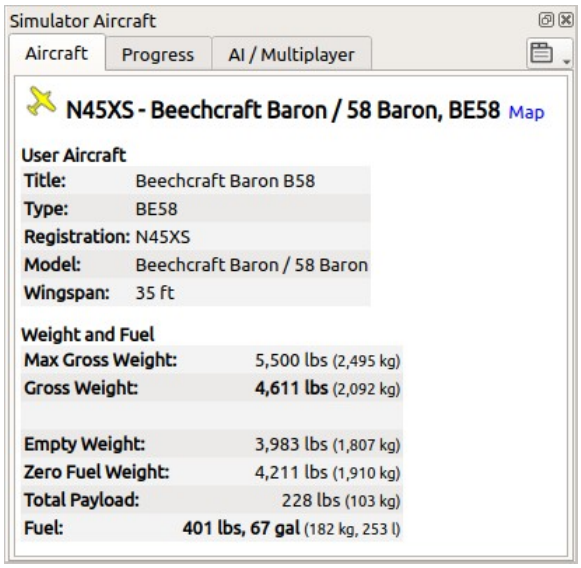
32.7. Tabs in Simulator Aircraft Dock Window

This dock window shows information about the user aircraft and about AI or multiplayer aircraft in several tabs. This does not cover online aircraft. *Little Navmap* has to be connected to the simulator to enable this feature. See Connecting to a Flight Simulator for more information on this topic.

Some fields need a valid flight plan to show. Warning and error messages are shown if needed.

32.7.1. Tab Aircraft

Gives an overview about the user aircraft and shows type, weight and fuel information.



Aircraft information when connected to a flight simulator. Alternate units (liter and kg) are enabled. Screenshot based on *Little Navmap* 2.6. *Click image to enlarge.*

32.7.2. Tab Progress

Shows information similar to a flight management computer about the user aircraft. This covers flight plan progress, altitude, speed, ambient and environment parameters.

A button in the top right corner opens the Aircraft Progress Display Options window which allows to configure the visible fields.

The aircraft and progress tabs show warnings and errors by highlighting text in red or orange. These are:

- Fuel and time estimated since flight plan not valid.
- Fuel and time estimated since aircraft performance not valid.
- Insufficient fuel at destination (only if aircraft performance is valid).
- Speed limit of 250 knots exceeded below 10,000 ft.
- Icing.

Fuel and time estimates are based on the aircraft performance if valid. (Aircraft Performance).

Fuel at destination and at top of descent is estimated by the current fuel amount in tanks and the consumption as predicted by aircraft performance for the remaining distance to fly. Wind as well as the different fuel flow numbers of the climb cruise and descent phases is considered in this calculation.

Time of arrival is similarly calculated by current time and aircraft performance prediction considering wind, climb cruise and descent phases.

Headwind is indicated by arrow down ▼ and tailwind by an up arrow ▲.

Some rows like `Ice` are hidden if the condition is not met.

Note

Little Navmap might show an orange warning about insufficient fuel at destination in the early flight phases. This is normal since fuel flow is higher for takeoff and early climb.

Note

Keep in mind that actual altitude shown in *Little Navmap* might differ from indicated altitude even with a correct baro setting.

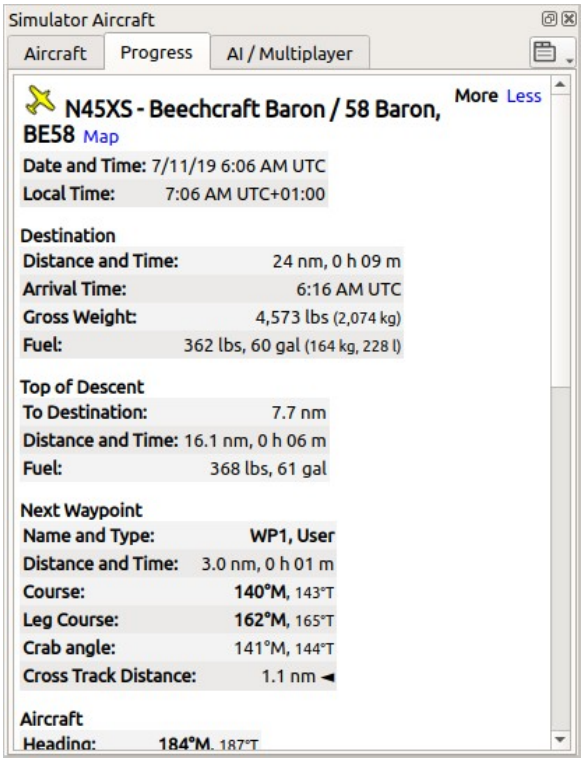
This is an effect of the outside air temperature (OAT) on actual altitude where low temperatures affect the aircraft altimeter. When temperature is less than ISA conditions an aircraft will be lower than the altimeter reading.

This effect is currently modeled in X-Plane 12 and MSFS.

Corrections have to be applied when the aerodrome temperature is 0°C or colder:

- DH/DA or MDH/MDA and step-down fixes inside the final approach fix (FAF).
- All low altitude approach procedure altitudes in mountainous regions (terrain of 3000 ft AMSL or higher)

See SKYbrary - Altimeter Temperature Error Correction [https://skybrary.aero/articles/altimeter-temperature-error-correction] for more information.



Aircraft progress information when connected to a flight simulator and user aircraft airborne. Alternate weight and fuel units (kg and liter) are enabled as well as true course display. *Click image to enlarge.*

32.7.2.1. Aircraft Progress Display Options

Choose `Aircraft Progress Display Options` from the context menu of the tab `Progress` in window `Simulator Aircraft` to customize the output table.

The dialog uses a tree. See Trees for more information about this type of input element.

Note that not all fields are visible depending on aircraft status, flight plan and flight progress.

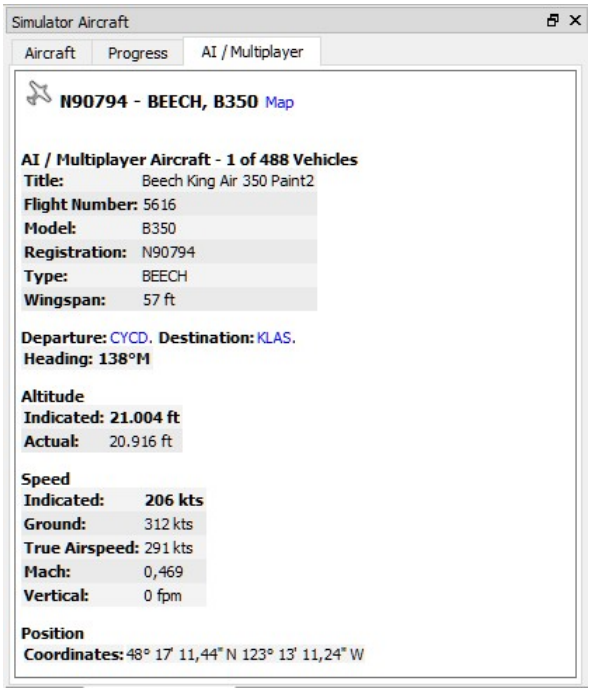
Same as main menu `Tools` -> Aircraft Progress Display Options.

32.7.3. Tab AI / Multiplayer

Information about an AI or multiplayer aircraft from the simulator (not online networks) or ship is displayed in this tab if a vehicle is clicked on the map.

This also includes the aircraft's departure and destination airports that can be shown on the map by clicking on the blue links (only for FSX or P3D and if a flight plan is filed).

Note that information on AI aircraft is limited on X-Plane.



Information about an AI aircraft. *Click image to enlarge.*

33. Flight Planning

The flight planning Dock Window contains the four tabs: `Flight Plan`, `Flight Plan Remarks`, `Fuel Report` (Aircraft Performance) and `Current Performance` (Aircraft Performance Collection).

See chapter Flight Plan Calculation for more information about automatic calculation of flight plans.

33.1. Flight Plans

Little Navmap allows to build flight plans or flight plan snippets using arbitrary start positions by using Append Position to Flight Plan or Add Position to Flight Plan in the map and other context menus.

Note that not all simulators or add-ons support this kind of flight plans.

You need to have the GLOBE elevation data installed to get the correct altitudes for arbitrary start or departure points. See Install GLOBE elevation data for installation instructions.

33.2. Header

The top shows a label that contains departure, departure position (parking, runway or helipad), destination, flight plan distance, traveling time, used procedures (SID, STAR, approach and transitions), flight plan type, wind on takeoff and landing and more.

The wind indications for takeoff and landing runway (if selected in the flight plan) are taken from station or interpolated weather depending on availability. The weather source is defined by the selection in the menu `Weather` -> Airport Weather Source and uses airport METAR information. See Weather for more information about weather reports.

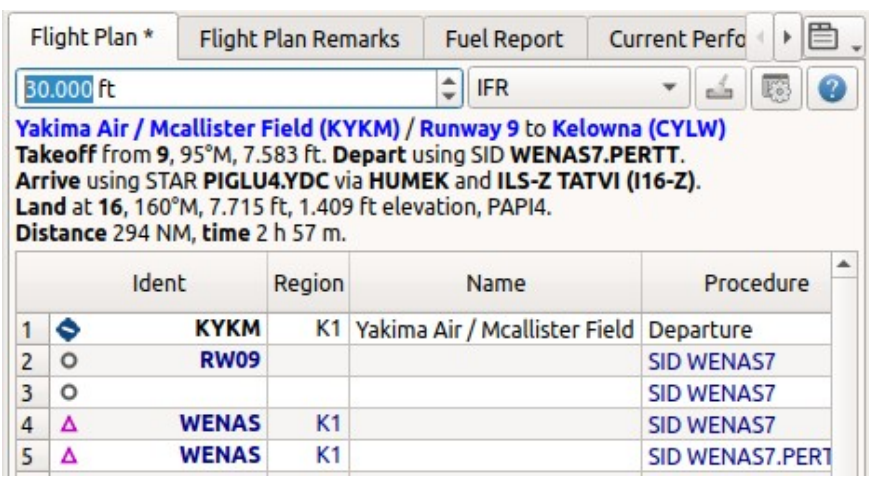
The label also displays red error messages if, for example, the runway of a STAR differs from the runway of the following approach procedure.

Traveling time is only shown if a valid aircraft performance profile is loaded that has at least climb, cruise and descent speeds set.

The ARINC name of the approach procedure which is needed by some FMCs is shown in parentheses. See ARINC Approach Types for details.

Further error messages are shown in the Error Messages Footer.

The header can be customized using Flight Plan Table Display Options and the font size can be adjusted in options on page Display and Text.



Header of a flight plan with all labels except wind information enabled.

33.3. Flight Plan Table

The table view allows the same operations as the search table view except sorting. See Tables for more information.

All selected elements in the flight plan table view will be highlighted on the map using a black/green circle. See Highlights for more information. Use `Shift+Click` or `Ctrl+Click` to select two or more elements (multi-selection).

The active flight plan leg is highlighted in magenta when *Little Navmap* is connected to a simulator, the user aircraft is airborne and user aircraft is closer than 40 NM to the flight plan.

Procedure legs have dark blue color and legs of a missed approach have a dark red color.

Alternate airports are shown at the end of the list using gray text. Note that more than one alternate can be added to the flight plan. Legs to the alternate airports originate all from the destination.

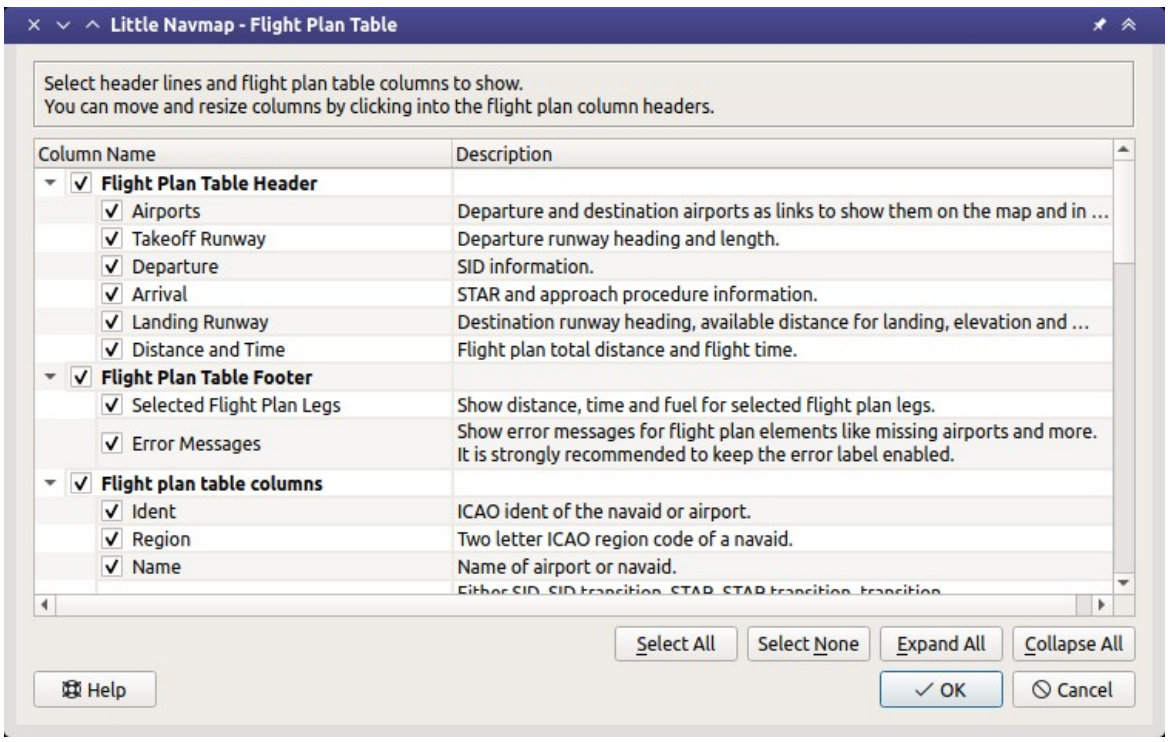
33.3.1. Flight Plan Table Display Options

Choose `Flight Plan Table Display Options` from the flight plan table context menu to customize the table columns, header and footer line content.

The changes to the table can be undone by selecting Reset View in the context menu.

The dialog uses a tree. See Trees for more information about this type of input element.

Same as main menu `Tools` -> Flight Plan Table Display Options.



The flight plan display options dialog window.

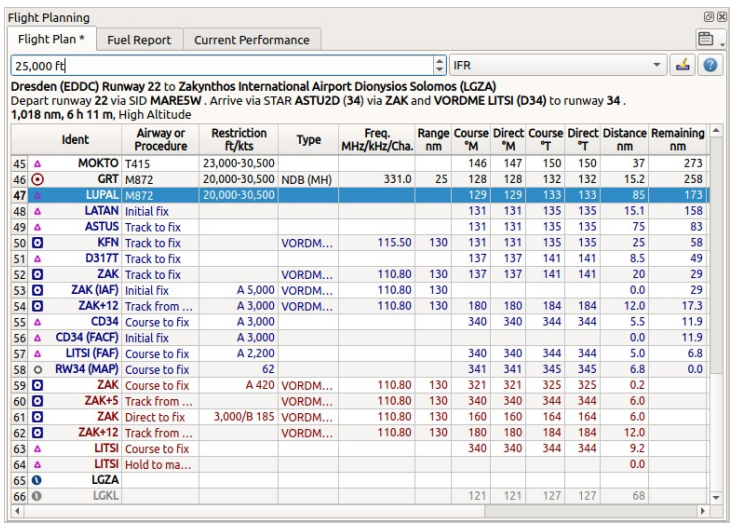
33.3.2. Table Columns

Hovering the mouse over the table header shows more information about the columns in a tooltip. Note that the shown units will differ if changed in options on page Units. You can show or hide the columns from main menu `Tools` -> Flight Plan Table Display Options.

- `Ident`: ICAO ident of the navaid or airport. The ident can be suffixed as shown below:
  - `+` or `-` and a distance value: Shows fixes in procedures that are relative to a navaid or waypoint plus the distance in NM to the waypoint.
  - `(IAF)`: Initial fix of a procedure or transition.

    - `(FAF)`: Final approach fix. Depending on procedure either the FAF or FACF are shown with a Maltese cross on the map and in the elevation profile.
    - `(FACF)`: Final approach course fix.
    - `(MAP)`: Missed approach point.
- `Region`: Two letter region code of a navaid.
- `Name`: Name of airport or radio navaid if available.
- `Procedure`: Either `SID`, `SID Transition`, `STAR`, `STAR Transition`, `Transition`, `Approach` or `Missed` plus the name of the procedure. Contains the text `Alternate` for alternate airports at the end of the list or `Departure` or `Destination`.
- `Airway or Procedure`: Contains the airway name for en-route legs or procedure instructions. This field also shows track names if NAT, PACOTS or AUSOTS tracks are used. Airways are suffixed with the airway type like `N601 / L`:
    - `L` Low altitude airway or Victor
    - `H` High altitude airway or Jet
    - `B` Both high and low
- `Restriction ft/kts/angle`:
    - For airways:
        - Example `10,000`: Minimum altitude for airway segment.
        - Example `0-20,000`: Maximum airway altitude. Minimum does not apply.
        - Example `10,000-20,000`: Minimum and maximum airway altitude.
    - For procedures: Altitude restriction or speed limit. A `/` separates altitude and speed restriction. The following altitude restrictions exist for procedures:
        - **Number only:** Fly at altitude or speed. Example: `5,400` or `210`.
        - **Prefix** `A`: Fly at or above altitude or speed. Example: `A 1,800`.
        - **Prefix** `B`: Fly at or below altitude or speed. Example: `B 10,000` or `B 220`.
        - **Range:** Fly at or above altitude one and at or below altitude two. Example: `A 8,000, B 10,000`.
        - **Altitude and speed limit:** Values separated by `/`. Example: `A 8,000, B 10,000/B220`.
        - **Speed limit only:** Speed restriction. Example: `B 250`.
        - **Required vertical path angle:** Example: `-3.1°`.
- `Type`: Type of a radio navaid. Shows `ILS` or `LOC` for ILS or localizer approaches on the last runway leg.
- `Freq. MHz/kHz/Cha.`: Frequency or channel of a radio navaid. Also shows ILS or localizer frequency for corresponding approaches on the last runway leg.
- `Range NM`: Range of a radio navaid if available.
- `Course °M`: This is the start course of the great circle route connecting the two waypoints of the leg. Use this course at departure if you travel long distances without navaids. Be aware that you have to change you course constantly when traveling along a great circle line. See also Magnetic Declination for more information.
- `Course °T`: The same as the field above but using true course. Use this in areas with high magnetic declination.
- `Distance NM`: Distance of the flight plan leg.
- `Remaining NM`: Remaining distance to destination airport or procedure end point (usually the runway).
- `Leg Time hh:mm`: Flying time for this leg. Calculated based on the selected aircraft performance profile (see Aircraft Performance). This is a static value and not updated while flying. Empty if performance calculation failed.
- `ETA hh:mm`: Estimated time of arrival. This is a static value and not updated while flying. Calculated based on the selected aircraft performance profile. Empty if performance calculation failed.

- `Fuel Rem. lbs` and `Fuel Rem. gal`: Fuel remaining at waypoint, once for volume and once for weight. This is a static value and not updated while flying. Calculated based on the selected aircraft performance profile. Empty if aircraft performance profile has no fuel consumption numbers set.
- `Wind °M/kts`: Magnetic wind direction and speed at the waypoint.
- `Head- or Tailwind kts`: Wind at waypoint. Headwind is indicated by arrow down ▼ and tailwind by an up arrow ▲.
- `Altitude ft`: Calculated altitude at waypoint. Uses aircraft performance to determine altitude.
- `Leg Safe Alt. ft`: Leg safe altitude. Same as in Elevation Profile.
- `Latitude` and `Longitude`: Coordinates in selected format from options on page Units.
- `Mag. Decl.°`: Calibrated magnetic declination at a VOR or real magnetic declination at a waypoint. See Magnetic Declination for more information.
- `Related Ident/Freq./Dist./Bearing`: Related navaid needed for procedures. Shows ident, frequency, distance and bearing as radial.
- `Remarks`: Turn instructions, flyover or related navaid for procedure legs. Also shows user remarks that can be edited with Edit Flight Plan Position or Edit Flight Plan Position Remarks. See Map Flight Plan Editing for more information.



	Ident	Airway or Procedure	Restriction ft/kts	Type	Freq. MHz/kHz/Cha.	Range nm	Course °M	Direct °M	Course °T	Direct °T	Distance nm	Remaining nm
45	MOKTO	T415	23,000-30,500				146	147	150	150	37	273
46	GRT	M872	20,000-30,500	NDB (MH)	331.0	25	128	128	132	132	15.2	258
47	LUPAL	M872	20,000-30,500				129	129	133	133	85	173
48	LATAN	Initial fix					131	131	135	135	15.1	158
49	ASTUS	Track to fix					131	131	135	135	75	83
50	KFN	Track to fix		VORDM...	115.50	130	131	131	135	135	25	58
51	D317T	Track to fix					137	137	141	141	8.5	49
52	ZAK	Track to fix		VORDM...	110.80	130	137	137	141	141	20	29
53	ZAK (IAF)	Initial fix	A 5,000	VORDM...	110.80	130					0.0	29
54	ZAK+12	Track from ...	A 3,000	VORDM...	110.80	130	180	180	184	184	12.0	17.3
55	CD34	Course to fix	A 3,000				340	340	344	344	5.5	11.9
56	CD34 (FACF)	Initial fix	A 3,000								0.0	11.9
57	LITSI (FAF)	Course to fix	A 2,200				340	340	344	344	5.0	6.8
58	RW34 (MAP)	Course to fix	62				341	341	345	345	6.8	0.0
59	ZAK	Course to fix	A 420	VORDM...	110.80	130	321	321	325	325	0.2	
60	ZAK+5	Track from ...		VORDM...	110.80	130	340	340	344	344	6.0	
61	ZAK	Direct to fix	3,000/B 185	VORDM...	110.80	130	160	160	164	164	6.0	
62	ZAK+12	Track from ...		VORDM...	110.80	130	180	180	184	184	12.0	
63	LITSI	Course to fix					340	340	344	344	9.2	
64	LITSI	Hold to ma...									0.0	
65	LGZA											
66	LGKL						121	121	127	127	68	

The `Flight Planning` dock window. The flight plan uses a SID for departure and a STAR, a transition and an approach for arrival. *Click image to enlarge.*

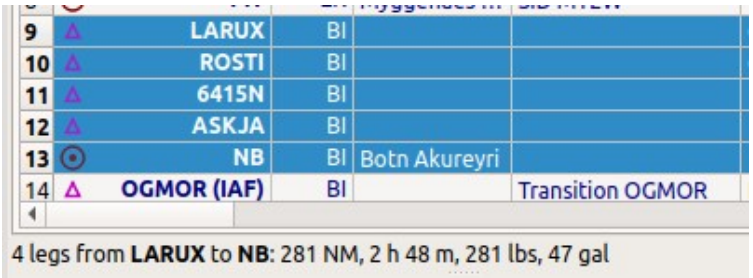
Note

The flight plan table is static and does not update except when changing wind or aircraft performance. Look at the tab Tab Progress to see current information.

33.4. Selected Flight Plan Legs Footer

This footer line shows information about the selected flight plan legs.

1. Number of selected legs.
2. From and to waypoint.
3. Distance between the two waypoints.
4. Flight time based on current aircraft performance configuration file.
5. Fuel required in weight and volume units.



Selected legs and information about the selected.

33.5. Error Messages Footer

If a waypoint of a flight plan cannot be found in the database it will be shown in red color. This can happen if the used AIRAC cycles do no match or old flight plan are loaded. The same applies to airways. The position on the map is still correct.

Airways are also displayed in red if the minimum altitude, maximum altitude or one-way restrictions are violated.

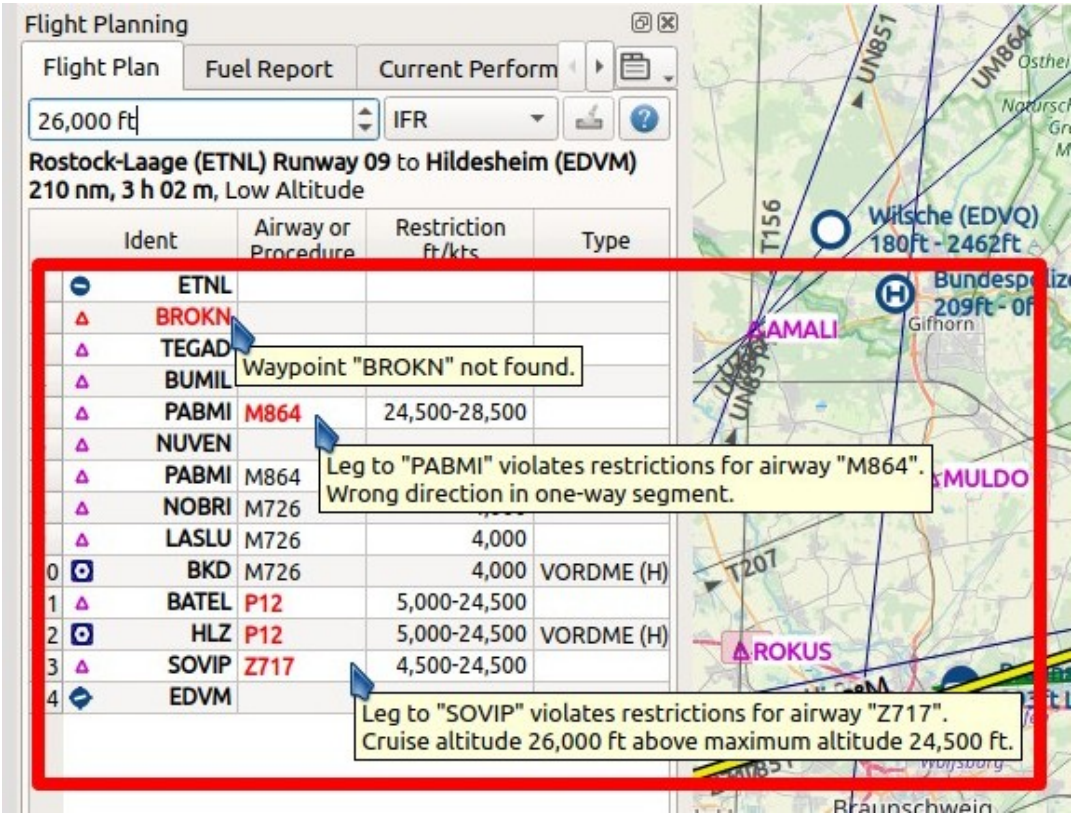
Hover the mouse over a field in the table to see a tooltip giving more information about the error.

You can also click on the red error message to see all errors found in the flight plan.

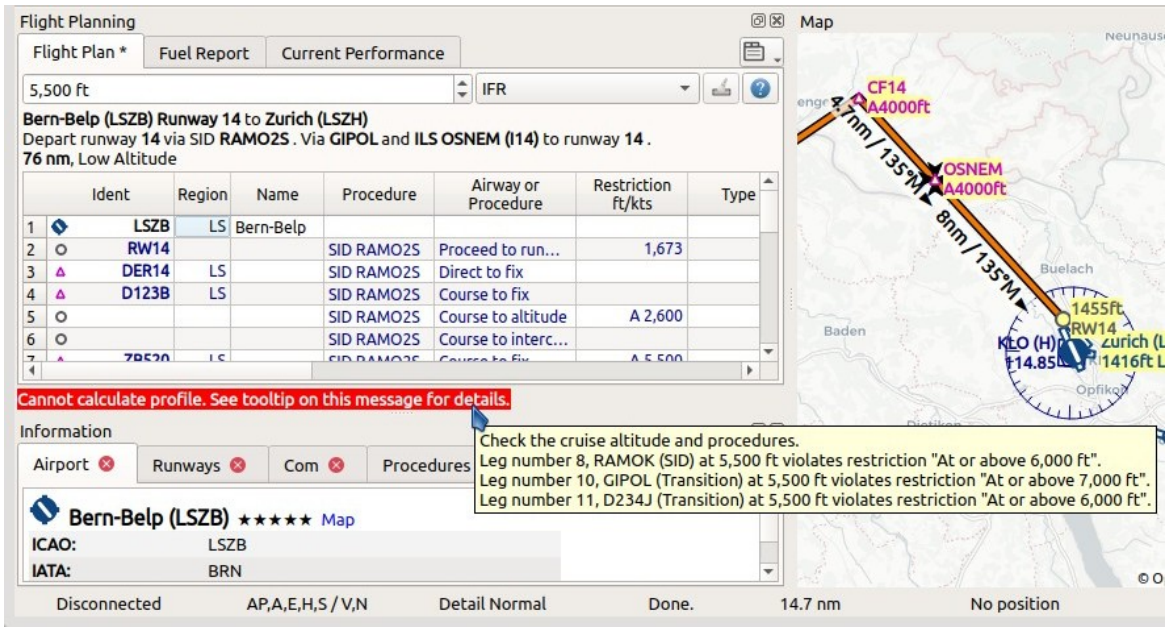
See also Warning and Error Messages.

Warning

Note that flight plans with errors are still usable in *Little Navmap* although saving and exporting to other formats is limited and can lead to unexpected results.



The `Flight Planning` with three different tooltips showing errors.



Tooltip on error message showing violations of altitude restrictions.

33.6. Mouse Clicks

A double-click on an entry in the table view shows either the airport diagram or zooms to the navaid. Additionally, details are shown in the `Information` dock window as well. A single click selects an object and highlights it on the map using a black/green circle.

33.7. Top Buttons and Input Fields

33.7.1. Cruise altitude

This value is saved with the flight plan.

Changing this field updates the cruise altitude in the window Flight Plan Calculation.

Changing the cruise altitude of a flight plan using airways might result in errors (Error Messages Footer). This can happen if the cruise altitude violates airway altitude restrictions. Calculate the flight plan again to remove the errors.

Setting a too low cruise altitude might also violate procedure restrictions. See Altitude and Speed Restrictions.

Note

Note that *Little Navmap* does not support step climb or different altitudes for each waypoint.

33.7.2. Flight Plan Type

Either `IFR` or `VFR`.

This is saved with the flight plan and is only relevant for FSX, Prepar3D or MSFS.

Note

Note that the VFR/IFR selection affects flight plan loading in MSFS. You cannot load a VFR flight plan in MSFS which uses procedures, for example.

33.7.3. Clear Selection

Deselect all entries in the table and remove any highlight circles from the map.

33.7.4. Flight Plan Table Display Options

See chapter Flight Plan Table Display Options below.

33.8. Context Menu Flight Plan

33.8.1. Show Information

Same as Show Information in the map context menu.

33.8.2. Show on Map

Show either the airport diagram or zooms to the navaid on the map. The zoom distance can be changed in the options dialog on the page Map Navigation.

33.8.3. Set Departure Runway

Same as Set Departure Runway in the map context menu.

33.8.4. Set Destination Runway

Same as Set Destination Runway in the map context menu.

33.8.5. Show Procedures

Same as Show Procedures in the map context menu. Only enabled for airports having procedures.

33.8.6. Activate Flight Plan Leg

Makes the selected leg the active (magenta) flight plan leg. The active leg might change if *Little Navmap* is connected to the simulator and the user aircraft is moving.

You have to activate the leg manually if you would like to fly to an alternate airport.

Legs of a missed approach procedure are activated automatically if the procedure is shown on the map.

33.8.6.1. Undo and Redo Flight Plan

Allows undo and redo of all flight plan changes. The last action is shown in the menu item like `Add Waypoint`, for example. Also in main menu `Flight Plan` -> Undo and Redo.

33.8.7. Move Selected Legs up or down

Move all selected flight plan legs up or down in the list. This works also if multiple legs are selected.

Airway names will be removed when waypoints in the flight plan are moved or deleted because the new flight plan legs will not follow any airway but rather use direct connections.

Procedures or procedure legs cannot be moved and waypoints cannot be moved into or across procedures.

33.8.8. Delete Selected Legs or Procedure

Delete all selected flight plan legs. Use `Undo` if you deleted legs accidentally.

The whole procedure is deleted if the selected flight plan leg is a part of a procedure. Deleting a procedure deletes its transition too.

33.8.9. Edit Flight Plan Position or Edit Flight Plan Position Remarks

Allows to change the name or coordinates of an user defined waypoint in the flight plan. See Edit Flight Plan Position.

Also allows to add a remark to any flight plan waypoint which is not an alternate and not a part of a procedure. See Edit Flight Plan Remarks.

33.8.10. Insert Flight Plan before

Inserts a flight plan before the selected leg into the current plan.

Using `Insert Flight Plan before` or `Append Flight Plan` allows to load or merge complete flight plans or flight plan snippets into a new plan.

Procedures are inserted from the loaded flight plan and dropped from the current one depending on insert position.

If you insert a flight plan after departure all procedures from the loaded plan are used and current procedures are kept.

Inserting before departure takes the departure procedures from the loaded flight plan and drops the current departure procedures.

The inserted legs are selected after loading the flight plan.

33.8.11. Append Flight Plan

Adds departure, destination and all waypoints of another flight plan to the end of the current plan.

All currently selected arrival procedures will be removed when appending a flight plan. Arrival and approach procedures from the appended flight plan are added to the current one, if any.

The appended legs are selected after loading the flight plan.

33.8.12. Save selected range as Flight Plan

Extracts a part of the current flight plan and saves a new flight plan file which contains all legs between the first and last selected including.

The currently loaded flight plan is not changed.

This menu item is disabled if the selected range contains legs which are alternates or part of a procedure.

33.8.13. Calculate Flight Plan for selected Range

Opens the flight plan calculation dock window which allows to automatically generate a flight plan by various criteria between the first and last selected flight plan leg.

This menu item is disabled if the selected range contains legs which are alternates or part of a procedure. See chapter Flight Plan Calculation for more information.

33.8.14. Add Range Rings

Same as Context Menu Map.

33.8.15. Add Navaid Range Ring

Show the range rings for all selected radio navaids in the flight plan. Simply select all legs of the flight plan and use this function to display a range circle for each radio navaid in the flight plan.

Otherwise, the same as Context Menu Map.

33.8.16. **Add Airport Traffic Pattern**

Same as Add Traffic Pattern. This menu item is enabled if clicked on an airport. Shows a dialog that allows to customize and display an airport traffic pattern on the map. See Traffic Patterns.

33.8.17. **Add Holding**

Same as Add Holding. See also Holdings.

33.8.18. **Add MSA Diagram**

Same as Add MSA Diagram. Only enabled if the navaid or airport have MSA information. See also Minimum Sector Altitude.

33.8.19. **Mark Airport as Add-on**

Marks an airport with a yellow circle as add-on. Same as Mark Airport as Add-on. Enabled for all airports at the clicked position.

33.8.20. Follow Selection

The map view will be centered - not zoomed in - on the selected airport or navaid when this function is enabled.

33.8.21. **Copy**

Copy the selected entries in CSV format to the clipboard. The CSV will include a header. This will reflect changes of the table view like column order. Columns which are hidden or shrunk to minimum width are excluded.

Import the CSV text into spreadsheet programs using UTF-8 encoding and a semicolon as a separator.

33.8.22. Select All

Select all flight plan legs.

33.8.23. **Clear Selection**

Deselect all currently selected flight plan legs and remove any highlight circles from the map.

33.8.24. **Reset View**

Reset the column order, visibility and widths if the table back to default.

33.8.25. **Set Center for Distance Search**

Same as Context Menu Map.

33.8.26. **Flight Plan Table Display Options**

See chapter Flight Plan Table Display Options above.

33.9. Flight Plan Remarks

Adds a free text remarks field for the flight plan.

Shows the loaded performance file and selected scenery data that was used when saving the flight plan file.

Note that this field saved is saved only when using the *Little Navmap* LNMPLN format (Little Navmap LNMPLN Format).

The text size can be changed in options on page Display and Text.

See also chapter Remarks for more information.

34. User Aircraft Centering

Little Navmap keeps the user aircraft visible while flying if the function Map follows User Aircraft ( ) is enabled on the toolbar or in the menu.

The behavior of the map might look confusing for new users but the intention is to minimize interactions with *Little Navmap* while flying.

The default is to keep the aircraft visible in the center part of the map window. The map is centered on the user aircraft once the aircraft leaves the center part of the map screen. You can configure the size of the center part in options. See chapter Aircraft Centering Options.

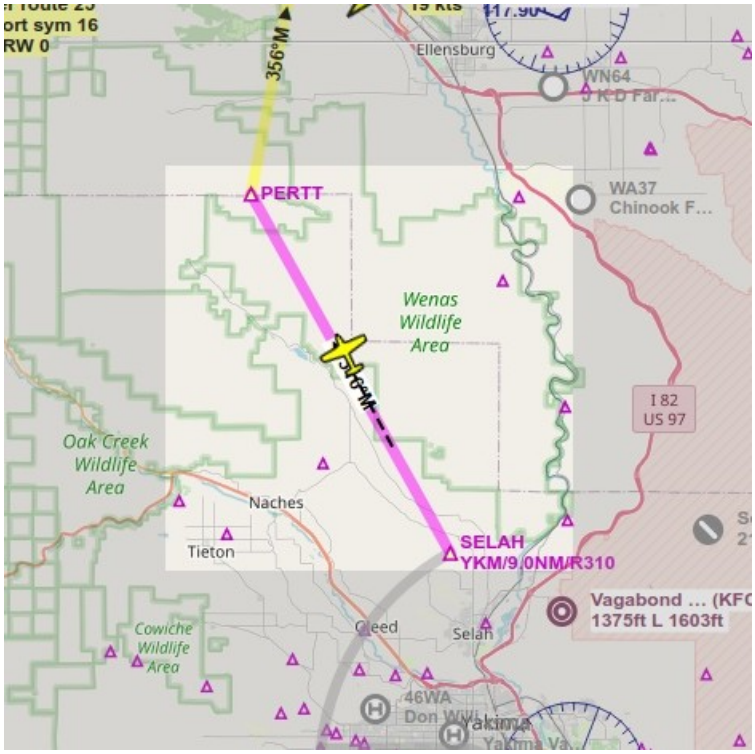
A countdown timer starts (default is 10 seconds) if an user does interactions with the map like zooming or scrolling which allows to move the map away from the user aircraft. The timer is restarted for each manual map movement, zooming or other interactions.

Aircraft centering restarts once an user leaves the map window alone and the countdown is finished.

This means you can move around the map, look at airports or navaids and continue flying once done. No need to go back the aircraft manually since *Little Navmap* automatically jumps back to the aircraft after a while.

You can change the map behavior while flying on the Simulator Aircraft page in the options dialog. See chapter Aircraft Centering Options for more information on the various settings.

Other related functions in the elevation profile context menu: Keep User Aircraft Centered and Center on Aircraft and Destination.



Aircraft centered inside the active brighter box. The aircraft is centered again once it leaves the box. This is the default behavior. *Click image to enlarge.*

35. Map Flight Plan Editing

The flight plan click-and-drag editing mode is enabled by default. It can be toggled using the toolbar or `Flight Plan` -> Edit Flight Plan on Map in the main menu.

You can use the keyboard, the mouse wheel or the map overlays to scroll and zoom while editing the route.

Note

The flight plan click-and-drag editing is based on the assumption that a direct connection between departure and destination already exists.

Always select departure and destination first if you would like to build you flight plan manually. This will connect both points with a great circle line. Based on this line you can start to add navaids to your flight plan.

Note that selecting airways is not possible.

The cursor will change into a cross if a new navaid can be added to a leg. A cursor will be shown if a present navaid can be replaced by another one or if an user position can be moved.

The following functionality is available:

- **Click on a flight plan leg:** Starts editing and adds a new waypoint depending on where the next click is done:
  - **On a single airport and navaid:** Object is inserted into the flight plan segment.
  - **On multiple airports or navaids:** A menu pops up that allows you to select the object to be inserted.
  - **No airport and no navaid:** An user defined position is inserted into the flight plan.
- **Click on waypoint:** Starts editing and replaces the selected waypoint with an object depending on where you click next:
  - **On a single airport and navaid:** Object replaces the selected waypoint.
  - **On multiple airports or navaids:** A menu pops up that allows to pick the object that should replace the selected waypoint.
  - **No airport and no navaid:** An user defined position replaces the waypoint.
- **Click on departure or destination:** Replaces the departure or destination with an object depending on where you click next:
  - **On a single airport:** Airport replaces the departure or destination.
  - **On a navaid:** Object replaces departure or destination which results in an invalid flight plan. The flight plan can be saved and loaded (a warning will be shown) but is unusable by the flight simulator.
  - **On multiple airports or navaids:** A menu pops up that allows to select the object that replaces departure or destination.
  - **No airport and no navaid:** An user defined position replaces the waypoint resulting in an invalid flight plan.
- **Right-clicking, pressing the escape key or any click outside of the map window:** Cancel current operation.

Limitations if procedures are used: You can not add navaids in or between procedures, nor can you delete procedure legs. The cursor will not change shape when you hover over a procedure. The following is not allowed:

- Add a waypoint between departure airport and SID.
- Add a waypoint between STAR or approach and destination airport.
- Add a waypoint between STAR and approach or transition.
- Move or remove the first or last waypoint of a procedure.

All departure or destination procedures are removed if the departure or destination airport is moved or replaced. The same applies if waypoints are inserted before or appended after departure or destination.

Inserting a navaid into a flight plan leg by clicking and moving the leg line. A tool tip for the navaid is shown.

Replacing VOR TRA in the flight plan with another one by simply clicking and moving the waypoint TRA onto KLO. A selection menu pops up for disambiguation.

36. Procedures

36.1. General

Departure and arrival procedures will typically be used when flying an airliner, but smaller aircraft, too, have to use at least an approach procedure at their destination when flying IFR.

An airline flight containing all variations can use the following procedures or segments:

1. Departure airport
2. SID
3. SID Transition
4. en-route airway system
5. STAR transition
6. STAR
7. Transition to approach
8. Approach
9. Destination

A small aircraft IFR flight can use the following procedures or segments:

1. Departure airport
2. en-route airway system
3. Transition to approach
4. Approach
5. Destination

Note that transitions make only sense together with an approach, a SID or a STAR which will guide you to or from the runway. You can select a transition only together with the respective procedure (although the SID may be empty and consist only of a transition). If you delete a procedure from the flight plan, its transition will be deleted too.

Procedure information is saved together with a flight plan as an annotation in a LNMPLN file and will be restored by *Little Navmap* when loading the flight plan. Note that some export flight plan formats do not support saving of procedures.

Procedure waypoints are excluded from all flight plan formats by default. You have to use the GPS or FMS in the simulator to select procedures.

Some flight plan formats like X-Plane FMS allow saving and loading of procedures. See X-Plane FMS 11 and X-Plane 12. for more information. Transitions cannot be saved with the MSFS PLN format (see Microsoft Flight Simulator 2020).

You can enable saving of waypoints by checking Export Waypoints for Approaches and/or Export Waypoints for SID and STAR. Procedure information will be omitted if this is enabled. **Note that these functions are normally not needed and can have side effects.**

Note

It is not possible to assign an approach or STAR to an alternate airport. Create a new flight plan for the alternate trip if you wish to do so.

Note

FSX and Prepar3D stock data provides only approaches and transitions. SIDs and STARs are not available. These can be added by navdata updates.

36.2. Set Departure Runway and Set Destination Runway

A departure and destination runway can be selected instead of an procedure.

Selecting a destination runway adds a final approach leg (runway center line extension) which can be customized by changing altitude, length and offset angle. This allows *Little Navmap* to give vertical guidance and to show ILS and/or VASI slopes at the destination.

Selecting a departure runway adds a departure flight plan leg depicting the extended runway center line.

See more about this in chapter Departure and Destination Runway.

36.3. Inserting a Procedure into a Flight Plan

Right-click on an airport in the map, the airport search table, or the flight plan table, and select `Show Procedures` (or `Show Departure Procedures` or `Show Arrival Procedures` depending on airport) from the respective context menu. This will show the tab Search Procedures in the dock window `Search`.

Insert a procedure into the flight plan using the context menu in the procedure tree view. Right click on a procedure, a procedure leg or a transition and select `Use airport and procedure as Departure`, `Use airport and procedure as Destination` or `Insert Procedure into Flight Plan` (substitute `procedure` and `airport` with the actual names).

You can also add a procedure from the map if using Leg Highlights on the Map or Preview all Procedures. Right click on any waypoint of a procedure (not the leg line) and select `Use airport and procedure as Departure`, `Use airport and procedure as Destination` or `Insert Procedure into Flight Plan`.

Important

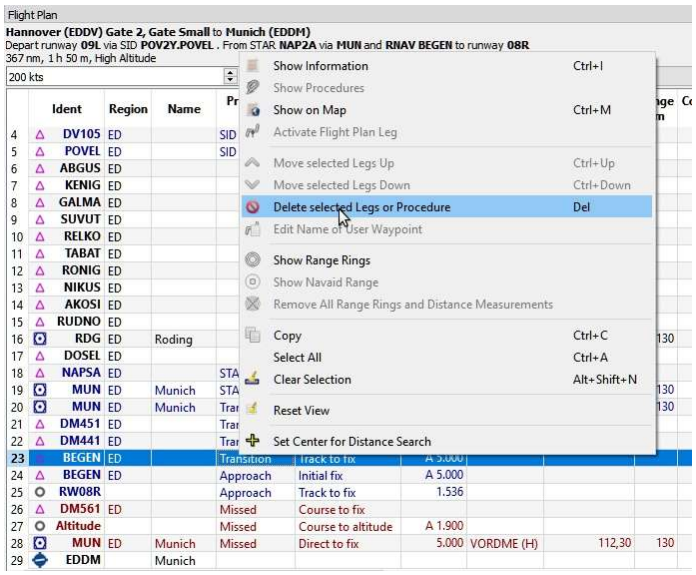
Little Navmap removes waypoints from the flight plan which overlap with the procedure.

In any case check the flight plan for reversals or zig-zag guidance. Delete waypoints manually if you find such cases.

36.4. Deleting a Procedure from a Flight Plan

Deleting a single leg from the flight plan table which is part of a procedure will remove the whole procedure and its transition. Deleting a leg being part of a transition will remove only the transition.

You can also delete procedures from the flight plan by right clicking onto a procedure waypoint on the map. Select `Delete procedure from flight plan`. Substitute `procedure` the actual name.



About to remove the transition `MUN` of the approach `RNAV BEGEN` from the flight plan. *Click image to enlarge.*

36.5. Limitations when editing a flight plan with procedures

- Deleting a leg of a procedure will remove the whole procedure from the flight plan.
- You cannot move a procedure leg up or down neither can you move or add a flight plan leg into a procedure.
- You cannot add waypoints in between procedures (e.g. between a STAR and an approach). Waypoints can only be added to the route between departure and arrival procedures.
- You cannot add waypoints between departure airport and a SID procedure.
- You cannot add waypoints between arrival procedure and destination airport.
- If you delete or replace the departure airport all SID procedures are removed too.
- If you delete or replace the destination airport all approach and arrival procedures are removed too.

36.6. Flying Procedures

Procedure legs are pre-calculated, with the exception of holds, turns and altitude dependent legs. This means you can fly them mostly as they are drawn on the map. If in doubt about how to fly a leg (e.g. if too many lines are overlapping) look at the procedure table in the Flight Plan Table.

36.6.1. Holds

No entry or exit procedure is shown. You have to find a proper entry procedure yourself. Holds have a straight leg flying time in minutes or a distance.

If a time is given, fly the hold as usual:

1. Enter at the fix using a proper entry procedure
2. Do a standard turn
3. Fly the straight leg for the given time (typically one minute)
4. Do standard turn
5. Fly to fix

6. Exit hold when done or instructed by ATC

Note

Do not follow the lines exactly, they are just an indicator for what to fly. An exception are holds where a distance is given for the straight leg. The hold size will match the distance in this case.

Note that procedure holds are part of the flight plan and differ from the user defined holdings (Holdings) which are simply map display objects.

A hold with 2 NM straight segment length. Enter and exit at `ZUNAD` and fly at or above 2,600 ft. Course is 61° magnetic degrees.

36.6.2. Exiting a Hold

Little Navmap will detect when a hold is exited and advance the active leg to the next one if one of the two conditions is met:

1. **If the next leg continues after or at the hold fix:** When approaching the hold fix after one circuit continue straight on. The next leg will be activated after half a NM up to one NM.

2. **If the next leg starts before the hold fix:** Exit the hold at its fix. Exit right turn holds to the left and vice versa (i.e. turn outside the hold). Proceed to the fix of the next leg which will be activated.

You can activate the next leg manually if you do not exit the hold at its fix. Right-click in the flight plan table on the next leg and select `Activate Flight Plan Leg`.

36.6.3. Procedure turns

The flight simulator data moves the turn point of a procedure turn 10 NM out from the fix which is usually too far away.

Fly the procedure turn as usual: Minimum one minute from the fix. Use more if you need space to catch the next fix after the course reversal. Then turn using an teardrop or a standard 45/180 degree turn. Again: Follow the procedures, not the lines.

A procedure turn. Fly at least one minute outbound 61° from `ABERN`, turn left to 16°, fly one minute, turn 180° and fly to `LAMMB`, then 242° to `ABERN`.

36.6.4. Distances

All procedure legs, with the exception of holds and procedure turns, are included when calculating flight distance. This means the total flight plan distance as well as the top of descent point will change when selecting an approach or a transition.

36.7. Special Leg Types

All procedure leg types (`Track to Fix`, `Initial Fix` and more) that are shown in *Little Navmap* are based on the ARINC 424 path terminator concept. A deeper knowledge of these leg types is not important for the simulator pilot.

Four additional types are used by *Little Navmap*:

- `Start of Procedure`: This leg is added if a procedure does not start with an initial fix but rather with a course, heading or track to a fix. It indicates the first position of the procedure.
- `Proceed to Runway` in a SID: The first leg of a SID to indicate the start position on the runway. The program might fall back to the airport center if the runway is not available. The altitude restriction indicates the elevation of the runway.
- `Straight In`: Added to an approach procedure to show the course from the missed approach point (MAP) to the runway threshold. It is added when an approach ends with a runway fix. The leg has an altitude restriction 50 ft above the threshold.
- `Circle to Land`: Added to an approach procedure to show the course from the missed approach point to the airport. It is added if an approach does not end with a runway fix.
- `Vectors`: Vectors connect legs that are manually terminated by ATC with their successors which is often an initial fix.

`Straight In` example: `ENSH` approach `LOC FL01 (L01)` to runway 01. White/orange dotted line is the straight-in leg. `ML01` is the MAP. If runway is not visible at `ML01` turn left to missed.

`Circle to Land` in example: `LSZC RNAV-A KUSIX (RNVA)`. White/orange dotted line is the circle-to-land leg. `ZC701` is the MAP. No guidance is given for this leg. You have to navigate around the mountain to get to runways 06 or 24.

36.8. Fix Types in a Procedure

- **Waypoints:** Terminal waypoints or radio navaids. Some are marked as `flyover` in the approach table.
- **Radial and distance:** Example: `WIK/7nm/291°M`. A fix defined by a course or heading and distance to a navaid.
- **Distance to DME:** Example: `WIK/9nm`. This fix is defined by a heading or track which is terminated by reaching a DME distance.
- `Intercept Course to Fix`: Intercept a course to the next fix at an angle of about 45 degrees.
- `Course/Heading to radial termination`: Example: `LPD/135°M`. Turn left or right to intercept a radio navaid radial.
- `Intercept Leg`: Intercept the next approach leg at a course of about 45 degrees.
- `Altitude`: A leg or hold that is terminated by reaching a certain altitude and is used mostly on missed approaches. Since the distance depends on the aircraft, 2 NM length are used for this leg. You can ignore the line and proceed to the next leg once the altitude criteria is satisfied.
- `Manual`: Fly a heading, track or a hold until manually terminated by ATC.

Runway fixes are prefixed with `RW`. They usually have an altitude restriction a few ft above the runway. Higher altitude restrictions (i.e. > 500 ft) indicate a circling approach.

36.9. Altitude and Speed Restrictions

Restrictions are shown on the map and in the flight plan table.

- **Number only:** Fly at altitude or speed. Map examples: `5400ft` or `210kts`.
- **Prefix** `A`: Fly at or above altitude or speed. Map example: `A1800ft` or `A200kts`.
- **Prefix** `B`: Fly at or below altitude or speed. Map example: `B10000ft` or `B240kts`.
- **Range:** Fly at or above the first altitude and at or below the second altitude. Map example: `A8000B10000ft`. Same for speed.
- **Prefix** `GS`: Not an altitude restriction but an indicator for the ILS glideslope altitude. Can mean `at` or `at or above`.
- **Vertical path** `-3.2°`: A vertical path angle which has to be followed. Calculated paths are shown with a white text background and required paths with a yellow background.

36.10. Related Navaids

Many fixes have a related or recommended navaid. This can be a VOR, NDB, ILS or a waypoint plus distance and/or bearing. The related navaid comes with radial and distance values that can be used to locate waypoints when flying without GPS or simply for cross checking the position.

Related navaids for procedures are forced with the flight plan display. All navaids needed for procedures are still shown if you disable the display of VOR, NDB and waypoints. This helps to keep an uncluttered map display.

36.11. Missed Approaches

Missed approach legs are activated once the simulator aircraft passes the last point of an approach and the missed approach is shown on the map. The display of remaining flight plan distance will switch to display of remaining distance to last missed approach leg.

36.12. Leg Highlights on the Map

Up to three points will be highlighted when clicking on a procedure leg in the tree in the search window:

- A small blue circle shows the beginning of the leg.
- The end of the leg is shown by a large blue circle.
- A thin circle shows the location of the recommended or related fix if available.

36.13. Invalid Data

A leg entry will drawn red if a navaid was not resolved during the scenery database loading process. This happens only when the source data is not valid or incomplete. In this case, the resulting procedure is not usable and a warning dialog will be shown if essential navaids are missing.

Little Navmap might refuse to use the procedure depending on error.

37. Departure and Destination Runway

A departure or destination runway can be selected instead of a SID or an approach procedure. This can be used on small airstrips as well.

The inserted departure or arrival legs (runway center line extensions) can be used similar to procedures. Deleting a leg removes the whole departure or arrival, for example.

37.1. Limitations

The departure and arrival runways as well as the related waypoints are exported as custom waypoints (or coordinates) in some flight plan formats like MSFS PLN, X-Plane FMS and others.

Note

The custom waypoints are omitted for all formats related to complex aircraft having an FMS or MCDU to avoid issues on import. You have to select the departure and approach manually in the aircraft, therefore. Depending on add-on you probably have to remove the additional waypoints in the FMC or MCDU before seleting the runway in the aircraft.

If you see problems, delete the departure or/and approach, export the flight plan and undo your change in the flight plan again.

37.2. Show Departure Procedures and Show Arrival Procedures

The buttons `Show Departure Procedures` or `Show Arrival Procedures` jump directly to Search Procedures where you can view and select IFR procedures like SID, STAR and approaches.

37.3. Wind Indication

The preferred runway is shown in the departure and destination runway selection dialog window.

This is based on the selection in menu `Weather` -> Airport Weather Source and shows the best runways for wind and the used weather source.

The head and crosswind is shown for each runway in the selection table.

37.4. Departure Runway

Set this by using Select Departure Runway or Procedure. Set Departure Runway or from the context menu of the airport search tab.

Selecting a departure runway adds an extended runway center line. The length of the runway extension can be changed when adding the departure runway.

The departure guidance is a part of the flight plan similar to a procedure.

The departure runway is saved in the LNMPLN flight plan file. User defined waypoints are used for the runway threshold and end of extended runway center line when exporting a departure runway to other flight plan formats than LNMPLN.

The extended runway center line consists of two waypoints which also indicate the runway name:

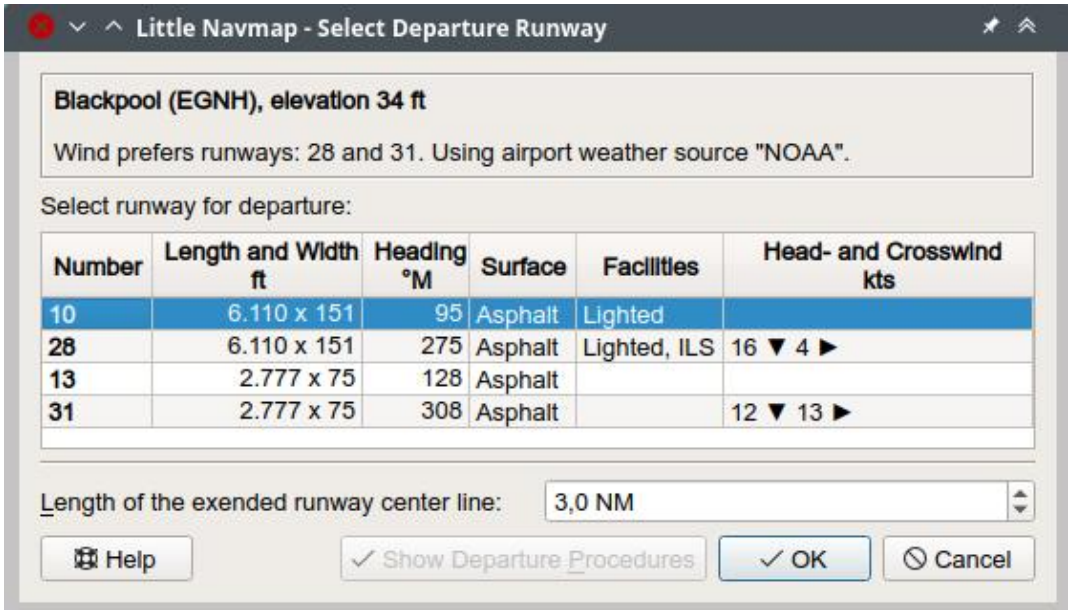
- `RW01+3`: The start of the final leg. Distance after `+` given in NM.
- `RW01`: The runway threshold for runway `01` here.

Runway selection dialog:

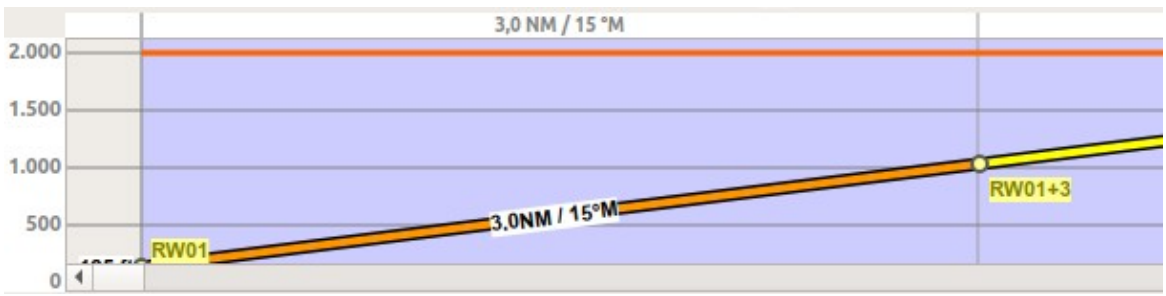
- Dialog header: Shows the airport name and its ICAO ident as well as field elevation.
- `Runways`: List of available runways for the airport. Shows runway name, length, width, magnetic heading, surface, lighting status and other attributes.

- `Length of the extended runway center line`: Distance from the runway threshold to the end of the departure leg. Default is 3 NM.

A click on the `OK` button or a double click into the list `Runways` closes the dialog and creates the approach.



Dialog shown after right clicking the departure airport of a flight plan and selecting `Select Departure Runway` on airport `EGNH`. Best takeoff runway is 10 with a headwind of 16 knots and 4 knots crosswind.



Vertical guidance from runway threshold extended center line.

37.5. Destination Runway

Set this by using Select Destination Runway or Procedures, Set Destination Runway or from the context menu of the airport search tab.

Selecting a destination runway consists of a final leg for the approach which can be customized by changing altitude, length and offset angle. This enables vertical guidance in the elevation profile and allows to the VASI slope at the destination.

The approach guidance is a part of the flight plan similar to a procedure unlike Traffic Patterns which is only a map display feature.

This type of approach can be removed like other procedures by deleting one of the legs in the flight plan table or from the map context menu (Delete from Flight Plan).

The destination runway is saved in the LNMPLN flight plan file. User defined waypoints are used for the start of the final leg and the runway threshold when exporting a destination runway to other flight plan formats than LNMPLN.

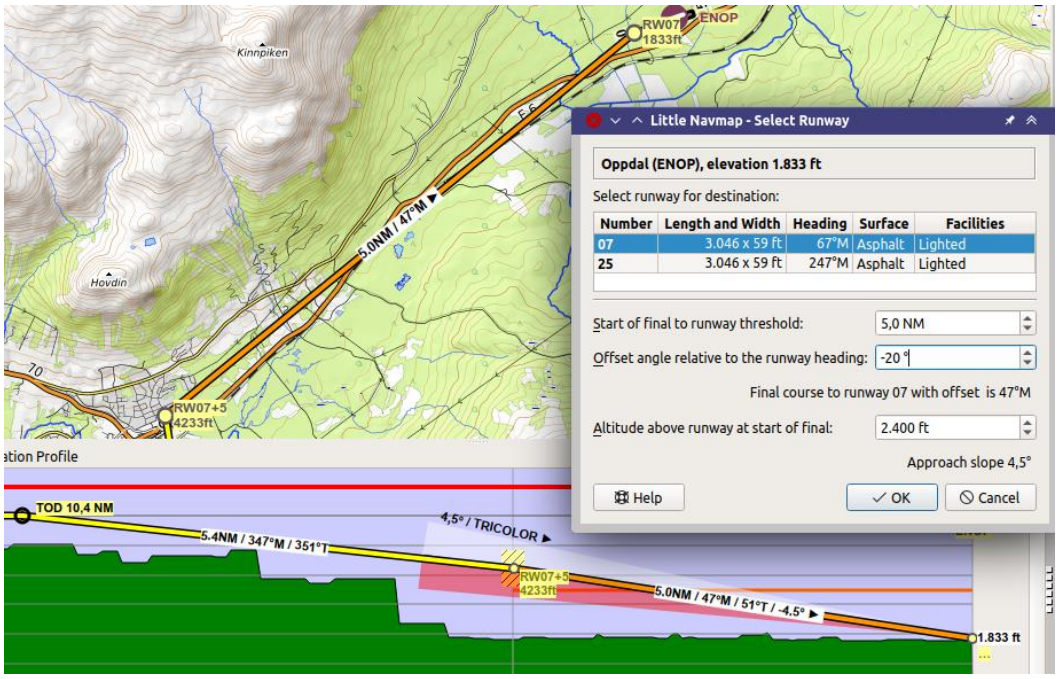
The approach guidance for a selected destination runway consists of two waypoints which also indicate the runway name:

- `RW12+3`: The start of the final leg. Distance after `+` given in NM. The altitude is fixed and considered when calculating the elevation profile.

- `RW12`: The runway threshold for runway `12` here.

Runway selection dialog:

- Dialog header: Shows airport name and its ICAO ident as well as field elevation.
- `Runways`: List of available runways for the airport. Shows runway name, length, width, magnetic heading, surface, lighting status and other attributes.
- `Start of final to runway threshold`: Distance from the initial fix to the runway. Default is 3 NM.
- `Offset angle relative to the runway heading`: Defines an offset angle to approach the runway. This rotates the final leg clockwise for positive values and counter-clockwise for negative angles.
- `Final course to runway`: Shows the magnetic course of the final leg based on the offset angle.
- `Altitude above runway at start of final`: Altitude at the start of the final leg above runway elevation. Default is 1,000 ft.
- `Approach slope`: Shows the slope angle calculated from the given distance and altitude. The default values for distance and altitude give a 3.1 degree slope.



Destination runway dialog window and depiction on map and in elevation profile. Using 4.5° slope to match VASI and offset approach to avoid mountains. Vertical guidance to runway threshold. Note that ILS and other approach aids are not shown for the VFR approach. *Click image to enlarge.*

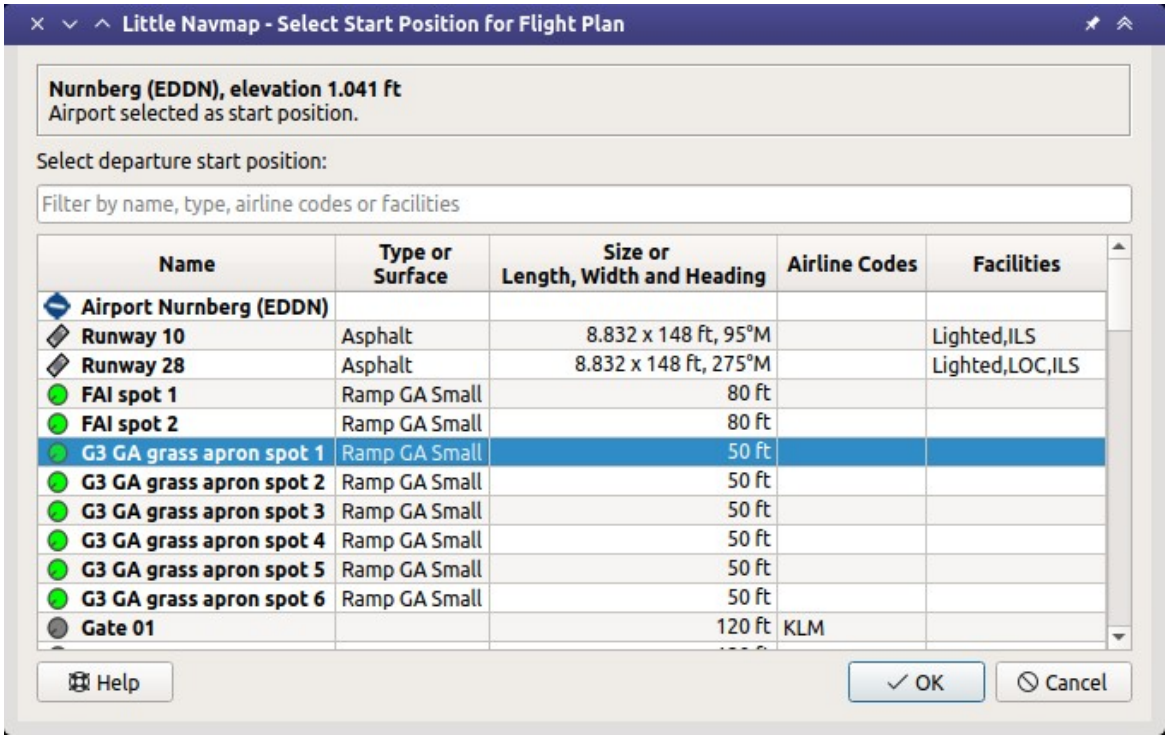
38. Select Start Position

A parking spot (gate, ramp, fuel box), airport center, runway or helipad can be selected as a start position at the departure airport. A parking position can also be selected in the map context menu item Set as Departure when right-clicking on the center of a parking position. If no position is selected the airport center is automatically selected as start.

The start position is highlighted on the map and saved with flight plans. Note that only a few flight plan formats allow to load the position and place the aircraft at the ramp. For X-Plane you have to select the start position manually before loading the situation. See Flight Plan Formats for details.

Note that the start position might be lost when switching between scenery library databases since positions often do not match between simulators.

The start position selection dialog has a search field which allows to filter the entries by name, type, airline codes or facilities.



The start position selection dialog for EDDN.

39. Runway Selection

This dialog shows up after selecting a SID or STAR applicable for parallel runways or all runways. Parallel runways are indicated in the Procedure Tree by a list of runways like `STAR 07L, 07R, 07C`. The suffix `All` is added if a procedure applies to all runways of an airport.

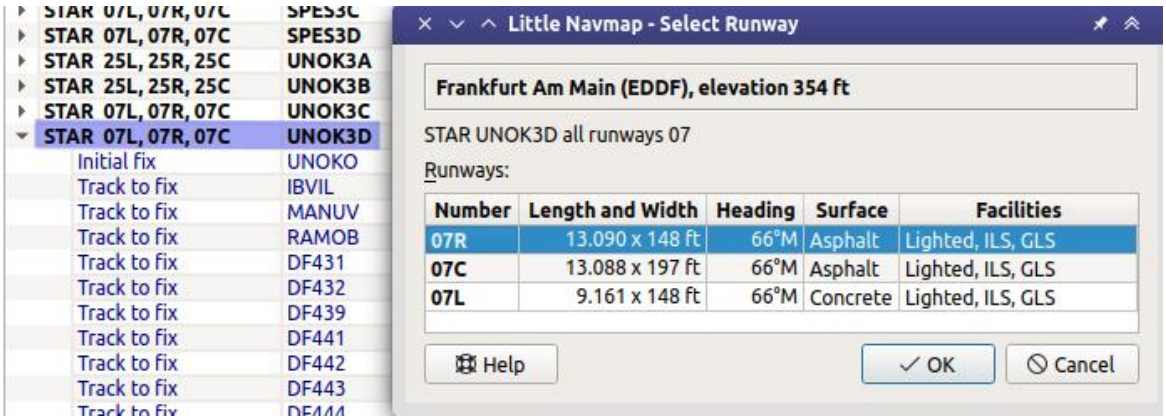
The dialog header shows airport name and its ICAO ident as well as field elevation.

The list `Runways` shows available runways for the SID or the STAR. Columns are runway name, length, width, magnetic heading, surface, lighting status and other attributes.

The dialog window shows the currently selected runway preselected. This might be a runway assigned by a STAR, approach or a runway selected as departure or destination.

Note

Note that the shown runway numbers might differ compared to procedure runways. This happens when an add-on airport and the navigation data have different runway numbers because the runways have been renumbered due to changes in magnetic declination (magnetic pole drift). *Little Navmap* resolves these mismatches internally and still allows to work with procedures. You might expect issues when loading flight plans containing such discrepancies into add-on aircraft or simulators.



Runway selection dialog after choosing the STAR `UNOK3D` which applies to the three parallel runways `07R`, `07C`, and `07L`.

40. Tracks

Tracks are a structured set of flight routes that stretch across the Atlantic, Pacific or Australia.

Little Navmap can download, display and use the following tracks:

- NAT [https://en.wikipedia.org/wiki/North_Atlantic_Tracks]: North Atlantic Tracks
- PACOTS [https://en.wikipedia.org/wiki/Pacific_Organized_Track_System]: Pacific Organized Track System
- AUSOTS: Australian Organized Track Structure. These are not available at the time of this writing, but may appear again in the future.

Note that AUSOTS tracks are currently not available. It is unknown if they will reappear.

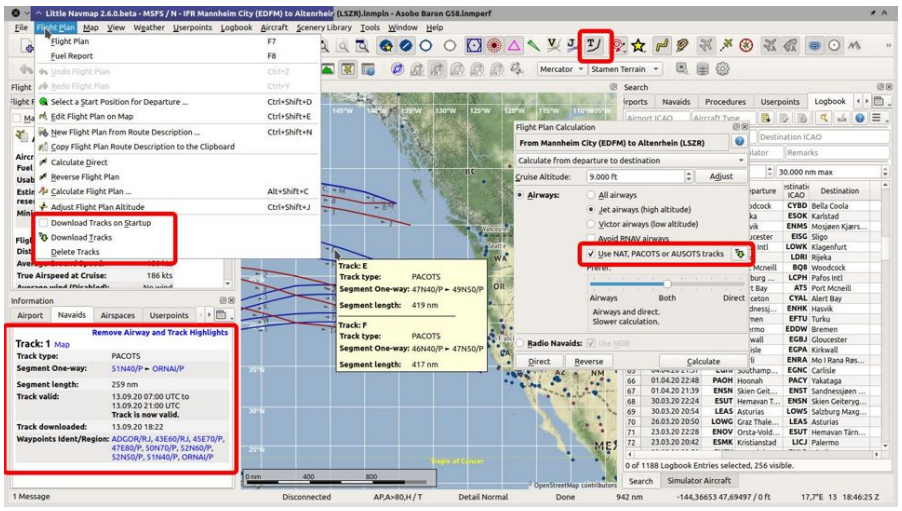


Image showing all track related functions in *Little Navmap*. *Click image to enlarge.*

Important

You need updated and complete navdata to read the tracks correctly.

This is either the MSFS or the updated Navigraph or X-Plane scenery libraries.

Install the latest Navigraph navdata update and use the options Select automatically, Use Navigraph for all Features or Use Navigraph for Navaids and Procedures in the menu `Scenery Library` -> `Navigraph`.

40.1. Download

Tracks are not downloaded periodically since changes in the track system can break flight plans. You can choose to download tracks on startup or download them manually.

Download on startup and immediate can be enabled in the menu `Flight Plan` -> Download Oceanic Tracks on Startup. Manual download can be started in the menu `Flight Plan` -> Download Oceanic Tracks.

You can select the track systems to download in the sub-menu Track Sources in the menu `Flight Plan`. The download will start again after changing sources.

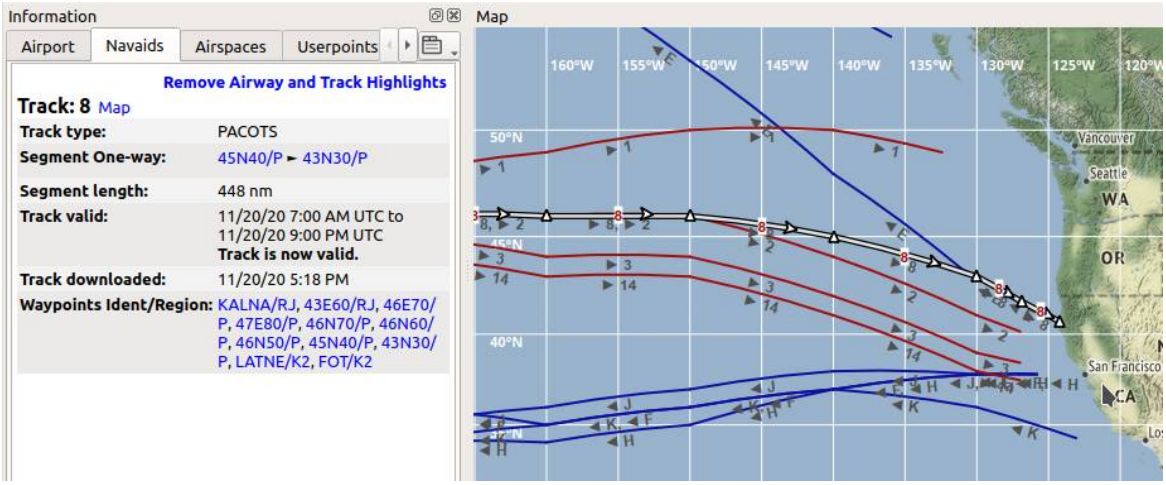
The track database is cleared on startup if Download Oceanic Tracks on Startup is not selected.

40.2. Map Display and Information

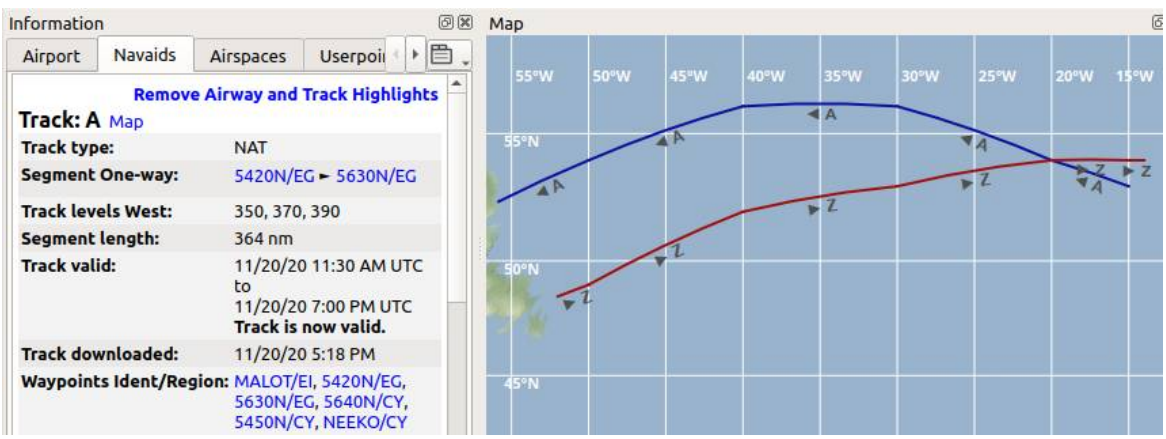
Tracks are mostly used like airways. They respond to mouse click, tooltip and can be highlighted from the information window on tab `Navaids`.

Tracks can be enabled for map display in the toolbar or menu `View` using Show Oceanic Tracks.

PACOTS and NAT tracks are shown in dark red color if eastbound and in dark blue color if westbound. This does not apply to AUSOTS tracks.



Westbound PACOTS tracks are shown red and eastbound tracks in blue on the map. Track `8` is highlighted and shown in information window. This track is valid for the current time.



NAT tracks `A` and `Z`. Information for track `A` shows flight levels 350, 370 and 390.

40.3. Flight Plan Calculation and Editing

You have to check Use NAT, PACOTS or AUSOTS tracks in the flight plan calculation window to use tracks. The track will be used by *Little Navmap* if the settings allow this and the track is between departure and destination.

See Flight Plan Calculation for more information.

Little Navmap will not keep you from creating invalid routes where you leave a track early or switch to a track. Valid flight plans can only be ensured by using the flight plan calculation.

Note

You have to use the correct cruise flight altitude in your flight plan. This has to match the track levels shown in the information window. Otherwise, the track will not be used.

40.4. Export

Track information is saved for flight plans in *Little Navmap*'s LNMPLN format (Little Navmap LNMPLN Format).

It can happen that *Little Navmap* shows errors when a plan is reloaded later with different or missing tracks. Calculate the flight plan again to use the changed tracks.

All other exported flight plan formats for simulators, aircraft and tools will not receive track information but only a list of waypoints extracted from the track. This should allow to load the flight plans into all add-ons without issues.

41. Edit Flight Plan Position

This dialog allows to edit an user defined flight plan position that was added with Add Position to Flight Plan or Append Position to Flight Plan.

The information entered here is saved with the flight plan.

Note that all fields are saved without limitations only when using the *Little Navmap* LNMPLN format (Little Navmap LNMPLN Format). Other flight plan export formats will only save the ident truncated or a coordinate.

Note

Keep in mind that all information entered here is lost if the flight plan position is removed or a new flight plan is calculated (Flight Plan Calculation).

Note

Waypoints using the default format `WP` plus number (e.g. `WP1` or `WP99`) are automatically renumbered by *Little Navmap* to reflect the flying order in the flight plan.

Changing the name will disable the renumbering for a waypoint.

41.1. Ident

Ident which is shown on the map, in the flight plan table and in exported flight plan formats, if supported.

It is recommended to use a short identifier without special characters. Otherwise free text field.

41.2. Region

Recommended to use the two-letter code for ICAO region, like `EN` for Norway or `LI` for Italy, if known. The region is shown in map tooltip and flight plan table tooltip.

Otherwise free text field.

41.3. Name

Free text field. Shown in map tooltip and flight plan table tooltip.

41.4. Remarks

Free multi line text field. Shown in abbreviated form in the Flight Plan Table `Remarks` column and the column's tooltip as well as in the map tooltip.

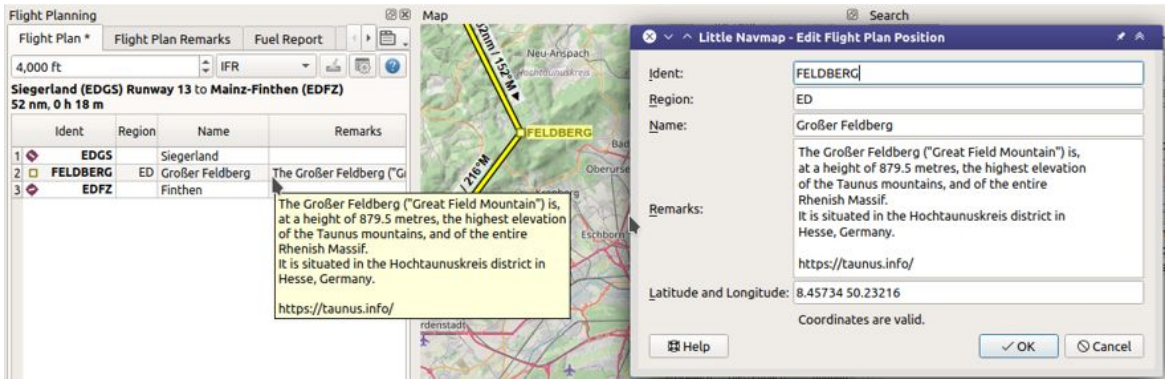
See Remarks for more information.

41.5. Latitude and Longitude

You can also edit the coordinates directly in this dialog besides using the click-and-drag method Map Flight Plan Editing. This can be useful if you'd like to add waypoints with well known coordinates like visual reporting points.

The tooltip of the coordinate input field shows the available formats. Hover the mouse over the input field to see the tooltip.

See Coordinate Formats for more information.



Editing an user defined flight plan position. Also showing abbreviated tooltip in flight plan table.

42. Edit Flight Plan Remarks

This dialog allows to add a remark to any flight plan waypoint which is not an alternate and not a part of a procedure.

The information entered here is saved with the flight plan in the *Little Navmap* LNMPLN format (Little Navmap LNMPLN Format).

Note

Keep in mind that all information entered here is lost if the flight plan position is removed or a new flight plan is calculated (Flight Plan Calculation).

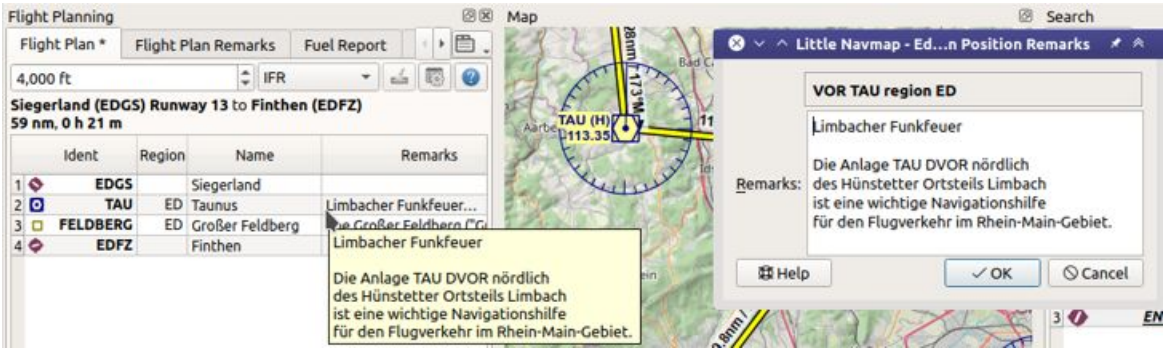
42.1. Header

The dialog header shows the navaid type, name and region.

42.2. Remarks

Free multi line text field. Shown in abbreviated form in the Flight Plan Table `Remarks` column and the column's tooltip as well as in the map tooltip.

See Remarks for more information.



Editing remarks for a flight plan waypoint. Also showing abbreviated tooltip in flight plan table.

43. Flight Plan Calculation

The route calculation is done in a window which is opened from menus -> `Flight Plan` -> Flight Plan Calculation.

The window can be put behind the *Little Navmap* main window. Click the toolbar button again to bring it into front.

The window can be used to calculate the following:

- Whole flight plans from start to destination.
- Routes between selected waypoints in the flight plan table.

You have to build the route again by pressing the button Calculate after changing any parameters.

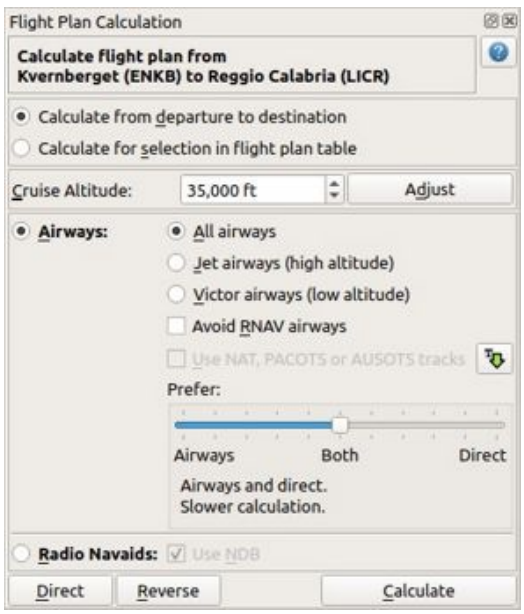
Important

Check the flight plan for reversals, zig-zag guidance, too close waypoints or other issues, especially when using procedures. Delete waypoints manually if you find such cases.

Tip

Select departure and arrival procedures like SID and STAR before calculating a flight plan. This allows *Little Navmap* to calculate the shortest plan between SID exit and STAR entry points.

Enable airspace display (Show Low Airways and Show High Airways) to see which SID and STAR end or start at airways.

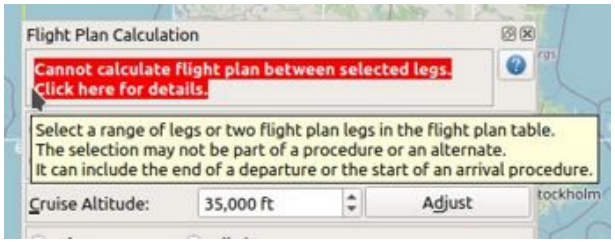


Flight Plan calculation floating window. Flight plan is valid for calculation.

43.1. Window Header

Shows departure and destination as well as the direct Great Circle distance and the flight plan distance.

An error message is shown if the plan cannot be calculated. Click on the tooltip or hover the mouse cursor above to see more details.



Error message with tooltip showing details.

43.2. Calculate from departure to destination

Calculates a flight plan between departure and destination.

The dialog header will show a red error message if the flight plan is not valid for calculation. Hover the mouse cursor over the message or click it for details.

Procedures are not affected by this calculation method. The route will be built from SID exit to STAR or approach entry, if present.

The selected cruise altitude will be used to find airways with suitable restrictions.

43.3. Calculate for selection in flight plan table

This button is only valid when more than one flight plan leg is selected and neither the first nor the last selected leg is part of a procedure.

A selection is also valid for the last leg of a departure procedure or for the first leg of an arrival procedure.

The dialog header will show an error message if the selected range is not valid for calculation.

You can either select the first and the last leg (`Ctrl+Click`) in the Flight Plan Table or you can select a whole range of legs (`Shift+Click` and drag) for route calculation.

The route will be calculated in a way that the first and last selected navaids are not modified.

The new calculated range will be selected in the table once calculation is done.

43.4. Cruise altitude for calculation

Sets the cruise altitude which will be used to select airways based on their lower and upper altitude limits when calculating the route. Changing cruise altitude for calculation can result in shorter or better airway routes.

The value will be assigned to the flight plan (Cruise altitude) after calculation.

This field is updated from the current flight plan when opening the window or changing the cruise altitude in the field Cruise altitude in the flight plan window.

Important

The calculation might fail if using too low or too high values for the cruise altitude. Make sure that you use a sufficiently high altitude which matches the selected airway type (High or Low).

43.5. Adjust

Changes the flight plan altitude according to a simplified East/West rule and the current route type (IFR or VFR).

Same as Adjust Flight Plan Altitude.

43.6. Airways

Selects the airway calculation method and enables all fields to the right of this button.

This method uses airways and/or direct waypoint connections to build a route. Which connection type is selected depends on settings in Prefer.

Criteria for airway selection are always direction for one-way airways and altitude restrictions.

Note

Changing cruise altitude for calculation can result in shorter or better airway routes. Try to adjust this if the result of the calculation is not satisfying.

You can also put the slider Prefer more to the right to ignore airways or use direct routing between waypoints for regions void of suitable airways.

43.6.1. All Airways

Calculation will select any appropriate high or low airways for the route.

43.6.2. High airways (Jet)

Limit calculation to Jet or high altitude airways. Calculation might fail if using a too low cruise altitude.

43.6.3. Low airways (Victor)

Limit calculation to Victor or low altitude airways. Calculation might fail if using a too high cruise altitude.

43.6.4. Avoid RNAV airways

Check this for non-RNAV equipped aircraft. This will select only airways which can be followed by using radio navaids like VOR or NDB.

Calculation might fail or give unexpected results if this is selected unintentionally.

43.6.5. Use NAT, PACOTS or AUSOTS tracks

The calculation will also consider tracks like NAT, PACOTS or AUSOTS, if selected. This button is disabled if no tracks were downloaded.

See Tracks for more information.

Important

You have to use the correct cruise flight altitude in your flight plan. This has to match the track levels shown in the information window. Otherwise, tracks will not be used.

43.6.6. Download Tracks

Downloads Oceanic or other tracks which are NAT, PACOTS and AUSOTS. Download tracks first before using the option above.

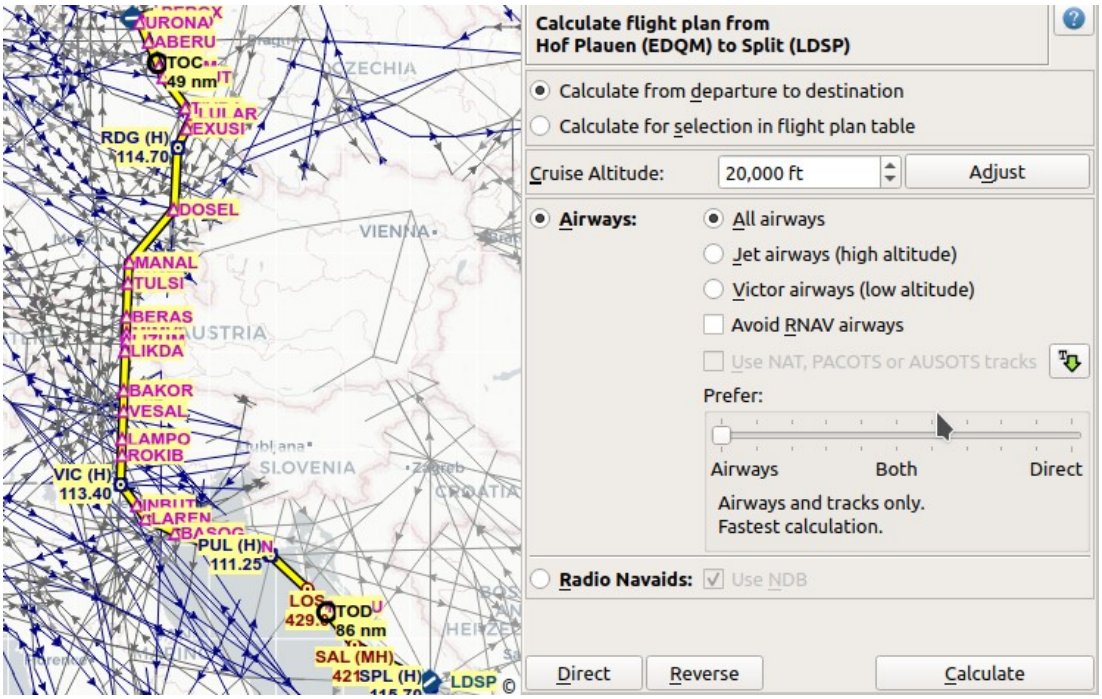
Same as Download Oceanic Tracks.

43.6.7. Prefer

This slider allows to adjust the preference of the calculation method between airways and direct waypoint connections.

Putting the slider on the leftmost position

> instructs the route calculation to use only airways. The calculation might fail or give not optimal routes if the region between departure and destination has no airways or no appropriate airways for the given cruise altitude.
>
> This is the fastest calculation method which gives instant results.

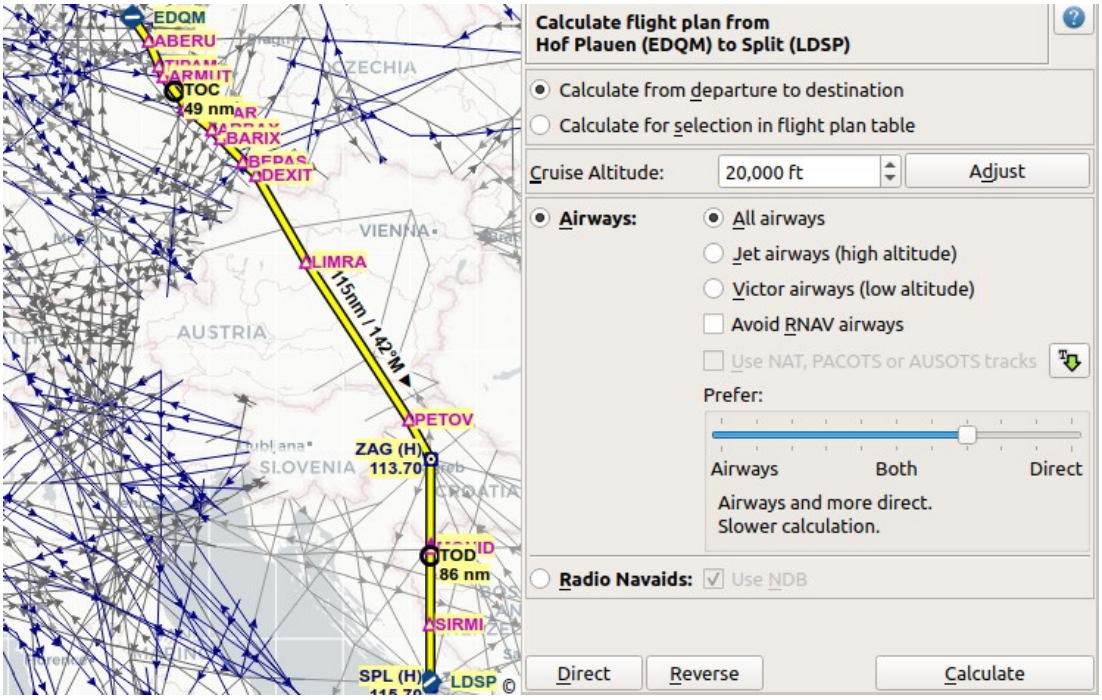


A flight plan calculated using airways only. The flight plan is longer since the region above Austria is void of airways due to European airway restructuring.

Putting the slider on an intermediate position

uses more or fewer airways or direct waypoint connections depending on position. Move the slider step by step and calculate again if you're not satisfied with the result. Note that not every slider movement will result in a changed route.

This calculation method is slower depending on the covered region. A progress dialog might pop up which allows to cancel the process.



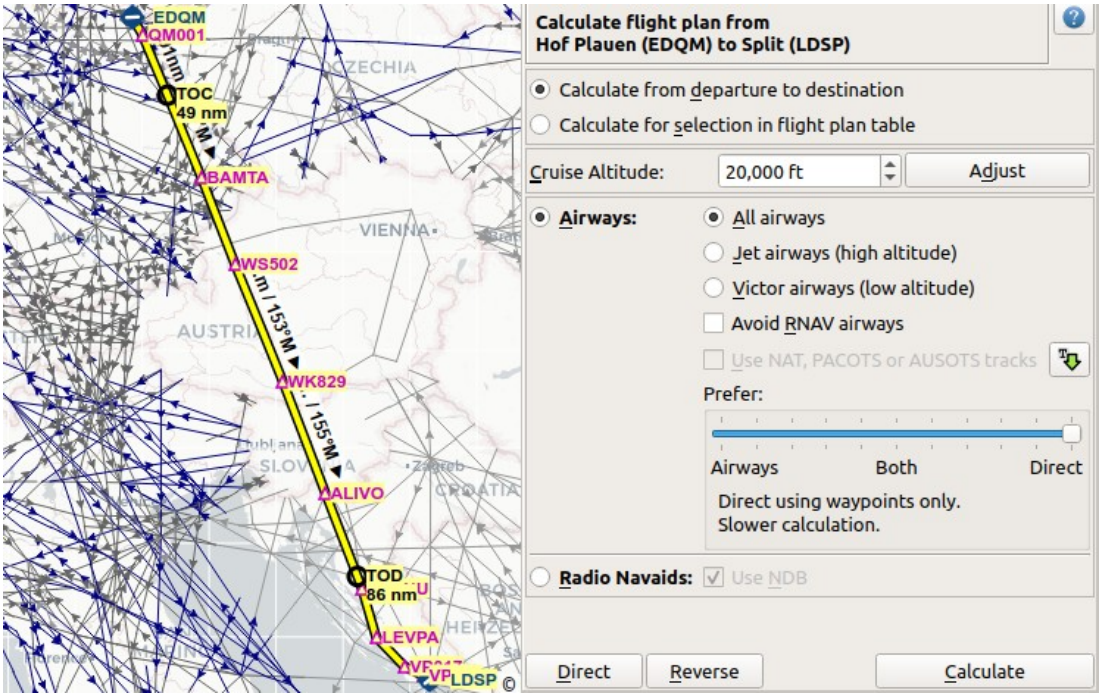
A flight plan calculated using airways and direct waypoints. The plan uses mostly airways and skips the airway void above Austria with direct waypoint connections.

Putting the slider on the rightmost position

instructs the route calculation to use only direct waypoint connections. The calculation ensures that the selected waypoints are not too close together and have a distance of around 200 NM where possible. Cruise altitude is not relevant for calculation since no airways are used.

This calculation method is slower depending on the covered region. A progress dialog might pop up which allows to cancel the process.

Note that waypoints are added to the flight plan using certain selection criteria. Waypoints being part of a SID or STAR and terminal waypoints will be excluded, for example.



Same plan as above but calculated with the slider on the far right. The plan is shorter and uses direct waypoint connections only.

43.7. Radio Navaids

Selects the radio navaid calculation method and enables the field to the right of this button.

Creates a flight plan that uses only VORDME, VORTAC, VOR and optionally NDB stations as waypoints. This method tries to ensure reception of at least one station along the whole flight plan.

Note that VOR stations are preferred before NDB stations. Calculation can fail if not enough radio navaids can be found between departure and destination. Build the flight plan manually if this is the case.

43.7.1. Use NDB

Use NDB stations too when selecting navaids for the route when checked. Otherwise, only VORDME, VORTAC and VOR.

43.8. Direct

Deletes all intermediate waypoints and connects departure and destination using a great circle line.

Does not delete procedures.

Same function as Calculate Direct.

43.9. Reverse

Swaps departure and destination and reverses order of all intermediate waypoints. Deletes airway references and procedures.

Same as Reverse Flight Plan.

43.10. Calculate

Calculates the route considering all the parameters given above.

Airway restrictions quite often do not allow optimal routes. You might have to change the cruise altitude to get better results.

You might also have to change the slider `Prefer` to adjust for airway and direct waypoint connection usage if not satisfied with the result.

In any case check your flight plan before using it. Remove wrongly selected waypoints near departure and destination manually.

43.11. Close

Closes the window.

43.12. Help

Opens this chapter in the browsers.

44. Flight Plan Route Description

This dialog allows you to create a flight plan from a route description string consisting of airport and navaid idents as generated or provided by various online services.

The route description allows you to share a complete flight plan including cruise altitude, speed and all procedures using one line of text.

Click `Load from Flight Plan` to generate the route string from the currently loaded flight plan. This will append and read the string on the top of the list.

The top of the dialog holds the route description input field, while the center half shows any messages, warnings or errors that occur during reading. The string is read automatically while entering it into the input field. The lower part provides a quick help.

44.1. Input Field

The upper input field is split into two sections. The top most can cover several lines and is is shown using **bold text**. This is the active section which is read and the results are shown in the output.

The lower text can be seen as a kind of a notepad, is displayed in gray color and is ignored for reading. The two sections are separated by an empty line. You can copy and paste lines between the two sections using the context menu or the keyboard shortcuts copy `Ctrl+C`, cut `Ctrl+X` and paste `Ctrl+V`.

You can use `Ctrl+Return` to create a flight plan from the top **bold** description string. This is the same as clicking the button `Create Flight Plan` (Buttons).

All texts are saved on exit.

44.2. Reading

Little Navmap tries to use as much of the route as possible even if parts of the flight plan like waypoints or airways cannot be found or names are ambiguous. You will see warnings in the center output field if that is the case.

If a route covers a long distance and contains a waypoint name which is not unique, a wrong waypoint might be added to the flight plan. Correct or remove this waypoint manually in the Flight Plan Table using the Context Menu Flight Plan.

Many waypoints and airways will not be found if route descriptions from the latest AIRAC sources are used together with the old FSX, P3D or MSFS stock data. It is recommended to use a navigation data update for the stock scenery or *Little Navmap* when reading route descriptions from online sources like RouteFinder [http://rfinder.asalink.net/], Online Flight Planner [http://onlineflightplanner.org/], SimBrief [https://www.simbrief.com] or SkyVector [https://skyvector.com].

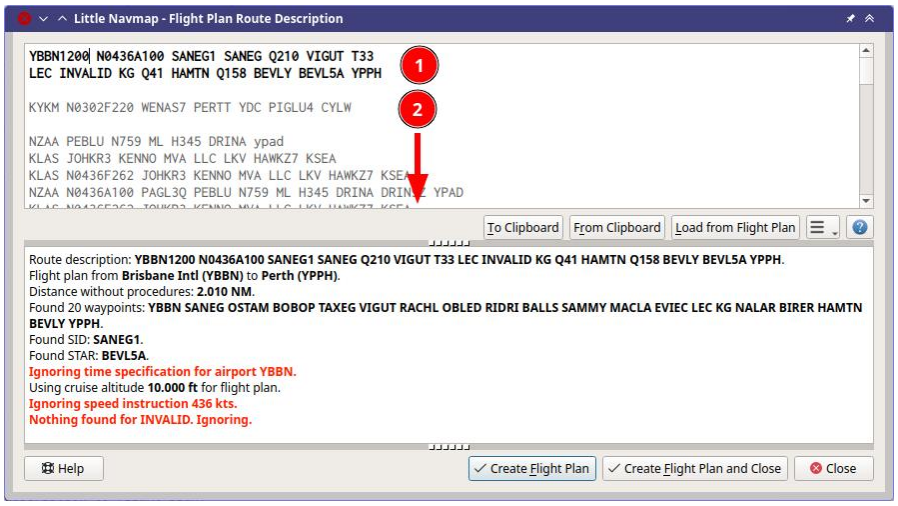
If a navdata update is not an option, pick the online service's AIRAC cycle that is closest to the cycle the navigation data of your flight simulator is based on.

Note that even flight plans calculated in *Little Navmap* cannot be converted back exactly in some cases. This happens due to navaid ambiguities like NDB and VOR stations having the same names or errors in the source data.

The cruise altitude is used to create the flight plan, if given. Otherwise the cruise altitude is automatically determined by the flight plan type (IFR or VFR) and the minimum altitude of the used airway segments.

The cruise speed is ignored when reading and produces a warning if found since it is taken from the aircraft performance. Generating a description from a present flight plan uses the cruise speed from the loaded aircraft performance file (Aircraft Performance) and the cruise altitude as set in Cruise altitude.

Note that you can modify the flight plan in parallel on the map or in the flight plan table. Move the `Flight Plan Route Description` aside to do so. You have to transfer the plan to the dialog by clicking `Load from Flight Plan` after doing changes in the background. Click `Create Flight Plan` before doing changes on the map or in the flight plan table.



A route description (1) (bold top section) that was read successfully with a few warnings about ignored elements. The waypoint `INVALID` could not be found. Altitude, SID and STAR were recognized. More inactive route descriptions are stored below (2). *Click image to enlarge.*

44.3. Buttons

Note that some buttons are now shown when opening this dialog from Open Flight Plan from SimBrief.

- `Undo` and `Redo` : Undo changes in the text input field. This does not affect the flight plan table.
- `To Clipboard`: Copy the current active description from the input field as plain text to the clipboard.
- `From Clipboard`: Insert text from clipboard into the top of the input field making it the active route description. The inserted text is converted to upper case and all invalid characters are removed from the text before reading.
- `Load from Flight Plan`: Create the route string from the current flight plan and inserts it into the top of the input field making it the active route description. Use this after changing settings with drop down menu buttons or after modifying the flight plan on the map or in the flight plan table.
- `IFR` or `VFR`: The flight plan type used when creating a plan. This setting will be taken over into the field Flight Plan Type in the tab `Flight Plan` when clicking one of the `Create Flight Plan ...` buttons.
- Menu Button : `Write` denotes flight plan to description and `Read` denotes description to flight plan. You can tear off the drop down menu from the button by clicking on the dashed line on top of it. Note that the menus starting with `Write` are now shown when opening this dialog from Open Flight Plan from SimBrief.
    - `Write runway and approach instructions`: This adds departure and arrival runways separated by a `/` to the start and destination airports if given. An approach procedure including transition is added instead if given.
    - `Write cruise speed and altitude instruction`: Add cruise altitude from flight plan and speed as set in the aircraft performance.
    - `Write DCT (direct) instructions`: Add `DCT` for any direct waypoint connections in the flight plan.
    - `Write Alternates`: Appends all alternate airports to the end of the description.
    - `Write SID and STAR`: Add SID and STAR names, if any are used for departure or arrival.
    - `Write generic SID and STAR`: Add the generic `SID` and `STAR` keywords if no real SID and/or STAR were selected.
    - `Write no SID and STAR`: Do not include any SID and STAR information at all.

- `Write STAR and transition reversed`: Write `TRANS.STAR` instead of `STAR.TRANS` if selected.
- `Write SID/STAR and transition space separated`: Write `SID TRANS` and `STAR TRANS` instead of `SID.TRANS` and `STAR.TRANS` if selected.
- `Read trailing Airports as Alternates`:
  - Enabled: A list of airports at the end of the description will be read as alternate airports except the first in the chain of consecutive airports which will be used as destination. Any airport with a valid STAR in the chain will be treated as destination too.
  - Disabled: Reading simply creates a flight plan with the airports as intermediate waypoints and the last one as destination. See example below.
- `Advanced`: Sub-menu with less often use options.
  - `Write waypoints instead of Airways`: Does not include airway names in the string but expands it and inserts the waypoints names only.
  - `Write departure and destination airport`: Note that disabling this option will result in an invalid route description which cannot be read back into a flight plan.
  - `Read: Match coordinates to waypoints`: Tries to matches coordinates to nearby waypoints. `EICK 5000N00760W EDDF` will result in `EICK GAPLI EDDF` if this is enabled, for example.
  - `Read first and last item as navaid`: Does not require airports as start and destination and will resolve the first and last item to navaids. Useful for reading snippets.

- `Create Flight Plan and Close`: Closes the dialog and creates a new flight plan for the read route description. Replaces the current flight plan. You can undo this change in the Flight Plan Table.
- `Create Flight Plan`: As above but keeps the dialog window open.

Tip

In any case you can use Undo and Redo to change the input field (right click context menu in the input field) as well as the flight plan table (Undo and Redo).

44.4. Airport idents

ICAO, FAA, IATA and local codes are shown and the internal ident is avoided for display if possible. Note that IATA codes are only read for departure and destination since they can be easily confused with navaids en-route.

X-Plane internal codes like `XPA000B` are recognized despite being avoided for display.

44.5. Format

The route description has to follow the format rules below:

```
FROM[ETD][/DEPARTRWY] [SPEEDALT] [SIDTRANS] [ENROUTE] [STARTRANS] TO[ETA][/APPROACH] [ALTERNATES]
```

All elements in square brackets `[]` are optional.

- `FROM`: Required 3 or 4 letter idents for departure airport. Departure time `ETD` is ignored. Departure time `ETD` or arrival time `ETA` is ignored. Examples: `KEAT`, `CYPU`, `S16`.
- `DEPARTRWY` is an optional departure runway separated by a `/`. Example `EDDF/07R`. Must match available runways in SID if used.
- `SPEEDALT`: An optional entry that contains the cruise speed and altitude. See below for a details. Speed is ignored when reading since it is part of the aircraft performance profile.
- `SIDTRANS`: Either the word `SID` or real SID, STAR and transition names where the optional transition is separated by a dot `.` or a space `` . The generic keyword ``SID` creates a direct connection to the en-route part. Examples: `RDHK2.HOLLE`, `OHIO3 LFK`, `RDHK2`, `OHIO3`.

- `ENROUTE`: This is a list of either `WAYPOINT` or an `AIRWAYWAYPOINT` forming the actual flight plan. The first entry has to be an airport, waypoint, VOR or NDB.
    - `WAYPOINT`: A waypoint, VOR, NDB, airport or user defined coordinates. See below for a details about coordinates. A waypoint can be prefixed with `DCT` to indicate a direct connection not using an airway. Waypoints can be suffixed with an optional `/SPEEDALT` value although this is ignored. Examples: `TAU`, `BOMBI`, `AST`, `CL`, `EDDF`.
    - `AIRWAYWAYPOINT`: Airway and end waypoint on the airway separated by a space. Examples: `V495 CONDI`, `V338 YVR`, `V330 TRENA`.
- `STARTRANS` is either the word `STAR` or a read STAR and an optional transition which can be given as `STAR.TRANS`, `STAR TRANS`, `TRANS.STAR` or `TRANS STAR`. The generic keyword `STAR` creates a direct connection from the en-route part to the airport.
- `TO`: Required 3 or 4 letter ident for the destination airport. The arrival time `ETA` is ignored.
- `APPROACH` this is either the destination runway such as `EDDH/08L` or an optional transition and approach separated by `.`. The approach/runway field is optional.For example, `CYLW/HUMEK.I16-Z` with a transition or `CYLW/R16-Z` without a transition. Note that the approach must be entered in ARINC notation, which is shown in parentheses in the dock window `Search` on tab Search Procedures. The approach runway must match the allowed runways for a SID, if used.
- `ALTERNATES`: Alternate airports are optional and are added to the flight plan when reading depending on the option `Read trailing Airports as Alternates` as described above.

44.5.1. Features not supported

`ETD` and `ETA`: Four digit departure and arrival time attached to the airport or waypoint ident are ignored.

`WAYPOINT.SPEEDALT`: For example `BOMBI/N0090A060`. Altitude changes at waypoints are not supported and ignored when reading.

44.5.2. Alternates

Example when reading `Read trailing Airports as Alternates` **enabled:**

- `KPWA N0169F190 MUDDE3 ATOKA J25 FUZ J33 CRIED J50 LFK BAYYY3.SJI KHOU KCLL KVCT`
- `KPWA ATOKA J25 FUZ J33 CRIED J50 LFK KHOU KCLL KVCT`

`KHOU` is read as destination, `KCLL` and `KVCT` are alternates for both examples.

Example when reading `Read trailing Airports as Alternates` **disabled:**

- `KPWA N0169F190 MUDDE3 ATOKA J25 FUZ J33 CRIED J50 LFK BAYYY3.SJI KHOU KCLL KVCT`

Not valid. Error message `BAYYY3.SJI not found` printed. `KVCT` is read as destination, `KHOU` and `KCLL` are intermediate waypoints.

- `KPWA ATOKA J25 FUZ J33 CRIED J50 LFK KHOU KCLL KVCT`

`KVCT` is read as destination, `KHOU` and `KCLL` are intermediate waypoints.

44.5.3. Speed and Altitude

Cruising ground speed and cruising level not separated by a space.

Speed is prefixed with:

- `K`: Kilometers per hour followed by a four digit value.
- `N`: Knots followed by a four digit value.
- `M`: Mach followed by a three digit value. The mach value is converted to knots ground speed assuming standard atmosphere conditions at the given flight altitude.

Altitude is prefixed with:

- `F` :Flight level in three digits.
- `S`: Metric flight level in three digits of tens of meters.

- `A`: Altitude in hundreds of feet in three digits.
- `M`: Altitude in tens of meter in four digits.

Examples:

`N0410F310` 410 knots at flight level 310.

`M071F320` Mach 0.71 at flight level 320.

`K0790M0710` 790 kilometers per hour at 7,100 meters.

44.5.4. Coordinates

Coordinates can be supplied in different formats:

Degrees only (7 characters): Two digits and north/south indicator plus three digits and east/west indicator.

```
51N010E
```

Degrees and minutes (11 characters): Two digits degrees, two digits for minutes and north/south indicator. Then three digits for degrees, two digits for minutes and east/west indicator.

```
4010N03822W.
```

Degrees, minutes and seconds (15 characters): Two digits degrees, two digits for minutes, two digits for seconds and north/south indicator. Then three digits for degrees, two digits for minutes, two digits for seconds and east/west indicator. This format is used by SkyVector [https://skyvector.com] for example.

```
481200N0112842E.
```

ARINC 424 Code Convention: All full degree waypoints either a part of the navigation database or not.

`57N30` (N57 W130) or `5730S` (S57 W030).

North Atlantic track points (NAT). Two digits degrees north and two digits degrees west followed by character `N`.

```
5010N.
```

Coordinate waypoint pairs with degrees and minutes as above and prefixed with north/south and east/west indicator.

`N4200 W02000` or `N4200/W02000`.

Garmin GFP format (13 characters) north/south indicator, two digits degrees, three digits for minutes by 10. Then east/west indicator, three digits degrees, three digits minutes by 10. This format is used by the *Flight1 GTN 650/750*.

```
N48194W123096
```

Note

Coordinates in the generated description use the degrees and minutes format, e.g. `4010N03822W`. This is done to keep compatibility with other applications. Note that this format is limited to one minute accuracy which is up to 1 NM depending on position. You might see inaccurate positioning when re-reading coordinates.

44.6. Flight Plan Description Examples

Direct connection Frankfurt Main (EDDF) to Fiumicino (LIRF):

`EDDF LIRF` or `EDDF DCT LIRF`

VOR to VOR:

```
EDDF FRD KPT BOA CMP LIRF
```

Same as above with departure time (`ETD`) and arrival time (`ETA`) which both will be ignored:

```
EDDF1200 FRD KPT BOA CMP LIRF1300.
```

Same as above on flight level 310 at 410 knots:

```
EDDF N0410F310 DCT FRD DCT KPT DCT BOA DCT CMP DCT LIRF
```

Using Jet airways:

```
EDDF ASKIK T844 KOVAN UL608 TEDGO UL607 UTABA UM738 NATAG Y740 LORLO M738 AMTEL M727 TAQ LIRF
```

Same as above on flight level 310 at mach 0.71 with an additional speed and altitude at `NATAG` which will be ignored:

```
EDDF M071F310 SID ASKIK T844 KOVAN UL608 TEDGO UL607 UTABA UM738 NATAG/M069F350 Y740 LORLO M738 AMTEL
M727 TAQ STAR LIRF
```

User defined waypoints with degree/minute notation and an alternate airport `LIRE` :

```
EDDF N0174F255 4732N00950E 4627N01019E 4450N01103E LIRF LIRE
```

Flight plan using SID and STAR procedures with transitions:

```
KPWA RDHK2.HOLLE ATOKA J25 FUZ J33 CRIED J50 LFK OHIO3.LFK KHOU
```

Flight plan using the generic SID and STAR keywords:

```
KPWA SID ATOKA J25 FUZ J33 CRIED J50 LFK STAR KHOU
```

Flight plan using SID and STAR procedures with transitions and two alternate airports:

```
KPWA N0169F190 MUDDE3 ATOKA J25 FUZ J33 CRIED J50 LFK BAYYY3.SJI KHOU KCLL KVCT
```

Approach ILS 05R via LMA

```
EDDK/06 NVO1K NVO Q760 INLAR T853 LMA EDDL/LMA.I05R
```

Depart from runway 36 using SID TFS3T:

```
GCLA/36 TFS3T TFS GCTS/TES2.I07-Y
```

Approach RNAV 04L via BOOKE:

```
KSFO/01R DCT BAART R464 BITTA KAENA2 PHNL/BOOKE.R04L
```

45. Flight Plan Formats

Little Navmap supports several flight plan formats, all of which have different limitations. All of the formats listed below can be exported and some can be loaded using Open Flight Plan in the menu `File`.

45.1. *Little Navmap* LNMPLN Format

Little Navmap uses its own XML based text format since only this allows to save all features provided by the program in a safe manner as well as proper file validation. This also eliminates many of the confusing warning dialogs when saving other formats and potential data loss.

While you can still load, for example, FMS and other formats directly into the program, saving is limited to the LNMPLN format. You have to export the plan as FMS after changing it. You can do that either directly from the menu `File` -> Export Flight Plan as FMS for X-Plane 11 and 12 or using menu `File` -> Multiexport Flight Plan Options and then `File` -> Multiexport Flight Plan.

See also Flight Plan Multiexport for more information on multiexport.

Note

The LNMPLN format is only understood by *Little Navmap*. Do not try to load it into simulators or add-ons.

Consider exported flight plan files as disposable since almost all export formats have limitations resulting in data loss. Remember that you can always restore them by loading the original LNMPLN file and exporting again.

See Little Navmap Flight Plan File Format for a detailed description of the format.

Warning

Always save a copy in the default LNMPLN format before exporting to other formats. This allows *Little Navmap* to restore all flight plan properties like procedures, alternate airports and remarks.

Note that the LNMPLN format is only understood by *Little Navmap*. Do not try to load it into simulators or add-ons.

45.2. User Waypoint Names

User waypoint names will be adapted to format limitations when exporting.

- **PLN:** Maximum length for FSX or Prepar3D is 10 characters and no special characters are allowed. Unsupported characters will be removed and the length will be truncated.
- **FMS:** No spaces allowed. These will be replaced with underscores (_).
- **FLP:** All user waypoint names will be replaced by coordinates.

45.3. Garmin Export Issues

Many Garmin add-on use the Garmin trainer in the background.

A problem when exchanging flight plans across applications is that waypoints, airways and procedures like SIDs, STARs, and approaches change over time.

A SID `WENAS7` becomes `WENAS8`, waypoints/intersections are removed, the airway structure changes or runways are renamed, for example.

The Garmin trainer database is updated by Garmin once or twice a year but AIRAC cycles are updated more often in *Little Navmap* as well as in simulators. The result are inconsistencies between *Little Navmap*, flight planning websites or other programs and the less frequently updated Garmin trainer database.

Garmin trainers abort if a waypoint or procedure has a name that does not match or is duplicated in its database.

The Garmin trainer indicates a duplicate and offers the user the possibility to select from a list when manually entering such a waypoint into the device.

The Garmin trainer import routine does not allow this. The import is either rejected or the flight plan is locked and the user has to edit it manually.

45.4. Flight Plan Export Formats

The table below shows the capabilities of *Little Navmap* and the supported flight plan formats (`X` = supported, `0` = not supported, `-` = not applicable) as listed in Flight Plan Multiexport.

- `Ext.`: File extension or name.
- `Open`: Can load format using Open Flight Plan in menu `File`.
- `Exp.`: Format can be exported.
- `Airw`: Can export airways. Otherwise only a list of waypoints.
- `Proc.` can export procedures.
- **Bold**: Main format supporting all features like remarks but not usable for other tools or simulators`.
- Highlighted format name: The format can be loaded by *Little Navmap* using Open Flight Plan in menu `File`.

Format Name	Ext.	Open	Exp.	Airw	VFR/IFR	User Wpt. Names	Remarks	Dep. Parking	Cruise Alt.	Proc.
LNMPLN	LNMPLN	X	X	X	X	X	X	X	X	X
Microsoft Flight Simulator 2020	PLN	X	X	X	X	X	0	X	X	X [5]
FSX and Prepar3D	PLN	X	X	X	X	X	0	X	X	0
FSX and Prepar3D annotated (obsolete)	PLN	X	X	X	X	X	0	X	X	X
FS9 PLN	PLN	X	0	X	X	X	0	X	X	0
X-Plane FMS 11	FMS	X	X	X	0	X	0	0	X	X
X-Plane FMS 12	FMS	X	X	X	0	X	0	0	X	X
X-Plane FMS 3	FMS	X	X	0	0	X	0	0	X	0
X-Plane CIVA	FMS	X	X	0	0	0	0	0	0	0
FlightGear	FGFP	X	X	0	0	0	0	0	0	X [2]
FSC	PLN	X	0	X	0	X	0	0	0	0

Format Name	Ext.	Open	Exp.	Airw	VFR/IFR	User Wpt. Names	Remarks	Dep. Parking	Cruise Alt.	Proc.
Aerosoft Airbus and others	FLP	X	X	X	0	0	0	0	0	X
Aerosoft CRJ	FLP	X	X	X	0	0	0	0	0	X
Reality XP GNS 530W/430W V2	FPL	X	X	0	0	X	0	0	0	0
Reality XP GTN 750/650 Touch	GFP	X	X	X	0	X [1]	0	0	0	X
Flight1 Garmin GTN 650/750	GFP	X	X	X	0	0	0	0	0	0
TDS GTNXi	GFP	X	X	X	0	0	0	0	0	X
AivlaSoft EFB	EFBR	0	X	X	0	0	0	0	0	0
BlackBox Simulations Airbus	PLN	0	X	X	0	0	0	0	0	0
FeelThere or Wilco	FPL	0	X	X	0	0	0	0	0	0
Flight Factor Airbus	corte.in	0	X	X	0	0	0	0	X	X [2]
Garmin exchange format	GPX	-	X	-	-	-	-	-	-	-
HTML flight plan web page	HTML	-	X	-	-	-	-	-	-	-
IXEG Boeing 737	FPL	0	X	X	0	0	0	0	0	0
IvAp for IVAO [3]	FPL	0	X	X	0	0	0	0	0	0
Leonardo Maddog X	MDX	0	X	X	0	0	0	0	0	0
Level-D	RTE	0	X	X	0	0	0	0	0	0
MSFS IniBuilds Airbus	FPL	0	X	0	0	0	0	0	0	0
Microsoft Flight Simulator 2020 format using *	PLN	X	X	X	X	X	0	X	X	X [5]
Majestic Dash MJC8 Q400	FPR	0	X	0	0	0	0	0	0	0

Format Name	Ext.	Open	Exp.	Airw	VFR/IFR	User Wpt. Names	Remarks	Dep. Parking	Cruise Alt.	Proc.
PMDG Aircraft	RTE	0	X	X	0	0	0	0	0	0
ProSim	XML [4]	0	X	X	0	0	0	0	0	0
KLN 90B	PLN	X	X	X	X	X	0	0	0	0
QualityWings	RTE	0	X	X	0	0	0	0	0	0
JustFlight BAE-14 for MSFS	RTE	0	X	X	0	0	0	0	0	0
Rotate MD-80, JARDesign and others	TXT	0	X	X	0	0	0	0	0	0
TFDi Design 717	XML	0	X	X	0	0	0	0	0	0
UFMC	UFMC	0	X	X	0	0	0	0	0	0
VATSIM vPilot or SWIFT [3]	VFP	0	X	X	0	0	0	0	0	0
X-FMC	FPL	0	X	X	0	0	0	0	0	0
X-IVAP for IVAO [3]	FPL	0	X	X	0	0	0	0	0	0
iFly	FLTPLAN	0	X	X	0	0	0	0	0	0

For `Flight1 Garmin GTN 650/750`, `Reality XP GNS 530W/430W V2`, `Reality XP GTN 750/650 Touch` and `TDS GTNXi` additional export formats exist which replace waypoints with user defined waypoints. This helps to avoid the locked waypoint issue but drops all procedure and waypoint information.

Procedure waypoints are excluded from most file formats by default, except for GPX. You have to use the GPS, FMS or MCDU in the simulator to select procedures. Exceptions are e.g. X-Plane FMS and FLP which allow to save and load procedures.

You can enable saving of waypoints by checking the menu items Export Waypoints for Approaches and/or Export Waypoints for SID and STAR.

The current file name and type will change if you save a plan as LNMPLN. This does not occur when exporting.

45.5. Export Formats

45.5.1. Microsoft Flight Simulator 2020

File format for MSFS. *Little Navmap* can read and export this format.

You can export this format directly using Export Flight Plan as MSFS 2020 PLN and load the flight plans using menu `File` -> Open Flight Plan.

While the format supports procedures there appear problems in MSFS loading these. Procedures might be omitted or new ones inserted.

You can set a parking spot or fuel pad as starting position but note that runways and helipads as starting positions will be ignored by MSFS.

MSFS flight plans can be saved to and loaded from any location in MSFS but the default directories are:

- Microsoft Store installation: `C:\Users\YOURLOGINNAME\AppData\Local\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState`
- Steam installation: `C:\Users\YOURLOGINNAME\AppData\Roaming\Microsoft Flight Simulator\LocalState`

Note

MSFS does not allow procedures and/or airways in VFR plans. You have to switch to IFR using Flight Plan Type before exporting such a plan. *Little Navmap* shows a warning if you try to export such a flight plan.

See FAQ - The flight plan does not show up correctly in MSFS [https://albar965.github.io/littlenavmap-faq.html#flightplan-msfs] for more information on problems.

PLN files for Microsoft Flight Simulator 2020 will have special characters removed since the simulator cannot load files having these as a part of the name.

Note

Use the format Microsoft Flight Simulator 2020 format using * as degree sign for export if you run into issues when importing flight plans in add-ons or when your operating system is set to Asian locale.

45.5.2. FSX and Prepar3D

File format for FSX and P3D. *Little Navmap* can read and export this format. Procedures are not saved.

You can export this format directly using Export Flight Plan as P3D or FSX PLN.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

45.5.3. FSX and Prepar3D annotated (obsolete)

Annotated PLN format used by *Little Navmap* versions up to and including 2.4.5.

This is needed only if you like to save a flight plan for older *Little Navmap* versions.

Little Navmap can read and export this format completely with procedures.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

45.5.4. FS9 PLN

File format of the Flight Simulator 2004. Uses the same PLN file extension as the FSX PLN format. *Little Navmap* can only read this format.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

45.5.5. X-Plane FMS 11 and X-Plane 12

X-Plane FMS format which can be loaded into the stock GPS, the G1000 and the FMS of X-Plane 11 and 12.

You can export this format directly using Export Flight Plan as FMS for X-Plane 11 and 12.

Little Navmap can read and export this format.

Store these files into the `Output/FMS plans` directory inside the X-Plane directory.

Read the X-Plane manuals for the respective devices on how to load plans inside the cockpit: User Manuals for X-Plane Products [https://www.x-plane.com/support/manuals/].

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

Tip

Store FMS files into the `Output/FMS plans` directory inside the X-Plane directory if you would like to use the flight plan in the X-Plane GPS, the X1000 or the FMS.

You have to load the FMS flight plans from the stock FMS or GPS when sitting in the cockpit and avionics switched on. Do not try to it as a `.sit`, `.rep` or other file type from the X-Plane menu.

See here in the user manuals for the respective units: X-Plane User Manuals [https://www.x-plane.com/support/manuals/] Look for a chapter `Loading a (saved) Flight Plan` in the PDF manual for the navigation device.

Note

Little Navmap cannot determine the cruise altitude of a flight plan after loading this format in some cases. You might see errors about violated altitude restrictions after loading. Adjust the cruise altitude manually if this is the case.

45.5.5.1. FMS Export Issues

While *Little Navmap* resolves references from simulator airports to procedures in the navdata by various ways, X-Plane might not be able to find the procedures for a given airport. This is the case if an airport has been renamed or has inconsistent idents like ICAO or FAA. You will see a warning message in X-Plane where it complains about not being able to load the procedures. You can try to load the flight plan and select the procedures manually in the GPS or FMS units but this also does not work in all cases.

Another issue is where X-Plane refuses to read flight plans due to unknown departure or destination airports. This can happen if the airports are only present in an add-on and not in stock or have been renamed. You can open the FMS file in a text editor and fix this manually by replacing the keywords `ADEP` and `ADES` with `DEP` and `DES` respectively. Note that this does not work if procedures are used with an airport.

FMS file which cannot be loaded by X-Plane with keywords `ADEP` and `ADES`:

```
I
1100 Version
CYCLE 2209
ADEP 44T
ADES KSHN
NUMENR 2
1 44T ADEP 211.000000 46.992359 -122.827721
1 KSHN ADES 271.000000 47.233555 -123.147552
```

Corrected FMS file for both airports where the first occurrences of `ADEP` and `ADES` were replaced with `DEP` and `DES` keywords for both airports:

```
I
1100 Version
CYCLE 2209
DEP 44T
DES KSHN
NUMENR 2
1 44T ADEP 211.000000 46.992359 -122.827721
1 KSHN ADES 271.000000 47.233555 -123.147552
```

45.5.6. FMS 3 (X-Plane)

X-Plane FMS format which can be loaded into the stock GPS and FMS of X-Plane 10 and 11.05. The format is very limited and basically stores only a list of waypoints.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

Store these files into the `Output/FMS plans` directory inside the X-Plane directory.

45.5.7. X-Plane CIVA Navigation System

This is a flight plan format which exports files for the X-Plane CIVA Navigation System.

The flight plan is divided into files with a maximum of eight waypoints each. A flight plan with more waypoints will result in more files.

Example for flight plan files for a plan from EGAE to LGIO containing not more than 24 waypoints:

```
EGAELGIO.fms
EGAELGIO1.fms
EGAELGIO2.fms
```

Little Navmap can read and export this format.

Store these files into the `Output/FMS plans` directory inside the X-Plane directory.

45.5.8. FlightGear

A flight plan format which can be loaded into the RouteManager of the free flight simulator FlightGear [http://www.flightgear.org].

You can export this format directly using Export Flight Plan as FlightGear FGFP.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

You can save the files into any directory and load it within FlightGear.

45.5.9. FSC

File format for FlightSim Commander. Uses the same PLN file extension as the FSX PLN format. *Little Navmap* can only read this format.

45.5.10. Aerosoft Airbus and others

45.5.11. Aerosoft CRJ

A format that can be read by the X-Plane FMS (not the X-Plane GPS), Aerosoft Airbus and other add-on aircraft. Supports airways and procedures.

You can load these files into the X-Plane FMS including airway information. Procedures are saved in the FLP but cannot loaded yet by the FMS. You have to select these manually after loading the flight plan.

45.5.12. Garmin

Simple XML based flight plan format which stores only a list of waypoints. *Little Navmap* can read and export this format.

45.5.13. Reality XP GNS 530W/430W V2

Flight plan format as FPL file usable by the *Reality XP GNS 530W/430W V2*.

See Notes about the Garmin Formats GFP and FPL for information on known problems when exporting flight plan data for the GNS.

Little Navmap considers the `GNSAPPDATA` environment variable if set. See the GNS manual for more information.

The default directory to save the flight plans for the GNS units is `C:\ProgramData\Garmin\GNS Trainer Data\GNS\FPL` for all simulators.

You may have to create the directory manually if it does not exist.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

45.5.14. Reality XP GTN 750/650 Touch

Save flight plan as GFP file usable by the *Reality XP GTN 750/650 Touch*.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

See Notes about the Garmin Formats GFP and FPL for information on known problems when exporting flight plan data for the GTN.

Little Navmap considers the `GTNSIMDATA` environment variable if set. See the GTN manual for more information.

45.5.15. TDS GTNXi

The default directory to save the flight plans for the GTN units is `C:\ProgramData\TDS\GTNXi\FPS` for all simulators.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

See Notes about the Garmin Formats GFP and FPL for information on known problems when exporting flight plan data for the GTN.

You may have to create the directory manually if it does not exist.

45.5.16. Flight1 Garmin GTN 650/750

The default directory to save the flight plans for the GTN units is `C:\ProgramData\Garmin\Trainers\Databases\FPLN` for all simulators.

You may have to create the directory manually if it does not exist.

45.5.16.1. Garmin GTN Trainer 6.41

The default directory to save the flight plans for the GTN units is `C:\ProgramData\Garmin\Trainers\GTN\FPLN` for all simulators. You have to create this directory manually and then navigate to it in the file dialog when saving. *Little Navmap* will remember the selected directory.

45.5.16.2. Garmin GTN Trainer 6.21

If you're using the trainer version 6.21 then the default path is `C:\ProgramData\Garmin\GTN Trainer Data\GTN\FPLN`. You have to create this directory manually.

45.5.17. Flight1 Garmin GTN 650/750

This is the flight plan format used by the *Flight1 GTN 650/750*.

Flight plans of this format can be loaded into *Little Navmap* using menu `File` -> Open Flight Plan.

See Notes about the Garmin Formats GFP and FPL for information on problems when exporting flight plan data for the GTN.

The default directories to save the flight plans for the GTN units are:

- **Prepar3D v3:** `C:\Program Files (x86)\Lockheed Martin\Prepar3D v3\F1TGTN\FPL`.
- **Prepar3D v4:** `C:\Program Files\Lockheed Martin\Prepar3D v4\F1TGTN\FPL`.
- **Flight Simulator X:** `C:\ProgramFiles(x86)\Microsoft Games\Flight Simulator X\F1GTN\FPL`

You might need to change the user privileges on this directory if your saved flight plans do not show up in the GTN. Give yourself full control and/or ownership of this directory to avoid this.

A typical symptom is that you can save the flight plan in *Little Navmap* and you can also see the saved plan in *Little Navmap*'s open dialogs but it does not show up in the GTN unit. Change the privileges of the export directory as mentioned above if that is the case.

The file is a simple text format containing only one line of text.

Example for the content of a flight plan file named `KEAT-CYPU.gfp`:

```
FPN/RI:F:KEAT:F:EAT.V120.SEA.V495.CONDI.V338.YVR.V330.TRENA:F:N50805W124202:F:N51085W124178:F:CAG3:F:N51846W12415
0:F:CYPU
```

45.5.18. PMDG Aircraft

A PMDG RTE file. File location depends on the used aircraft but is usually `PMDG\FLIGHTPLANS` in the simulator base directory.

This format does not allow saving of procedures.

45.5.19. Rotate MD-80, JARDesign and others

A simple file format usable by JARDesign or Rotate Simulations aircraft. The dexport directory depends on the used aircraft which is usually in the X-Plane directory `Aircraft`.

The file is a simple text format containing only one line of text.

Example for the content of a TXT file named `CBZ9CYDC.txt`:

```
CBZ9 SID AIRIE V324 YKA B8 DURAK STAR CYDC
```

45.5.20. Majestic Dash MJC8 Q400

Flight plan format for the Majestic Software MJC8 Q400. Note that the export is limited to a list of waypoints.

The flight plan has to be saved to `YOURSIMULATOR\SimObjects\Airplanes\mjc8q400\nav\routes`.

Note that the FMC in the Dash will show invalid coordinates when you press `INFO` on a waypoint or airport. The flight plan, navigation and autopilot are not affected otherwise.

45.5.21. IXEG Boeing 737

Exports the current flight plan as a FPL file usable by the IXEG Boeing 737. The format is the same as TXT but with a different file extension.

The file should be saved to `XPLANE\Aircraft\X-Aviation\IXEG 737 Classic\coroutes`. You have to create the directory manually if it does not exist.

45.5.22. Flight Factor Airbus

A format for the Flight Factor Airbus. The file is not truncated and flight plans are appended when saving.

Flight plans are saved in a slightly extended ATS route notation which also allows to save the cruise altitude and approach procedures. Edit the file with a simple text editor if you want to remove flight plans.

While this format allows saving of SID and STAR the option for approaches was removed since it is unreliable.

Example:

```
RTE ETOPS002 EINN 06 UNBE2A UNBEG DCT 5420N DCT NICSO N236A ALLEX Q822 ENE DCT CORVT KJFK I22R JFKBOS01 CI30
FL360
RTE EDDFEGLL EDDF 25C BIBT4G BIBTI UZ29 NIK UL610 LAM EGLL I27R LAM CI25 FL330
```

45.5.23. iFly

Flight plan format for the iFly 737NG for FSX or P3D. The file has to be saved to `YOURSIMULATOR/iFly/737NG/navdata/FLTPLAN`.

Procedures cannot be saved.

45.5.24. MSFS IniBuilds Airbus

Flight plan locations differ by MSFS installation type:

MS Store

```
C:\Users\YOURUSERNAME\AppData\Local\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\packages\
microsoft-aircraft-a310-300\work\flightplans
```

Steam

```
C:\Users\YOURUSERNAME\AppData\Roaming\Microsoft Flight Simulator\Packages\microsoft-aircraft-a310-
300\work\flightplans
```

45.5.25. Microsoft Flight Simulator 2020 format using `*` as degree sign

This is the same as Microsoft Flight Simulator 2020 except that it uses `*` as a degree sign.

Use this format if you run into issues when importing flight plans in add-ons or when your operating system is set to Asian locale.

45.5.26. ProSim

A flight plan format for ProSim [https://prosim-ar.com]. The flight plan is appended to the file `companyroutes.xml` when saving. Remove flight plans manually in a text editor.

Little Navmap creates up to two backup files when saving the flight plan: `companyroutes.xml_lnm_backup` and `companyroutes.xml_lnm_backup.1`.

Procedures cannot be saved.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<companyroutes>
  <route name="EFMAESGT">EFMA RUNGA N872 TEB N623 BEDLA N866 NEGIL ESGT</route>
  <route name="LGIRLEDA">LGIR SUD UJ65 TRL UM601 RUTOM M601 QUENN Q123 LULIX P167 GINOX UM601 BCN UN975 SELVA
LEDA</route>
</companyroutes>
```

45.5.27. KLN 90B

A flight plan format for the KLN 90B [https://github.com/falcon71/kln90b] for MSFS.

The flight plan is saved to the file `...\Community\falcon71-kln90b\flightplan\kln\kln.pln`.

45.5.28. BlackBox Simulations Airbus

This format is for the Blackbox Simulations Airbus for FSX or P3D. Save this to `YOURSIMULATOR/Blackbox Simulation/Company Routes` or `YOURSIMULATOR/BlackBox Simulation/Airbus A330` depending on aircraft type.

This format cannot save procedures.

45.5.29. Leonardo Maddog X

Flight plan for the Leonardo MaddogX aircraft. This format cannot save procedures.

45.5.30. QualityWings

Flight plan for QualityWings aircraft. This format cannot save procedures. The location depends on the aircraft.

45.5.31. JustFlight BAE-146

Flight plan for the JustFlight BAE-146 aircraft for MSFS.

The location to save is `...\Community\JustFlight BAE-146\justflight-aircraft-146\Work\JustFlight\FlightPlans`.

45.5.32. AivlaSoft EFB

Flight plan for the AivlaSoft Electronic Flight Bag [https://aivlasoft.com]. Saving of procedures is not supported.

45.5.33. Level-D

Flight plan for Level-D aircraft. This format cannot save procedures. Save this to `YOURSIMULATOR\Level-D Simulations\navdata\Flightplans`.

45.5.34. FeelThere or Wilco

The format above cannot save procedures. The location depends on the aircraft.

45.5.35. TFDi Design 717

Flight plan format for the TDFi Design Boeing 717. The format above cannot save procedures.

45.5.36. IvAp for IVAO

45.5.37. X-IVAP for IVAO

Flight plan format for the IVAO online network clients IvAp or X-IvAp [https://www.ivao.aero/softdev/ivap.asp].

The file format for these two clients differs slightly.

Flight Plan Online Network Export will appear before where you can add all needed information.

45.5.38. VATSIM vPilot or SWIFT

Flight plan format for the VATSIM vPilot online network client.

Flight Plan Online Network Export will appear before where you can add all needed information.

45.5.39. UFMC

A flight plan format for the UFMC [http://ufmc.eadt.eu]. The format does not allow saving of procedures.

Save the flight plan to `XPLANE\Custom Data\UFMC\FlightPlans`.

45.5.40. X-FMC

Save flight plan as FPL file for the X-FMC [https://www.x-fmc.com]. The format does not allow saving of procedures.

The file should be saved to Path to `XPLANE\Resources\plugins\XFMC\FlightPlans`.

45.5.41. Garmin exchange format

GPX is not a flight plan format but can be used to export the trail of the flown aircraft trail and a simple waypoint list of the flight plan. It can be loaded my many GIS applications like Google Earth.

See chapter Aircraft Trail and ref:*menu-gpx* for more information.

45.5.42. HTML flight plan web page

This is not a flight plan format. This function saves the current flight plan as a single HTML web page with all images embedded. You can open this page in any web browser.

The exported file will reflect changes of the flight plan table view like column order. Columns which are hidden or shrunk to minimum width are excluded.

45.6. Notes about the Garmin Formats GFP and FPL

Various problems can appear when reading exported flight plans into the Garmin units. Most of these are a result of the Garmin navigation database which uses data of an older AIRAC cycle (mostly 1611 at the time of writing). Updated simulator or add-on databases (like the one in *Little Navmap*) can use the latest navdata or an old one from FSX or P3D stock data.

Any waypoints, airways or procedures that are removed, added or renamed over time can cause locked waypoints or other messages when reading a flight plan into the GNS or GTN.

It is easy to remove locked waypoints within the GNS or GTN to enable the flight plan to be activated. Refer to the documentation of the Garmin unit.

Little Navmap allows to change the Garmin export to replace all waypoints with user defined waypoints to avoid locking. While this is a sufficient approach to avoid the locked waypoints it comes with a few limitations:

- Departure and destination airport are not saved as user defined waypoints. These have to exist in the Garmin navigation database.
- Navaid information like frequencies cannot be displayed since the waypoint cannot be related to the radio navaid.
- Procedures like SID and STAR cannot be saved with the flight plan and have to be selected manually.
- The GTN (not the GNS) changes all names to a generic `USERWPT...` scheme.

The export of user defined waypoints can be enabled in the options dialog on tab `Flight Plan`.

[1]

Only SID and STAR. Saving or approaches is not supported.

[2] (1,2)

User defined waypoints will be renamed when loading into the GTN.

[3] (1,2,3)

Additional information for online flying can be added in a dialog before saving.

[4]

Full name is `companyroutes.xml`

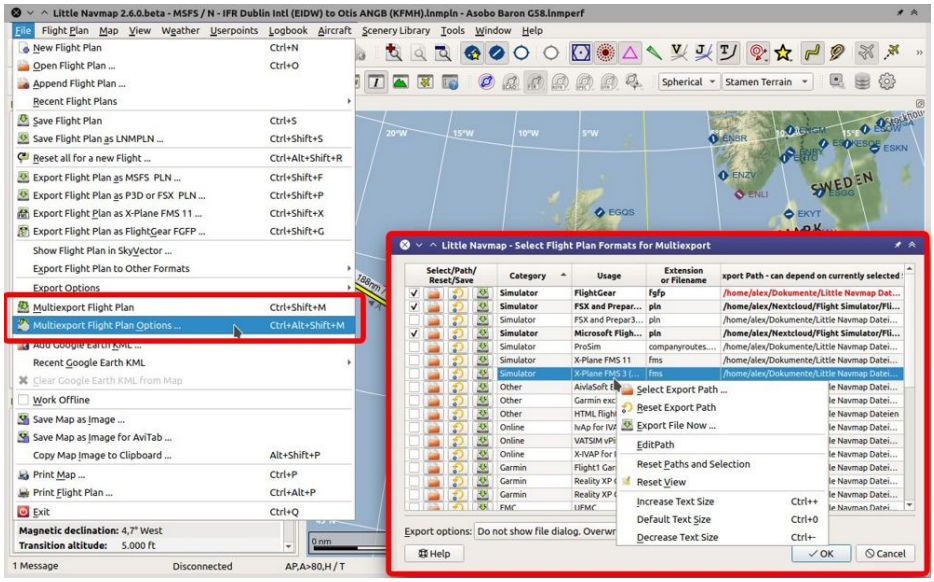
[5] (1,2)

Procedures might not load in MSFS or might be replaced by other procedures.

46. Flight Plan Multiexport

Multiexport simplifies flight plan export and enables saving to several formats at once with a single click into the toolbar, a click into the menu (`File` -> Multiexport Flight Plan) or using the keyboard shortcut `Ctrl+Shift+M`.

The dialog makes use of tooltips. Hover the mouse cursor above rows and buttons for more information.



Overview of the multiexport features with the related menu items highlighted. Screenshot based on *Little Navmap* 2.6.
Click image to enlarge.

46.1. Quick Setup

The export function is disabled initially until at least one format is enabled for export in `File` -> Multiexport Flight Plan Options.

Export paths are prefilled where known. This is done when first opening the dialog and considers the current simulator selection (Scenery Library Menu). A best guess is used if not applicable.

Adapt the default paths if needed. You can edit a path by double clicking on it or using the button which will open a file dialog for selection.

The footer line below the table shows error messages and an example export file name and path.

Check the box on the left of a row or use the context menu to enable for a format for export. The row text will be shown bold if enabled.

Adjust the selection in Export Options and choose if you like to overwrite files or if you would like to see a file dialog for each saved format.

Click `Ok` when done.

The flight plan will be exported when using menu `File` -> Multiexport Flight Plan if a correct path is entered and the box is checked.

Tip

You can also export flight plans manually from the multiexport options dialog by clicking on the button Export Flight Plan now.

Note

Note that *Little Navmap* does not clean up the exported directories. All old flight plans remain and have to be removed manually from time to time.

Consider exported flight plan files as disposable since almost all the export formats have limitations resulting in data loss. Remember that you can always restore them by loading the original LNMPLN file and exporting again.

See also Flight Plan Formats for more information on the supported flight plan formats.

46.2. File Names

Saving LNMPLN

> The default file name used when saving LNMPLN files using the functions Save Flight Plan or Save Flight Plan as LNMPLN can be set in the options dialog on page `Flight Plan`. See Pattern for default LNMPLN flight plan names.

Export other Formats

> *Little Navmap* always uses file names based on the pattern set in the column `File Name Pattern and Extension` when running an multiexport or starting an export from the menu `File`.

46.3. Exporting Little Navmap native flight plan format

Exporting the `Little Navmap native flight plan format` with file extension LNMPLN via multiexport is a special case compared to the other formats. Enabling this for export saves you a few extra clicks for storing the file.

The following happens if LNMPLN is saved with multiexport:

- The file name is automatically assigned by using the selected pattern in the options dialog on page Files (Pattern for default LNMPLN flight plan names). If the file was already saved with another name when doing Save Flight Plan as LNMPLN or Save Flight Plan then this name is used.
- *Little Navmap* saves the file into the path set in the multiexport options dialog.
- The current file is marked as clean. This means that the `*` is cleared from the window title and *Little Navmap* will not ask to save the file once exiting or creating a new plan.
- Further saves (menu `File` -> Save Flight Plan) will use the automatically assigned file name and path.

See also Little Navmap LNMPLN Format.

Warning

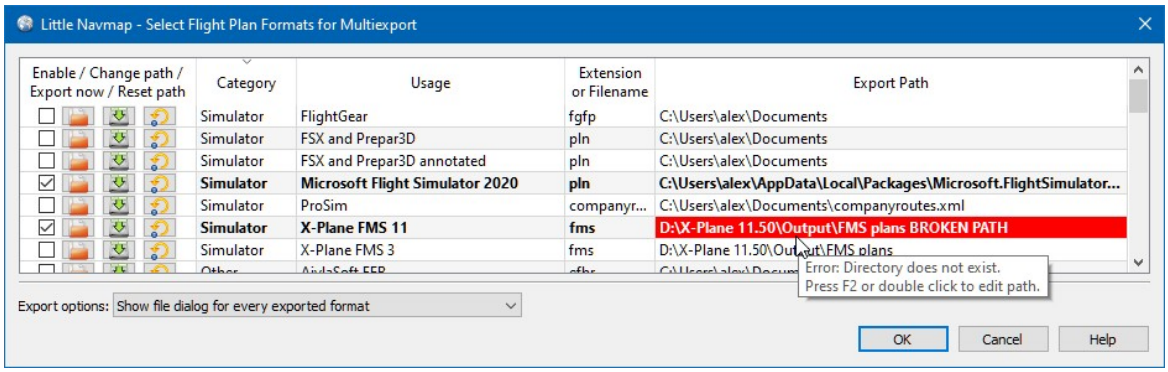
Always save a copy in the default LNMPLN format before exporting to other formats. This allows *Little Navmap* to restore all flight plan properties like procedures, alternate airports and remarks.

Note that the LNMPLN format is only understood by *Little Navmap*. Do not try to load it into simulators or add-ons.

46.4. Path Errors

The path is highlighted red once a format is enabled for export with a non existing directory or file. Hover the mouse above the path to see more detailed error messages.

Directories (files for some export formats) have to exist for the export to work.



Error message in tooltip for X-Plane FMS export. Hover mouse cursor above red text to see this. Also selected is the MSFS flight plan export without path errors.

46.5. Running Multiexport

A dialog is shown, if any unsupported features are detected in the current flight plan when trying to save a plan. You can disable this dialog for future saves.

Pressing `Cancel` in this dialog stops the export. No files will be exported.

Depending on the setting in the Export Options button *Little Navmap* will also show a file dialog for each exported file.

You can enable saving of waypoints by checking the menu items Export Waypoints for Approaches, Export Waypoints for SID and STAR or Export Waypoints for Airways. These three options affects all flight plan export formats except the native LNMPLN format.

46.6. Multiexport Options Dialog

46.6.1. Export Format Table

You can click on the table headers to sort the content. Tooltips as well as the footer line below the table give more information on formats and path errors.

Columns can be moved and resized by clicking and dragging the table header. The table layout is saved and can be reset by choosing Reset View in the context menu of the table.

See Tables for general information on tables.

46.6.1.1. Enable / Change Path / Export Now / Reset Path

The first column contains several buttons which provide the same functions as the context menu.

46.6.1.1.1. Checkbox

The checkbox on the far left enables the respective format for export and highlights the row in bold text. Path errors are only shown if the format is enabled.

46.6.1.1.2. Select Export Path

Opens a file or directory selection dialog to enter the path. Some export formats need a file to append flight plan information instead of a directory to save a file.

46.6.1.1.3. Export Flight Plan now

Opens a file dialog for immediate export of the current flight plan. You can also export formats which are not enabled.

46.6.1.1.4. Reset Export Path

Resets the path back to default. The default path is determined by the current scenery library or simulator selection. If not applicable, the best estimate from installed simulators and Scenery Library Menu selection is used.

46.6.1.2. Category

Category for the export format.

46.6.1.3. Usage

Short description of the export format and the product for which it is used.

46.6.1.4. Filename Pattern and Extension

The pattern is used to build filenames when exporting flight plans. The file suffix like `.lnmpln`, `.pln` or `.fgfp` is a part of the pattern.

The following keywords are recognized:

- `PLANTYPE`: `IFR` or `VFR`
- `DEPARTIDENT`: Departure airport ident.
- `DEPARTNAME`: Departure airport name.
- `DESTIDENT`: Destination airport ident.
- `DESTNAME`: Destination airport name.
- `CRUISEALT`: Cruise altitude.

Keywords are case sensitive and have to be entered in upper case. All other characters are are used as entered.

Double click or press the key `F2` to edit the file pattern directly.

An example filename and error messages are shown in the dialog footer below the table.

Examples (`Filename Pattern and Extension`, `Export Path` and result):

```
DEPARTIDENT-DESTIDENT.fms, X-Plane 11/Output/FMS plans:

       X-Plane 11/Output/FMS plans/EDDF-LIRF.fms

DEPARTIDENT-DESTIDENT X-Plane 12 Beta at CRUISEALT.fms, X-Plane 12/Output/FMS plans:

       X-Plane 12/Output/FMS plans/EDDF-LIRF X-Plane 12 Beta at 10000.fms
```

46.6.1.5. Export Path

Target directory for the exported files. Double click or press the key `F3` to edit the path directly. You can copy and paste paths from the Windows Explorer into this field, for example.

An example and error messages are shown in the dialog footer below the table.

46.6.2. Export Options

Three options can be selected in the drop down box. These apply to all export formats.

46.6.2.1. Show file dialog for every exported format

Opens a file or directory selection dialog for each enabled export format once Multiexport Flight Plan is used. The dialog allows to cancel an export or change the file name or path.

Pressing cancel in this dialog does not stop the export process for further formats.

46.6.2.2. Do not show file dialog. Backup existing files in case of conflict

Present files are backed up to a maximum of four files and the new file is saved in place. *Little Navmap* does not check for changed files. You might see backups which are equal if you save too often.

Example: Saving the plan from ENKB to LICR several times in X-Plane FMS format:

- Latest plan: `ENKB-LICR.fms`

- Backups: `ENKB-LICR_1.fms`, `ENKB-LICR_2.fms`, `ENKB-LICR_3.fms`, `ENKB-LICR_4.fms`

46.6.2.3. Do not show file dialog. Overwrite files without warning

Present files with the same name are overwritten. Be careful with this option, especially when using the Exporting Little Navmap native flight plan format option.

This helps to reduce clutter in the output directories but may overwrite flight plan files.

Warning

No backup will be created when saving with this option enabled.

46.6.3. Help

Opens this chapter in the online help.

46.6.4. Ok

Takes over all changes and closes the dialog.

46.6.5. Export Selected Formats

Export all formats without closing the dialog. This is the same as selecting Multiexport Flight Plan in the main menu `File`.

46.6.6. Cancel

Discards all changes except table formatting and closes the dialog.

46.7. Context Menu

Right click into the flight plan format table to open the context menu.

46.7.1. Enable Export

Selects format for multiexport. Same as the Select Export Path button.

46.7.2. Export Flight Plan now

Save the format now. Same as the Export Flight Plan now button.

46.7.3. Select Export Path

46.7.4. Edit Path

Allows to edit the path directly. This is the same as double clicking into the path field or pressing `F3`.

46.7.5. Reset Export Path

Reset path back to default. Same as the Reset Export Path button.

46.7.6. Edit Filename Pattern

Edit the filename pattern directly. This is the same as double clicking into the path field or pressing `F2`.

46.7.7. Reset Filename Pattern

Reset the filename pattern back to default.

46.7.8. Reset all Paths, Filename Patterns and Selection Stated

Resets all paths and filename patterns back to defaults also considering the current simulator selection. This is the same as clicking Reset Export Path in each row.

Also disables all flight plan formats for export.

46.7.9. Reset View

Resets column size and column order back to default.

46.7.10. Increase, Decrease and Default Text Size

Changes the text size in the table. The size is saved.

47. Flight Plan Online Network Export

This dialog appears when exporting a flight plan for the online network clients using the export menu items IvAp for IVAO, X-IVAP for IVAO, VATSIM vPilot or SWIFT or Multiexport Flight Plan.

Some input fields might hidden depending on format.

Note that IvAp and X-IvAp use a slightly different format.

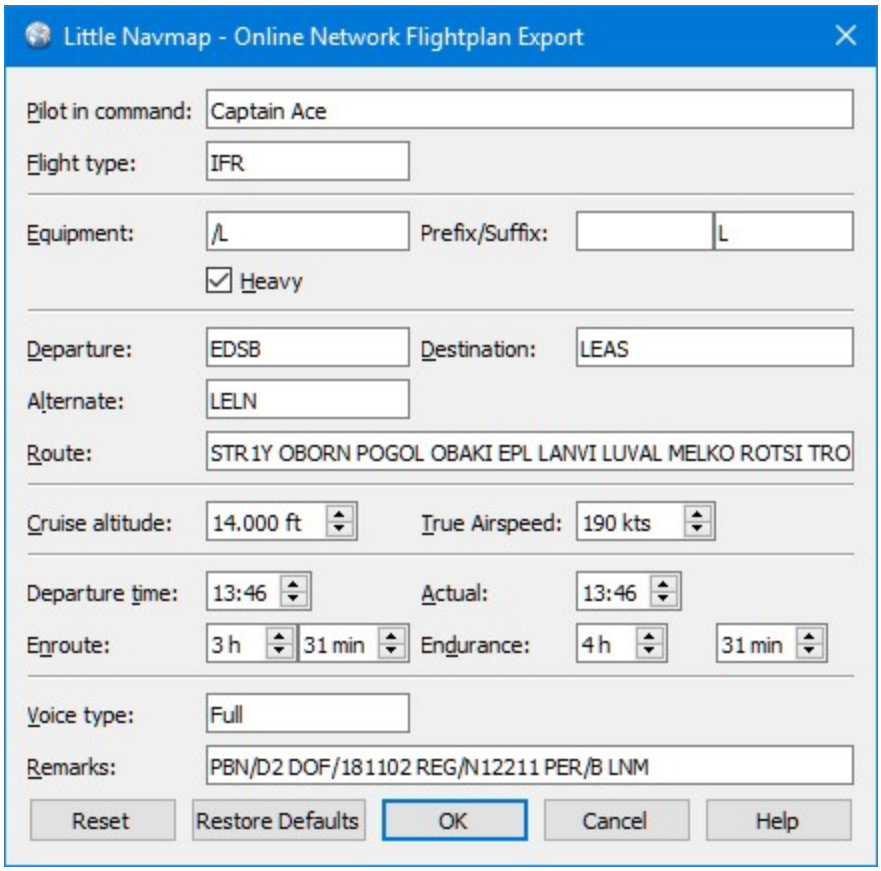
Fields that contain information which cannot be extracted from the current flight plan are saved between sessions (e.g. `Pilot in command` or `Equipment`).

Other input fields in this dialog are extracted from the current flight plan. These fields can be adjusted manually and are not saved between sessions. These are:

- `Flight Rules`: From the current flight plan. `IFR` or `VFR` for VFP and `I` or `V` for FPL. Change manually if needed.
- `Aircraft type`: From the current aircraft performance (Aircraft Performance).
- `Departure`: First waypoint in flight plan.
- `Destination`: Last waypoint in flight plan.
- `Route`: Generated from the flight plan waypoints, airways, SID and STAR (Flight Plan Route Description).
- `Cruise altitude`: Taken from flight plan. Cruise altitude in ft.
- `True Airspeed`: From the current aircraft performance cruise speed.
- `Departure time`: Uses current UTC time as default. Adjust as needed.
- `Actual`: Actual departure time. Uses same default time as above. Adjust as needed.
- `En-route`: Traveling time as calculated by flight plan and current aircraft performance.
- `Endurance`: Uses same default as above. Adjust as needed.

47.1. Buttons

- `OK`: Saves relevant fields for the next session and opens the `Save as` dialog.
- `Cancel`: Discards all changes and closes dialog.
- `Reset`: Undoes all changes that were made since opening the dialog.
- `Help`: Shows this online help page.



Flight Plan Online Export Dialog for VATSIM vPilot.

48. Open Flight Plan from SimBrief

This function opens a dialog window where SimBrief flight plans can be imported directly into *Little Navmap*. SID, STAR, the respective transitions, runway assignments as well as the cruise altitude are downloaded.

Note that approach procedures, cruise speed and fuel parameters are ignored by *Little Navmap* which relies on aircraft performance files for fuel and speed. See Aircraft Performance for more information.

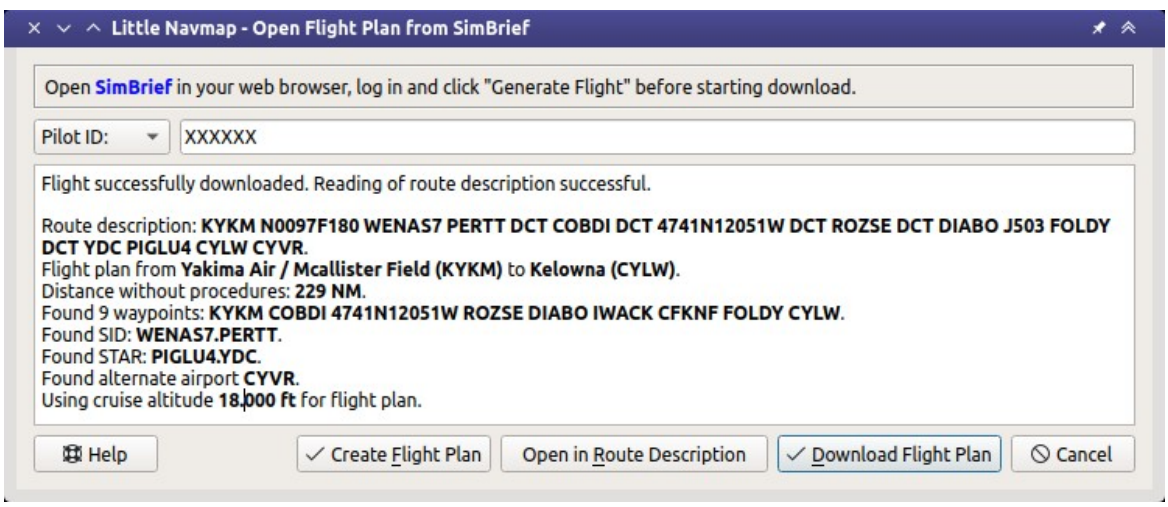
See Export Flight Plan to SimBrief for information on how to export a flight plan from *Little Navmap* to SimBrief.

48.1. Download a Flight Plan

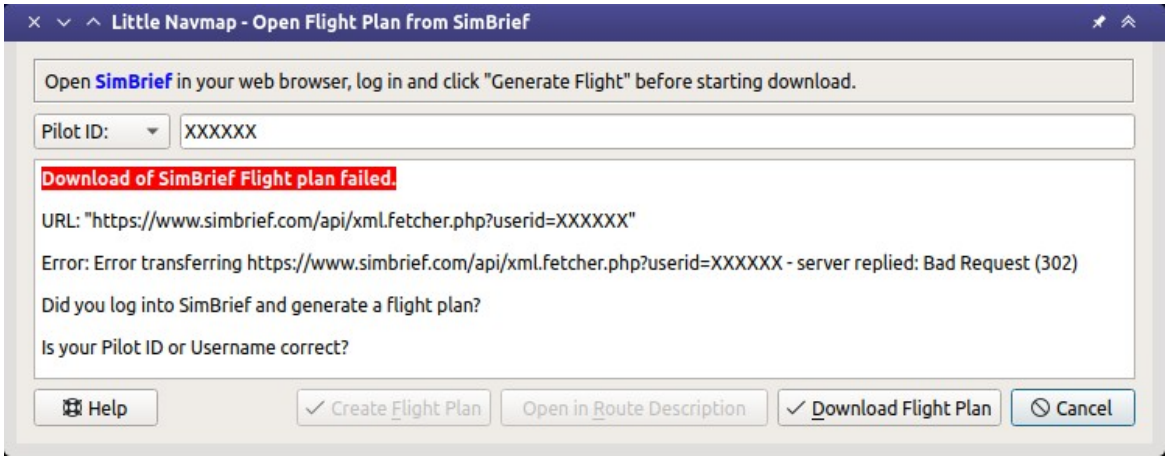
1. Open a web browser by clicking the blue SimBrief [https://www.simbrief.com] link in the dialog header and login.
2. Start with either `New Flight`, `Edit Flight` or `Saved Flights` or `Load`.
3. Enable the option `Detailed Navlog` in section `Selections` on page `Edit Flight`.
4. Once the flight plan is done click `Generate Flight` in SimBrief.
5. Go back into *Little Navmap* and select menu `File` -> Open Flight Plan from SimBrief.
6. Enter your SimBrief `Pilot ID` or `Alias (Username)`. Select the type of login in the drop down box at the left of the input field. *Little Navmap* remembers this selection. Then enter your pilot ID or alias in the field at the right of the dropdown box. Note that the field below is only for message output and not input. You cannot enter your ID or alias there.
7. Click `Download Flight Plan`.
8. Click `Create Flight Plan` if if the generated flight plan was successfully downloaded.

Alternatively, click `Open in Route Description` for manual editing the flight plan in the Flight Plan Route Description dialog.

Note that the flight plan is kept for a while on SimBrief. You do not have to login and generate the flight every time.



Generated flight plan successfully downloaded from SimBrief. Details about the plan are shown in the message area.



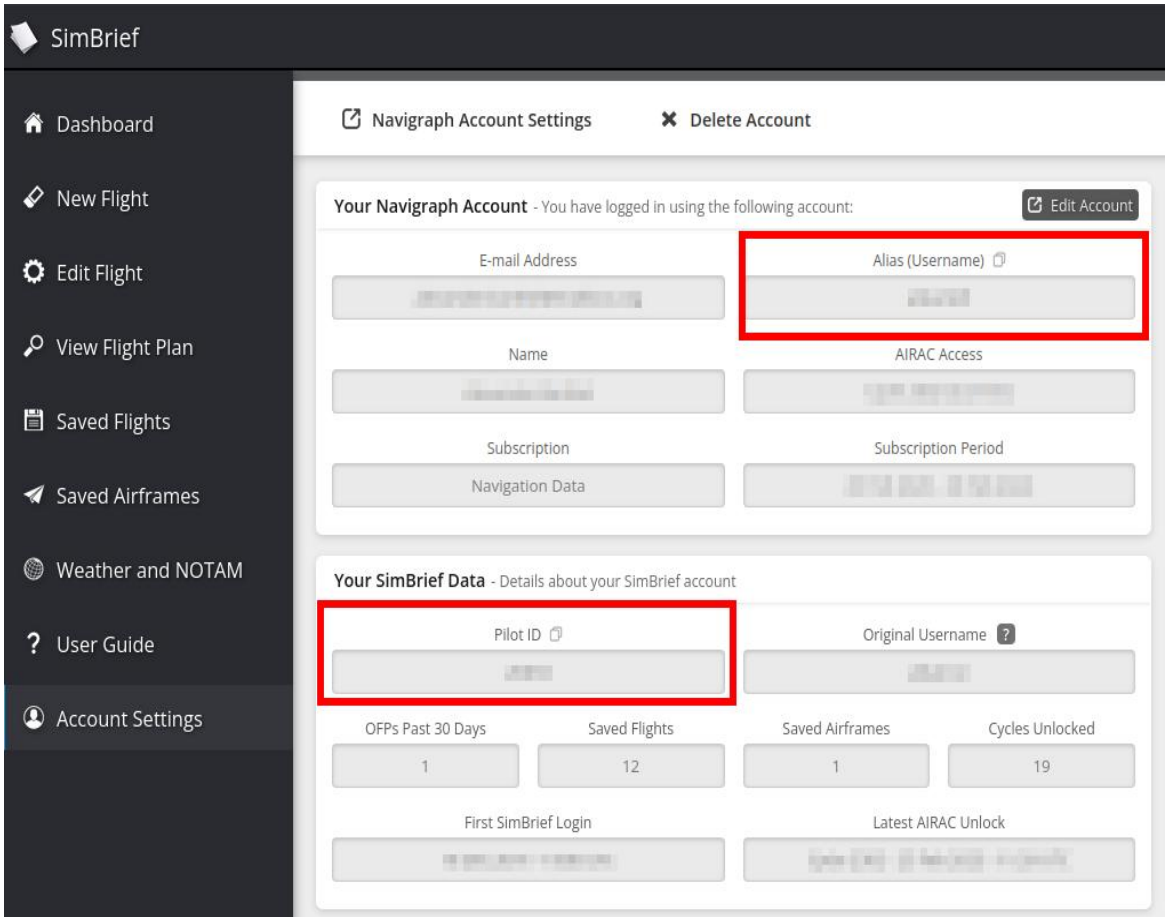
The download or parsing failed. Details about errors are shown in the message area.

Note

Little Navmap does not consider step climbs. Therefore, the cruise altitude is taken from the initial cruise from SimBrief. Adjust the cruise altitude manually in *Little Navmap* using the field Cruise altitude in the dock window `Flight Planning` on tab `Flight Plan` if needed.

48.2. How to get the Login Information

1. Go to `Account Settings` in SimBrief.
2. There your can see `Alias (Username)` and your `Pilot ID`.



Path to user and login information. *Click image to enlarge.*

49. Export Flight Plan to SimBrief

This function can export a flight plan generated in *Little Navmap* into SimBrief.

SID, STAR and the respective transitions, the `Aircraft type` (ICAO aircraft type designator) from the loaded aircraft performance file as well as the cruise altitude are exported. Note that approach procedures are not exported.

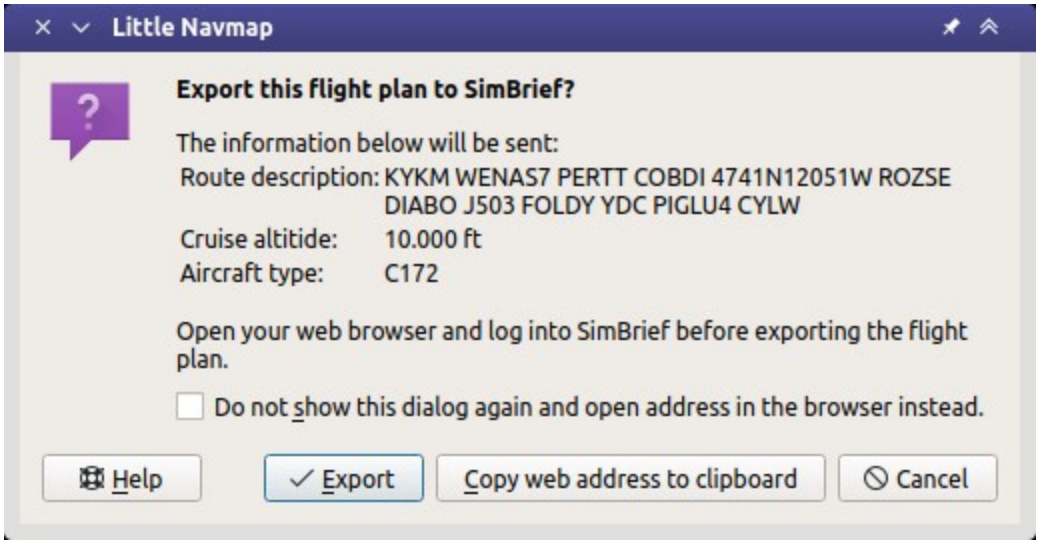
See Open Flight Plan from SimBrief for information on how to load a flight plan from SimBrief into *Little Navmap*.

How to export a flight plan:

1. Create or load flight plan in *Little Navmap*. See Building a Flight Plan for a quick introduction.
2. Open your web browser and log into SimBrief [https://www.simbrief.com] before exporting the flight plan. Keep the tab in the web browser open.
3. Go back to *Little Navmap* and select Open Flight Plan from SimBrief in the menu `File`.
4. Check the information and press `Export` if everything is ok. Press `Cancel` to stop the export.
5. Your web browser opens the flight plan in a new tab or window in SimBrief if you click `Export`.

Alternatively you can click `Copy web address to clipboard` and open this later in a web browser.

The information dialog will be skipped if you click `Do not show this dialog again and open address in the browser instead`. You can reset this using Reset all Messages in menu `Tools`.



SimBrief export dialog.

Note

You have to use the same or at least a close AIRAC cycle in SimBrief and *Little Navmap* to avoid issues when exchanging flight plans.

50. Aircraft Performance

Aircraft performance and fuel reports are shown in the dock window `Flight Planning`.

Little Navmap provides functionality for editing, creating and collecting aircraft performance profiles. This allows to determine needed fuel, flight time as well as climb and descent paths.

Average performance data like speed, vertical speed and fuel flow is used for the flight phases taxi/takeoff, climb, cruise and descent to calculate fuel requirements.

The program can either consider NOAA real world wind prediction or the X-Plane winds aloft to calculate the fuel report. Alternatively, a simple setting for wind at cruise altitude can be used to adjust the plan for weather.

Related chapters:

- Winds Aloft: Information on winds aloft.
- Aircraft Performance Collection: Automatic and permanent aircraft performance collection running in the background.
- Aircraft Performance Edit: Change performance manually.
- Aircraft Performance Merge: Merge performance data collected from a flight or another file into the currently loaded.

Aircraft performance and the winds aloft situation is used for the functions below:

- Calculation of the flight time which is shown in flight plan header.
- Calculation of top of climb and top of descent which are shown on the map and in the elevation profile. Note that wind and altitude restrictions in procedures might affect the top of descent or top or climb distances.
- Fuel planning report in Tab Fuel Report of the dock window `Flight Planning`.
- Remaining fuel at each leg in flight plan table.
- Remaining fuel at top of descent and destination in the tab `Progress` in the `Information` window as well as traveling times.

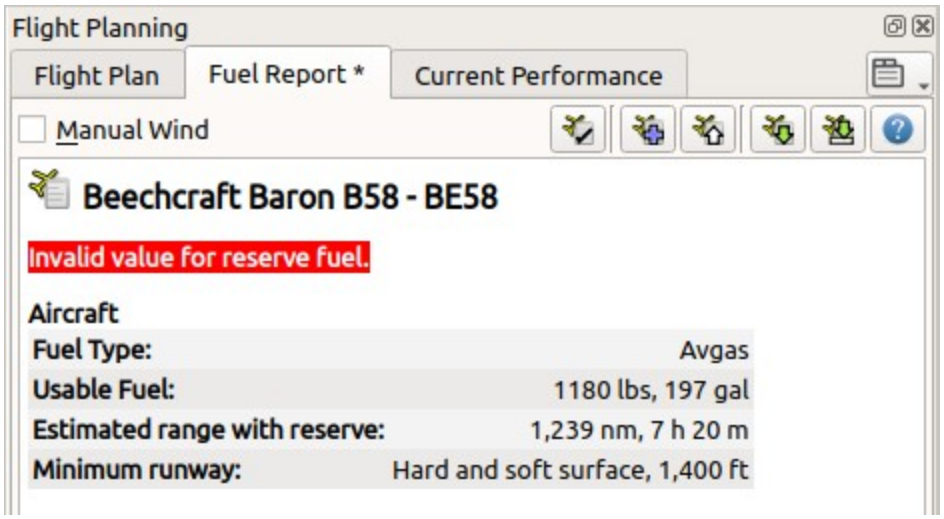
Fuel is shown both as weight (`lbs` or `kg`) or as volume (`gallons`, `liter`) and can be entered in all available units independent of the program settings.

Additional display of other fuel units can be enabled in the options dialog on the page Units.

See Top of Climb and Top of Descent Paths for details about the calculation of TOC and TOD.

Red warning messages are shown in the tab `Fuel Report` and in the flight plan table footer (Error Messages Footer) if aircraft performance contains wrong values that keep *Little Navmap* from calculating fuel consumption, climb or descent.

An orange warning message is shown if the flown aircraft type does not match the type in the aircraft performance. This can be disabled in the menu `Aircraft` -> Warning for Aircraft Type Mismatch.



Aircraft Performance tab showing an error about a missing value. The * in the tab label shows unsaved changes.

A simple default profile for a Cessna C172 is default.

Note

Note that the aircraft performance does take aircraft load, cruise altitude and temperatures aloft into consideration. You can use the block fuel as a starting point for complex aircraft, enter this into the FMS or MCDU and refine it there. You can also build more than one performance file to depict different load situations or cruise altitudes.

Note

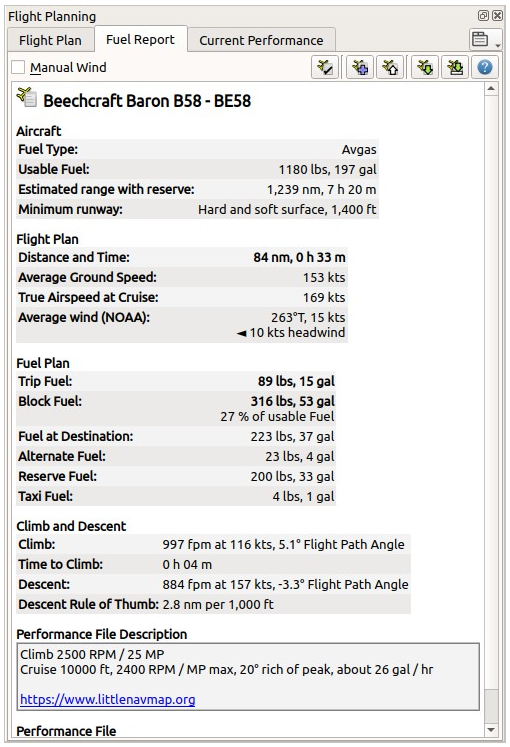
The default performance profile for a Cessna C172 is sufficient to calculate top of climb and top of descent and can be used if you wish to ignore the fuel and travel time reports.

Adjust the default profile to you aircraft if needed.

Little Navmap collects performance data for an aircraft permanently while flying. The collected data can be merged or copied into the currently used profile or a new one which can be fine tuned manually. The merging can be done at any time. See Aircraft Performance Collection.

Tip

See the Aircraft Performance Database [https://contentzone.eurocontrol.int/aircraftperformance/default.aspx?] to get numbers for a start.



Fuel report tab. Average headwind of 10 knots is based on NOAA winds aloft prediction and is also considered in fuel calculation. Fuel needed for an alternate airport is shown too. The performance file description contains a web link. *Click image to enlarge.*

50.1. Files

Performance profile files (file extension LNMPERF) can be saved and loaded like flight plan files. The performance files can be dragged from a file manager like Windows Explorer or macOS Finder and dropped into the *Little Navmap* main window to load them.

Warning

Do not save the files into the *Little Navmap* installation directory since they might be deleted when doing an update. Neither save them in `C:\Program Files` or one of its sub-directories. Save the files into your `Documents` directory or a sub-directory in there like `Documents\Little Navmap\Performance`.

You can use the directory which is suggested by the Directories dialog.

Tip

Aircraft performance files from contributors and my own flights are available in the download section of littlenavmap.org [https://www.littlenavmap.org/downloads/Aircraft%20Performance/].

Note that these files are community work and might vary in quality and accuracy.

50.2. Wind

You can enter the estimated average wind speed and wind direction at a given altitude, download NOAA wind predictions or use the X-Plane wind file. This will be considered when calculating flight time and fuel consumption for each leg and the whole flight plan.

Wind will also affect the top of descent and top of climb. For example, the top of climb will be a shorter distance for a strong headwind. Time to reach the top of climb is the same.

The fuel report is updated immediately when changing wind speed, wind direction, wind source or when editing the flight plan.

The wind speed is interpolated from ground to cruise altitude for the climb and descent phases when using manual wind.

See the chapter Winds Aloft for more information on winds aloft.

50.3. Tab Fuel Report

50.3.1. Buttons

The buttons on top have the same functionality as the items in the main menu Aircraft Menu.

- `Wind Source`: Same options as menu Wind source in main menu `Weather`.
- `Edit Aircraft Performance`: Opens the edit dialog for the currently loaded profile. You can also use the menu item `Aircraft` -> Edit Aircraft Performance to change the currently loaded performance data. See Aircraft Performance Edit for a description of the edit dialog.
- `New Aircraft Performance`: Creates a new performance profile with default values and opens the edit dialog. A simple default profile for a Cessna C172 is default.
- `Open Aircraft Performance`: Load a LNMPERF file.
- `Save Aircraft Performance`: Save current profile to a LNMPERF file.
- `Save Aircraft Performance as`: Save current profile to a new LNMPERF file.
- Help: Click to open this chapter of the manual in the default browser.

50.3.2. Fuel Report

The fuel planning report updates automatically if the flight plan, cruise altitude or wind situation change.

A flight plan has to be loaded to see the full fuel planning report. Otherwise it displays only basic information like estimated range and other information about the aircraft.

See Aircraft Performance Edit for a detailed description of all fuel numbers.

The text size of the report can be changed in the options dialog on page Display and Text.

Some sections and fields are only shown with a valid flight plan. Fields not set in the performance file are omitted.

The section `Fuel Plan` is replaced with a section `Fuel` showing information about the aircraft fuel status if no flight plan is loaded.

Note

The Tab Fuel Report in the dock window `Flight Planning` is meant for fuel planning and does not change during flight.

50.3.2.1. Aircraft Section

- `Estimated range with reserve`: Calculated based on usable fuel, speed and fuel flow for the cruise phase and reserve fuel. Shows an orange warning if fuel flow values are not set.
- `Minimum runway`: Shown if set in the performance profile.

50.3.2.2. Flight Plan Section

- `Distance and Time`: Total flight plan distance and traveling time including procedures. Same values as on top of the tab `Flight Plan`. Affected by the wind situation.
- `Average Ground Speed`: Ground speed across all the flight phases climb, cruise and descent. Calculated based on speeds as given and wind as entered on top the tab or selected wind source.
- `True Airspeed at Cruise`: Cruise speed as given in the edit dialog.
- `Mach at cruise`: Mach number at flight plan cruise altitude calculated based on given true airspeed and ISA atmospheric standard conditions. Only mach numbers above 0.4 are shown.
- `Average wind total`: Shows the average wind speed and direction for all three flight phases climb, cruise and descent. Only shown if sufficient wind is present. Also shows average head- or tailwind if present. The wind source (`NOAA`, `Simulator`, `Manual` or `Disabled`) is shown in parentheses.
- `Average wind at cruise`: As above but shows the average wind speed and direction for the cruise phase.

50.3.2.3. Fuel Plan Section

Only shown with a valid flight plan. Otherwise replaced by a section `Fuel`.

- `Fuel Type`: As set in the performance profile. Either `Avgas` or `Jetfuel`. Used to change values when switching between volume and weight as fuel unit and to convert between units in the report.
- `Usable Fuel`: Shown as set in the performance profile. Only displayed if bigger than zero. A :error-style`red error message` is shown if block fuel exceeds this value.
- `Trip Fuel`: Fuel that is consumed while flying and covers all phases from takeoff at departure to touchdown at the destination. Does not include contingency, extra, reserve or alternate fuel.
- `Block Fuel`: Fuel to be loaded. Block fuel is the total fuel required for the flight. Includes trip, reserve, extra, taxi, farthest alternate airport and contingency fuel.
- `Fuel at Destination`: Expected fuel at destination. Will be equal to reserve if no contingency fuel, no extra fuel and no alternate airports are set.
- `Alternate Fuel`: Fuel needed to travel from the destination to the farthest alternate airport.
- `Reserve Fuel`: Reserve fuel as set in the edit dialog.
- `Taxi Fuel`: Taxi fuel as set in the edit dialog.
- `Extra Fuel`: Extra fuel as set in the edit dialog.
- `Contingency Fuel`: Contingency fuel calculated from the percentage given in the edit dialog and trip fuel.

50.3.2.4. Climb and Descent Section

Only shown with a valid flight plan.

- `Climb`: Speed and vertical speed as given plus the calculated flight path angle. The flight path angle is affected by the wind forecast.
- `Time to Climb`: Calculated time to climb for the given cruise altitude.
- `Descent`: Speed and vertical speed in descent phase as given plus the calculated flight path angle. The flight path angle is affected by wind.
- `Descent Rule of Thumb`: Calculated rule of thumb for descent.

Note

Altitude restrictions in procedures might affect the top of descent or top or climb distances. The flight path angle is only valid where the aircraft can freely climb or descent unaffected by altitude limits.

50.3.2.5. Remarks Section

This is a free plain text field for notes and links which are saved with the aircraft performance file.

Links are recognized and can be opened on tab `Fuel Report`.

See Remarks for more information about using web links in this field.

51. Aircraft Performance Edit

The dialog allows editing of all aircraft performance related parameters on three tabs. The labels for all values required for fuel calculation are highlighted **bold**.

The dialog is opened when clicking on the edit button in the Tab Fuel Report, when selecting `Aircraft` -> `New Aircraft Performance ...` or `Edit Aircraft Performance ...` in the main menu.

51.1. Buttons

- `OK`: Takes all changes made in the dialog but does not save the profile. The fuel report, top of climb and top of descent in the Elevation Profile are adjusted immediately.
- `OK and Save`: Takes all changes made in the dialog and saves the profile. Opens a file dialog if the file is new.
- `Cancel`: Disregards all changes and closes the dialog.
- `Reset`: Resets all changes made since opening the edit dialog.
- `Restore Defaults`: Resets back to the default profile.
- `Help`: Opens the online help in the default web browser.

51.2. Tab Aircraft

- `Simulator`: This is populated based on the used simulator scenery library database when creating the file. Adjust manually if needed.
- `Aircraft model`: Can be used freely. Determined from aircraft name when *Little Navmap* collects data for a performance profile.
- `Aircraft type`: The ICAO aircraft type designator. *Little Navmap* will show an orange warning message in the Tab Fuel Report if the flown aircraft does not match the type in the aircraft performance file. Detected automatically when collecting performance. The warning can be disabled in the menu `Aircraft` -> Warning for Aircraft Type Mismatch.
- `Required runway`: Only for information. Shown in the fuel report if bigger than zero.
- `Required runway type`: Only for information. Shown in the fuel report if it differs from default `Hard`.

51.2.1. Aircraft Type

See ICAO - Aircraft Type Designators [https://www.icao.int/publications/DOC8643/Pages/Search.aspx] or Wikipedia - List of ICAO aircraft type designators [https://en.wikipedia.org/wiki/List_of_ICAO_aircraft_type_designators].

A warning message in the fuel report and the flight plan table footer will be shown if Warning for Aircraft Type Mismatch is enabled in the menu `Aircraft` and the simulator aircraft type does not match the loaded performance file. This helps to avoid accidental usage of the wrong performance file.

The mismatch is identified by comparing the field `Aircraft type` with the simulator aircraft type which can be seen in field `Type:` in Tab Aircraft.

51.2.1.1. MSFS

The aircraft type is not exposed in the SimConnect interface and will result in wrong warnings. Disable the warnings or adjust the `Aircraft type` in the aircraft performance tile to match your aircraft.

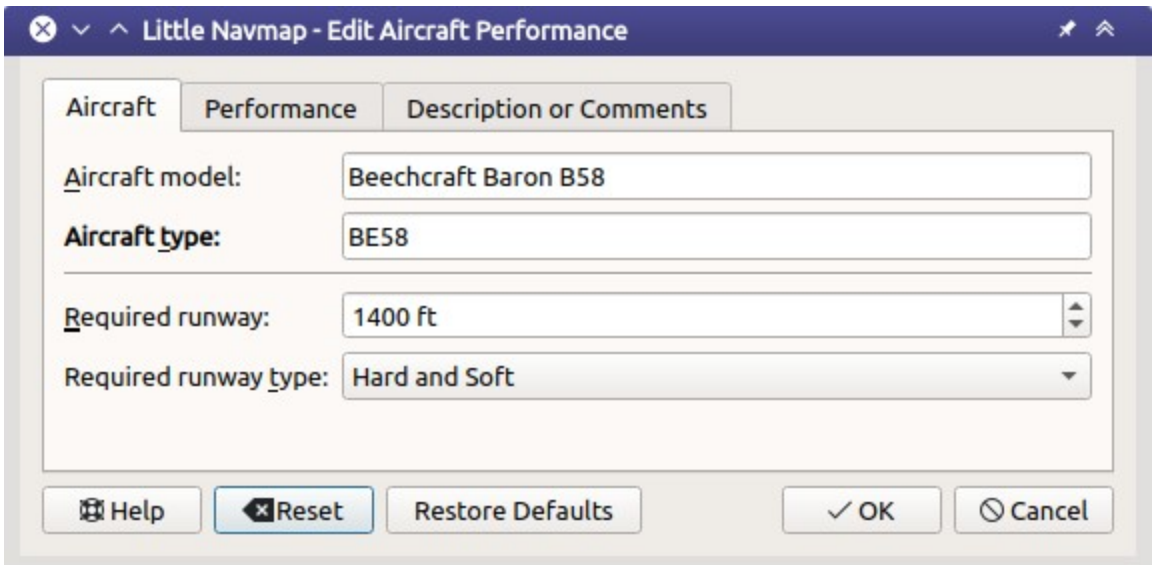
The model can be found with any text editor, opening the related `aircraft.cfg` file, key `icao_type_designator` int the section `[General]`.

51.2.1.2. X-Plane

Its value can be read with X-Plane Plane Maker program, opening the related aircraft file `.acf`, then main menu -> `Standard` -> `Author`, field `ICAO code for ATC`. It is stored as e.g. `P acf/_ICAO BE58` in the `.acf` file.

51.2.1.3. FSX, FSX-SE and Prepar3D

The model can be found with any text editor, opening the related `aircraft.cfg` file, key `ATC_model` under the section `[General]`.



First tab in aircraft performance edit dialog.

51.3. Tab Performance

All speeds are entered in true airspeed. This makes the values independent of wind influence which would be the case of ground speed. It also makes the values independent of cruise altitude and deviation from ISA atmospheric conditions which would be the case when using the Mach number or indicated airspeed.

51.3.1. Fuel

- `Fuel Units`: Either `Volume` (gallons or liters) or `Weight` (lbs or kilograms). The numbers in the dialog will be converted using the weight of the selected `Fuel Type` when changing the unit. Rounding errors might occur when switching forth and back noticeable a small changes.
- `Fuel Type`: `Avgas` (default) or `Jetfuel`. Needed to convert fuel numbers between weight and volume. This is detected automatically when collecting aircraft performance.

See Fuel - Flight Planning Definitions [https://www.skybrary.aero/index.php/Fuel_-_Flight_Planning_Definitions] (SKYbrary) for more information on the various fuel types.

51.3.2. Usable Fuel

Used to calculate estimated range and to check if block fuel exceeds fuel capacity of aircraft.

A label `Estimated range with reserve` shows the maximum distance and time to fly with reserves.

51.3.3. Reserve Fuel

Final reserve fuel is the minimum fuel required to fly for 30 minutes at 1,500 ft above the alternate airport or at the destination airport at holding speed if an alternate is not required. Some authorities require sufficient fuel for 45 minutes holding time.

Alternate fuel is the amount of fuel required to fly the missed approach at the destination airport and to the alternate airport.

`Reserve fuel` is the sum of alternate fuel and final reserve fuel.

You have to set this value to avoid running out of fuel at the destination when relying on this profile.

51.3.4. Taxi Fuel

`Taxi fuel` is the fuel used prior to takeoff and includes APU consumption, engine start and taxi fuel.

51.3.5. Extra Fuel

Fuel that is added at the discretion of the captain or the dispatcher.

51.3.6. Contingency Fuel

Contingency fuel is carried to account for additional en-route fuel consumption caused by wind, routing changes or traffic management restrictions.

The value is given in percent of trip fuel.

Tip

ICAO recommends to use 5 percent contingency fuel for all flights.

51.3.7. Climb

Values for climb are detected automatically when collecting performance.

- `Average climb speed`: Average true airspeed from takeoff to cruise altitude.
- `Average vertical climb speed`: Vertical speed in climb phase. Either ft per minute (`fpm`) or meter per second (`m/s`).
- `Average fuel flow in climb`: Fuel flow in climb phase. Either `gal`, `lbs`, `l` or `kg`.

Climb speed and vertical climb speed are used to calculate the top of climb which also varies with wind conditions.

51.3.8. Cruise

Values for the cruise phase are detected automatically when collecting performance.

- `Cruise speed at typical cruise altitude`: True airspeed at cruise.
- `Fuel flow in cruise`: Fuel flow in cruise phase.

51.3.9. Descent

Descent values are detected automatically when collecting performance.

- `Average descent speed`: True airspeed in descent phase.
- `Average vertical descent speed`: Average vertical speed.
- `Average fuel flow for descent`: Average fuel flow on descent.

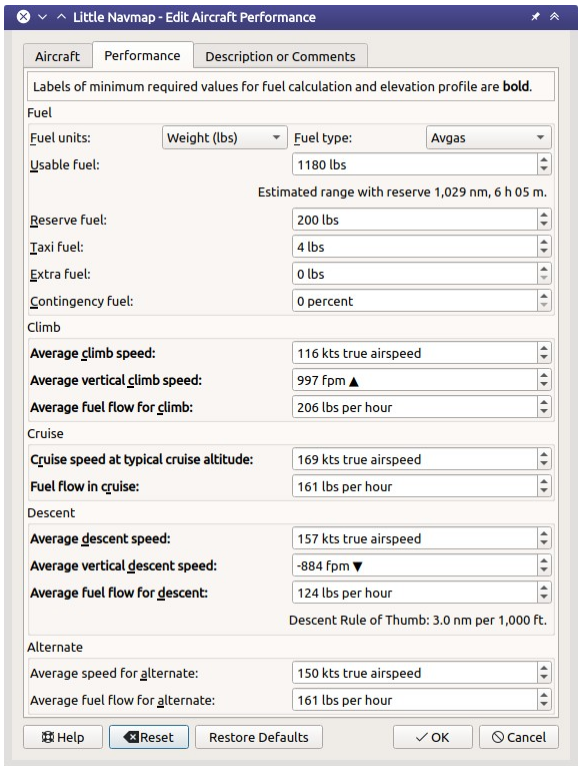
A label `Descent Rule of Thumb` shows the calculated rule of thumb for descent. The default is 3 NM per 1,000 ft.

Descent speed and vertical descent speed are used to calculate the top of descent which also varies with wind conditions.

51.3.10. Alternate

- `Average speed for alternate`: True airspeed when flying to alternate.
- `Average fuel flow for alternate`: Average fuel flow when flying to alternate.

Little Navmap uses the values from the cruise phase as a default. The flight to the alternate airport usually happens at a lower altitude than cruise altitude and therefore results in a higher fuel flow. Adjust the values accordingly here.



Aircraft performance edit dialog tab `Performance`. *Click image to enlarge.*

51.4. Tab Remarks

This tab contains a free plain text field for notes and links which is also shown in the Tab Fuel Report of the window `Flight Planning`.

See Remarks for more information about using web links in this field.

52. Aircraft Performance Collection

The performance data collection can be used to create a basic performance profile which can be fine tuned manually. *Little Navmap* permanently collects fuel flow and speed data and calculates average values for all flight phases.

Wind does not affect the calculation since all speeds are based on true airspeed and not ground speed.

The collection begins automatically once *Little Navmap* is started and connected to a simulator. You can reset the collection manually to get a clean base or use the function Reset all for a new Flight in menu `File`.

A report of current average fuel and speed numbers is shown on the tab `Current Performance` in the window. You can copy or merge intermediate results at any time into your currently loaded performance profile.

Little Navmap will show 3 NM per 1,000 ft climb and descent slopes when collecting data based on an default or new elevation profile. You have to estimate the needed top of descent yourself.

Important

Note that all values in this report are kept between restarts until they are reset using the Buttons in the dock window `Flight Planning`, the menu item Reset all for a new Flight in the main menu `File` or the menu item Restart Aircraft Performance Collection in the main menu `Aircraft`.

Note

The flight plan cruise altitude is used to detect the cruise phase of the aircraft. Set the cruise altitude in the flight plan tab at least to the intended cruise altitude if you do not plan use a flight plan.

Note

Note that the aircraft performance does not take aircraft load, cruise altitude and temperatures aloft into consideration. You can use the block fuel as a starting point for complex aircraft, enter this into the FMS or MCDU and refine it there. You can also build more than one performance file to depict different load situations or cruise altitudes.

52.1. Quick How To

Follow the steps below to collect performance for an aircraft.

1. Connect *Little Navmap* to the simulator.
2. Fuel up your aircraft at best guess for the trip.
3. Use a typical load for the aircraft.
4. Create and use a flight plan for the trip. Use a typical distance and cruise altitude for this aircraft. A short hop does not suffice.
5. Place your aircraft on the parking spot at departure with engines shut down or running.
6. Start and fly as precise as possible regarding speeds and performance settings of the aircraft.
7. The collection is completed once the field `Current flight segment:` in the report shows `Finished.`.
8. Select `Aircraft` -> Merge collected Aircraft Performance in the main menu and copy all values in the dialog. See Aircraft Performance Merge for more information on merging.
9. Edit the aircraft performance data (Aircraft Performance Edit) and adjust the numbers to your liking or flying habits.

Warning

Do not forget to add at least sufficient reserve fuel. Otherwise you will run out of fuel at destination if you rely on this plan.

Five percent contingency fuel are recommended.

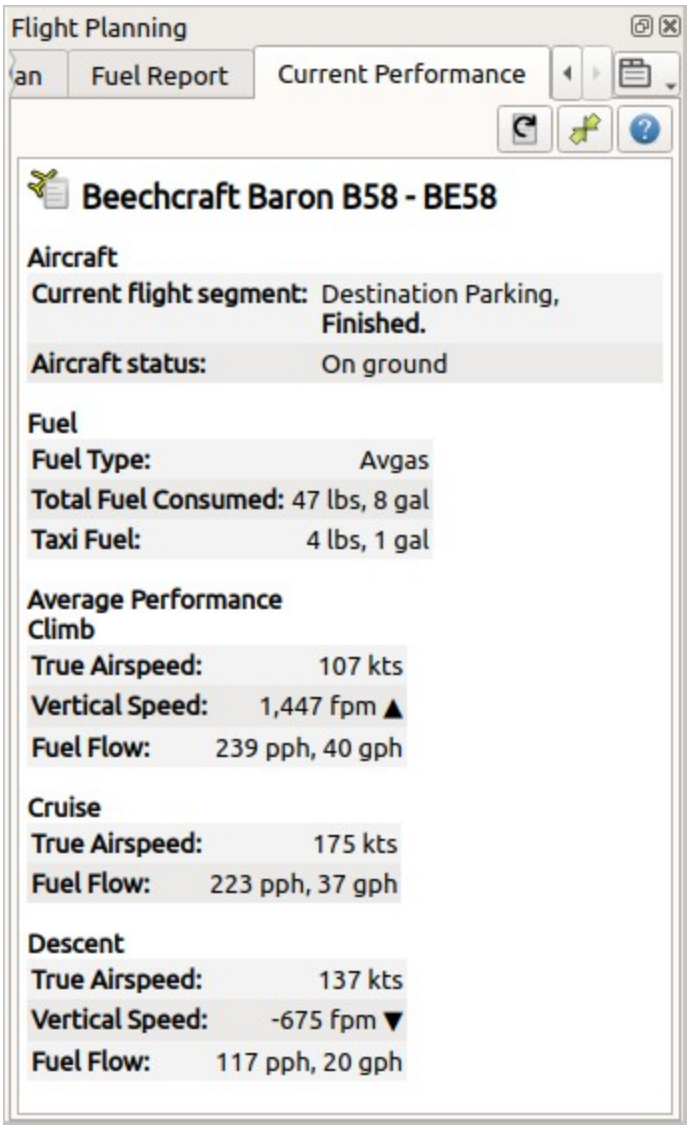
Other recommended fields to edit are `Usable Fuel`, `Required Runway` and `Required Runway Type`.

You can move your airplane at cruise altitude, use warp tools to get quickly near top of descent or adjust fuel and time manually. This will not affect performance calculation since *Little Navmap* reads the actual fuel flow from the simulator instead of using consumed fuel and time.

In any case stay a few minutes at cruise altitude so that *Little Navmap* can get numbers for this phase of flight.

Tip

You can create different performance profiles for different cruise altitude ranges to cover fuel flow variations.



Report shown when collecting aircraft performance. All phases are already finished.

52.2. Tab Current Performance

52.2.1. Buttons

- `Restart Aircraft Performance Collection`: Resets all collected fuel and speed parameters back to zero. Nevertheless performance collection will continue immediately even while in cruise, for example.

- `Merge collected Aircraft Performance`: Opens a dialog allowing to merge the collected performance parameters into the currently loaded performance file. This can be used in all flight phases. See Aircraft Performance Merge for more information on merging.

- Help: Click to open this chapter of the manual in the default browser.

52.2.2. Report

The text size of the report can be changed in the options dialog on page `User Interface`.

52.2.2.1. Aircraft Section

- `Current flight segment`: Shows which flight phases (`Climb`, `Cruise` and more) are detected.
- `Aircraft status`: More information about aircraft status like fuel flow or on ground status.

52.2.2.2. Fuel Section

- `Fuel Type`: Fuel type as reported by simulator. This is calculated based on the volume/weight ratio. Correct this manually if add-on aircraft do not provide a correct fuel type.
- `Total Fuel Consumed`: Fuel consumed so far since the restart of *Little Navmap* or the last reset of the collection function.
- `Taxi Fuel`: Fuel used from first detected fuel flow to lift off.

52.2.2.3. Average Performance Section - Climb, Cruise and Descent

Average values for the different flight phases. Sections for not yet started phases are omitted. Passed sections like e.g. climb will show zero values if you restart the collection mid flight in e.g. cruise.

- `True Airspeed`: True airspeed average.
- `Vertical Speed`: Average climb or descent speed. Not shown for cruise phase.
- `Fuel Flow`: Fuel flow average.

53. Aircraft Performance Merge

The currently loaded performance profile can be merged with the collected performance or another performance file using this dialog.

The dialog is opened when clicking on the merge button in the tab `Current Performance`, when selecting `Aircraft` -> Merge collected Aircraft Performance or Open Aircraft Performance and Merge in the main menu.

A warning message is shown if the fuel type does not match.

53.1. Operations

The left side of the dialog shows either collected performance values from a flight or the values of a profile loaded using the Open Aircraft Performance and Merge function.

The right side always shows the values of the current performance profile.

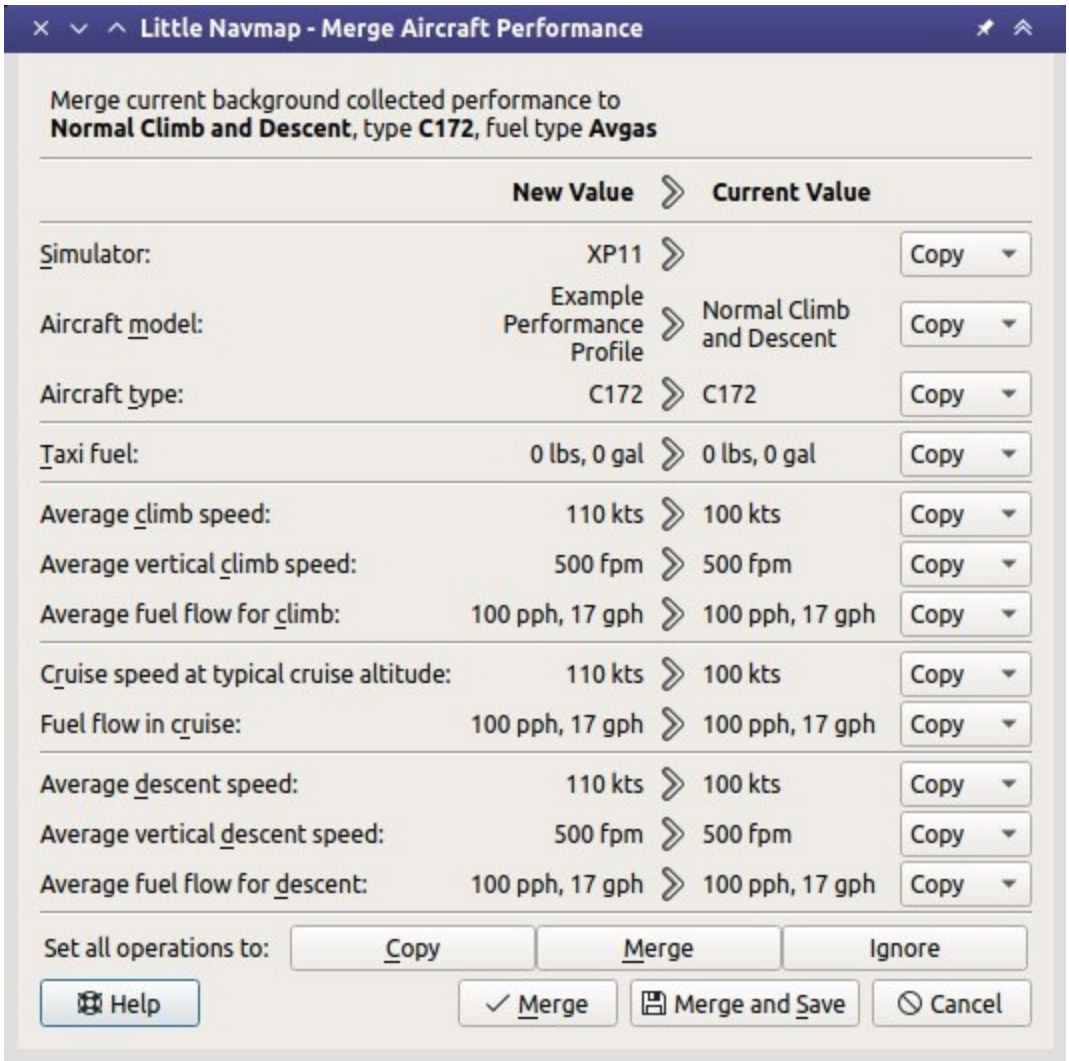
Some values are only shown when merging from a file. Values not provided by the performance collection like alternate fuel are hidden when merging collected data.

An operation can be selected for each value pair:

- `Copy`: Simply copies the value from the left side to the currently loaded performance profile on the right.
- `Ignore`: Does not change the right value.
- `Merge`: Calculates the average of the left and right values and assigns the result to the right. Not applicable for aircraft type and model.

53.2. Buttons

- `Set all operations to:`: `Copy`, `Ignore` and `Merge`: Changes the operations for all values.
- `Merge`: Applies the selected operations to the current profile.
- `Merge and Save`: As above but additionally saves the file.
- `Cancel`: Disregards all changes and closes the dialog.
- `Help`: Opens the online help in the default web browser.



Merge Aircraft Performance dialog for collected performance values.

54. Load Scenery Library

54.1. Quick Start

You can load the scenery library database by going to the menu item Load Scenery Library in the menu `Scenery Library`.

Note that the loading runs in background which means you can put the loading progress window aside and continue to plan a flight while loading.

From this dialog window you can select all detected Flight Simulators and load their scenery libraries into the database of *Little Navmap*.

An `Empty Database` indication is shown in the statusbar and a `(empty)` suffix is added in the related menu item if you skip this step and *Little Navmap* automatically selects Use Navigraph for all Features in the scenery library menu.

One database is kept for each simulator and can be changed on the fly in Scenery Library Menu. One disabled menu item is kept as an indicator in the `Scenery Library` menu if only one simulator is available.

Scenery library databases may need to be updated when you install a new version of *Little Navmap*. A question dialog will pop up prompting you to erase the now incompatible database. You can reload the scenery in Load Scenery Library after erasing the databases.

Little Navmap uses two database sources and data is merged if needed. See Navigation Databases for more information.

See Loading Airspaces for information about loading airspaces into the *Little Navmap* database.

Important

Selecting the right scenery library for the simulator while flying is crucial since the selection also affects other functions of *Little Navmap*. The selected scenery library defines which weather files are read, for example.

Some functions like access to weather source files depend on the selected scenery library database. X-Plane 11 weather files are read if the X-Plane 11 scenery library is selected, for example.

See Scenery Library Menu for information on the scenery library menu and the following chapters for more details.

Note

Little Navmap does not keep you from using a X-Plane scenery database while being connected to FSX/Prepar3D/MSFS or vice versa, for example. You will get unwanted effects like wrong weather information if using such a setup.

An orange warning message is shown in the connect dialog (Connecting to a Flight Simulator) if a mismatch is detected.

Note

Parking positions in flight plans might change when switching between scenery library databases. This can happen if airports have parking positions with different names or missing parking positions.

54.2. Navdata Updates

Little Navmap comes with a ready to use navigation database courtesy of Navigraph [https://www.navigraph.com] which includes airspaces, SIDs, STARs and more. The database can be updated to the latest AIRAC cycle by using Navigraph's *FMS Data Manager*.

See the chapter Navigation Databases for more information.

Warning

In any case close *Little Navmap* when updating, copying or replacing scenery databases. *Little Navmap* might crash or show wrong data otherwise.

54.2.1. FSX, Prepar3D and Microsoft Flight Simulator 2020

Little Navmap is compatible with navdata updates from the FSX/P3D Navaids update [http://www.aero.sors.fr/navaids3.html] and the Navigraph update for Microsoft Flight Simulator 2020.

See Microsoft Flight Simulator 2020 Airports and Navdata for more information on MSFS and navdata updates.

54.2.2. X-Plane

Little Navmap will use navdata updates that are installed in the directory `Custom Data`.

User defined data from the files `user_fix.dat` and `user_nav.dat` is read and merged into the simulator database if found. Note that you have to disable the Navigraph database to see the user navaids from the X-Plane files.

Note that neither ARINC nor the FAACIFP files are supported. Updates installed in the GPS directories are not used.

54.3. Dialog Load Scenery Library

The dialog window `Load Scenery Library` has the following controls:

- `Simulator`: Select the simulator to load, show database statistics in the label above.
- `Reset Paths`: Reset all paths back to default values.
- `Flight Simulator Base Path` and `Select ...`: The path to the base directory of the selected flight simulator. This usually the directory containing the `FSX.exe`, `Prepar3D.exe` or `x-plane.exe`. For MSFS this is the directory `Packages` containing `Community`.
- `Scenery Configuration File` and `Select ...` (only FSX and P3D): The file `scenery.cfg` of the simulator. You can also create copies of the original file, modify them by removing or adding sceneries and select them here for loading.
- `Read inactive Scenery Entries`: This will read all scenery entries, also the inactive/disabled ones. This applies to the FSX/P3D `scenery.cfg` as well as X-Plane's `scenery_packs.ini` which both allow to disable scenery entries.
- `Read Prepar3D add-on.xml packages` (only P3D v3, v4 and v5): If enabled, reads P3D `add-on.xml` packages.
- `Load`: Starts the database loading process. You can stop the loading process at any time and the previous database is restored. The dialog is closed and the program will switch to show the loaded database once it is successfully loaded. Note that the loading runs in background which means you can continue to plan a flight while loading.
- `Close`: Keep all settings and changes in the dialog and close it without loading anything.

This dialog will also show a hint if directories are excluded or included in loading. This helps to avoid issues by unintended directory exclusions.

FSX and Prepar3D: The base path and the `scenery.cfg` path will be shown in two text edit fields for the currently selected simulator. These fields are populated automatically, but can be changed to any other valid location.

Microsoft Flight Simulator 2020: The base path of the MSFS installation and its directories `Community` and `Official` is detected automatically. You can change the path manually if needed.

X-Plane: The base path of the first X-Plane installation is added. Select the base path manually if you like to read the scenery library of another X-Plane installation.

Important

Always reset the paths if your simulator installation location has changed.

Loading a scenery library can take from 2 to 10 minutes depending on your setup and amount of scenery add-ons. You can speed this up by excluding directories containing neither airport nor navigation data in the options dialog on the page Scenery Library Database.

You can put the progress dialog window into the background and continue flight planning while loading.

If you cancel the loading process or if the loading process fails, the previous scenery library database is restored immediately.

The menu `Scenery Library` -> Flight Simulators is synchronized with the simulator selection in the dialog. Once a database is successfully loaded, the display, flight plan and search switch instantaneously to the newly loaded simulator data.

Note

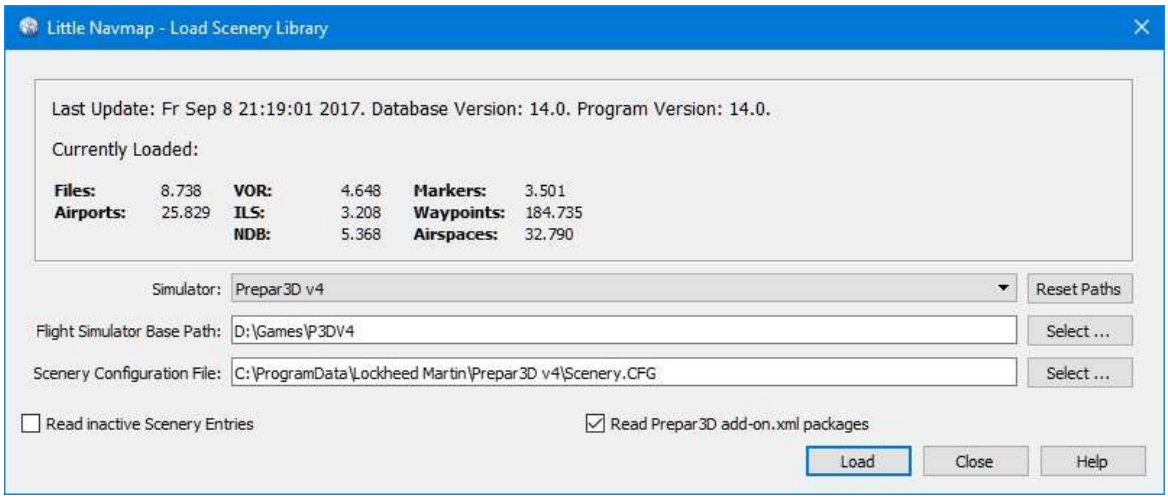
The final number of airports, navaids and other objects shown in the `Load Scenery Library` dialog are lower than the counts shown in the progress dialog. After the data has been loaded, a separate process removes duplicates and deletes stock airports that were replaced by add-ons.

An error dialog is shown after loading, if any files could not be read or directories were not found. In this case you should check if the airports of the affected sceneries display correctly and show the correct information. The error dialog allows copy and paste of formatted text which is useful for error reporting.

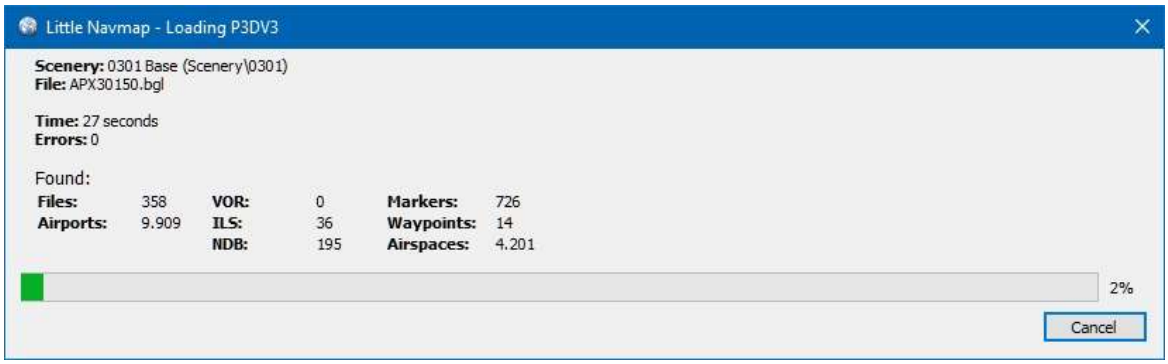
The `Load Scenery Library` dialog shows the last time of loading (`Last Update:`), the program and the database version. Major database version differences indicate incompatible databases. The program will ask if the incompatible databases can be erased on startup before the scenery database can be reloaded. Minor database differences indicate compatible changes where a reload is recommended but not required.

Warning

Close *Little Navmap* when updating, copying or replacing its databases manually or using other programs to replace the databases. *Little Navmap* might crash or show wrong data otherwise.



Load Scenery Dialog. Scenery data is already loaded for FSX.



Progress dialog shown while loading the scenery library into *Little Navmap*'s internal database.

54.4. Linking Scenery

Little Navmap follows all linked scenery which is linked by:

- Symbolic links (all operating systems)
- Windows shortcuts
- Windows junctions
- macOS aliases

Note that this functionality is limited to the MSFS `Community` and X-Plane `Custom Scenery` directories.

Any directories added in the options dialog on the page Scenery Library Database also support linking

54.5. Add-On Airports

For **FSX and Prepar3D**, all airports that are not located in the default `Scenery` directory of FSX/P3D are considered to be add-on airports.

For **X-Plane**, all airports located in the `Custom Scenery` directory of X-Plane are considered to be add-on airports. An exception is `...\X-Plane 11\Custom Scenery\Global Airports\Earth nav data\apt.dat`

Microsoft Flight Simulator 2020: All airports located in the `Community` directory and the `Official\OneStore` or `Official\Steam` are considered to be add-on airports. Exceptions are `fs-base`, `fs-base-genericairports` and `fs-base-nav`.

Add-on airports are highlighted on the map with a yellow ring which can be disabled in the options dialog on page Map Display.

Using emphasized (bold and underlined) text highlights add-on airports in the search result table, flight plan table, information windows and map tooltips.

If an add-on only corrects airport elevations or navigation data, it might be undesirable to display the updated airports as add-on airports on the map. You can exclude directories populated by this add-on from the add-on recognition in the options dialog on the page Scenery Library Database.

54.6. Microsoft Flight Simulator 2020 Airports and Navdata

The recommended scenery library settings are Select automatically in the menu `Scenery Library` -> `Navigraph`. This ensures you use the right navigation database and keeps you simulator data in sync with *Little Navmap*.

The mode `Select automatically` follows the recommendations below:

- **If you use the Navigraph update for MSFS:** Update the *Little Navmap* database with the FMS Data Manager as well to keep the program in sync with the MSFS scenery library.

  The scenery mode Use Navigraph for Navaids and Procedures in the menu `Scenery Library` -> `Navigraph` is enabled to get access to all procedures in *Little Navmap*.

  Also check the selection in menu `Scenery Library` -> `Airspace Libraries`. Select `Navigraph` and deselect `Simulator` there.

- **If you do not use the Navigraph update for MSFS:** The scenery mode Do not use Navigraph Database is enabled to keep the navigation database in sync and to avoid issues with missing or changed navaids.

  The selection in menu `Scenery Library` -> `Airspace Libraries` should have `Simulator` checked. Deselect `Navigraph` there.

Enable the recommended modes manually if you do not use `Select automatically`.

See Navigation Databases and FSX, Prepar3D and MSFS Airspaces for more background information on these settings.

See appendix Known Problems and Frequently asked Questions for information about MSFS limitations and issues.

Use the menu item *Scenery Library* -> Validate Scenery Library Settings to check your settings.

54.7. X-Plane Airports and Navdata

Little Navmap reads airport and navaid data from X-Plane's `*.dat` files. To check a version of a file you can open it in a text editor that is capable of dealing with large files. The first lines of the file will look like:

```
A
1100 Generated by WorldEditor 1.6.0r1

1   1549 0 0 0A4 Johnson City STOLport
...
```

Little Navmap can read the following X-Plane scenery files:

- **Airports (** `apt.dat` **):** From version 850. This covers X-Plane 10 airports and older add-on scenery.
- **Navdata (** `earth_awy.dat` **,** `earth_fix.dat` **and** `earth_nav.dat` **):** From version 1100. This excludes X-Plane 10 navdata files.
- **Procedures (** `ICAO.dat` **in the** `CIFP` **directory):** All procedures from X-Plane 11 and 12.
- **Airspaces (** `*.txt` **):** The included `usa.txt` and all files in OpenAir format. See next chapter for more information.

Additionally the files `user_fix.dat` and `user_nav.dat` in the X-Plane directory `Custom Data` are read.

54.8. Magnetic Declination

Little Navmap reads the magnetic declination [https://en.wikipedia.org/wiki/Magnetic_declination] from different sources or calculates it using the world magnetic model (WMM [https://en.wikipedia.org/wiki/World_Magnetic_Model]) depending on simulator and navaid.

The data is updated when loading the scenery library and is also stored in the scenery library database for each simulator.

See also Magnetic Declination for more information.

54.8.1. FSX, Prepar3D and Microsoft Flight Simulator 2020

The magnetic declination used to calculate the magnetic course is taken from the `magdec.bgl` file in the scenery database of FSX, Prepar3D or MSFS.

Little Navmap falls back to the world magnetic model if the file `magdec.bgl` is not available for some reason.

Updates for this file in FSX and P3D are available here: FSX/P3D Navaids update [http://www.aero.sors.fr/navaids3.html].

54.8.2. X-Plane

The magnetic declination values for X-Plane (airports and all navaids except VORs) are calculated using the world magnetic model based on the real current year and month. This is calculated while loading the scenery library and saved in X-Plane scenery library database.

VOR stations come with their own calibrated declination values which might differ from the calculated declination values in their environment as mentioned above.

55. Loading Airspaces

Airspaces are loaded from the Navigraph database, simulator database, an user defined directory or online flying services. You can select airspaces to show in the main menu `Scenery Library` -> Airspace Libraries.

55.1. FSX, Prepar3D and MSFS Airspaces

Little Navmap reads all airspaces from the scenery library of FSX, P3D and MSFS. These airspaces are added in the airspace source `Simulator`.

55.2. Airspace Formats

Little Navmap can read three airspace formats from an user defined directory.

See Airspace Libraries for more information on airspace sources.

55.2.1. OpenAir

Little Navmap can read OpenAir airspaces (OpenAir airspace format [http://www.winpilot.com/UsersGuide/UserAirspace.asp]) from X-Plane or an user defined directory.

Note that the publicly available airspace files can contain errors which may prevent the loading of an airspace file. These hard errors are reported after loading the scenery library. Other errors only affecting single airspaces or the geometry are reported in the log file only.

Additional airspace files can be downloaded from the OpenAirspace Directory [http://www.winpilot.com/openair/index.asp], Soaring Services [http://soaringweb.org/], openAIP [https://www.openaip.net/] or Luftraumdaten Deutschland [https://www.daec.de/fachbereiche/luftraum-flugbetrieb/luftraumdaten], for example.

Airspace files must have a `.txt` extension and are loaded from the following directories by *Little Navmap*:

The files can be encoded in any UTF [https://en.wikipedia.org/wiki/Unicode#UTF] format but must have a BOM [https://en.wikipedia.org/wiki/Byte_order_mark] to be recognized properly. Otherwise Windows ANSI coding (`Windows-1252`) is used. Special characters like umlauts or accents are not displayed correctly in names if the encoding is not correct. All other functionality is unaffected.

You can convert the files using any advanced editor like Notepad++ [https://notepad-plus-plus.org/] for example.

Airspaces will appear as duplicates in the map if an airspace file is found in more than one of these directories or sources.

Airspace types recognized in OpenAir format:

- `R`: restricted
- `Q`: danger
- `P`: prohibited
- `A`: Class A
- `B`: Class B
- `C`: Class C
- `D`: Class D
- `E`: Class E
- `F`: Class F

- `G`: Class G
- `GP`: Glider prohibited
- `CTR`: CTR
- `W`: Wave Window
- `RMZ` Radio Mandatory Zone / Class G
- `TMZ`: Transponder Mandatory Zone / Mode C

Internal airspace types:

Little Navmap passes an airspace type through to its scenery library database if it is not one of the recognized types above. This means you can additionally use these types which are only recognized by *Little Navmap*:

- `C`: Center
- `CA`: Class A
- `CB`: Class B
- `CC`: Class C
- `CD`: Class D
- `CE`: Class E
- `CF`: Class F
- `CG`: Class G
- `FIR`: FIR
- `UIR`: UIR
- `T`: Tower
- `CL`: Clearance
- `G`: Ground
- `D`: Departure
- `A`: Approach
- `M`: MOA
- `R`: Restricted
- `P`: Prohibited
- `CN`: Caution
- `W`: Warning
- `AL`: Alert
- `DA`: Danger
- `NP`: National park
- `MD`: MODEC
- `RD`: Radar
- `GCA`: Control area

- `MCTR`: MCTR
- `TRSA`: TRSA
- `TR`: Training
- `GP`: Glider prohibited
- `WW`: Wavewindow

55.2.2. GEOJSON

Further formats for online airspaces are GEOJSON which can be downloaded for VATSIM boundaries at the VATSpy Data Project [https://github.com/vatsimnetwork/vatspy-data-project].

The extension is `.geojson`.

55.2.3. IVAO JSON

IVAO boundaries in JSON format can be downloaded at Little Navmap Downloads - Airspace Boundaries [https://www.littlenavmap.org/downloads/Airspace%20Boundaries/].

The extension is `.json`.

Note that these files do not match all airspace types. You will still see circular airspaces for towers, for example.

55.2.4. VATSIM JSON

You can load the files firboundaries.json [https://map.vatsim.net/livedata/firboundaries.json] and traconboundaries.json [https://map.vatsim.net/livedata/traconboundaries.json] into the user airspace library of *Little Navmap* to get more real boundaries for VATSIM online centers instead of the generic circles.

55.3. X-Plane Airspaces

X-Plane 11 and 12 come with a single airspace file that can be found in `YOUR_XPLANE_DIRECTORY/Resources/default data/airspaces/`.

Little Navmap reads X-Plane airspaces from the following locations:

- `YOUR_XPLANE_DIRECTORY/Resources/default data/airspaces`
- `YOUR_XPLANE_DIRECTORY/Custom Data/Airspaces`

These airspaces are added to airspace source `Simulator`.

55.4. User Airspaces

These airspaces are added in the airspace source `User`. You can load them by selecting `Scenery Library` -> Load User Airspaces.

Airspaces read with this function will be added to the airspace source `User` and are stored in a database independent of flight simulator databases.

55.5. Online Airspaces

Online centers are displayed as circular airspaces in *Little Navmap* per default and provide the same functionality as the other airspaces (tooltips, information and more). They are loaded with the online data when connected and are only stored in a temporary database which is deleted on exit.

Little Navmap can use real center boundaries instead of the circular airspaces. First you have to enable one or both options in the options dialog on page Map Online under `Online Center Boundary Lookup in User Airspaces`. These are enabled per default.

There are two options:

1. Create an OpenAir airspace file which contains a single boundary for a center. Give the file the same name as the callsign for the center, i.e. name the file `EDDB_TWR.txt` for the center with the callsign `EDDB_TWR`.

2. Create an OpenAir airspace containing the boundaries for all the centers you need. Give the file any name but name the boundaries according to the callsign of the centers. You need a line in the file containing `AN EDDF_TWR` (`AN` = airspace name) to use the boundary for a center with the callsign `EDDB_TWR`.

Now place the file or files into you user airspace directory and reload the user airspaces. See above User Airspaces how to do this.

Once done the center should show the correct boundary.

56. Navigation Databases

Little Navmap can use up to two databases in parallel:

1. **Simulator database:** Created by reading the scenery library of FSX, Prepar3D, Microsoft Flight Simulator 2020 or X-Plane.
2. **Navigation database:** Provided by Navigraph. Does not have to be compiled and can be updated by the Navigraph FMS Data Manager to the latest AIRAC cycle.

Little Navmap is bundled with a navigation database courtesy of Navigraph [https://www.navigraph.com] which is enabled per default.

You can see the data source for each navaid or airport in the section `Data Source` in the information window (see Data Sources).

Tip

You can update the navigation database of *Little Navmap* with the Navigraph FMS Data Manager. See Install Navigraph Updates [https://albar965.github.io/littlenavmap_navigraph.html] on my home page for more information if the update fails.

Note

Note that runway numbers shown in the procedure search or context menus might differ compared to the airport runways. This happens when an add-on airport and the navigation data have different runway numbers which is a result of renumbered runways due to changes in magnetic declination (magnetic pole drift).

Little Navmap resolves these mismatches internally and still allows to work with procedures. You might expect issues when loading flight plans containing such discrepancies into add-on aircraft or simulators.

Important

It is recommended to keep all scenery libraries in sync. This means that your simulator, *Little Navmap*, aircraft, tools and websites should use the same AIRAC cycle. Having navdata synchronized helps to avoid issues when loading flight plans.

The problem when exchanging flight plans across applications is that waypoints, airways and procedures like SIDs, STARs, and approaches change over time.

A SID WENAS7 becomes WENAS8, waypoints/intersections are removed, the airway structure changes or runways are renamed, for example.

The AIRAC cycles that contain the Navdata are updated every 28 days. If some applications are updated and others are not, this may result in inconsistencies between *Little Navmap*, flight planning websites, or other programs.

Warning

Always close *Little Navmap* before updating its databases.

Three display modes can be selected from the menu `Scenery Library` as shown below.

56.1. Select Automatically

This is the default recommended mode which selects the navdata sources from the three modes below based on the used simulator and AIRAC cycles.

Important

Read below if you'd like select the navdata mode manually.

56.2. Use Navigraph for all Features

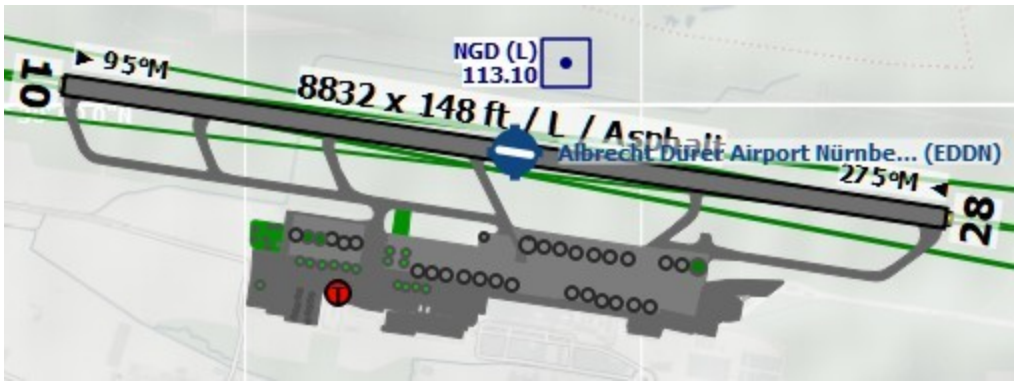
Uses only information from the Navigraph database. This mode is automatically selected if the simulator navigation database is empty.

Note

Note that airport information is limited in this mode. This means that aprons, taxiways, parking positions, runway surface information and fuel information are not available. Additionally, smaller airports might be missing.

Runway layout might not match the runway layout in the simulator if you use stock or older airport scenery.

An advantage of this mode is that approach procedures always match the airport runway layout precisely.



Airport diagram for `EDDN` from simulator scenery (X-Plane) as shown in the modes `Do not use Navigraph Database` or `Use Navigraph for Navaids and Procedures`.

Airport `EDDN` from the Navigraph database while `Use Navigraph for all Features` is enabled. Note missing runway surface information, aprons, taxiways and parking positions.

56.3. Use Navigraph for Navaids and Procedures

This is the default and strongly recommended mode for all simulators (see Microsoft Flight Simulator 2020 Airports and Navdata **for MSFS considerations).**

This mode blends navaids and other features from the Navigraph database with the simulator database. This affects the map display, all information windows and all search windows.

The following features are taken from the simulator database when using this mode:

- Airports (also `Search` dock window, tab `Airport`)
- Aprons
- Taxiways
- Parking positions

- Airport COM frequencies

The following features are taken from the Navigraph database:

- Navaids (waypoints/intersections, VOR, NDB, marker, ILS and more) which affects:
    - `Search` dock window, tab `Navaid`
    - Flight plan calculation
    - Route Description
    - MORA grid (Show Minimum off-route Altitude Grid)
    - Airport MSA sectors (Show MSA Sectors)
    - En-route holdings (Show Holdings)
    - GLS/RNV glidepaths (Show GLS/RNP Approach Paths)
    - Procedures (approaches, SIDs and STARs). This affects: `Search` dock window, tab `Procedures` and loading and display of procedures from flight plans.
- Airways

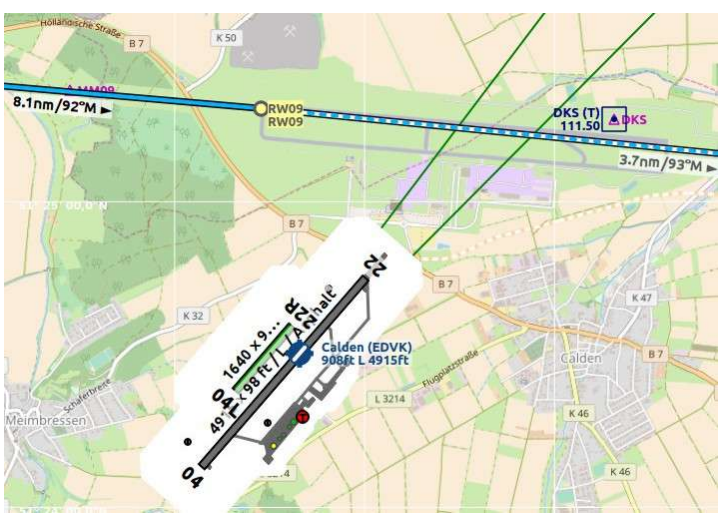
56.3.1. Limitations in this mode

- *Little Navmap* ignores any mismatches between procedures and runways due to airport updates and will not display a warning. Update an airport using payware or freeware scenery if you find that an approach or departure procedure does not start at a runway end of an airport.
- Procedures cannot be recognized when selecting `Show Procedures` in the menu if an airport has changed its ICAO ident (e.g. `Kulik Lake`: ident changed from `LKK` to `PAKL`). If you suspect such a case use the mode `Use Navigraph for all Features` to get the procedures for the airport.
- The airport search only considers procedures available in the simulator. Switch to `Use Navigraph for all Features` to look for airports that have procedures from the Navigraph database.

Tip

Use the Navigraph navdata update for Microsoft Flight Simulator 2020 to update the scenery library to the latest and also to keep *Little Navmap* and MSFS navdata synchronized. This will reduce issues when loading flight plans into the simulator. See also Microsoft Flight Simulator 2020 Airports and Navdata.

Using the *fsAerodata* navdata for FSX or P3D update will remove many of the limitations above since it will synchronize the simulator scenery with the Navigraph database.



An extreme example for runway/procedure mismatch. The approach from the Navigraph database cycle 1707 ends at the not visible runway 09 while the outdated scenery from FSX shows the airport at the wrong position. EDVK was rebuild north of Calden in 2013. The *OpenStreetMap* background shows the new airport. *Click image to enlarge.*

56.4. Do not use Navigraph Database

Ignores the Navigraph database and shows only information read from the simulator scenery.

Note

This mode will read all navdata from the simulator scenery files. Depending on simulator there are limitations.

This means missing one-way airways, no airway maximum altitude restrictions, some radio navaid types missing and more for FSX, P3D and MSFS simulators. You might also experience errors in the airway system and broken procedures.

MORA grid (Show Minimum off-route Altitude Grid), airport MSA sectors (Show MSA Sectors), en-route holdings (Show Holdings) and GLS/RNV glidepaths (Show GLS/RNP Approach Paths) are not available when using this mode with with FSX, P3D or MSFS.

See also Load Scenery Library.

57. Connecting to a Flight Simulator

The setup procedure is different for local connections and remote (networked) connections to a flight simulator (Remote Connection).

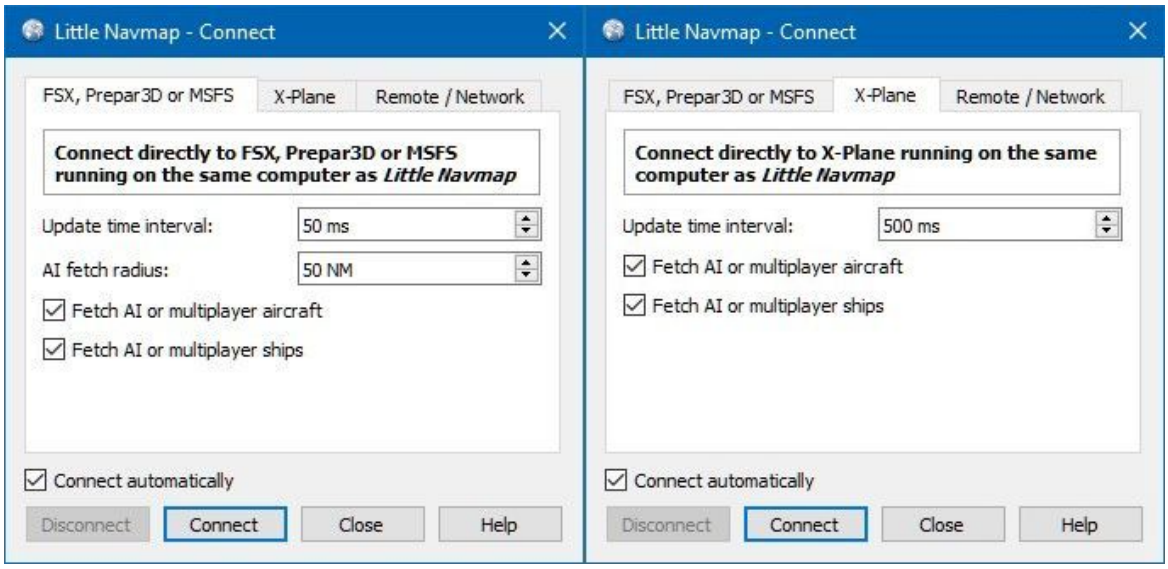
Little Navmap can connect directly to a flight simulator running on the same computer. The *Little Navconnect* agent is needed if *Little Navmap* is used on a remote computer.

The *Little Xpconnect* plugin has to be installed in X-Plane to allow both *Little Navmap* and *Little Navconnect* to connect to X-Plane.

57.1. Local Connection

57.1.1. All Simulators

Open the connection dialog in *Little Navmap* by selecting `Tools` -> Connect to Flight Simulator in the main menu and choose the simulator to which the connection should be established.



Little Navmap connect dialog set up for a local connection to FSX, P3D or MSFS on the left and X-Plane on the right. The connection will be established automatically.

Click on the tab corresponding to the simulator you want to connect to.

Now click the `Connect` button. The dialog will close and *Little Navmap* will try to establish a connection in the background to the simulator noted in the tab header.

Clicking `Close` keeps all changes and closes the dialog without establishing a connection.

Enable `Connect automatically` if you do not want to connect manually. The start order of programs does not matter if this is checked. *Little Navmap* will find the simulator once it is started or when it is already running. This is the recommended setting.

Deselect `Fetch AI or multiplayer aircraft` or `Fetch AI or multiplayer ships` to disable the transfer of this information to the program. This can be useful for performance reasons if you use large amounts of AI but do not want to see it in *Little Navmap*.

This option also affects the frigate and carrier in X-Plane.

57.1.2. FSX, P3D and MSFS

No plugin or separate SimConnect installaton is needed since *Little Navmap* comes with its own SimConnect library.

You will see an orange warning message if you use a X-Plane scenery library when trying to connect to FSX, P3D or MSFS.

Important

Note that there are two builds of Little Navmap and Little Navconnect for Windows available:

- **Windows 64-bit:** For MSFS and all X-Plane versions. Download file is `LittleNavmap-win64-3.0.4-Install.exe` for example.
- **Windows 32-bit:** For FSX and Prepar3D. Download file is `LittleNavmap-win32-3.0.4-Install.exe` for example.

Make sure you use the right build. The 64-bit version shows only `MSFS` in the connection tab while the 32-bit version shows `FSX and P3D`.

57.1.3. X-Plane

You have to install the included *Little Xpconnect* plugin to use *Little Navmap* as a moving map with X-Plane 11 and X-Plane 12.

The plugin is bundled with *Little Navmap*. Do not try to download it from other places. See Little Xpconnect for more information and installation instructions.

Select the X-Plane tab to connect.

You will see an orange warning message if you use a FSX, P3D or MSFS scenery library when connecting to X-Plane.

You will also see a warning message if you use an outdated version.

57.2. Remote Connection

User aircraft and weather information is transferred to *Little Navmap* on a remote computer by using the *Little Navconnect* agent on the flying computer.

Note

Airport weather information and winds aloft cannot be transferred across a remote connection from X-Plane. You can only see the current weather around the user aircraft in the `Simulator Aircraft` window on the Tab Progress.

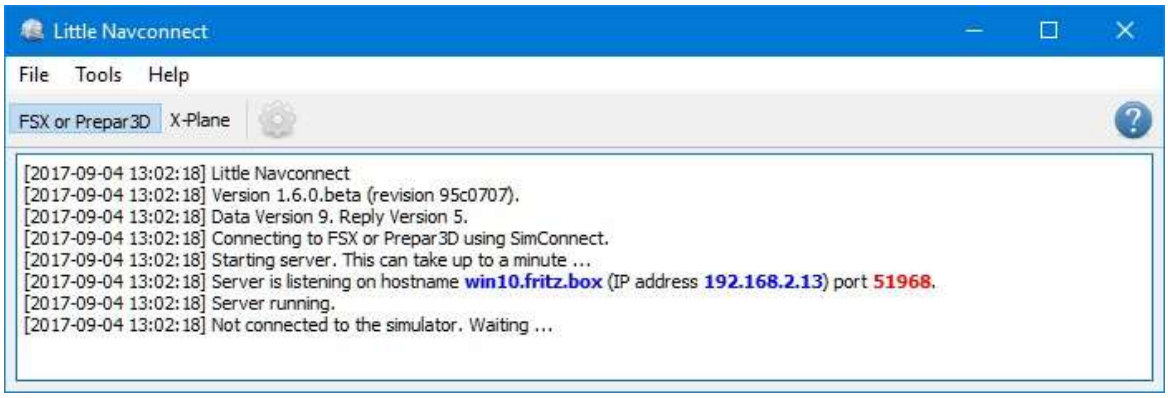
Share files and directories for X-Plane across computers and adjust loading path in options on page Weather Files for remote setups. *Little Navmap* watches the X-Plane 11 `METAR.rwx` and `global_winds.grib` files as well as the X-Plane 12 `Output/real weather` directory for changes and applies updates immediately.

See Network Setup on information how to set up a remote/networked connection.

57.2.1. Start *Little Navconnect* on the Flying Computer

Little Navconnect is bundled together with the *Little Navmap* download archive. Do not try to download it separately. Start *Little Navconnect* (`littlenavconnect.exe` in Windows) on the computer running the simulator and take note of the message that is printed in the logging window. You only need the colored values which tell you the name and address of the computer running the simulator. You can use the IP address or the host name.

Little Navconnect can print multiple IP addresses or host names depending on your network configuration. This can happen if you have Ethernet plugged in and are connected using wireless LAN too, for example. You have to try if you are unsure which one to use. Also make sure to set up the Windows firewall properly to allow communication between `littlenavmap.exe` and `littlenavconnect.exe` on both computers.



Little Navconnect is running and waiting for a Flight Simulator. It is running on the computer `win10.fritz.box` with the IP address `192.168.2.13`.

Change the port in *Little Navconnect*'s options dialog if you see an error message like shown below:

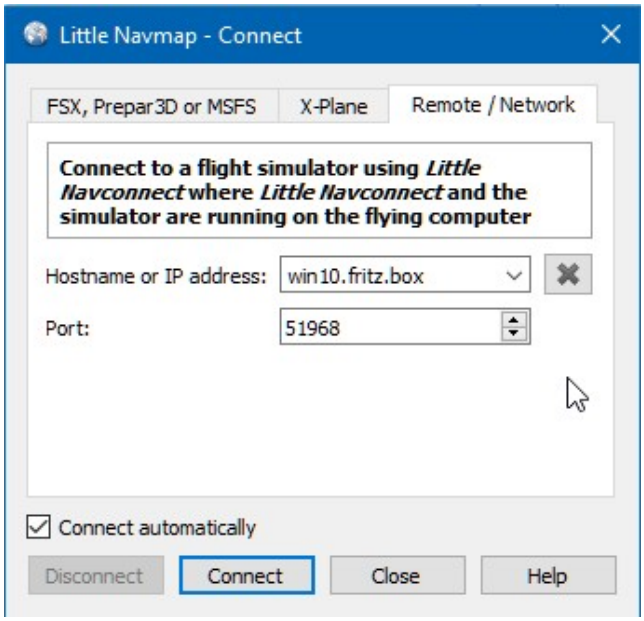
```
[2016-07-27 16:45:35] Unable to start the server: The bound address is already in use.
```

Note

A common reason for failing connections are firewall settings which block the connection attempts.

57.2.2. Start *Little Navmap* on the Client / Remote Computer

Open the connection dialog in *Little Navmap* by selecting `Tools` -> Connect to Flight Simulator in the main menu.



Connect dialog with correct values to access the computer running the simulator and *Little Navconnect* as shown above.

Now do the following after opening the dialog:

1. Click the `Remote / Network` tab.
2. Add the value for host name. This can be either the host name or the IP address printed by *Little Navconnect*.
3. Check the value for the port. `51968` is the default value and usually does not need to be changed.
4. Click connect. The dialog will close and *Little Navmap* will try to establish a connection in the background.

Establishing a connection can take some time, depending on your network. The aircraft will show up on the map and on the `Simulator Aircraft` dock window once a flight is set up and loaded on the simulator. If no flight is loaded yet (i.e. the simulator still shows the opening screen), you will see the message `Connected. Waiting for update.` in the `Simulator Aircraft` dock window.

Note that it can take a while until an error is shown if you used the wrong values for host name or port.

Selecting `Connect automatically` is recommended. The start order of all three programs (simulator, *Little Navconnect* and *Little Navmap*) does not matter if this is checked and the programs will find each other.

Deselect `Fetch AI or multiplayer aircraft` or `Fetch AI or multiplayer ships` in `Tools` -> `Options` of *Little Navconnect* to disable the transfer of this information across the network. This can be useful for performance reasons if you use large amounts of AI but do not want to see it in *Little Navmap*.

57.3. Connect Dialog

- `Disconnect`: Disconnect the current session and stop automatic reconnect.
- `Connect`: Try to connect. An error dialog will be shown if no connection can be established. *Little Navmap* will constantly try again if `Connect automatically` is enabled.
- `Close`: Close the dialog without any changes to the current connection status.
- `Connect automatically`: *Little Navmap* will try to connect constantly if this is enabled. This is the recommended setting.

    - All connection attempts will stop immediately if you deselect this button.
    - You have to click `Connect` once to start the automatic connection attempts after checking this button.
- `Update Time Interval`: Allowed range is 50 milliseconds up to 1 second. *Little Navmap* fetches data from a simulator using this time interval. Increase this value if you experience stutters or lag in the simulator. A lower value will result in more fluid map updates in *Little Navmap*.
- `Fetch AI or multiplayer aircraft` and `Fetch AI or multiplayer ships`: Disables fetching of AI vehicles. These settings are applied immediately.
- `AI Fetch Radius`: Limits the number of AI aircraft around the user aircraft. Only for FSX, P3D and MSFS.

58. Options

This options dialog contains the most important settings to change program behavior, map display and more.

Further customization for tables and information displays can be done in menu `Tools` using the items Elevation Profile Display Options, Aircraft Progress Display Options and Flight Plan Table Display Options.

The button `Restore Defaults` restores only the options of this dialog back to default. Other settings like map display, table views or dock window positions are not affected. You can press `Cancel` to close the dialog and undo this action.

To reset all saved settings completely see Reset all Settings and Restart.

The following chapters give a brief description of each page.

Using the help button in the options dialog window jumps directly to the related chapter for a page.

Tip

Most options are self-explaining and tooltips contain more information in most cases. Hover the mouse over a button or input field for a more detailed description.

Tip

You can immediately check the effect of your changes on the map display by moving the options dialog to the side and pressing `Apply`.

Note

If you use Apple macOS:

The menu entry which is referenced as `Tools` -> Options in this manual for Windows and Linux can be found in the application menu at `Little Navmap` -> `Preferences` on macOS.

58.1. Options Pages

This dialog consists of several pages with configuration options that can be selected in the list on the left side. Each entry in the page list has a tooltip for easier navigation.

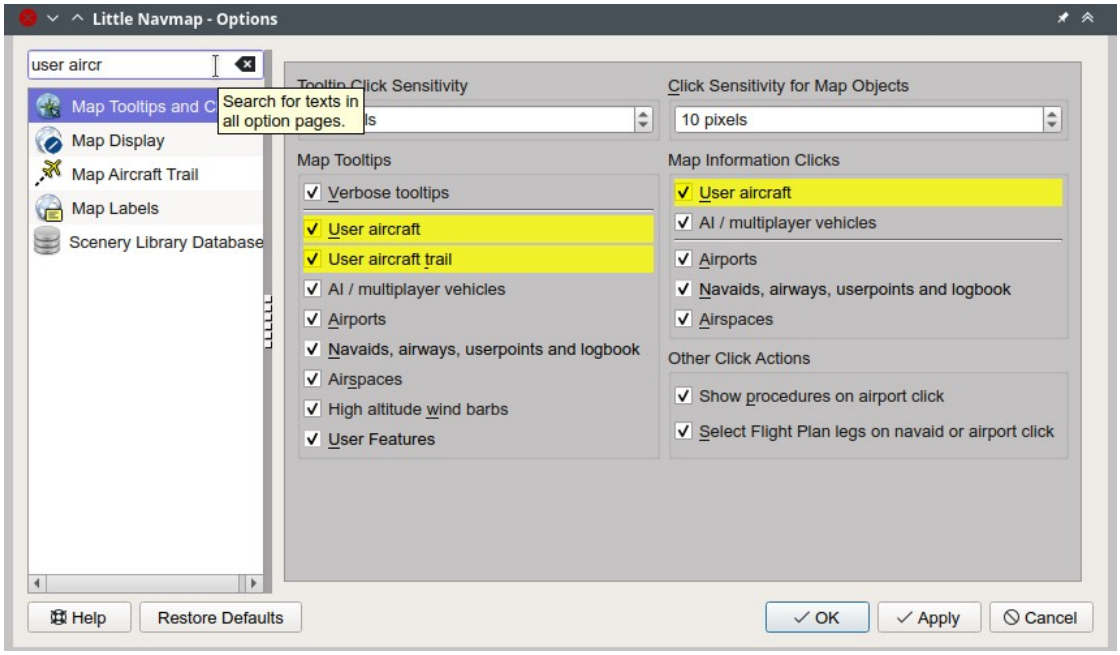
Note

Note that scroll bars can show up at the right or the bottom of an options page. Scroll down or resize the dialog window to see hidden options.

58.2. Options Search

You can search through all options pages using the input field on the top left. Searching reduces the visible pages to the ones containing the search text. Matching labels and buttons are highlighted on each page.

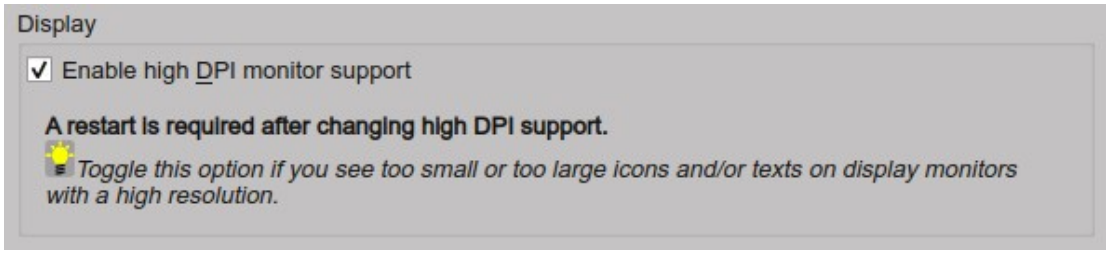
Up to three words can be searched for. Partial matches are highlighted.



Searching for term `user aircr` finding all fields containing `user aircraft`. *Click image to enlarge.*

58.3. Options Hints

Added hints prefixed with a light bulb in the options dialog pointing to other related settings. Some hints contain a link which directly opens the related page. Bold text is still an important note like `Restart required`.



An important message in **bold text** plus a hint.

58.4. Startup and Updates

Allows to customize what should be loaded and shown on startup of *Little Navmap*.

Disable options to have a clean user interface after startup or leave options checked to be able to continue where you left the program.

58.4.1. Load last used flight plan

This function allows to restore the last saved or edited flight plan on startup.

Selected

The last saved flight plan file or the last edited flight plan will be reloaded on startup.

You can exit *Little Navmap* without saving a new plan. All changes will be saved to a temporary file and are restored on next startup.

Little Navmap will not ask to save an already saved but changed plan on exit. The changes and the last saved file will be restored on next startup.

Not selected

The last saved flight plan will not be reloaded on startup.

Little Navmap will ask to save a plan on exit if it has been changed.

58.4.2. Update Check

You can also configure the frequency of the automatic update check and channels. See chapter Updates for more information.

Important

Always update *Little Navmap* to the latest version which usually contains many improvements and bug fixes. Older versions are not supported.

58.5. User Interface

This page contains options to force the program language and locale settings (number, date and time formats) to English if you do not want to use a translated user interface.

58.5.1. Language

Allows to choose the language freely among the supported translations. Note that some translations are incomplete which might result in a mix of English and translated phrases in the user interface.

You have to restart *Little Navmap* for this change to take effect.

58.5.2. Raise related windows on actions. Show flight plan after opening file, for example.

This will open related windows and raise tabs on actions like opening files, modifying the flight plan and other operations.

This can he helpful for new users.

58.5.3. Raise and activate docking windows when moving the mouse over it

Raises dock windows when hovering the mouse over it. This can be helpful if you have multiple floating dock windows opened.

See also Dock Windows.

58.5.4. Raise and activate the main program window when moving the mouse over it

Raises the main window of *Little Navmap* when hovering the mouse over it. This will steal the focus of other programs and activate *Little Navmap* which might cause unwanted effects. Therefore, try this out before using it.

See also Dock Windows.

58.6. Display and Text

Various user interface related settings.

58.6.1. User Interface Font

You can change the font for the whole user interface of *Little Navmap*.

The setting is applied immediately. Press `Cancel` or `Reset Font to Default` to revert back to previous.

The font for map display is not affected by this value and can be set separately on page Map Display.

Note

Little Navmap remembers the size of dialog windows. In some cases you have to resize dialog windows after changing to a larger font to see all content.

Warning

Keep in mind that using a wrong or too large font can result in display issues.

Tip

Try out the B612 Font family [https://b612-font.com/] which is an open source font family designed and tested to be used on aircraft cockpit screens.

58.6.2. Enable high DPI monitor support

Toggle this is you have problems with scaled fonts or symbols on Windows, cannot shrink the main window or other issues.

You have to restart *Little Navmap* after changing.

58.6.3. Use FreeType font engine on Windows

This option is only available on Windows.

Disable this if you think the overall appearance of text in *Little Navmap* on Windows is blurry. Enabling this option results in better and faster text display on the map, especially for rotated labels.

But as a result, the text will appear slightly blurred throughout the whole application. Deselect this to avoid the slightly blurred text in menus and application windows.

Note

A restart is required after changing the font engine.

58.6.4. Show tooltips in whole application

Disables tooltips for the whole application if deselected except for the map window which has separate settings on page Map Tooltips and Clicks.

58.6.5. Text Size

Change default text size for various information displays and tables.

Tip

You can temporarily resize the text in information windows by using `Ctrl+Wheel`. This change is temporary and not saved.

58.7. Units

You can change all units that are used by *Little Navmap* on this page between nautical, imperial and metric. Mixed settings like Meter for altitude and Nautical Miles for distance are possible.

- `Show other fuel units too`: Shows kilogram and liter as small text besides main units if lbs and gallon are selected and vice versa. This is applied only to the most important fuel values like block and trip fuel, for example.
- `Show true course and heading besides magnetic course in information displays`: Add true heading as small text besides magnetic heading displays. This applies to information, progress as well as map display (traffic patterns and holds).

Note

See Signed Decimal Formats for more information when using `Latitude and Longitude with sign` or `Longitude and Latitude with sign` since these modes also affect coordinate input.

The format `Degree, Decimal Minutes for Google` is useful for input into Google Maps or Google Earth.

Warning

Note that any numbers used in the program are not converted when changing units.

That means that you will get a minimum altitude buffer of 1,000 meter after changing the setting `Altitude and Elevation` from feet to meter. This also applies to flight plan altitude. Therefore, do not forget to adapt these numbers after changing units.

58.8. Files

Various settings for loading and saving files.

58.8.1. Center flight plan or aircraft trail on the map after loading

Zooms to the loaded plans or trails after loading from the menu `File` or after using drag and drop from a file manager like Windows Explorer.

58.8.2. Avoid overwriting Flight Plan with not matching departure and destination

Check this option to avoid overwriting LNMPLN files with wrong flight plans after changing, departure, destination or any other parameter used in the flight plan file.

The dialog Save Flight Plan as LNMPLN will show up instead of overwriting the current flight plan when you reverse the route, for example.

58.8.3. Pattern for default LNMPLN flight plan names

Allows to customize the default file name which is proposed on first save of LNMPLN files (Save Flight Plan and Save Flight Plan as LNMPLN).

See Flight Plan Multiexport for more information about how to customize the default file names for other flight plan formats which can be exported.

Error messages and an example is shown below the input field.

This pattern applies to new filenames when saving LNMPLN flight plans. The file suffix `.lnmpln` is added automatically.

The default value is `PLANTYPE DEPARTNAME (DEPARTIDENT) to DESTNAME (DESTIDENT).`

The input field falls back to the default if it is left empty or has errors.

The following variables are recognized:

- `PLANTYPE`: Text `IFR` or `VFR` depending on Flight Plan Type.
- `DEPARTIDENT`: Departure airport ident
- `DEPARTNAME`: Departure airport name
- `DESTIDENT`: Destination airport ident
- `DESTNAME`: Destination airport name
- `CRUISEALT`: Cruise altitude in selected unit (meter or feet).

All variables have to be entered in upper case letters. Other characters are used as entered.

58.8.3.1. Short

This button sets the flight plan file pattern to the short name `DEPARTIDENT DESTIDENT`.

Example: `EDDF LIRF.lnmpln`.

58.8.3.2. Long

This button sets the flight plan file pattern to the long name `PLANTYPE DEPARTNAME (DEPARTIDENT) to DESTNAME (DESTIDENT).`

Example: `IFR Frankfurt am Main (EDDF) to Fiumicino (LIRF).lnmpln`.

58.9. Map

Has map related customization options.

Hover the mouse above buttons and input fields to see more information.

58.9.1. Allow to undock the map window

Allows to undock and put the map window into a floating state which also results in more flexibility when positioning other dock windows.

This can cause several unwanted effects when arranging dock windows. Deselect this if you do experience problems when resizing dock windows.

You have to restart the program after changing this option.

See Window Layout for more information about window layouts which might be affected by this option.

Important

You need to reset the window layout in case the map window is missing after a restart. Use menu `Window` -> Reset Window Layout to Default in the main menu to clean up the layout.

58.10. Map Tooltips and Clicks

Allows to set the clicks/tooltips for various map features as well as the click/tooltip sensitivity. Hove the mouse over the buttons for more information.

58.11. Map Navigation

Contains all options for moving and zooming around in the map as well as zoom distances.

Three navigation modes are available. Tooltips give more information about these.

58.12. Map Display

This page contains options for symbol sizes, text sizes, flight plan and more for airports, navaids, airways, airspaces and aircraft.

Shown labels and airport diagram features can be changed on page Map Labels.

Use the scroll bar on the right to see more hidden options at the bottom of the window.

`Symbol` allows to adjust icon size of a feature type, `Text` can be used to adjust label size independent of the symbol, `Text Background` places the labels in a white rectangle if selected and `Line Width` adjusts flight plan and other line thickness.

Change colors by clicking on the colored buttons.

The option `Hide aircraft on ground` can be used to avoid hiding aircraft on ground at higher zoom levels. Disabling this can help to avoid hidden AI if traffic tools do not update the on-ground status of aircraft properly.

The option `Hide multiple code "Z" airspaces and FBZ areas` allows to hide redundant airspaces and flight buffer zones which are usually not used in flight planning. These are hidden by default

58.12.1. Map and Elevation Profile Font

You can change the font for the map display separately from the whole application (page Display and Text). The font will also be used in the elevation profile.

58.13. Map Flight Plan

Change display options affecting flight plan display on the map and in the elevation profile.

Input fields are the same types as on page Map Display above.

Shown labels can be changed on page Map Labels.

58.14. Map Aircraft Trail

This page contains an option to use colored or black and white gradients for aircraft trail indicating flown altitude. The gradient is also used in the elevation profile.

You can also enable a tooltip for the aircraft trail on page Map Tooltips and Clicks.

58.14.1. Maximum number of aircraft trail points

Limits the number or aircraft trail to avoid performance issues when showing a too large number of trail points.

See Aircraft Trail for more information.

58.15. Map User

More display options for user features like range rings, measurement lines, highlights, userpoints, compass rose and more.

Input fields are the same types as on page Map Display.

58.16. Map Labels

This page contains a tree view that allows to select the text labels that should be shown at airports, navaids, airspaces, airways, user aircraft, AI/multiplayer aircraft and other map features.

Besides text labels airport details like aprons or taxiways can be enabled or disabled in the branch `Airport Details`.

The dialog uses a tree. See Trees for more information about this type of input element.

Note that some labels have a … appended if label texts are suppressed due to higher zoom distances or lower detail levels.

58.17. Map Keys

On this page you can enter login information, tokens or API keys for map services which need an user account.

The required keys shown are extracted from the installed map themes. See Map Themes for more information about map themes.

The following map themes requiring an account come with *Little Navmap*:

- Mapbox [https://account.mapbox.com] also allows user customized maps in Mapbox Studio. See the Mapbox page for help. Click `Add Mapbox User Map` to add an user styled map to *Little Navmap*.
- Thunderforest [https://www.thunderforest.com/]
- Maptiler [https://www.maptiler.com/]
- Stadia StamenTerrain [https://stadiamaps.com/stamen/onboarding/create-account/]

A restart might be needed after changing keys.

Click one of the following links to go directly to the account pages of the respective map services. You need to sign in.

Note

All services are free to use at the time of writing these instructions. You do not have to enter you credit card, account or other payment information to use these. Simply ignore these sections when signing in or creating an account.

Note

Clear the map cache when changing configurable maps like `MapBox User` to see the changes. Map tiles are images which are stored in the local disk cache and are kept for two weeks in most maps.

You can open the cache using the menu item `Tools` -> `Files and Directories` -> Show Map Cache. See also Disk Cache for details.

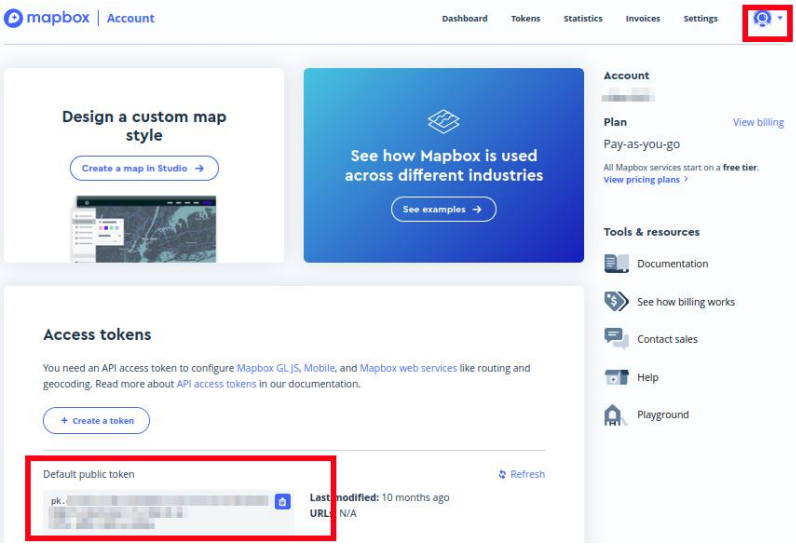
Warning

Do not show these keys publicly in forums on screenshots.

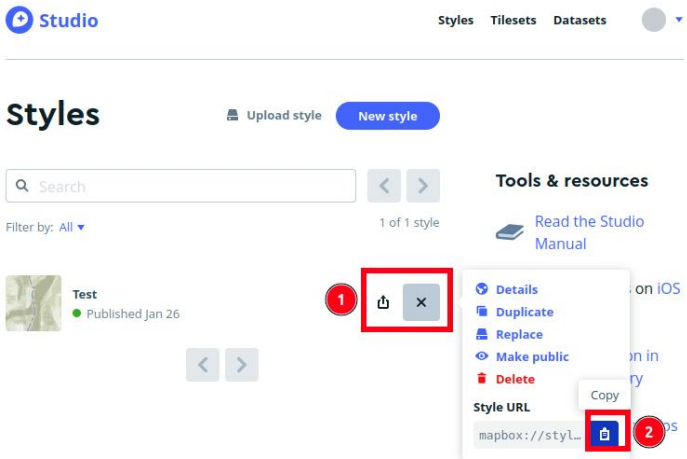
58.17.1. Map Web Service Configuration

Click the images to enlarge.

58.17.1.1. Mapbox

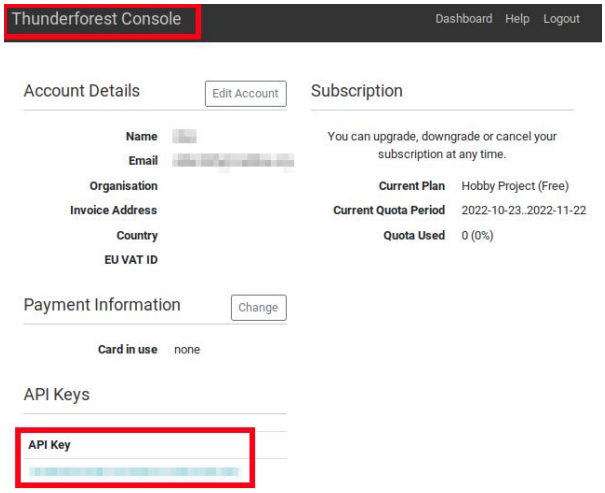


Location of the Mapbox access token on the Mapbox Account page [https://account.mapbox.com/]. Use this as `Value` for `Mapbox Token`. *Click image to enlarge.*



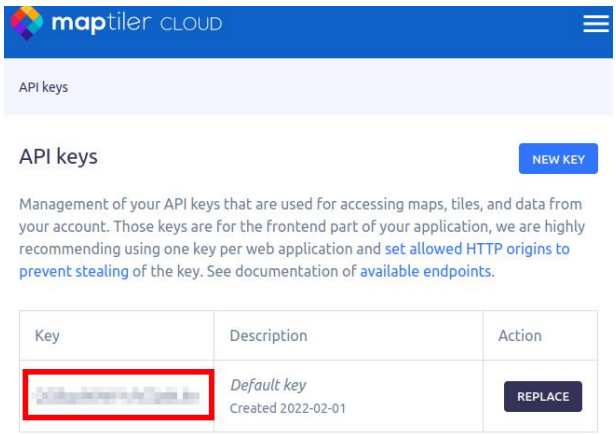
Location of the Mapbox Studio URL on the Mapbox Studio page [https://studio.mapbox.com/] Insert this URL into the `Add Mapbox User Map` dialog window to add an user styled map to *Little Navmap*. *Click image to enlarge.*

58.17.1.2. Thunderforest



Thunderforest Console [https://manage.thunderforest.com/dashboard] with API key. Use this as `Value` for `Thunderforest API Key`. *Click image to enlarge.*

58.17.1.3. Maptiler



Maptiler Cloud Account API key page [https://cloud.maptiler.com/account/keys/]. Use this as `Value` for `MapTiler API Key`. *Click image to enlarge.*

58.18. Map Online

This page allows to change the default center circle sizes for online centers.

Two options below `Online Center Boundary Lookup in User Airspaces` can be used to assign OpenAir airspaces from the user airspace database to centers by matching filename or airspace name with the callsign of the center.

- `By airspace name vs. callsign`: Use the airspace name within a file to assign the geometry to a center by callsign.
- `By airspace file name vs. callsign`: Use the airspace filename minus the `.txt` extension to assign the geometry to a center by callsign.

See chapter Loading Airspaces for more information.

58.19. Simulator Aircraft

Allows to change various aspects around the display of the user aircraft

58.19.1. Simulator Aircraft Updates

Settings resulting in a more fluid aircraft display will use more CPU and can potentially induce stutters in the simulator.

58.19.2. Aircraft Centering Options

This chapter explains the various options to modify the map updates while flying. The idea is to reduce manual scrolling or zooming as much as possible while piloting the aircraft.

Read the chapters below if you find the behavior confusing (i.e. map jumping unexpectedly). Otherwise leave the default values.

See User Aircraft Centering for general information about aircraft centering while flying.

58.19.2.1. Center map on aircraft and next flight plan waypoint

The map is zoomed to show both the aircraft and the next active waypoint on the flight plan if this is enabled while flying. *Little Navmap* uses several criteria to minimize map updates in this mode.

The map will fall back to the default mode of simply centering the aircraft if one of the conditions below is true:

- No flight plan loaded.
- Aircraft is on ground (no active magenta leg).
- Aircraft distance to flight plan is more than 40 NM (active magenta leg disappears).

You can change the zoom freely if the fall back is active.

58.19.2.2. Do not use box mode for following the aircraft. Move the map constantly.

Map will follow the aircraft constantly when checked. This is also used for `Center map on aircraft and next flight plan waypoint`.

This option will cause *Little Navmap* to consume more CPU resources while flying.

58.19.2.3. Simulator aircraft scroll box size (percent of map window size)

Smaller values keep the aircraft centered and will move the map more often. Larger values will update the map only when aircraft reaches map boundary.

This setting is only applicable if Center map on aircraft and next flight plan waypoint above is disabled.

58.19.2.4. Allow scrolling and zooming in the map and jump back to aircraft after

This setting allows an user to move around in the map without the need to manually disable the aircraft centering.

Time until aircraft following is activated again after any manual map interaction like scrolling or zooming.

You cannot move the user aircraft out of view if this option is disabled. The map will jump back immediately.

This option is also used in the Elevation Profile.

Allow scrolling enabled:

> The map will stop following the aircraft for the given time if the user does any interaction with the map like scrolling or zooming. You can quickly check out the destination or your overall progress, and after you stop moving around, *Little Navmap* will return to following your aircraft.
>
> This option is also used in Elevation Profile.
>
> Toggle `Center Aircraft` on and off if you find that the map jumps back to the wrong position.

Allow scrolling disabled:

> Map will constantly follow the aircraft and will not allow moving away from it.
>
> The aircraft centering will be switched off only when using one of the following functions:
>
> - Double-click into a table view or map display to zoom to an airport or a navaid.
> - Context menu item `Show on map`.

- `Go to Home` or `Go to Center for Distance Search`.
- `Map` link in `Information` dock window.
- `Show Flight Plan`, when selected manually, or automatically after loading a flight plan.
- Centering a Google Earth KML/KMZ file after loading

This allows a quick inspection of an airport or navaid during flight. To display the aircraft again use `Map Position Back` (Map Position Back/Forward) or enable Map follows User Aircraft again.

58.19.2.5. Zoom out on takeoff

Zooms out to a fixed zoom distance when a takeoff is detected.

This setting is only applicable if Center map on aircraft and next flight plan waypoint above is disabled.

58.19.2.6. Zoom in on touchdown

Zooms in to a fixed zoom distance to show airport details when a takeoff is detected.

58.19.2.7. Scroll flight plan table back to active leg after

The active (magenta) leg will be moved to the top of the flight plan table when a new leg is activated or there is no interaction with the table for the given time period.

58.19.2.8. Clear selection in flight plan table after

The selection in the flight plan table and highlights on the map will be cleared after there is no interaction with the table for the given time period.

58.19.2.9. Highlight active flight plan legs

Shows active flight plan legs in magenta color (default) on the map and in the flight plan table.

58.20. Flight Plan

Here you can set preferences for flight plan cruise altitude assignment.

58.21. Weather

Choose which weather services should be used to fetch and show METAR for airports in information window and map tooltips.

The weather type `Flight Simulator` will either display weather from the FSX or P3D connection or from X-Plane's weather files.

The weather for a service is downloaded or read on demand when you enable the corresponding service for tooltips or information panels.

Online weather is downloaded and updated every ten minutes.

Note

Simulator weather is not supported for Microsoft Flight Simulator 2020 since this simulator lacks the needed programming interfaces.

58.22. Weather Files

Active Sky can only be selected if either *Active Sky Next*, *AS16*, *Active Sky for Prepar3D v4* or *Active Sky XP* are installed or the weather file is selected directly. Selecting the *Active Sky* weather file directly can be useful if you run a networked setup. Use Windows shares or a cloud service to get access to the file on the remote computer.

The URLs of various weather services can be modified if you like to use another source. Usually there is no need to change these values.

Note that leading and trailing spaces are removed from the web addresses.

You can change the path to the X-Plane weather files if you'd like to load it on a remote computer using a network share.

The buttons `Test` for the online weather services can also be used to find out if *Little Navmap* can connect to Internet. Check your firewall settings if these fail.

Use `Reset` to set a value back to default if you change something accidentally.

Note

While this happens rarely, some public services like NOAA might be interrupted for hours. *Little Navmap* will show error messages if this is the case.

You might want to check you internet access but otherwise ignore these if it does not happen for a longer time.

58.23. Online Flying

This page allows to change settings for online networks.

VATSIM, IVAO and PilotEdge provide preconfigured options to connect to the services.

Use `Custom with status file` if you have a status file pointing to `whazzup.txt` files. Use `Custom` if you'd like to load a `whazzup.txt` file directly.

See Online Networks for an overview.

58.23.1. Online Service

58.23.1.1. None

Disables all online services and hides all related window tabs, menu items and toolbar buttons. No downloads will be done.

58.23.1.2. VATSIM

Uses the predefined configuration for the VATSIM [https://www.vatsim.net] network. No other settings are needed.

The update rate depends on configuration and is typically three minutes.

58.23.1.3. IVAO

Uses the predefined configuration for the IVAO [https://ivao.aero] network. No other settings are needed.

The update rate depends on configuration and is typically three minutes.

58.23.1.4. PilotEdge

Configuration for the PilotEdge [https://www.pilotedge.net/] network.

58.23.1.5. Custom with Status File

This option allows to connect to a private network and will download a `status.txt` file on startup which contains further links to e.g. the `whazzup.txt` file.

58.23.1.6. Custom

This option allows to connect to a private network and will periodically download a `whazzup.txt` file which contains information about online clients/aircraft and online centers/ATC.

58.23.2. Web Addresses

58.23.2.1. Status File URL

Web address of the `status.txt` file. You can also use a local path like `C:\Users\YOURUSERNAME\Documents\status.txt`.

This file is downloaded only on startup of the *Little Navmap*.

A button `Test` allows to check if the URL is valid and shows the first few lines from the downloaded text file. This does not work with local paths.

The status file format is explained in the IVAO documentation library: Status File Format [https://doc.ivao.aero/apidocumentation:whazzup:statusfileformat].

Note that leading and trailing spaces are removed from the web address.

58.23.2.2. Whazzup File URL

Web address of the `whazzup.txt` file. You can also use a local path like `C:\Users\YOURUSERNAME\Documents\whazzup.txt`.

This file is downloaded according to the set update rate.

A button `Test` allows to check if the URL is valid. The test does not work with local paths.

The whazzup file format is explained in the IVAO documentation library: Whazzup File Format [https://doc.ivao.aero/apidocumentation:whazzup:fileformat].

Note that leading and trailing spaces are removed from the web address.

`whazzup.txt` example:

```
!GENERAL
VERSION = 1
RELOAD = 1
UPDATE = 20181126131051
CONNECTED CLIENTS = 1
CONNECTED SERVERS = 41

!CLIENTS
:N51968:N51968:PILOT::48.2324:-123.1231:119:0:Aircraft::::::::1200::::VFR::::::::::::::::JoinFS:::::::177:::

!SERVERS
...
```

58.23.2.3. Update Every

Sets the update rate that defines how often the `whazzup.txt` file is downloaded.

Allowed values are 1 to 1,800 seconds.

You can use smaller update rates for private online networks to improve map display updates.

Warning

Do not use update rates smaller than two minutes for official online networks. They might decide to block the application or block you based on your internet address if downloads are excessive.

58.23.2.4. Format

`IVAO` or `VATSIM`. Depends on the format used by your private network. Try both options if unsure or you see strange effects like all aircraft pointing to the north.

58.24. Web Server

Configuration options for the internal web server of *Little Navmap*.

- `Document root directory`: The root directory of the web server pages. Change this only if you would like to run a customized web server using your own style sheets and you own HTML templates.
- `Select Directory ...`: Select root directory. *Little Navmap* will show a warning if no `index.html` file is found in the root directory.
- `Port number`: Default 8965. That means you have to use the address `http://localhost:8965/` or similar in your browser to access the web page of *Little Navmap*, for example. Change this value if you get errors like `Unable to start the server. Error: The bound address is already in use.`.
- `Use encrypted connection (HTTPS / SSL)`: Encrypted connections use a precomputed self-signed certificate which comes with *Little Navmap*. A browser will show an error message if using this certificate and requires to add a security exception. The encrypted address is `https://localhost:8965/`, for example. Creating a self signed certificate is quite complex. Look at the various web articles by searching for `How to create a self signed certificate`.
- `Start Server`: Start or stop the server to test the changes above. The server status (running or not running) is reverted to the previous state when pressing `Cancel` in the options dialog.

- Label `Web Server is running at http://my-computer:8965 (IP address http://192.168.1.1:8965)`: Shows a list of valid links using the IP address and the host name (your computer name) of the web server. Clicking on either one opens the page in your default browser. You can always try the IP addresses if the computer names does not work. Some addresses might not work depending on network configuration.

  Note that the IP address of a computer can change for every reboot depending on network or router configuration. Try to use the host name which is stable.

  The list contains all computer addresses for IPv4 [https://en.wikipedia.org/wiki/Internet_Protocol_version_4] (like `my-computer:8965 (192.168.1.1:8965)`) and IPv6 [https://en.wikipedia.org/wiki/IPv6] (like `my-computer:8965 (fe80::c0b9:1832:abc5:d5a1:8965)`).

  You might see more than one IPv4 address (e.g. one for WIFI and one for Ethernet) and several addresses for IPv6 if enabled.

See Web Server for detailed information.

58.25. Cache and Files

58.25.1. Map Display

Here you can change the cache size in RAM and on disk. These caches are used to store the downloaded images tiles from the online maps like the *OpenStreetMap* or *OpenTopoMap*.

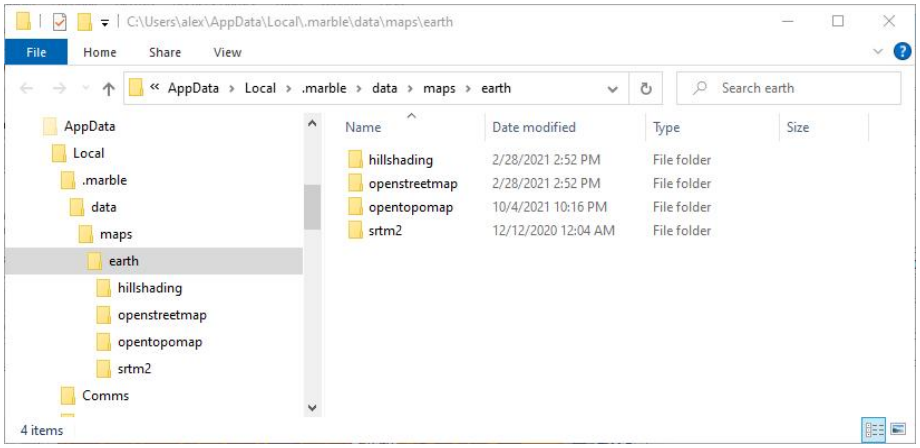
All image tiles expire after two weeks by default and will be reloaded from the online services then.

You can delete the files manually using your file manager. You can also open the cache directory from menu `Tools` -> `Files and Directories` -> Show Map Cache or by clicking on the button `Show Disk Cache in File Manager`.

The RAM cache has a minimum size of 100 MB and a maximum size of 2 GB.

The disk cache has a minimum size of 500 MB and a maximum size of 8 GB.

See chapter Disk Cache for information on cache locations.



The map cache directory on Windows showing caches for four map themes. Delete all or any of these to save space. *Click image to enlarge.*

58.25.2. Map Display Themes

You can select a directory to lookup additional map themes for the background map layer. Each map theme has to consist of a directory containing the related `.dgml` and other files. See Map Themes for installation instructions.

External map themes are ignored if this field is empty.

Warning

Do not use the path `.../data/maps/earth` in the installation directory do install maps. This location is deprecated.

58.25.3. Install GLOBE elevation data

See GLOBE Offline Elevation Data for more information about the offline elevation data and how to download and install it.

58.26. Scenery Library Database

Allows to configure the loading of the scenery library database.

Note that these paths apply to all Flight Simulators, FSX, P3D, MSFS and X-Plane.

You have to reload the scenery database in order for the changes to take effect.

Little Navmap supports linked scenery which is linked by symbolic links (all operating systems), Windows shortcuts, Windows junctions and macOS aliases. Note that this functionality is limited to the MSFS `Community` and X-Plane `Custom Scenery` directories. Other combinations are not tested.

58.26.1. Scenery library directories to include when loading

This list shows extra directories which are loaded additionally when reading the simulator scenery library. Add-on airports in the extra directories extending MSFS `Community`, X-Plane `Custom Scenery` or FSX/P3D `Addon Scenery` are read when loading the simulator scenery library database.

Note that airport files in this list are always read last which can affect the display in MSFS, FSX or P3D.

Tip

The add-ons in the selected directory and will be read recursively which means you can use sub-directories to organize your add-ons.

58.26.2. Scenery library directories or files to exclude from loading

All directories including sub-directories as well as files in this list will be omitted when loading the scenery library into the *Little Navmap* database. You can also use this list to speed up database loading if you exclude directories that do not contain airports or navaids (landclass, elevation data and others).

You can also exclude FSX, P3D, MSFS BGL or X-Plane apt.dat files if needed.

Select one or more entries in the list and click on `Remove` to delete then from the list.

Tip

Note that you can select more than one entry in the file dialog to add several entries at once.

58.26.3. Scenery library directories to exclude from add-on recognition

FSX/P3D: All scenery data that is found outside of the base flight simulator `Scenery` directory is considered an add-on and will be highlighted on the map as well as considered during search for add-ons.

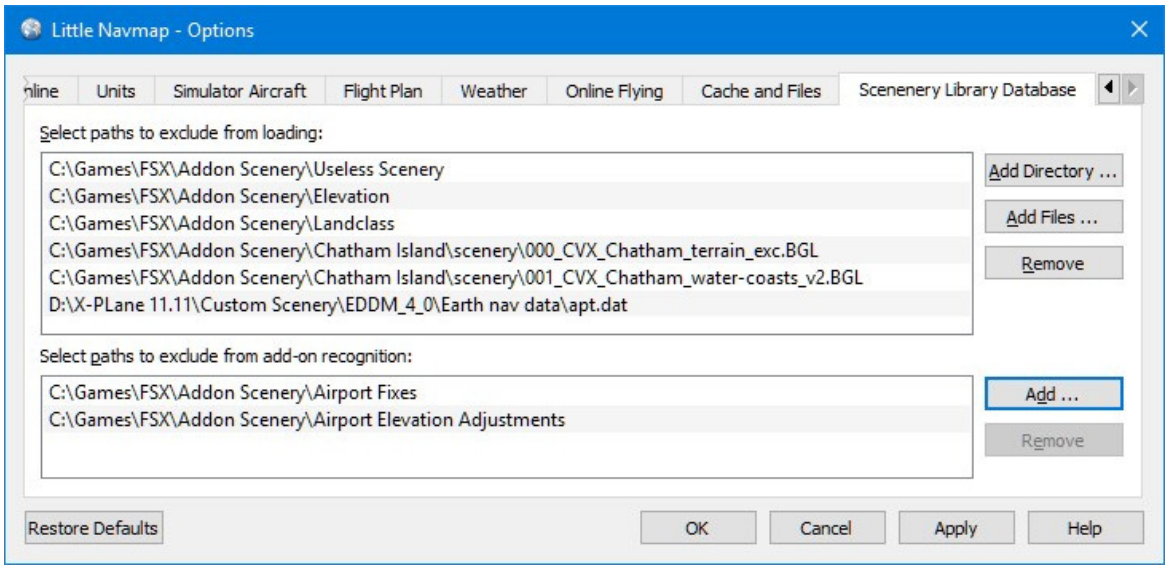
X-Plane: All airports in the `Custom Scenery` directory are considered add-on airports and will be highlighted accordingly.

Microsoft Flight Simulator 2020: All airports located in the `Community` directory and the `Official\OneStore` or `Official\Steam` are considered to be add-on airports. Exceptions are `fs-base`, `fs-base-genericairports` and `fs-base-nav`.

You can use this list to modify this behavior.

Add-ons, like *Orbx FTX Vector* or *fsAerodata* add scenery files that correct certain aspects of airports like elevation, magnetic declination or others. All these airports will be recognized as add-on airports since all their files are not stored in the base flight simulator `Scenery` directory.

Insert the corresponding directories or files into this list to avoid unwanted highlighting of these airports as add-ons.



Page `Scenery Library Database` with three directories and three files excluded from loading and two directories excluded from add-on recognition.

58.26.4. Examples

The examples are based on a simulator installed in `C:\Games\FSX`.

58.26.4.1. ORBX Vector

Exclude the directories below from add-on recognition. Do not exclude them from loading since you will see wrong airport altitudes.

- `C:\Games\FSX\ORBX\FTX_VECTOR\FTX_VECTOR_AEC`
- `C:\Games\FSX\ORBX\FTX_VECTOR\FTX_VECTOR_APT`

58.26.4.2. Flight1 Ultimate Terrain Europe

Exclude these directories from loading to speed up the process:

- `C:\Games\FSX\Scenery\UtEurAirports`
- `C:\Games\FSX\Scenery\UtEurGP`
- `C:\Games\FSX\Scenery\UtEurLights`
- `C:\Games\FSX\Scenery\UtEurRail`
- `C:\Games\FSX\Scenery\UtEurStream`
- `C:\Games\FSX\Scenery\UtEurWater`

58.26.4.3. ORBX Regions

Exclude these directories from loading:

- `C:\Games\FSX\ORBX\FTX_NZ\FTX_NZSI_07_MESH`
- `C:\Games\FSX\ORBX\FTX_NA\FTX_NA_CRM07_MESH`
- `C:\Games\FSX\ORBX\FTX_NA\FTX_NA_NRM07_MESH`
- `C:\Games\FSX\ORBX\FTX_NA\FTX_NA_PNW07_MESH`
- `C:\Games\FSX\ORBX\FTX_NA\FTX_NA_PFJ07_MESH`

59. Window Layout

The layout of dock windows and the main window can be saved and loaded. This allows to quickly change or restore the whole look of the application.

Little Navmap restores the window layout on each startup to the last one used.

You can also instruct *Little Navmap* to load the recently used layout file on top of the Recent Window Layouts on startup. This can be enabled in options on page Startup and Updates by checking `Load window layout from last used file`.

Window layouts cover these aspects:

- Main window position and size
- Size, position, visibility (open or not) and state (floating or docked into main window) of all dock windows
- Size, position and visibility (open or not) or Toolbars.
- Statusbar visibility

The main menu cannot be hidden to avoid user lock out.

The state of the fullscreen screen mode and the normal display mode are saved together in layout files.

See also Dock Windows.

Note

Layouts cannot be exchanged with different settings for Allow to undock the map window in the options dialog.

Little Navmap will show a warning when loading a layout that was saved with Allow to undock the map window enabled and Allow to undock the map window is currently disabled, for example.

59.1. Saving and Loading Layouts

The window layout can be loaded from and saved to LNMLAYOUT files.

Instead of using the menu item Open Window Layout you can also drag and drop a LNMLAYOUT file from a file manager into the *Little Navmap* main window. This will load and apply the layout immediately.

You can save a layout file using Save Window Layout as to an arbitrary place. Using the documents directory is recommended. You can use the folder which is suggested by the Directories dialog.

Recent Window Layouts allows to quickly access the last save window layout files.

59.2. Reset Layout

You can use Reset Window Layout to Default to reset the window layout back to a reasonable default. This will load and apply the layout immediately.

59.3. Fullscreen

You can toggle fullscreen from the menu `Window` -> Fullscreen Map or by pressing `Shift+F11`.

Additionally, you can use the map context menu (Fullscreen Map) or the button `Exit fullscreen mode` to exit fullscreen mode and return to normal mode.

Fullscreen maximizes the map window and hides all other dock windows and toolbars per default. The main menu cannot be hidden and is always visible.

You can still reopen dock windows and toolbars after switching to fullscreen mode. This can be done from the Window Menu or by selecting Show Information in the map context menu, for example. These dock windows will be saved on exit or when saving a window layout. The dock windows will be restored at the same position when you enable fullscreen mode again. This way you can have two different views. One for planning with all docks and one for flying with map and progress, for example.

60. Weather

Little Navmap can display weather as METARs and decoded weather in the information window and tooltips as well as weather symbols on the map.

Weather can be taken from the following sources:

- FSX or P3D if connected. This also applies to network setups.
- X-Plane 11 and 12 real time weather from weather files. You have to share files and directories across computers and adjust loading path in the options dialog on page Cache and Files for remote setups.
- NOAA [https://www.weather.gov] online weather service
- VATSIM [https://www.vatsim.net] network online weather service
- IVAO [https://www.ivao.aero] network online weather service
- HiFi Simulation Technologies [https://www.hifisimtech.com]. The short name as shown in *Little Navmap* added in brackets.
    - *Active Sky Next* (`ASN`)
    - *AS16*
    - *Active Sky for Prepar3D v4* (`ASP4`)
    - *Active Sky for Prepar3D v6* (`ASP6`)
    - *Active Sky for X-Plane 11* (`ASXP11`)
    - *Active Sky for X-Plane 12* (`ASXP12`)
    - *Active Sky FS* for MSFS (`ASFS`)

Weather files are accessed or downloaded on demand when an option in menu Show Airport Weather or Weather Menu is selected.

Important

The base path to the simulator has to be correct for *Little Navmap* to find the X-Plane weather files. Click `Reset Paths` in the Dialog Load Scenery Library to ensure a correct path.

Furthermore you have to select the right simulator in the Scenery Library Menu. *Little Navmap* otherwise reads the wrong weather files.

Features like regions of manually created weather for X-Plane are not supported in *Little Navmap*.

Weather display and information can be selected in the following locations:

- Options dialog on page Weather: There you define what source is shown in the information window and in the map tooltip. This is based on the airport METAR reports and does not affect anything else besides the information window and the map tooltip.
- Main menu `Weather` -> Airport Weather Source: This is for the airport weather icons on the map. Based on METAR of the airport and only affects the weather symbols on the map.
- Main menu `Weather` -> Wind source: This source is used for all winds aloft functions: Map display wind grid symbols, map tooltip, flight plan table, elevation profile (hover tooltip), top of descent and top of climb point calculation, fuel planning, arrival time calculation and trip time calculation. Note that this download has nothing to do with the METAR functions above and is fetched from another source (NOAA/NOMADS [https://nomads.ncep.noaa.gov]).

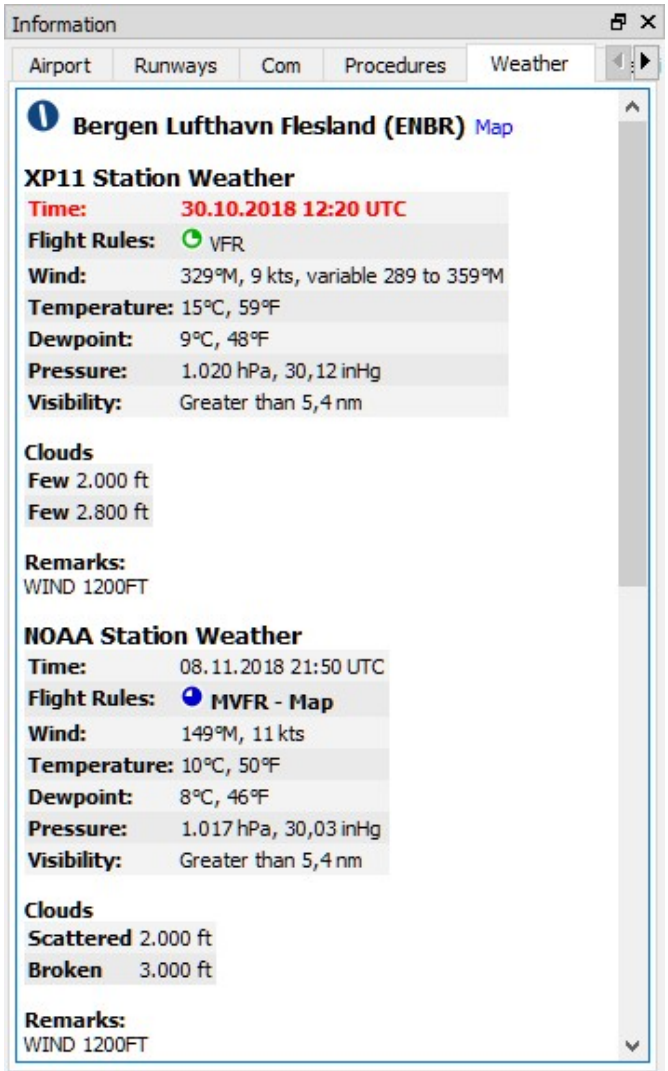
METARs are shown in the airport tooltips and on the tab `Airport` -> `Overview` tab. Decoded weather information for all sources is available in the tab `Airport` -> `Weather`.

The date and time information of the decoded weather display is highlighted in red if the METAR information is older than six hours.

Note

About X-Plane weather: The program cannot read custom weather situations from X-Plane. If you use custom weather, *Little Navmap* only has access to the local weather around the aircraft in the `Simulator Aircraft` window on the Tab Progress. Be aware that *Little Navmap* might display information from an obsolete or inactive downloaded weather file in this case.

Also, weather and nearest weather in X-Plane might be inaccurate. This is due to interpolation between weather stations.



Decoded weather information from X-Plane and NOAA. The weather symbols on the map use NOAA as source (suffix `-Map` after the flight rules). X-Plane weather is older than six hours and therefore highlighted red.

60.1. Weather Sources

60.1.1. Flight Simulator

Weather information from a flight simulator or the X-Plane weather files falls in one of three categories, depending on the selected airport:

- `Station`: The airport has a weather station. This is the most precise weather indication.
- `Nearest`: The selected airport has no weather station and the report from the closest existing weather station was fetched. The ident of the closest station as well as distance and elevation are shown in the decoded METAR on the tab Weather. Note that the this weather station is not necessarily an airport.
- `Interpolated`:
    - **X-Plane, NOAA, VATSIM and IVAO**: The weather is interpolated by *Little Navmap* using the eight nearest stations of the selected airport. The used stations are listed in the airport weather information (Weather). Note that this does not cover cloud layers. Use the nearest airport as reference for clouds.
    - **FSX and P3D**: The weather is interpolated by the flight simulator using three stations closest to the selected airport. FSX and P3D only provide non-interpolated weather for airports close to the user aircraft. The weather for other airports is

always interpolated. The ident of the selected airport is used in the METAR report for this kind of weather report.

The flight simulator weather is updated every 15 seconds to catch manual changes or changes in the weather theme.

Little Navmap watches the X-Plane 11 `METAR.rwx` and `global_winds.grib` files as well as the X-Plane 12 `Output/real weather` directory for changes and applies updates immediately.

60.1.2. Online - NOAA, VATSIM and IVAO

Online weather from both sources is updated every 10 minutes.

60.1.3. Active Sky

All *Active Sky* programs are recognized automatically on startup for each simulator. The `current_wx_snapshot.txt` and `activeflightplanwx.txt` files are loaded and monitored for changes. Weather will be reloaded and updated in the information display if necessary.

You can also select the `current_wx_snapshot.txt` file manually. In that case the METARs from this file are displayed for all installed flight simulators. The `activeflightplanwx.txt` will be loaded from the same directory.

Manual file selection can also be useful if a new *Active Sky* version is not supported by *Little Navmap* yet.

Departure and destination weather will be displayed if a flight plan is loaded in one of the *Active Sky* programs. A suffix `Destination` or `Departure` will indicate the usage of Active Sky flight plan weather on the tab `Weather`. This gives *Active Sky* users the most precise weather indication for departure and destination.

Note that the indication of `Departure` or `Destination` depends entirely on the flight plan loaded in *Active Sky* and not the flight plan in *Little Navmap*.

60.2. Airport Weather

Little Navmap can show weather symbols for airports having a weather station for all available weather sources. Select sources for display with Airport Weather Source.

Note that airport weather is only displayed for stations and not interpolated. Stations which are not airports are not supported.

Weather is also shown for hidden airports if these provide a weather report.

A suffix `- Map` is added to the flight rules in the METAR and decoded weather display of the information window as well as in tooltips to indicate which source is shown on the map.

See Airport Weather in the map legend for an explanation of the symbols.

Weather situation around New York. All airports are VFR and low winds.

60.3. Winds Aloft

Little Navmap can download and display winds aloft based on either X-Plane or the National Oceanic and Atmospheric Administration [https://www.noaa.gov/] data.

The latter ones are winds aloft forecasts which are updated four times a day and are used by most simulators and weather programs as data source. The wind speed and direction is arranged in an one-degree grid.

Little Navmap can display a wind barb grid for a selected wind layer or at flight plan waypoints. Tooltips at the wind barbs show wind details for several layers at the position.

Hovering the mouse over the elevation profile shows the wind at the flight plan position. See Tooltip Label.

Winds are used to calculate flight time, trip fuel, top of descent and top of climb.

A manual wind setting for cruise altitude can also be used. See Buttons.

See Winds Aloft for an explanation of the wind symbols and options page Weather for more configuration options.

Select wind data source for display with Wind source.

60.3.1. Wind Levels Button

Same as Wind levels.

The menu button enables or disables wind aloft display by a wind barb grid at different layers as well as at flight plan waypoints.

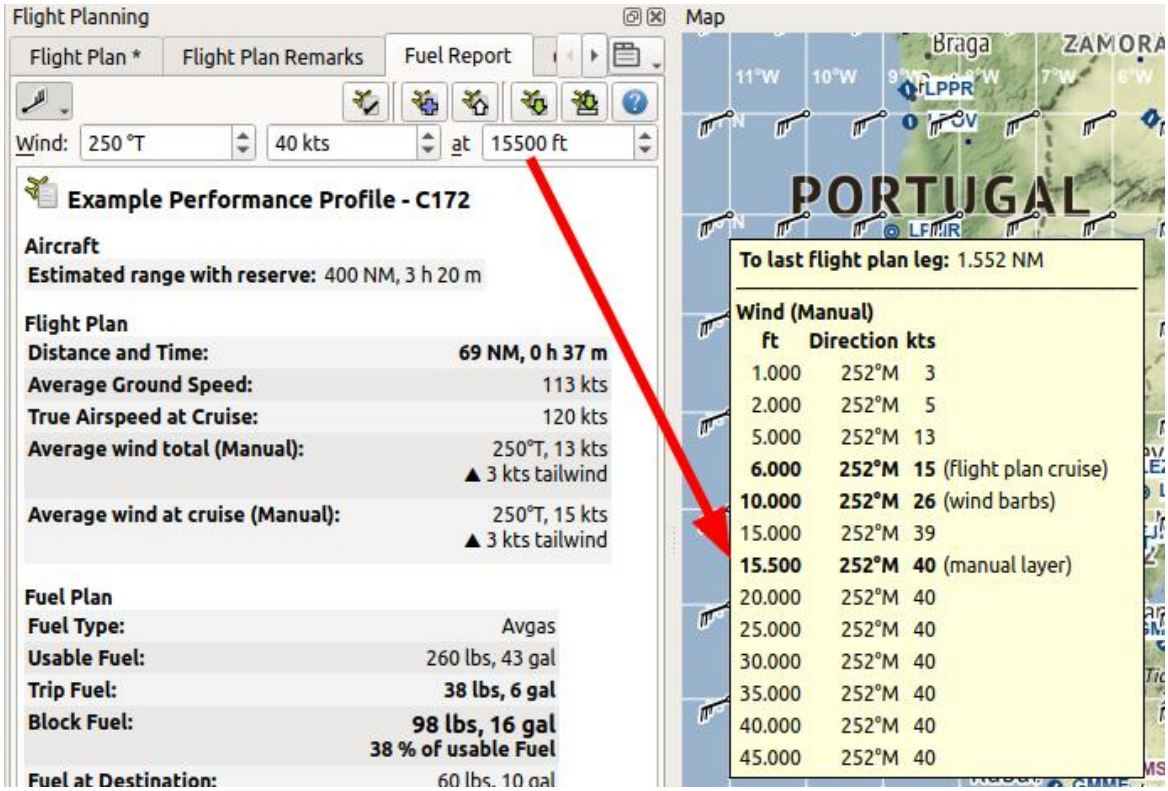
The drop down menu has the following items:

- `At Flight Plan Waypoints`: Toggles wind barbs with a yellow border at flight plan waypoints on and off. Wind barbs below 4000 ft above mean sea level are omitted. This function is independent of the selection below.
- `No Wind Barbs`: Do not show the wind barb grid. Wind data is still downloaded and processed until the source is set to `Disabled`.
- `Wind at Ground (only NOAA)`: Show the wind barb grid for winds near ground (about 260 ft). Only available if the NOAA wind source is selected.
- `Wind at Flight Plan Cruise Altitude`: Show the wind barb grid for winds at the current flight plan cruise altitude.
- `Wind for Selected Altitude`: Enables the slider button below and allows to change the wind barb altitude in 500 feet steps.

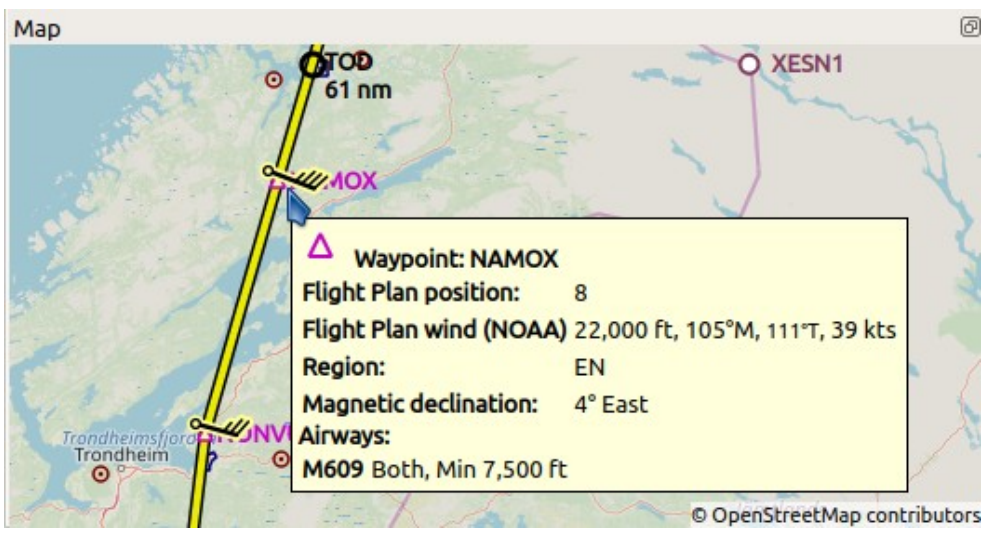
60.4. Tooltips

The wind barbs show an optional tooltip with wind direction, speed and wind source if you hover the mouse over them. The same applies to wind barbs at flight plan waypoints with option `At Flight Plan Waypoints` enabled.

Direction is magnetic per default but can be changed in the options dialog on page Units. These tooltips show the wind for all layers with flight plan cruise altitude, selected wind barb altitude and manual layer altitude highlighted.



Winds aloft set manually, display with tooltip at wind barbs in grid and wind drop down menu. Indicators in tooltip show flight plan cruise altitude, wind barb altitude and manual layer altitude. Notice the decreasing wind speed as interpolated from manual layer altitude to ground.

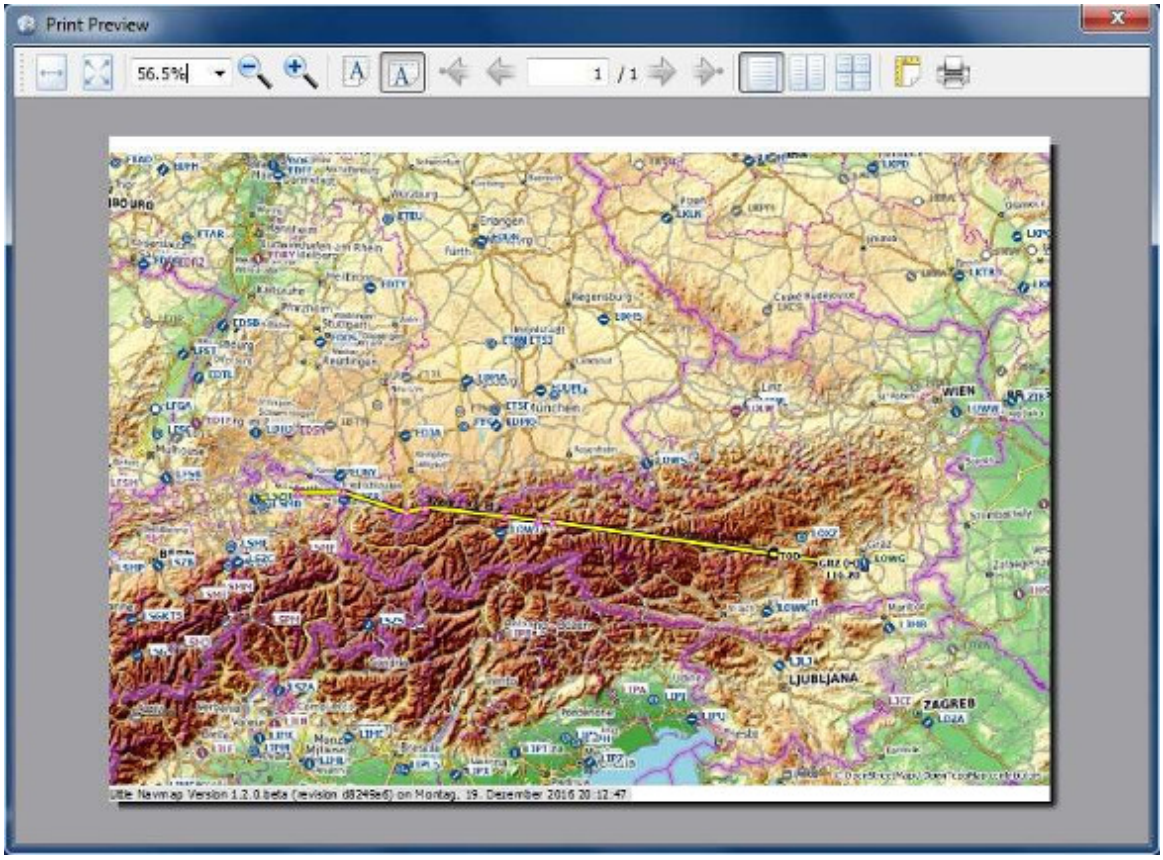


Wind barbs shown at flight plan waypoints and wind data in tooltip.

61. Printing

61.1. Print Map

Opens the print preview dialog allowing the current map view to be printed.



Print preview dialog for the current map.

61.2. Print Flight Plan

Print the current flight plan together with departure and destination airport information.

61.2.1. Options

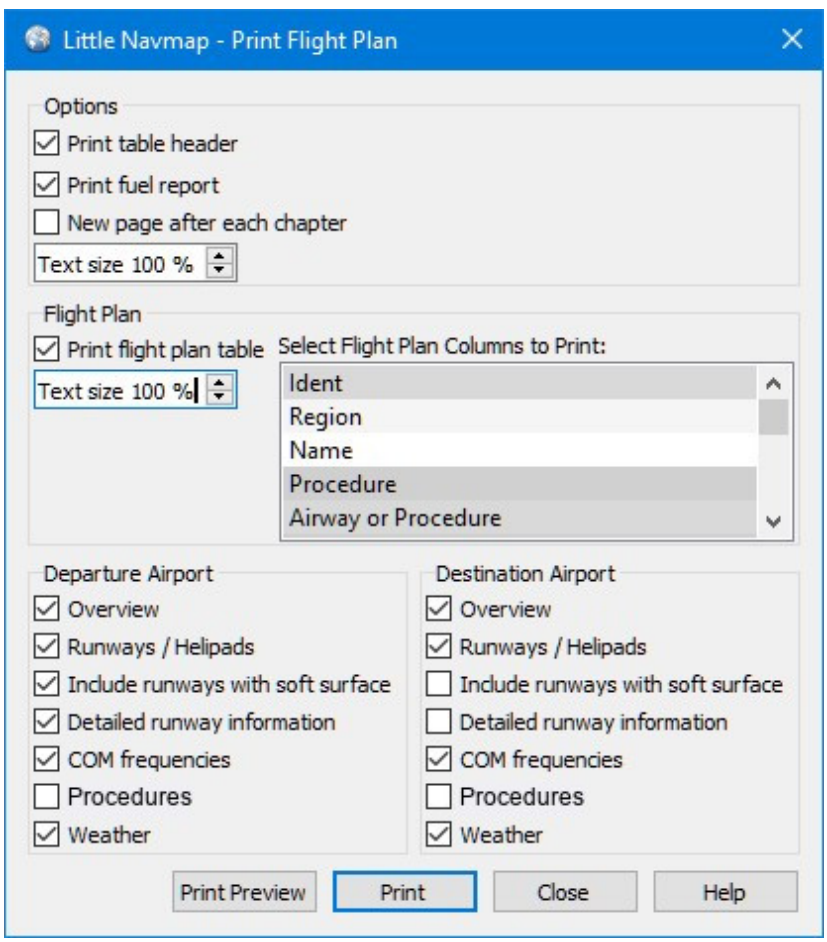
- `Print Table Header`: Adds a header showing departure, destination and other information like the label on top of the tab `Plan` in the dock window `Flight Planning`.
- `Print Fuel Report`: Print the fuel calculation report from the tab `Aircraft` in the dock window `Flight Planning`.
- `New page after each chapter`: Add a page feed after header, flight plan, fuel report and airport information.
- `Text Size`: Allows to increase or decrease the size of all texts except the flight plan table.

61.2.2. Flight Plan

- `Print flight plan table`: Adds the flight plan to the print.
- `Text Size`: Increase or decrease the size of the flight plan table text.
- `Select Flight Plan Columns to Print`: Click on the names to include or exclude flight plan columns. Note that the columns are printed in the same order as shown in the Flight Plan Table.

61.2.3. Options for Departure and Destination Airport

- `Overview`: Print the airport overview as show in the `Information` dock window on tab `Airport`.
- `Runways / Helipads`: Print runway and helipad information.
- `Include runways with soft surface`: Include runways with soft surfaces like grass, gravel and others.
- `Detailed runway information`: Include detailed information for the runway ends like approach lighting, VASI types, ILS information and more.
- `COM frequencies`: Include communication frequencies like tower, ATIS, UNICOM and others.
- `Procedures`: Print procedure information as shown on the tab `Procedures` in the `Information` dock window.
- `Weather`: Print the decoded weather for all enabled sources as shown on the tab `Weather` in the `Information` dock window.



Print flight plan options dialog.

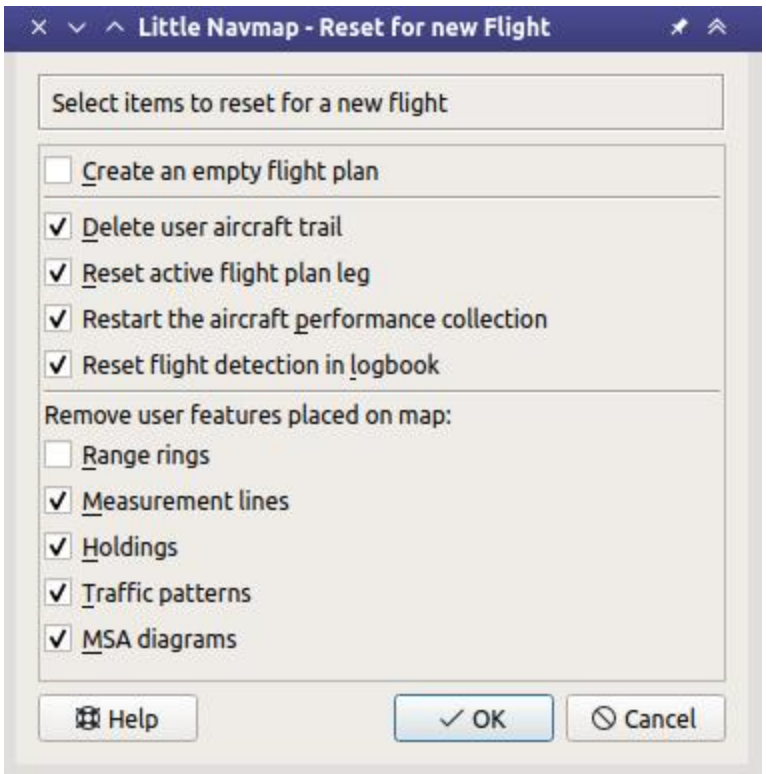
62. Reset all for a new Flight

Use this to reset functions for a new flight. This is optional but helpful if you wish to record logbook entries or aircraft performance between flights.

Dialog input and selection fields:

- `Create an empty flight plan`: Clears the current flight plan. Same as New Flight Plan.
- `Delete user aircraft trail`: Delete simulator aircraft trail from map and elevation profile. and elevation profile. The same as Delete User Aircraft Trail.
- `Reset active flight plan leg`: Removes the active (magenta) flight plan leg.
- `Restart the aircraft performance collection`: Restarts the background aircraft performance collection. Same function as Restart Aircraft Performance Collection.
- `Reset flight detection in logbook`: Resets the logbook to detect takeoff and landing for new logbook entries.
- `Range rings`, `Measurement lines`, `Holdings`, `Traffic patterns` and `MSA diagrams`: Removes the respective user features from the map. Same as Remove all Range Rings and following.

The dialog shows a scroll bar on the right side if it is too small.



Resetting *Little Navmap* functions for a new flight.

63. Updates

Little Navmap will automatically check its home page [https://albar965.github.io/] for available updates on startup and in regular time intervals. Frequency and update channels are configurable. See below for configuration options.

You can always check manually for updates by selecting `Help` -> Check for Updates in the main menu.

Note that the installation still has to be done manually. The update notifications are suppressed if a dialog window is open or if *Little Navmap* is connected to a simulator.

Important

Always update *Little Navmap* to the latest version which usually contains many improvements and bug fixes. Old versions are not supported.

63.1. Notification Dialog

The dialog showing available update contains a message and a link pointing to the announcement. You can download the new version from the announcement page.

63.1.1. Buttons

- `Remind me Later`: Dismiss the dialog. You will be notified again on next startup depending on selected frequency. You can also press the escape key to trigger this action. This button is not visible when checking manually.
- `Copy to Clipboard`: Copy the contents of the window as formatted text into the clipboard for later reading. This allows to paste the message and the link into *LibreOffice Writer* or *MS Word*.
- `Ignore this Update`: Pressing this button will close the dialog and ignore the shown version in the future. You will not see any reminders for this version again but only for newer versions. This button is not visible when checking manually. Note that a manual check for updates supersedes the ignored versions.

Update notification dialog showing an available release candidate version `rc1` with the link to the announcement.

63.2. Options

Update check settings can be changed in the options dialog on the page Startup and Updates.

63.2.1. Check for Updates

You can set the interval for update checks. Default is `Daily`. Choices `Daily`, `Weekly` or `Manual` where the last option will never check automatically.

Select `Help` -> Check for Updates in the main menu to search manually for new versions.

Note that the daily or weekly check is only done when starting the program.

63.2.2. Update Channels

- `Stable Versions only`: This will show only notifications for tested and stable versions with a complete English manual.
- `Stable and Beta Versions`: Will additionally check for beta/test or release candidate versions. Beta versions are program releases that already contain all planned features for a stable release but are still not tested carefully. The manual might be incomplete.
- `Stable, Beta and Development Versions`: *Little Navmap* will also show notifications for development/alpha releases. These are neither complete nor well tested. Features might change over time and the manual is not updated for new functionality.

Important

Note that using a beta or a release candidate release automatically changes the channel to beta and using a development or alpha release automatically changes the channel to development.

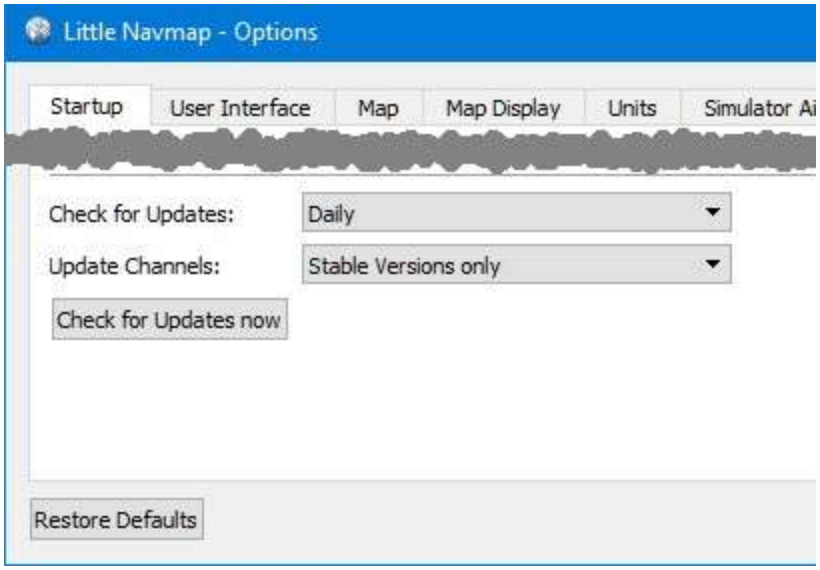
Always use the beta update channel if you use a beta or test version. Otherwise you might miss important updates.

Tip

Run beta or development version of *Little Navmap* in Portable Execution mode to avoid overwriting your settings. This allows you to run the new version with separate settings and databases without affecting your current settings.

63.2.3. Check for Updates now

Checks for updates immediately. This will use the current settings as shown in the dialog. It will also show notifications for updates that were ignored by pressing the `Ignore this Update` on the notification dialog.



Update notification settings in the options dialog.

64. Running without Flight Simulator Installation

You can use *Little Navmap* on all computers no matter if SimConnect or a flight simulator are installed or not.

Follow these steps if want to install *Little Navmap* on a computer not containing a flight simulator installation. This is useful for a networked setup, for example. No functionality is affected except direct connect capability which is not needed in this case.

This scenario is typically used when connecting to a flight simulator to watch the progress of a flight remotely from another computer across a local network.

Flight plans can be created, loaded and saved on the client computer. You only have to make sure that these are transferred to the flight simulator computer using Windows shares or by other means.

These instructions apply to Windows, macOS and Linux computers equally.

1. Install *Little Navmap* on both your flying computer and the client computer without simulator.
2. Start it on the flying computer and generate the scenery library databases. See Load Scenery Library above for more information.
3. Select `Tools` -> `Files and Directories` -> Show Database Files in the main menu on the flying computer. This will open the directory containing the database files in a file manager like Windows Explorer or Apple Finder. You will find one or more database file like `little_navmap_fsx.sqlite`, `little_navmap_p3dv3.sqlite` or `little_navmap_xp11.sqlite`.
4. Exit *Little Navmap* on the flying computer.
5. Start *Little Navmap* on the client/remote computer and select `Tools` -> `Files and Directories` -> Show Database Files.
6. Exit *Little Navmap* on the client computer so you can copy the database files.
7. Copy the database files to your client computer using network shares, USB sticks or whatever you like. Use the file manager windows that were opened by the steps above.
8. Start *Little Navmap* on the client computer. The Scenery Library Menu should contain an entry for each copied database. Airport icons should be visible on the map in either case. **There is no need to reload the scenery library database now since you just copied a fully populated ready-to-user database file.**

X-Plane

> Share flight plan and weather directories for X-Plane across computers and adjust the loading path in the options dialog on page Cache and Files for remote setups.
>
> *Little Navmap* watches the X-Plane 11 `METAR.rwx` and `global_winds.grib` files as well as the X-Plane 12 `Output/real weather` directory for changes and applies updates immediately.

See Remote Connection for information about networked setups.

65. Web Server

Little Navmap includes an internal web server showing the map, aircraft progress and airport information with an optional automatic refresh in a web browser. The page can be accessed from any computer, tablet or smartphone in the local network.

Note that the functionality is limited. You cannot change map display settings or calculate a flight plan, for example.

The web server is not started per default. You can start it in the menu `Tools` -> Run Web Server and then open its page by selecting Open Web Server Page in Browser.

Port and other settings can be changed in options on page Web Server.

You need to adjust your router settings to access the *Little Navmap* web server from the internet outside your local network. Check out your router manual how to do this. In general you have to change the firewall settings to forward the port 8965 from the router to the computer running *Little Navmap*.

Warning

Never open the firewall completely. This is a security risk.

65.1. Web Page

This chapter describes the legacy web interface of *Little Navmap*. The new interface is mostly self explaining and allows to zoom using the mouse wheel.

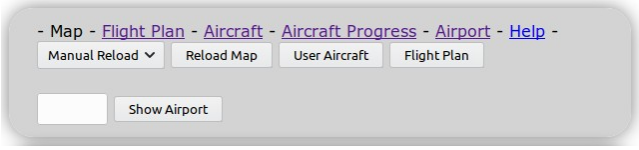
Note

The web page uses the same map display settings as the main program. All changes in menu `View` are reflected on the web page.

Only map position and zoom distance can be changed in the web page which allows flight following or using it as an additional map display but no flight planning.

65.1.1. Page Links on Top of each Page

The top links `Map`, `Flight Plan`, `Aircraft`, `Aircraft Progress` and `Airport` switch the display to the respective pages. `Help` opens this page.



Top navigation bar for the legacy web interface as shown in web browser. *Click image to enlarge.*

65.1.2. Map Page

Shows the map as currently configured, i.e. airports, navaids, theme and more features are shown as in the running application.

65.1.2.1. Top bar:

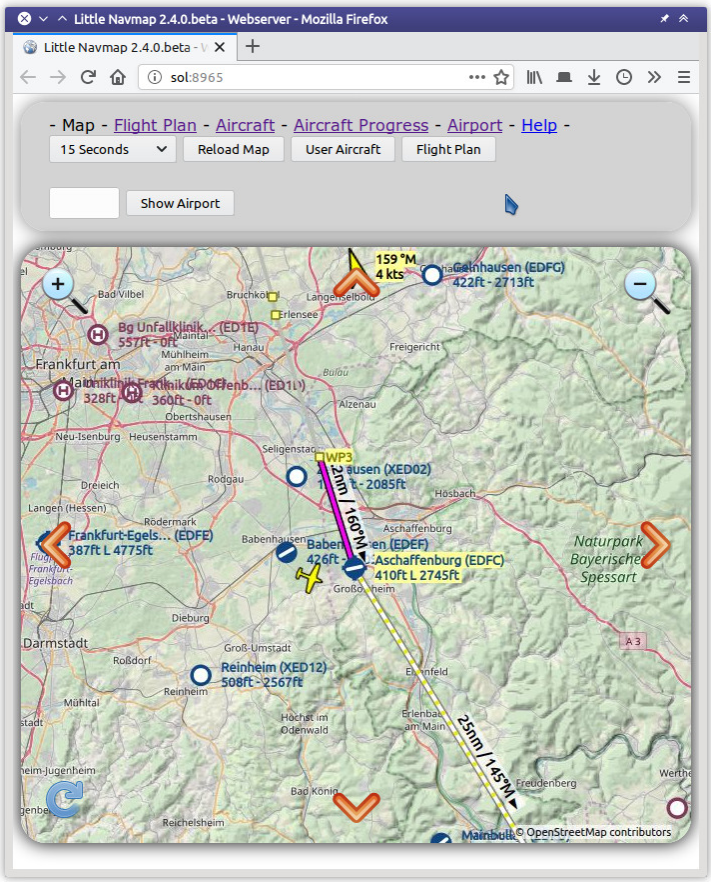
- `Manual Reload` or `1 Second` to `120 Seconds`: Triggers a reload of the map image for the given time. Note that this might drain the battery on smartphones or tablets.
- `Reload Map`: Reload the map manually.
- `User Aircraft`: Centers the user aircraft on the map.
- `Flight Plan`: Centers the flight plan on the map.

- `Show Airport`: Jumps the airport which ICAO ident is given in the input field to the left of this button. Press the `Return` key or this button to jump to the airport.

65.1.2.2. Map Navigation

The map is divided into a 3x3 field grid. Each field has an icon in the corner denoting its function:

- : Zoom in and out
- : Move map
- : Reload map

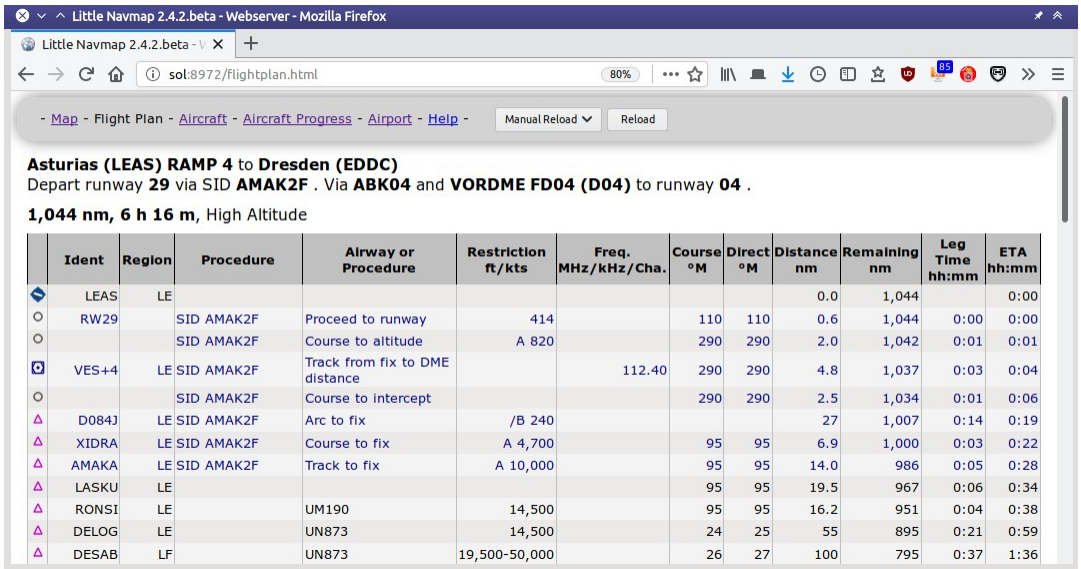


Web map display in browser with navigation icons. *Click image to enlarge.*

65.1.3. Flight Plan Page

Shows the flight plan with columns visible and column order as in the application. See [Flight Plan Table](#).

Buttons `Manual Reload` or `1 Second` to `120 Seconds` and `Reload Map`: Same as on map page above. Use reload to see updates for the active flight plan leg.



	Ident	Region	Procedure	Airway or Procedure	Restriction ft/kts	Freq. MHz/kHz/Cha.	Course °M	Direct °M	Distance nm	Remaining nm	Leg Time hh:mm	ETA hh:mm
	LEAS	LE							0.0	1,044		0:00
	RW29		SID AMAK2F	Proceed to runway	414		110	110	0.6	1,044	0:00	0:00
			SID AMAK2F	Course to altitude	A 820		290	290	2.0	1,042	0:01	0:01
	VES+4	LE	SID AMAK2F	Track from fix to DME distance		112.40	290	290	4.8	1,037	0:03	0:04
			SID AMAK2F	Course to intercept			290	290	2.5	1,034	0:01	0:06
	D084J	LE	SID AMAK2F	Arc to fix	/B 240				27	1,007	0:14	0:19
	XIDRA	LE	SID AMAK2F	Course to fix	A 4,700		95	95	6.9	1,000	0:03	0:22
	AMAKA	LE	SID AMAK2F	Track to fix	A 10,000		95	95	14.0	986	0:05	0:28
	LASKU	LE					95	95	19.5	967	0:06	0:34
	RONSI	LE		UM190	14,500		95	95	16.2	951	0:04	0:38
	DELOG	LE		UN873	14,500		24	25	55	895	0:21	0:59
	DESAB	LF		UN873	19,500-50,000		26	27	100	795	0:37	1:36

Flight plan table in browser. *Click image to enlarge.*

65.1.4. Aircraft

Shows aircraft information as Tab Aircraft.

Buttons `Manual Reload` or `1 Second` to `120 Seconds` and `Reload Map`: Same as on map page above.

65.1.5. Aircraft Progress Page

Shows aircraft progress information as Tab Progress.

Buttons `Manual Reload` or `1 Second` to `120 Seconds` and `Reload Map`: Same as on map page above.

65.1.6. Airport Information Page

Displays the same information as the Airport on one page.

Buttons and input fields:

- `ICAO`: Four or three letter airport ICAO ident. Press `Return` key or button `Submit` to show airport information.
- `Submit`: Loads airport information for given ICAO ident.
- `Reload`: Reload page manually to catch weather changes, for example.

The links `Runways`, `Com Frequencies`, `Procedures` and `Weather` jump to the respective sections below. Click the link ▲ `Top` to go back.

65.2. Web Developers

Little Navmap can deliver map images, the flight plan table and more for HTTP requests.

See directory `.../Little Navmap/web/test.html` or `http://localhost:8965/test.html` when running the web server for examples.

65.2.1. WebAPI

A REST interface is available to get feature information and map images in JSON format. See the documentation here GitHub - littlenavmap/web/webapi.yaml [https://github.com/albar965/littlenavmap/blob/release/3.0/web/webapi.yaml] for more information.

Examples:

You have to run the *Little Navmap* web server for these examples to work. See Run Web Server.

- Get airport information about EDDM: http://localhost:8965/api/airport/info?ident=eddm.
- Get all map features in the given rectangle: http://localhost:8965/api/map/features?toplat=50&bottomlat=49&leftlon=8&rightlon=9.

65.2.2. OpenLayers

See GitHub - KOKAProduktion - littlenavmap-openlayers [https://github.com/KOKAProduktion/littlenavmap-openlayers] for information about using *Little Navmap* as a map tile server.

See http://localhost:8965/ol/index.html for an example application.

66. Tutorials

66.1. General

All functions will be referred by the names in the main menu by using `Menu Name` -> `Menu Item`. The icons are shown as well, so you can find the buttons on one of the toolbars. Screenshots will provide more help.

Screenshots were made on Linux and Windows and may also show older versions of *Little Navmap* if functionality did not change. Therefore, look and feel might be different.

See User Interface for general information about the user interface.

Note

Flight plan distances, available procedures and airport names might differ between the simulators and used navdata cycles.

Select the closest procedures or runways if they differ in your setup.

66.2. Quick Start

To have a clean common base, I recommend the following:

- Select `Window` -> Reset Window Layout to Default and Reset Tabs to Default to get all the dock windows and tabs back into their default place.
- Use the map theme `OpenStreetMap` in menu `View` -> Theme.
- Reset the map display settings in `View` -> Reset Display Settings to make sure that all needed features are shown on the map.
- Select `File` -> Reset all for a new Flight and check all buttons in the dialog to start with a clean flight plan table.

66.3. Tutorials

1. Tutorial - Building a VFR Flight Plan: This tutorial shows how to create a simple flight plan based on the map and its context menu.
2. Tutorial - Building an IFR Flight Plan with Approach Procedures This long tutorial will show you how to create a more complex IFR flight plan including approach procedures. It introduces the advanced airport search functionality, the spatial search and the automatic flight plan calculation.
3. Tutorial - Creating an Aircraft Performance Profile This tutorial shows how to automatically collect aircraft performance while flying and how to merge and fine tune the result.

67. Tutorial - Building a VFR Flight Plan

67.1. General

This tutorial shows how to create a simple flight plan based on the map and its context menus.

The flight plan is included in the *Little Navmap* installation directory: `.../Little Navmap/etc/Tutorial VFR Meythet (LFLP) to Challes-les-Eaux (LFLE).lnmpln`.

The airport names might differ depending on simulator.

Use the map theme `OpenTopoMap` or any other map theme in menu `View` -> Theme to see the mountains. The flight will only go through Class E airspace. There is no need to contact ATC. Disable airspace display in menu `View` -> Show Airspaces for now.

The flight takes us through the valleys of the French alps. You can use this flight plan for any small aircraft like the default Cessna C172 which is available for all simulators.

The flight plan is: *Meythet (LFLP) / Runway 04 to Challes-Les-Eaux (LFLE) Distance 41 NM, time 0 h 24 m.*

67.2. Prepare Flight

I'd recommend to get use `Flight` -> Reset all for a new Flight before each flight to get a clean base for fuel calculation and other functions. Deselect `Create an empty flight plan` in the dialog if your plan is already loaded.

67.3. Default Aircraft Performance

This tutorial does not cover creating or collecting aircraft performance files. See Tutorial - Creating an Aircraft Performance Profile if you like to do this.

Therefore, we will simply use the default example performance profile based on a Cessna C172.

Select `Aircraft` -> New Aircraft Performance . Accept the default values by pressing `OK` in the dialog.

67.4. Departure Airport

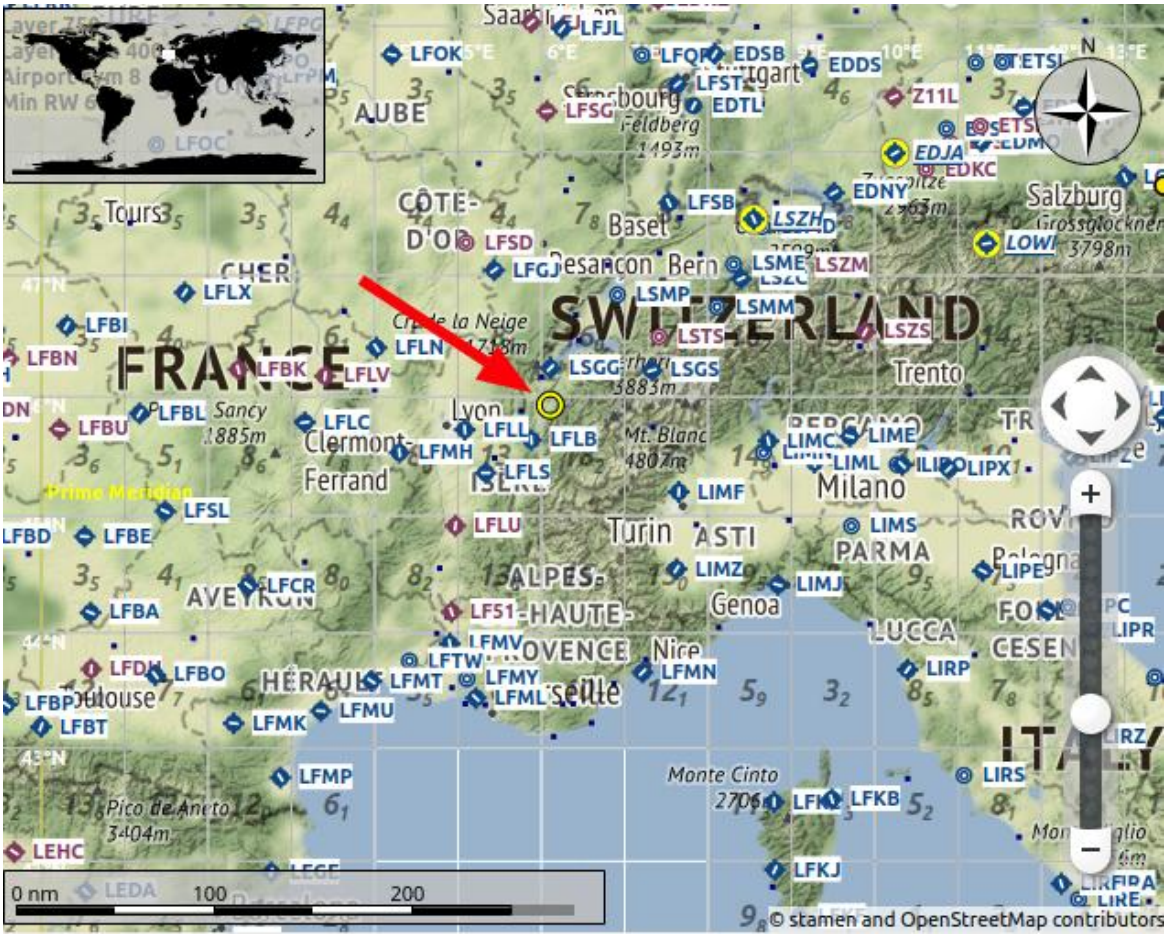
Find the departure airport: Click into the map and zoom to the French Alps. You can use the following functions to navigate:

- The map overlay on the right (Overlays).
- The mouse (click and drag) to move and the mouse wheel to zoom (Mouse Clicks).
- The cursor keys to move and the keys `+` and `-` for zooming in and out (click into the map window or press `F2` to activate it before using the keys). See Key Commands about keyboard navigation.

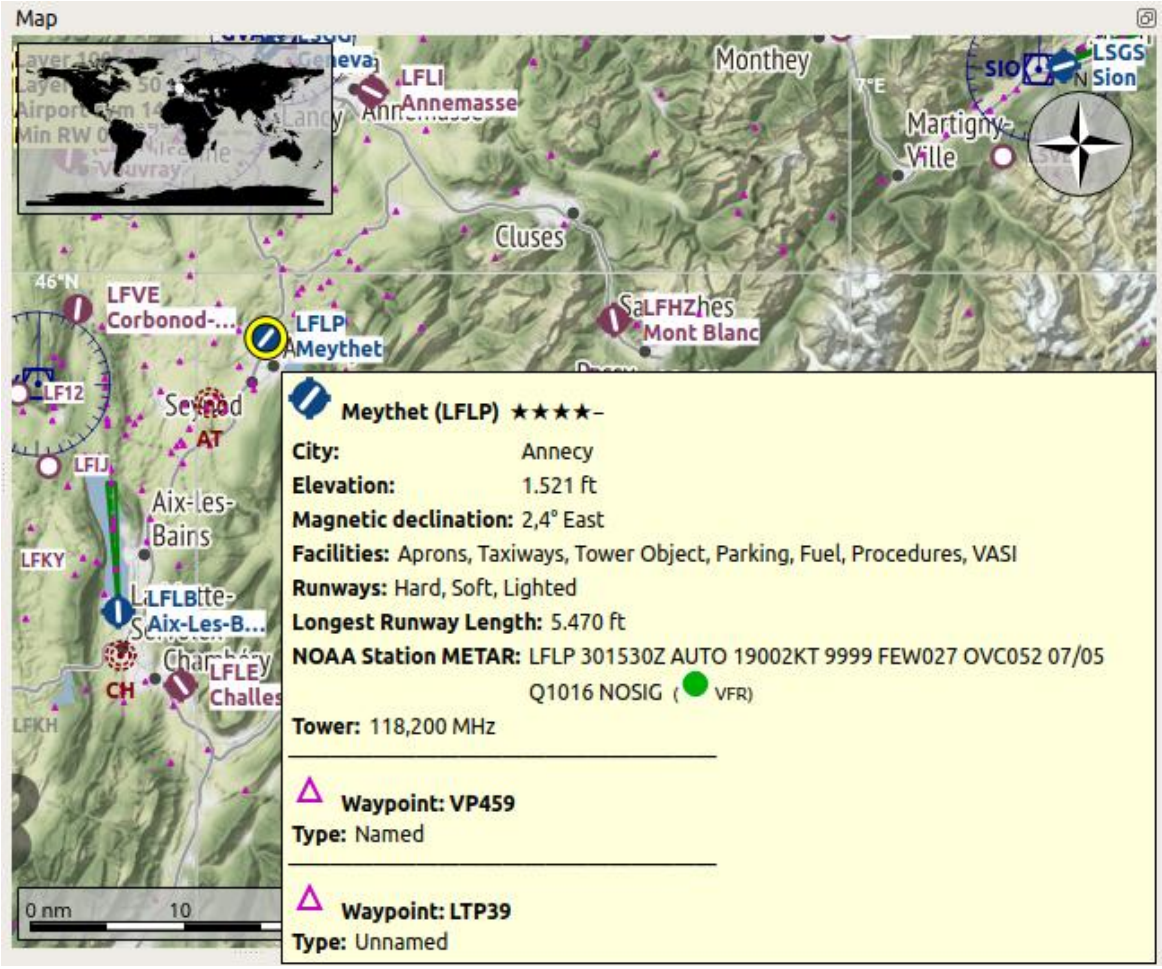
Use the back and forward buttons to jump in the position history like in a web browser.

See also Map Display.

Look for the departure airport `Meythet (LFLP)` around here:



Closer with tooltip:



Now:

- Zoom in until you see the airport diagram showing taxiways, runway details, parking positions and more.
- Zoom in further until you see the white parking numbers.
- Right-click on the center of one of the green ramp parking spots (11 is used here).
- Choose `Set Parking 11 at Meythet (LFLP) as Departure` (Set as Departure) in the context menu.

The airport layout and parking spot will be different depending on used simulator.

This will select your departure parking position which will be highlighted by a black/yellow circle. The airport will be added to the flight plan as departure too.

You can also click on the airport icon and select it for departure. The airport center will be automatically assigned as departure position.

67.5. En-Route Waypoints

Add the waypoints now:

- Scroll along the valley to the south east across the lake Lac d'Annecy.
- Click Append Position to Flight Plan . The clicked position will be added as an user defined waypoint (green rectangle) to the end of your plan.

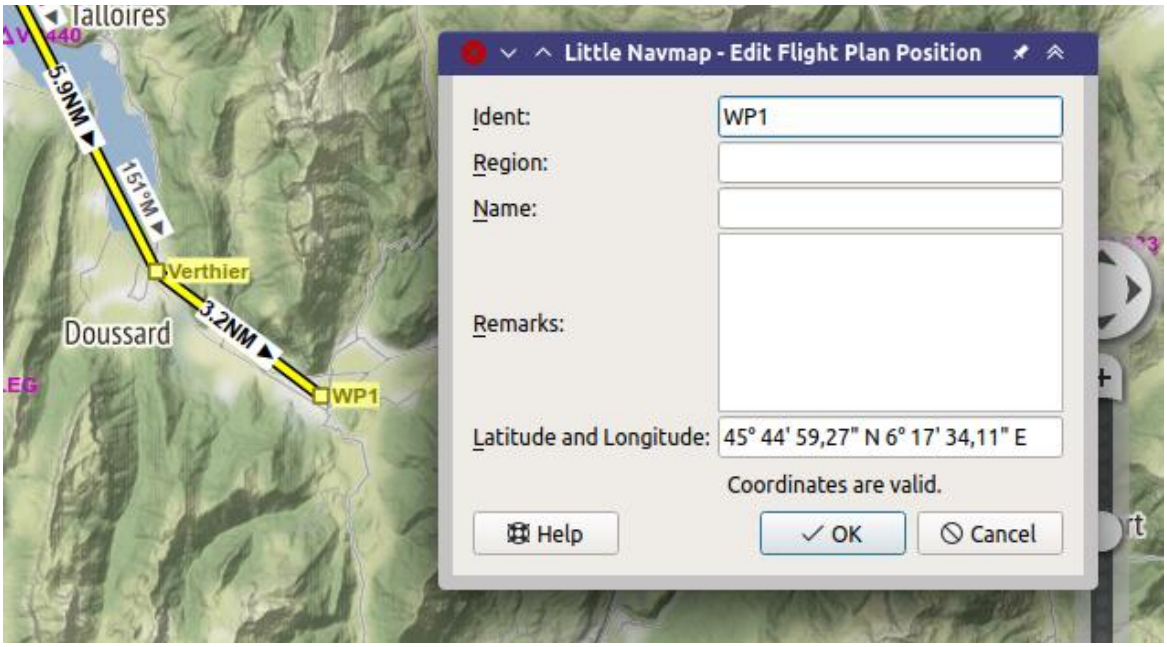
Click undo or redo in the toolbar if you don't like what you just added.

Another function is Add Position to Flight Plan which will insert the clicked position to the nearest flight plan leg. You can use this to add user defined positions, airports or navaids in the middle of a flight plan. The nearest leg will be chosen automatically by *Little Navmap* for inserting the new position.

Little Navmap will automatically assign names to the user defined waypoints. You can leave these as they are or replace them with a more meaningful name.

Waypoints using the default format `WP` plus number (e.g. `WP1` or `WP99`) are automatically renumbered to reflect the flying order in the flight plan.

Right-click on the user waypoint and select `Edit Flight Plan Position WP1` (Edit Flight Plan Position or Edit Flight Plan Position Remarks) to change a waypoint ident, name, remarks or its coordinates. Use nearby villages, mountains, lakes or other points of interest. Do not change the coordinates now.

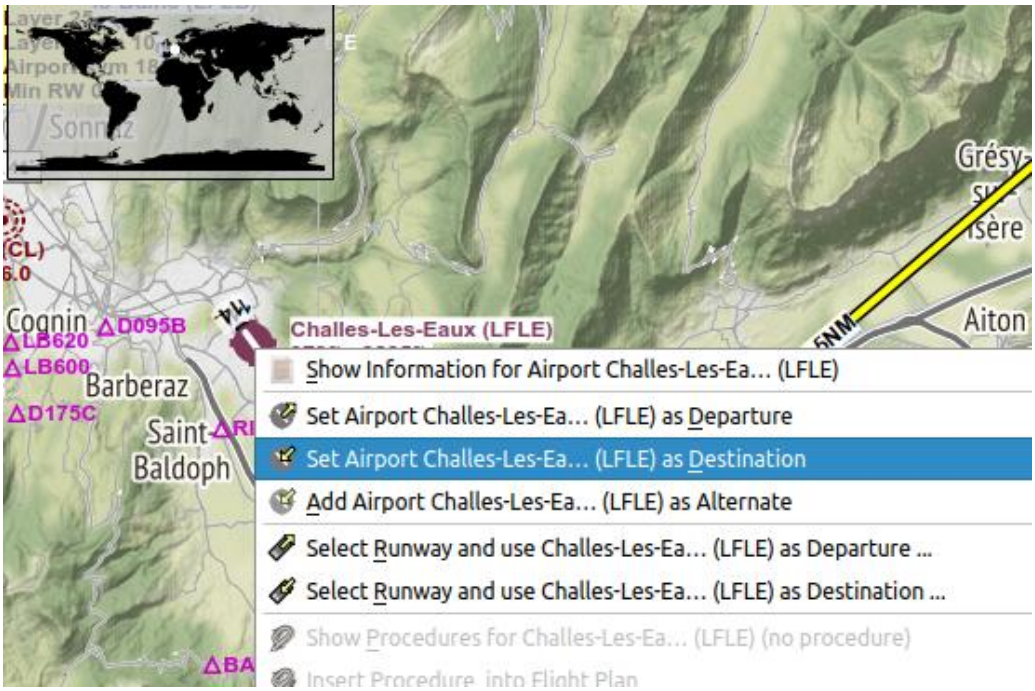


Keep adding points and stay away from the mountains until you're at `Challes-les-Eaux (LFLE)`.

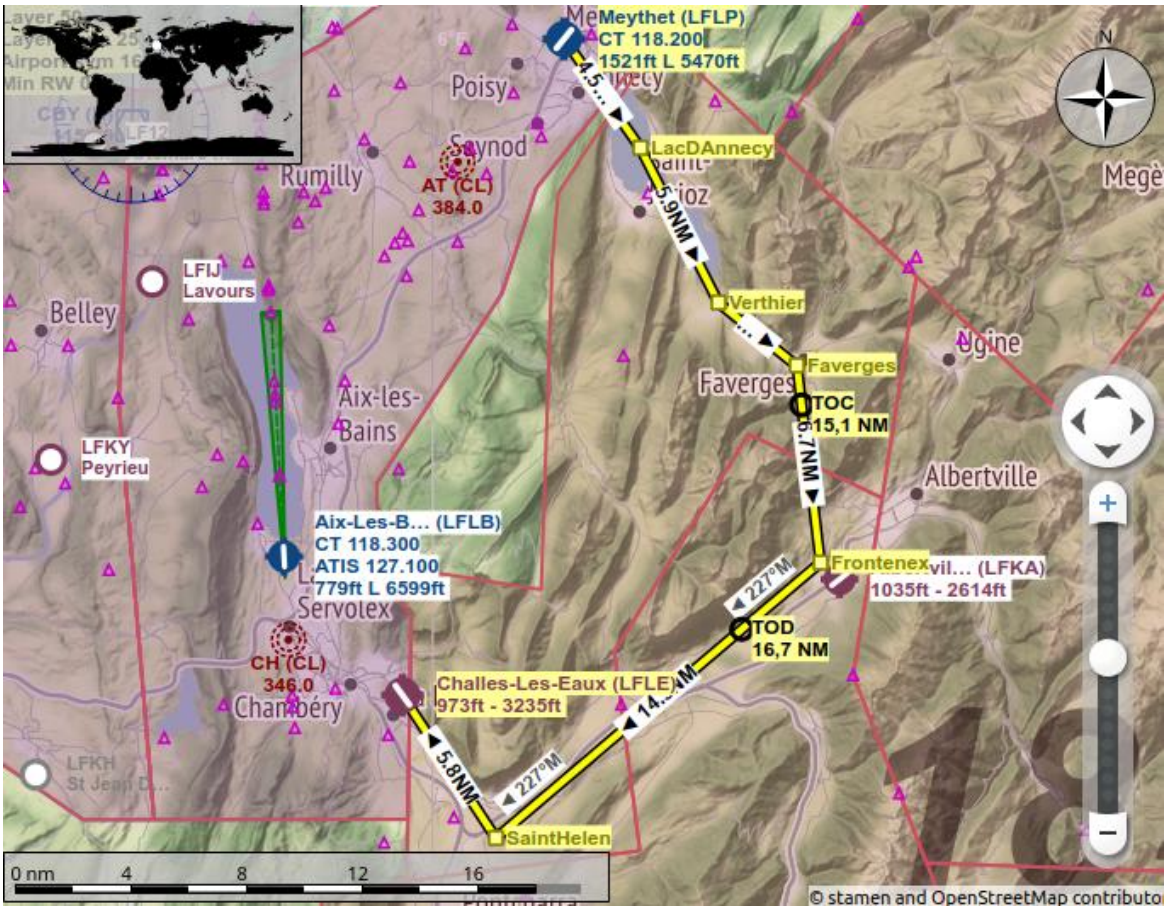
67.6. Destination Airport

To add the destination:

- Right-click on `Challes-les-Eaux (LFLE)`
- Select `Set Airport Challes-les-Eaux (LFLE) as Destination` (Set as Destination).



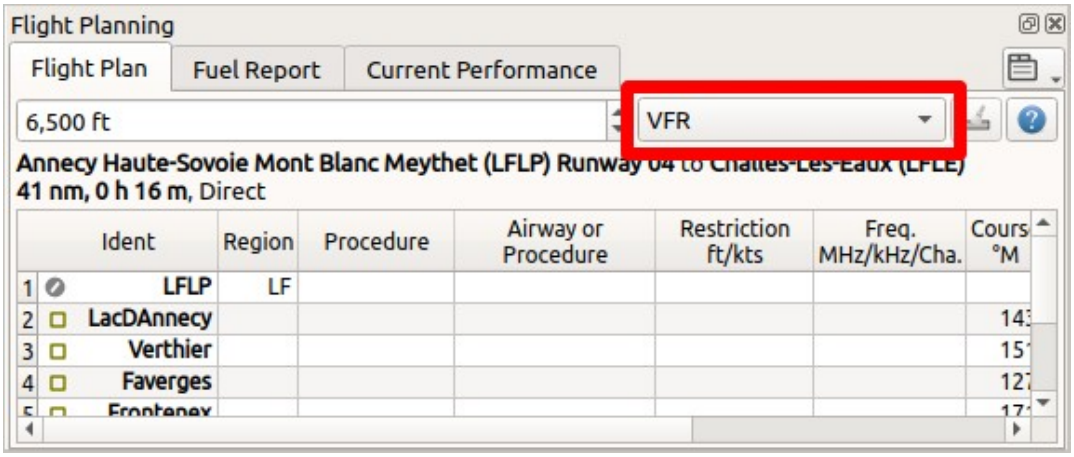
Now there is a flight plan. Yours might look a bit different.



You can also use the click-and-drag feature to move points or add new ones. Enable it by checking `Flight Plan` -> Edit Flight Plan on Map and click on a flight plan waypoint to move it. Click on a flight plan leg to add a new waypoint into this leg. See Map Flight Plan Editing for information on this function.

67.7. Cruise Altitude

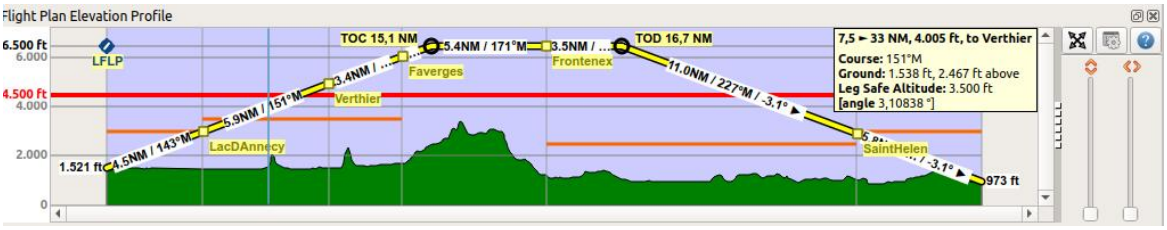
Change the flight plan type to `VFR` if not already done.



Now check the cruise altitude:

- Look at the flight plan elevation profile. There is a red line indicating the minimum safe altitude.
- Adjust the flight plan cruise altitude until you're above the red line.
- Select `Flight Plan` -> Adjust Flight Plan Altitude to get the correct altitude adjusted by the hemispherical rule.

Note that the default hemispherical rule is not correct for France until you change it in the options dialog, but avoid this for the sake of simplicity now.



You probably noticed that you will get close to ground near the destination. Be prepared to circumvent some mountains there.

67.8. Airspaces

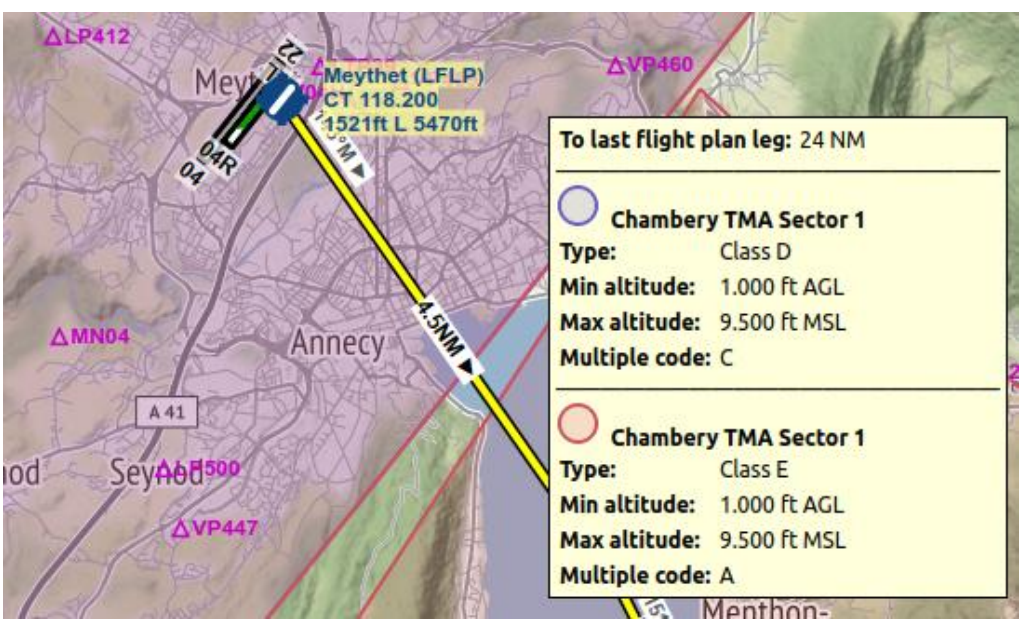
Now look if your flight plan touches any airspaces.

Click into one of the airspaces nearby start and destination and have a look at the information dock window. There are several airspaces:

- `Geneva TMA Sector 8` which starts at 9,500 ft above mean sea level (MSL). This is higher than our cruise altitude and won't affect us.
- Two Class E airspaces. The information window notes for these: `Controlled, IFR and VFR, ATC clearance required for IFR only`. No problem because we will fly using VFR.

The situation is similar at the destination.

Note that you might find different airspaces depending if you use the latest navdata or stock airspace data.



67.9. Saving

Save the plan in the *Little Navmap* format LNMPLN using `File` -> Save Flight Plan . The program usually finds the right directory for the flight plans and gives a meaningful name by default.

The format LNMPLN is only understood by *Little Navmap*. You cannot load these files into another program. Therefore, we have to export the flight plan.

Now open the multiexport options dialog by selecting `File` -> Multiexport Flight Plan Options.

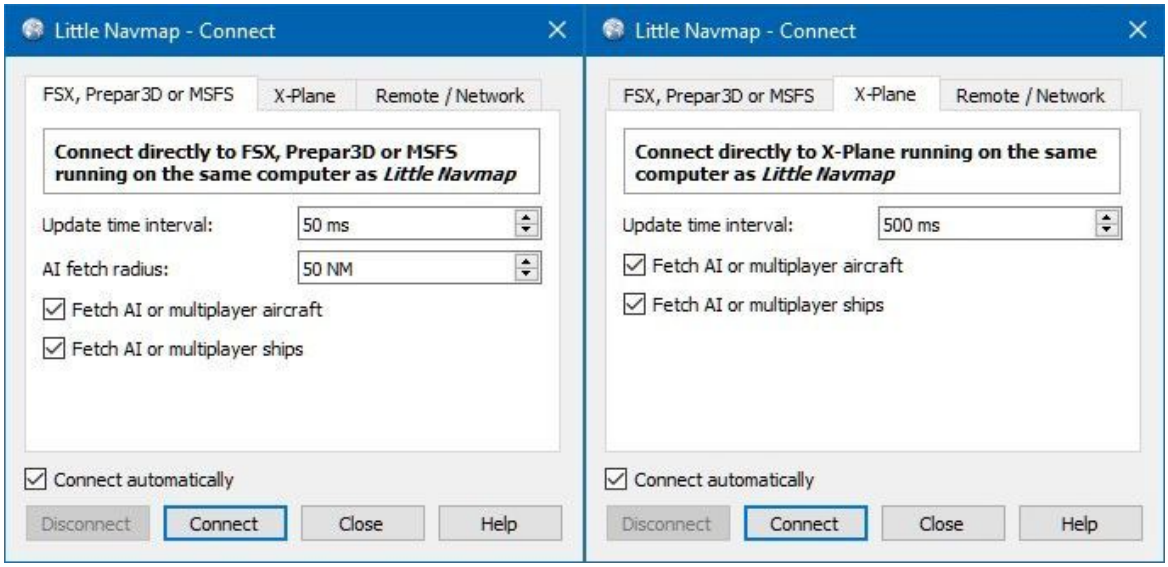
Right click on the simulator format you'd like to export and select Export Flight Plan now . Save the file to the right place. The default path is based on best guess. Adjust it as needed.

See Quick Setup for information how to quickly configure the multiexport.

67.10. Flying

Follow the steps below to get a moving map and see your aircraft in *Little Navmap*:

- Open the dialog `Connect` using `Tools` -> Connect to Flight Simulator and check if `Connect automatically` is selected. Enable it if not. *Little Navmap* will find the simulator no matter if it is already started or will be started later.
- Click on the tab which corresponds to your simulator. Image below shows the tab for FSX, P3D or MSFS on the left and the tab for X-Plane on the right. Tab titles will look different depending on whether you are using the 32-bit (FSX and P3D) or the 64-bit (MSFS and X-Plane) build of *Little Navmap*. Tab titles will look different depending on whether you are using the 32-bit (FSX and P3D) or the 64-bit (MSFS and X-Plane) build of *Little Navmap*.



- Click `Connect` which will close the dialog.
- Enable `Map` -> Map follows User Aircraft . The map will jump to the simulator aircraft and keep it centered if an active flight is loaded, i.e. the simulator is not in the opening screen.
- Start the simulator if not already done, load the flight plan and go flying.

Important

Make sure you use the right build of *Little Navmap*. The 64-bit version shows only `MSFS` in the connection tab while the 32-bit version shows `FSX and P3D`.

See also Connecting to a Flight Simulator.

67.11. Looking at Places while Flying

Little Navmap will keep your aircraft centered on the screen as a default setting. You can configure this function in the options dialog on page Simulator Aircraft.

The program will stop following your aircraft for 10 seconds if you start any action that zooms in to an airport or navaid (double-click, toolbar button or link in the information window) or just simply move or zoom around in the map.

See User Aircraft Centering for more information about aircraft centering while flying.

Double-click on the destination airport to zoom to the airport diagram, for example. Leave *Little Navmap* alone and the map will jump back to the aircraft and next flight plan waypoint after the timeout.

68. Tutorial - Building an IFR Flight Plan with Approach Procedures

This tutorial will show you how to create a more complex IFR flight plan including approach procedures. It introduces the advanced airport search functionality and the automatic flight plan calculation.

The flight plan is included in the *Little Navmap* installation directory: `.../Little Navmap/etc/Tutorial IFR Bembridge (EGHJ) to Wick (EGPC).lnmpln`.

While this tutorial looks quite lengthy it is normally a matter of half a minute to get a flight plan if you know where to go. The planning effort shown here is bigger to highlight some of the more advanced features of *Little Navmap*.

You should at least read through Tutorial - Building a VFR Flight Plan before doing this one.

Note

The flight plan will go across the UK using an IFR capable aircraft. Its maximum range should be more than 600 NM including reserves and a cruise altitude of 10,000 ft.

Note that Bembridge has a relatively short runway of 2,729 ft. You probably need a small turboprop or a powerful twin.

Do not attempt to fly this trip on an airliner or other unsuitable aircraft.

The tutorial assumes the following preconditions:

- You left your aircraft at `Bembridge (EGHJ)` at the end of the last flight or think of it as you home base.
- You don't know where you want to fly today.
- You know the requirements for your aircraft:
  - Maximum range
  - Minimum runway length
  - Hard runways
  - Needs a parking spot at the destination
  - Fuel for return trip

68.1. Prepare Flight

Use `Flight` -> Reset all for a new Flight before each flight to get a clean base for fuel calculation and other functions. Deselect `Create an empty flight plan` in the dialog if the flight plan is already loaded.

68.2. Default Aircraft Performance

This tutorial does not cover creating or collecting aircraft performance files. See Tutorial - Creating an Aircraft Performance Profile if you like to do this.

Therefore, we will simply use a slightly modified aircraft performance profile which allows to calculate the top of climb and top of descent.

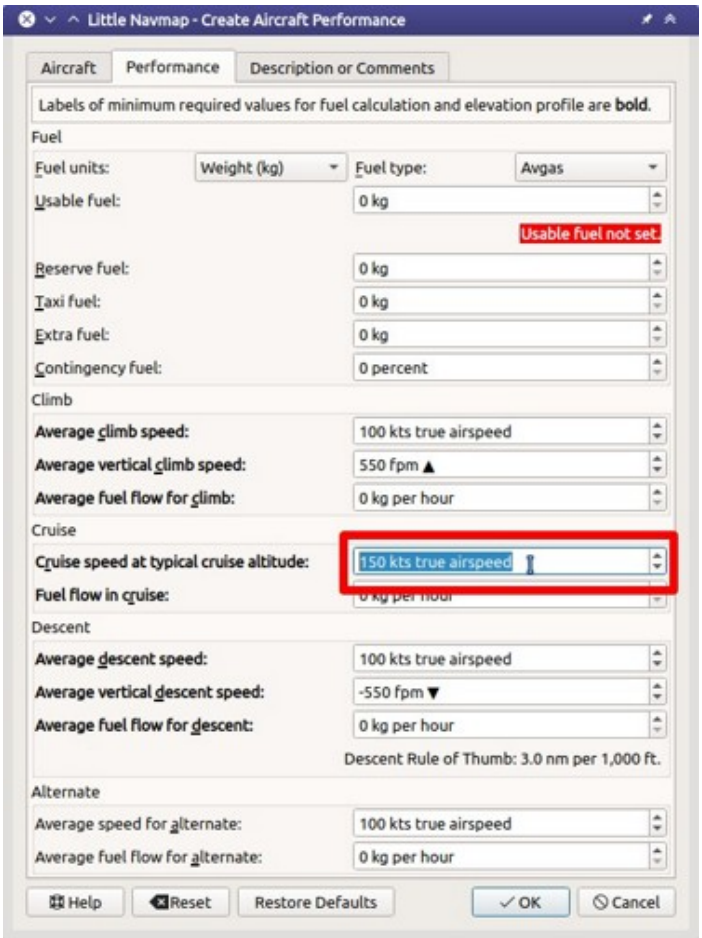
- Select `Aircraft` -> New Aircraft Performance .
- Optional: Select Edit Aircraft Performance from the same menu as above and change the values fuel flow and speed at climb cruise and descent to roughly match your aircraft. Add reserve fuel for about one hour or cruise fuel consumption for now. This helps to get an estimate for the traveling time. Fill the other fields too if you know the performance values.

- Accept by pressing `OK` in the dialog.

You might see warnings in the fuel report. Ignore these for now since the aircraft performance is sufficient to calculate the top of descent and top of climb for the elevation profile.

Tip

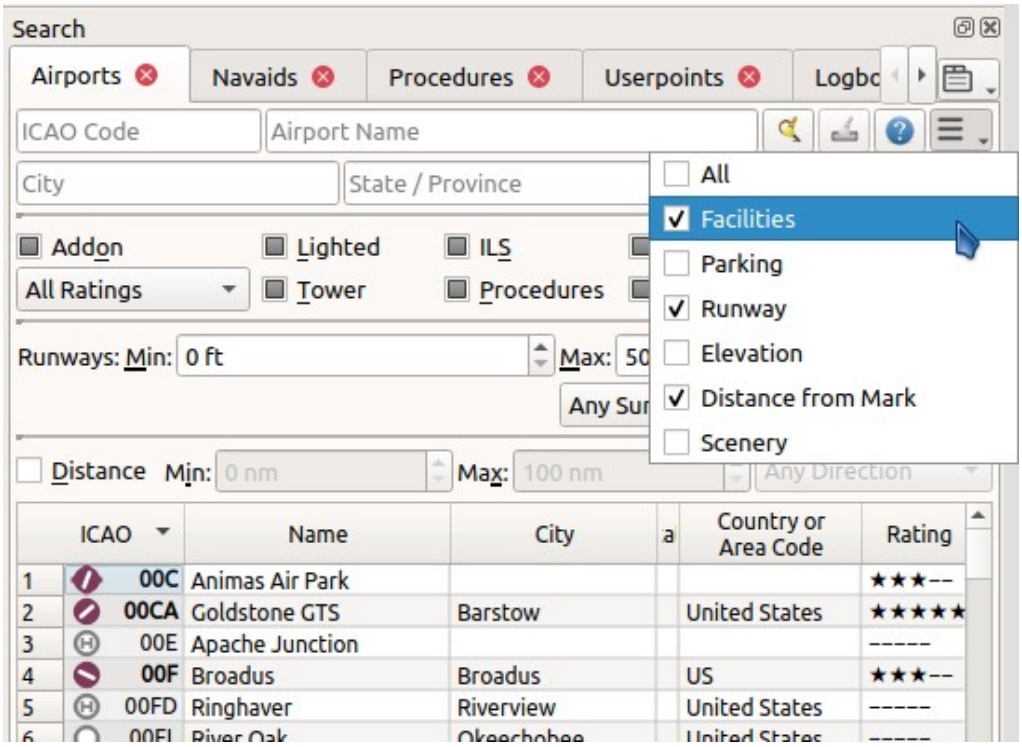
Lookup numbers at the Aircraft Performance Database [https://contentzone.eurocontrol.int/aircraftperformance/default.aspx?] or download a community made performance file from Little Navmap Downloads - Aircraft Performance [https://www.littlenavmap.org/downloads/Aircraft%20Performance/].



68.3. Cleanup Search

Go to the dock window `Search` and follow the steps below:

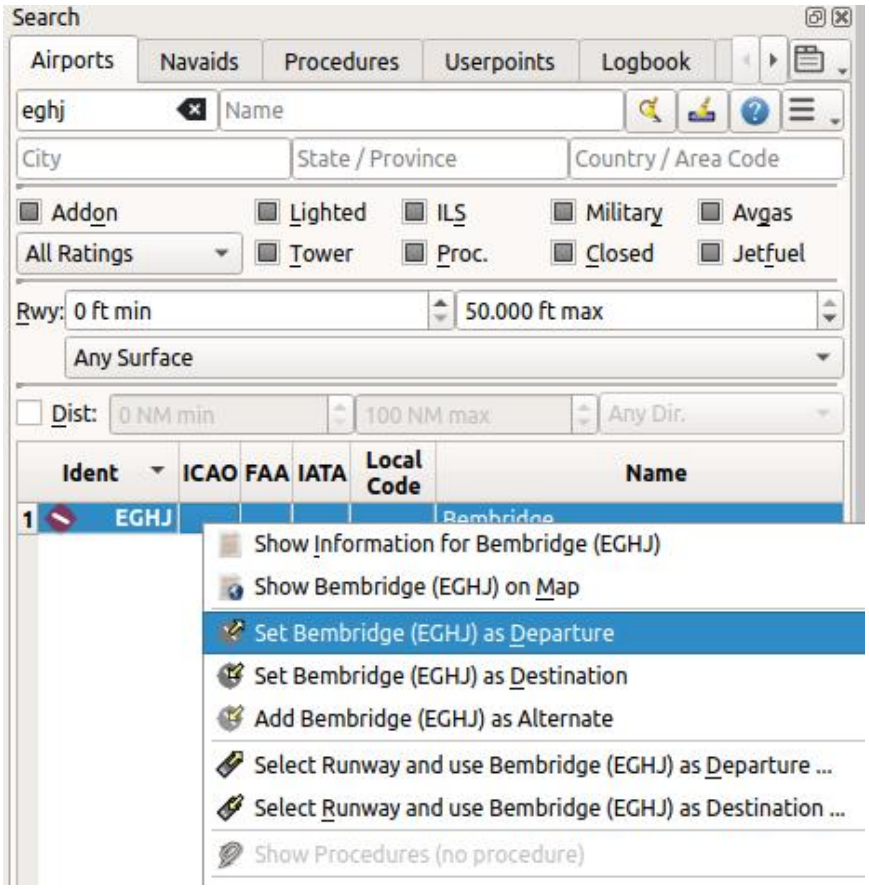
- Right-click into the result table and select Reset Search to remove of all search criteria that may affect the query.
- Click the menu button and make sure that the search groups `Facilities`, `Runway` and `Distance from Mark` are checked. Deselect all others you do not need.



68.4. Assign Departure

Now look for the departure airport:

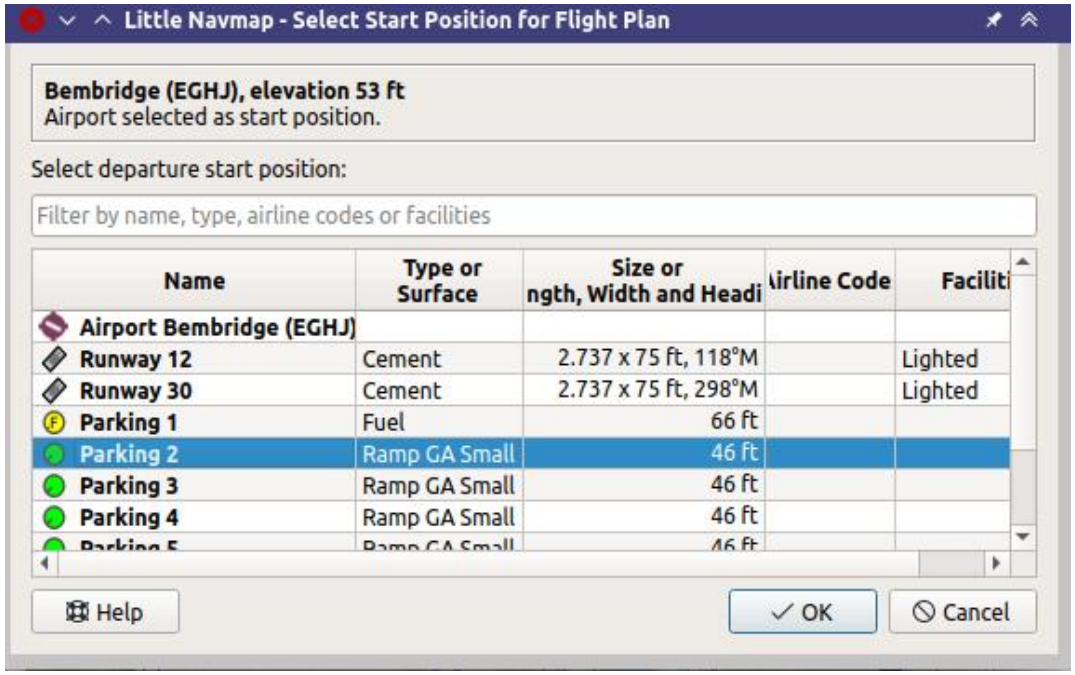
- Enter `EGHJ` in the `ICAO Code` search field on the top left (case does not matter).
- Right-click on the airport in the result table.
- Choose `Set as Departure` . This will assign the airport center point as a start position.



The flight plan has one entry now. This is already sufficient if you want to fly a pattern and like to see distance, speed and time information to the airport.

Now select a parking position:

- Go to `Flight Plan` -> Select a Start Position .
- Choose one of the GA small ramp positions.
- Click `OK` and the position will be highlighted on the map.



You can also select the start position directly on the map context menu as described in Tutorial - Building a VFR Flight Plan. See also Set as Departure.

68.5. Search for Destination

Right-click into the result table and select Reset Search to remove of all search criteria from the recent search.

Now look for a suitable destination airport:

- Right-click on `EGHJ` in the search result again.
- Select `Set Center for Distance Search` . You can also do this in the map. This is the center point for the spatial search.
- Clear the `Ident` search field on the top left of the search window now. It is a common mistake to leave the text fields filled when doing distance searches which will give you an empty result table.

We will now look for airports that are in range of the aircraft but not too close. Also, certain criteria have to be fulfilled, like a runway which is long enough and has the right surface.

You can also find airports in aircraft range by using the range rings where you can right-click into the map on your departure airport and select Add Range Rings .

We will use the spatial search instead of range rings since we'd like to see only suitable airports for out aircraft.

Check the following in the airport search tab:

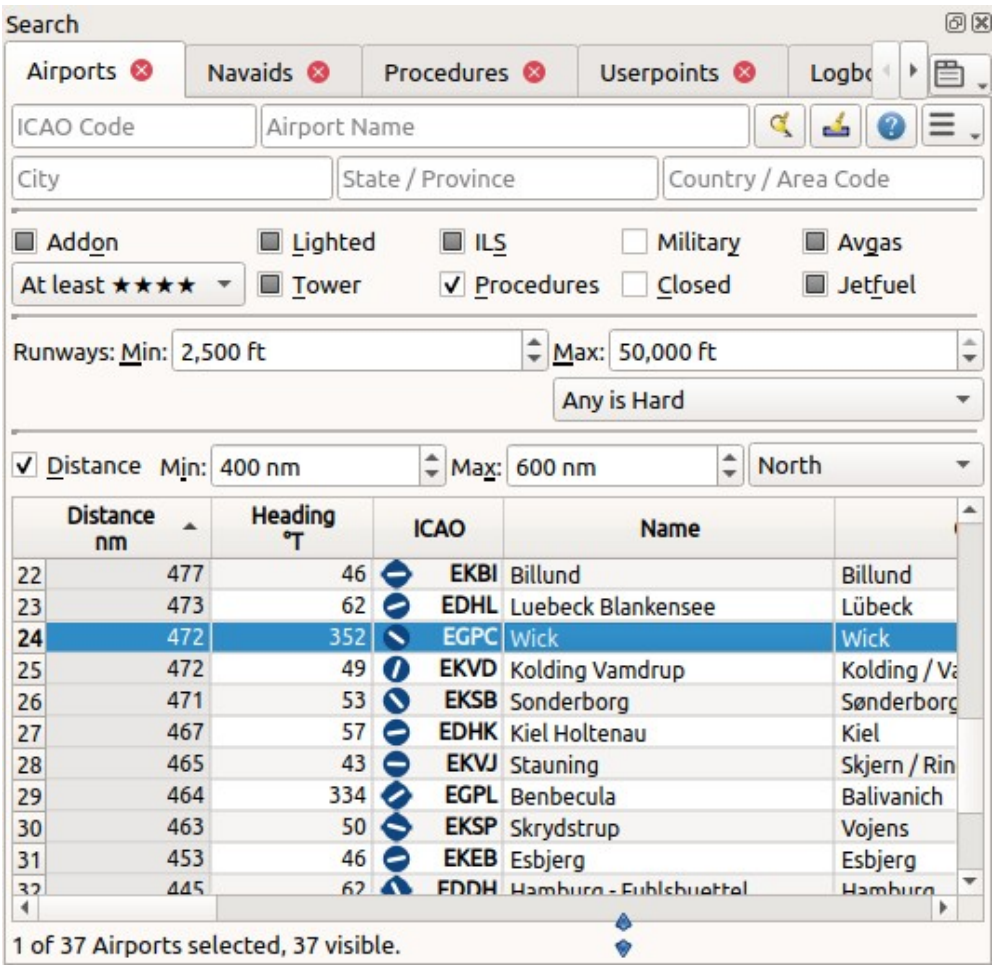
1. `Rating`: We'd like to get airports that are either add-ons or have basic scenery requirements as taxiways, parking spots and more. Select the one with at least four stars. You can also select `3D` if you fly X-Plane.
2. `Procedures`: Show only airports that have procedures like SID, STAR or approaches.
3. Deselect `Military` and `Closed` (click the checkboxes twice): This will return only civilian airports and avoid airports that have all runways closed.
4. Select `Any is Hard` in the button `Any Surface` to avoid airports having only soft surfaced runways.
5. Select a minimum runway length of 2,500 ft or whatever you chosen aircraft needs in the field `Runways: Min:`.

See also Search for general information about searching for airports, navaids and other features.

You can also limit the maximum runway length if you are looking for a short landing challenge.

The search result changes on the fly while doing all these adjustments, though we are not there yet:

- Check `Dist:` to activate the spatial search.
- Change the maximum distance to 600 NM and the minimum to 400 NM (to avoid short hops). The result table will now update with a small delay since the distance search is more complex.
- To find only airports north of your position select `North` in the button `Any Dir.`. Note that the search result is sorted by distance with the closest airport first per default.
- Choose an airport for your trip. Use `Wick (EGPC)` for this tutorial.



- Right-click on Wick in the result table and select `Show Information` . This will fill the tabs in the dock window `Information`.
- Select the tab `Airport` and below this one the tab `Weather`. Look for the section `Best runways for wind` to get an idea of the expected landing runway. Start any third party weather programs before if you use these.

For this tutorial we assume that the winds favor runway 13.

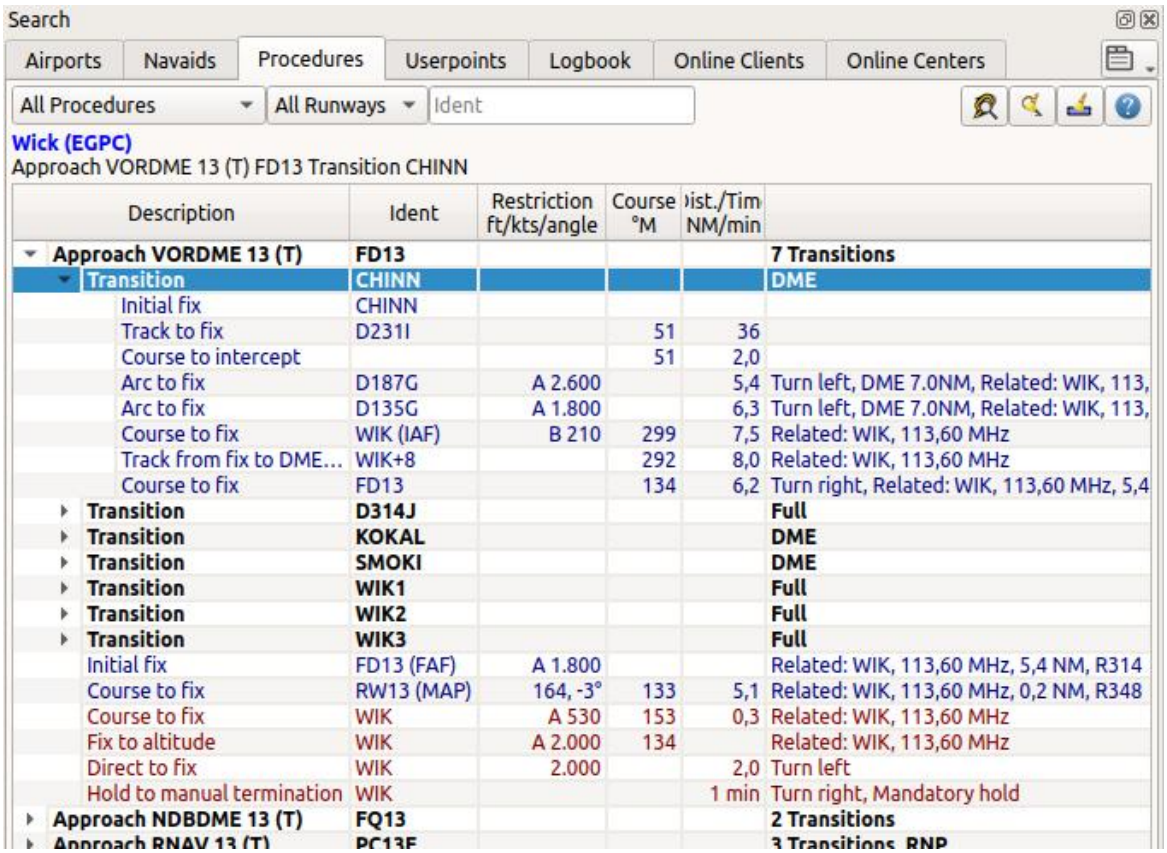
See also Weather for general information about weather display in *Little Navmap*.

68.6. Select an Approach Procedure

We'll select an approach procedure now:

- Go back to the search result.
- Right-click on the airport Wick again. Select `Show Procedures for` . This will pop up the procedure search tab.
- Choose `Runway 13` in the `All Runways` box to see only approaches for 13.
- Select `Expand All` in the context menu to see also the transitions for each approach.
- Choose `Approach VORDME 13 FD13` using `Transition (Full) CHINN` since we expect to land on runway 13. You can also use any other approach for this runway if VORDME 13 is not available.

The top label in the procedure search shows `Wick (EGPC) Approach VORDME 13 FD13 Transition (Full) CHINN` for the selected approach and/or transition. You can also see a preview on the map.



Description	Ident	Restriction ft/kts/angle	Course °M	Dist./Tim NM/min	
Approach VORDME 13 (T)	**FD13**				**7 Transitions**
Transition	**CHINN**				**DME**
Initial fix	CHINN				
Track to fix	D231I		51	36	
Course to intercept			51	2,0	
Arc to fix	D187G	A 2.600		5,4	Turn left, DME 7.0NM, Related: WIK, 113,
Arc to fix	D135G	A 1.800		6,3	Turn left, DME 7.0NM, Related: WIK, 113,
Course to fix	WIK (IAF)	B 210	299	7,5	Related: WIK, 113,60 MHz
Track from fix to DME...	WIK+8		292	8,0	Related: WIK, 113,60 MHz
Course to fix	FD13		134	6,2	Turn right, Related: WIK, 113,60 MHz, 5,4
Transition	**D314J**				**Full**
Transition	**KOKAL**				**DME**
Transition	**SMOKI**				**DME**
Transition	**WIK1**				**Full**
Transition	**WIK2**				**Full**
Transition	**WIK3**				**Full**
Initial fix	FD13 (FAF)	A 1.800			Related: WIK, 113,60 MHz, 5,4 NM, R314
Course to fix	RW13 (MAP)	164, -3°	133	5,1	Related: WIK, 113,60 MHz, 0,2 NM, R348
Course to fix	WIK	A 530	153	0,3	Related: WIK, 113,60 MHz
Fix to altitude	WIK	A 2.000	134		Related: WIK, 113,60 MHz
Direct to fix	WIK	2.000		2,0	Turn left
Hold to manual termination	WIK			1 min	Turn right, Mandatory hold
Approach NDBDME 13 (T)	**FQ13**				**2 Transitions**
Approach RNAV 13 (T)	**PC13F**				**3 Transitions, RNP**

Right-click on the transition and select Show on Map (text might be different depending on selection) . This will center the procedure on the map. You can click on the legs in the procedure tree to see the start and end points of a leg highlighted on the map.

See also Search Procedures and Procedures.

If you like what you see right-click again on the transition and select Insert into Flight Plan, Use as Destination and Use as Departure (text might be different depending on selection) .

This will do two things:

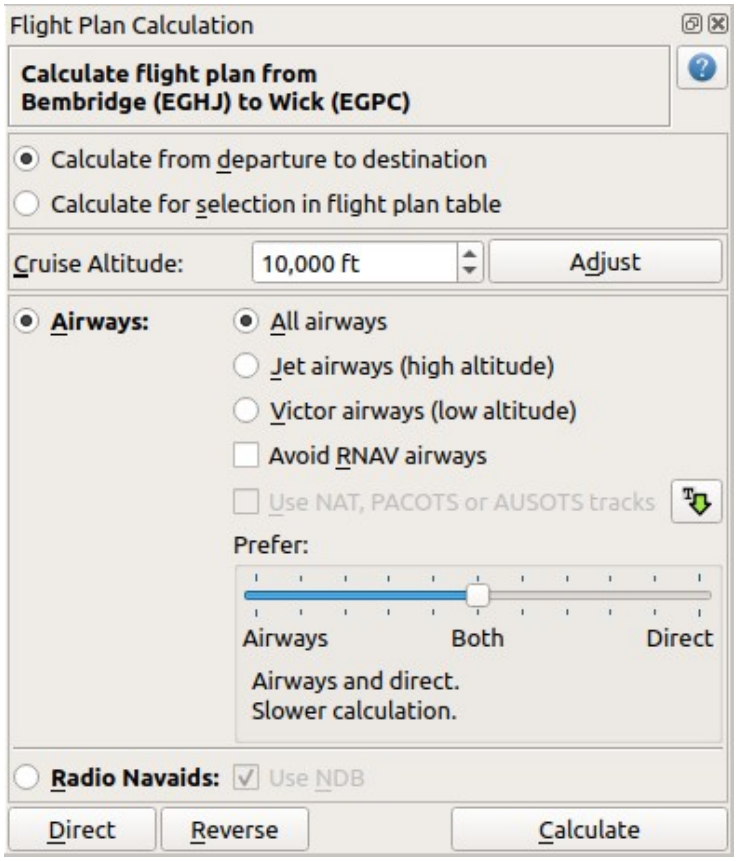
1. Add Wick as the destination airport to the flight plan. Any previous destination in the flight plan will be replaced.
2. Add the approach and its transition to the flight plan. The procedure legs use a dark blue color and the missed approach legs use a dark red color in the flight plan table. Flight plan en-route legs are black. Any previous procedure is replaced with this new one.

About adding transition and approaches: Approaches and transitions are closely related which is already indicated by the tree structure in the procedure search tab. You can add an approach without transition but a transition always belongs to an approach.

68.7. Calculate a Flight Plan

Now we have the departure airport, an approach procedure and the destination all connected by a straight line. Next is the en-route part of the flight plan:

- Set `IFR` as the flight plan type in the dock window `Flight Planning` on tab `Flight Plan`. This allows the automatic flight plan calculation to adjust the cruise altitude.
- Click `Flight Plan` -> Flight Plan Calculation to open the flight plan calculation floating window.



The flight plan cruise altitude is automatically adjusted according to the hemispherical rule (the rule can be changed in `Tools` -> Options on the page Flight Plan), the altitude restrictions of the airways and the flight plan type (`VFR` or `IFR`). You can see the minimum altitude for each airway segment in the flight plan table in the column `Restriction` (see Table Columns). The altitude can be changed according to the hemispherical rule by clicking the Adjust button.

- Change all settings in the floating window as shown in the screenshot above.
- Click the button Calculate.

Use this flight plan for now.

Save the plan using `File` -> Save Flight Plan as LNMPLN. The program usually finds the right directory for the flight plans and gives a meaningful name by default.

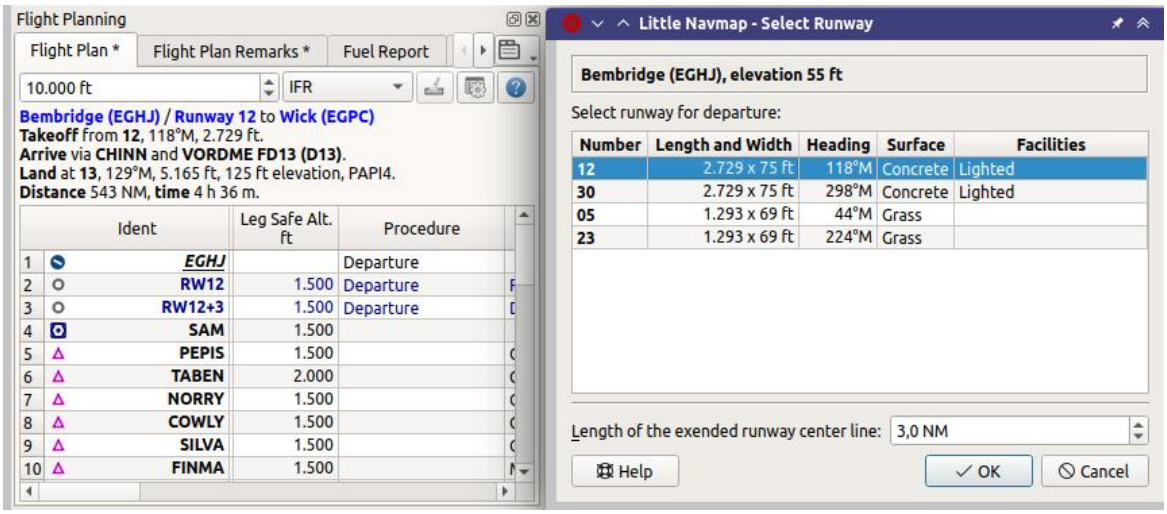
The top label in the flight planning dock window reads now:

```
Bembridge (EGHJ) / Parking 7 to Wick (EGPC)
Arrive via CHINN and VORDME FD13 (D13).
Land at 13, 129°M, 5.215 ft, 126 ft elevation, PAPI4.
Distance 538 NM, time 4 h 35 m.
```

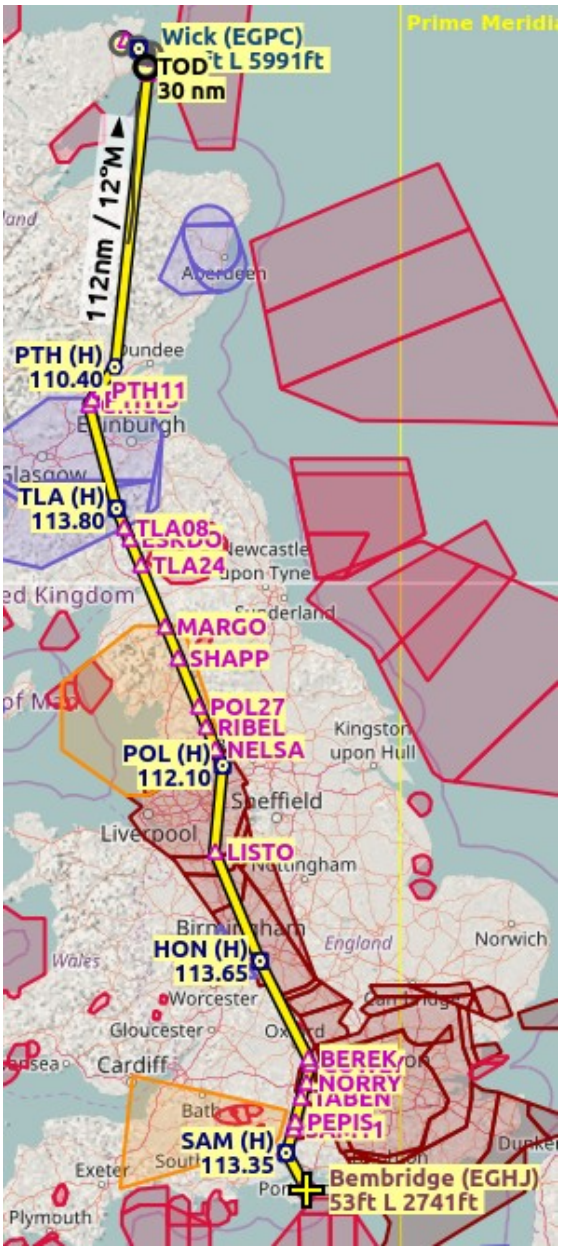
The text can be slightly different depending on the used version of *Little Navmap*.

Note that no departure runway information is given. Click Select Departure Runway or Procedure on the toolbar to select one and save the plan.

Below the runway selection dialog and the result in the flight plan table after selecting runway 12 for departure. You can see the runway start point `RW12` and the end of the extended runway center line `RW12+3`.



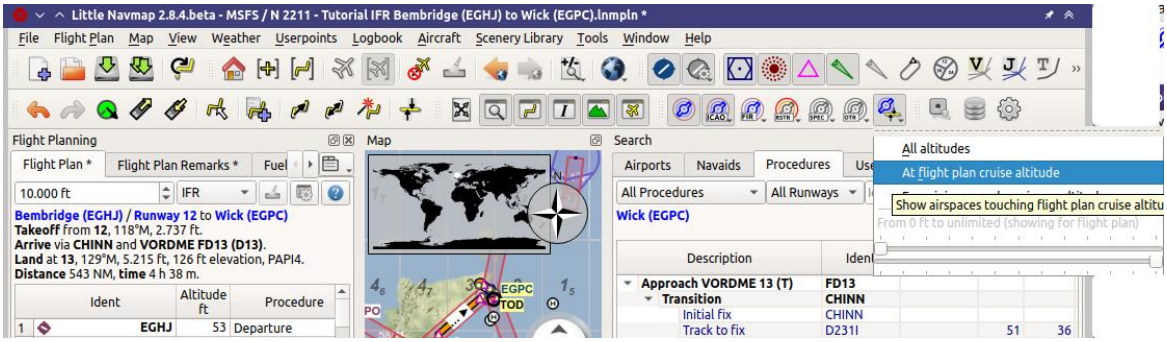
The plan looks like shown below.



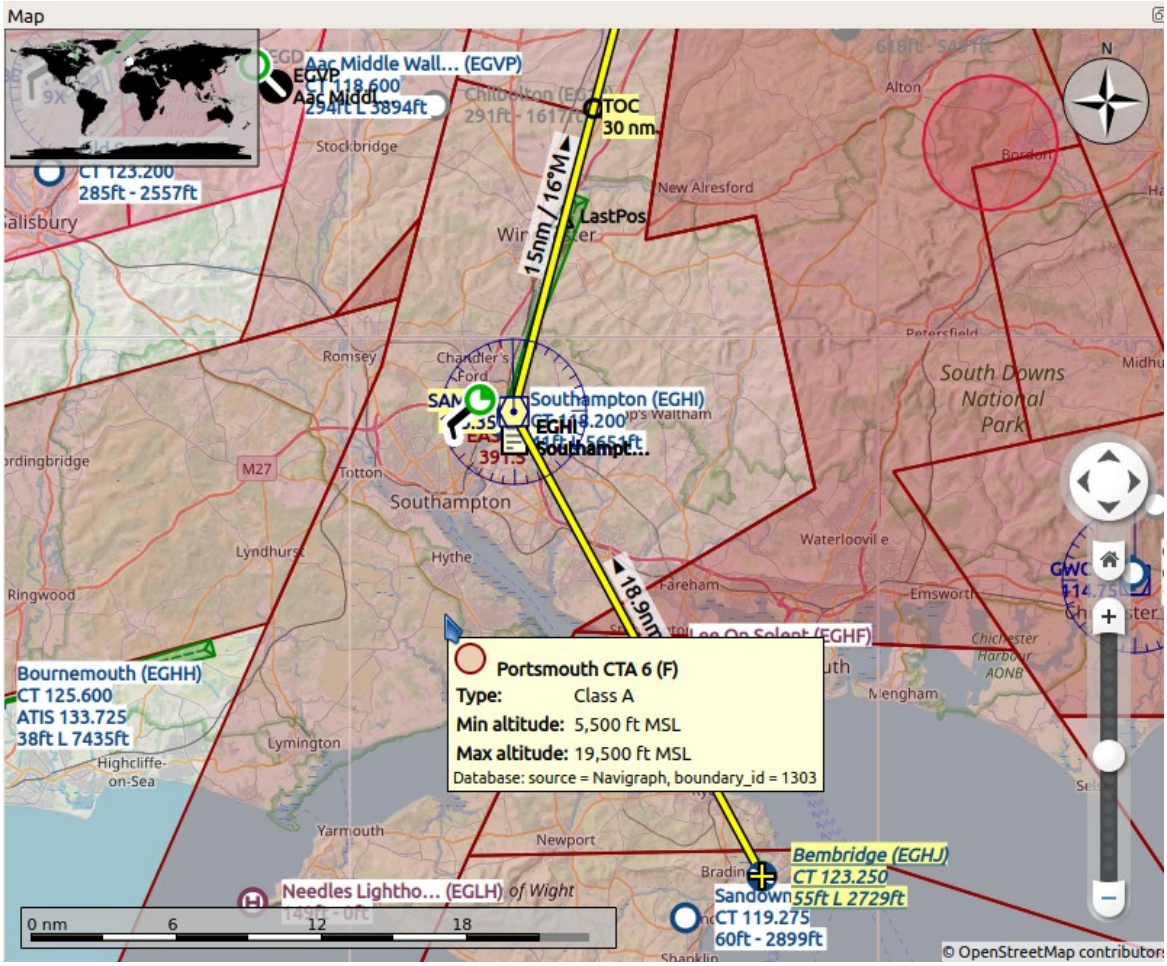
68.8. Airspaces

Now you can check if you pass through any airspaces:

- Enable airspaces by selecting `View` -> `Airspaces` -> Show Airspaces if not already done.
- Check `View` -> `Airspaces` -> At flight plan cruise altitude in the menu or the toolbar menu button.



This will display only airspaces on the map that are relevant for your cruise altitude. You can also select `Below 10,000 ft only` to see all relevant airspaces in the climb or descent phase. Use the tooltips on the map to get information about airspaces like type, minimum and maximum altitude.



68.9. Saving

Save the plan in the *Little Navmap* format LNMPLN using `File` -> Save Flight Plan . The program usually finds the right directory for the flight plans suggests a name based on departure and destination.

The format LNMPLN is only understood by *Little Navmap*. You cannot load these files into another program. Therefore, we have to export the flight plan.

Now open the multiexport options dialog by selecting `File` -> Multiexport Flight Plan Options.

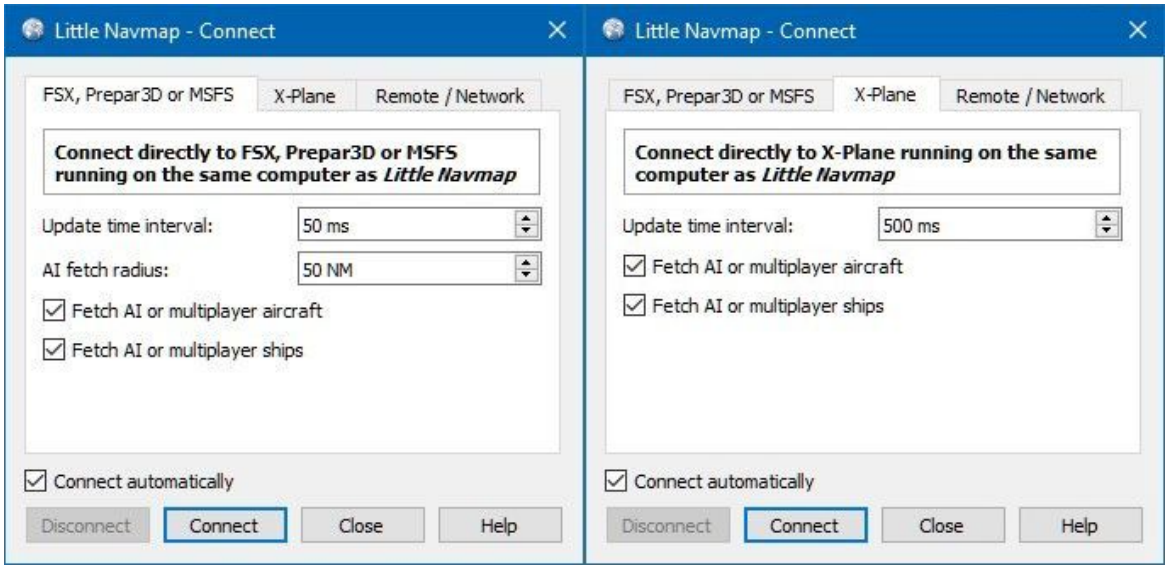
Right click on the simulator format you'd like to export and select Export Flight Plan now . Save the file to the right place. The default path is based on best guess.

See here Quick Setup for information how to quickly configure the multiexport.

68.10. Flying

Follow the steps below to get a moving map and see your aircraft in *Little Navmap*:

- Open the dialog `Connect` using `Tools` -> Connect to Flight Simulator and check if `Connect automatically` is selected. Enable it if not. *Little Navmap* will find the simulator no matter if it is already started or will be started later.
- Click on the tab which corresponds to your simulator. Image below shows the tab for FSX, P3D or MSFS on the left and the tab for X-Plane on the right.



- Click `Connect` which will close the dialog.
- Enable `Map` -> `Center Aircraft` . The map will jump to the simulator aircraft and keep it centered if an active flight is loaded, i.e. the simulator is not in the opening screen.
- Start the simulator if not already done, load the flight plan and go flying.

Important

Make sure you use the right build of *Little Navmap*. The 64-bit version shows only `MSFS` in the connection tab while the 32-bit version shows `FSX and P3D`.

See also Connecting to a Flight Simulator.

68.11. Top of Descent

A top of descent indication is displayed on the map and in the elevation profile which also shows the distance from top of descent to the destination. This number includes the distance of approach procedures (excluding holds).

Altitude restrictions in procedures are considered in the top of descent calculation.

The tab `Progress` in the dock window `Simulator Aircraft` will show the distance to the top of descent in the `Flight Plan Progress` section.

The section `Altitude` will show the vertical path deviation after passing the top of descent.

68.12. Changing Procedures

Now the weather has changed requiring an approach to runway 31:

- Right-click on the destination airport at the bottom of the flight plan table.
- Select `Show Procedures for` .
- Then change the runway filter to `Runway 31`.
- Expand the approach `VORDME 31` to see the transition.
- Select the transition.

The label on top of the window shows now `Approach VORDME 31 FD31 Transition (Full) CHINN`.

- Right-click on the selected transition.
- Select `Use EGPC and Approach and Transition as Destination` from the context menu which will replace the current procedure in your flight plan with the new one.

The top label in the flight planning dock window reads now:

```
Bembridge (EGHJ) / Parking 7 to Wick (EGPC)
Takeoff from 12, 118°M, 2.729 ft.
Arrive via CHINN and VORDME FD13 (D13).
Land at 31, 309°M, 5.031 ft, 126 ft elevation, PAPI4.
Distance 519 NM, time 4 h 26 m.
```

To remove a procedure from the flight plan:

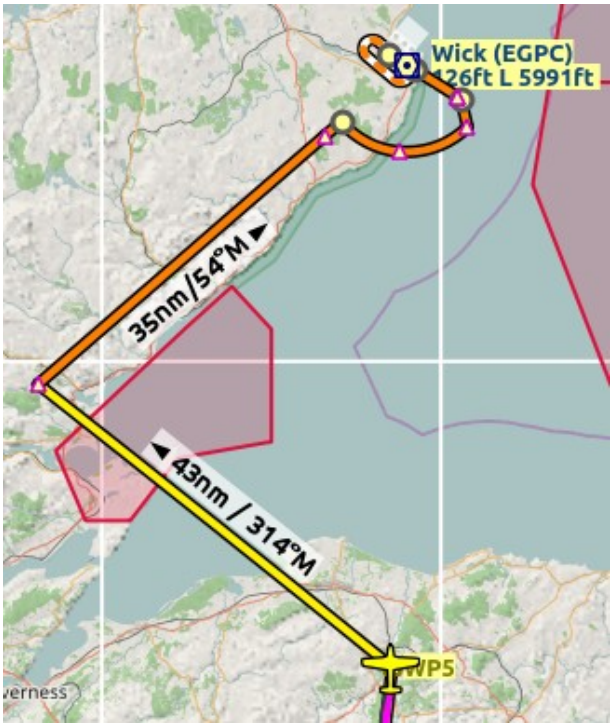
- Select any leg of the procedure in the flight plan table.
- Right-click and select Delete Selected Legs or Procedure or press the `Del` key to remove the whole procedure.

Alternatively right click on any fix/waypoint of the procedure on the map and select Delete from Flight Plan .

If ATC clears you to the initial fix of the procedure: Right-click on the starting waypoint of the procedure (initial fix) and select Direct to Here . This will create a waypoint `PPOS` (present position) at your aircraft and a direct flight plan leg to the start of the procedure.

You can now to get the course and distance to the initial fix.

Below: After changing the approach procedure and adding an user defined waypoint at the aircraft position to the flight plan. Now we get course and altitude indications for a direct leg to the start of the transition (43 NM and 314 degrees magnetic course).



68.13. Going Missed

I recommend hiding the missed approaches on the map by deselecting `View` -> Show Missed Approaches . This helps uncluttering the map display.

- **If the missed approach is not shown:** The progress window shows distance and time to destination. Activating the next leg (shown in magenta color) will stop if the destination (i.e. the runway threshold) is reached, even when passing the threshold.
- **If the missed is shown and the aircraft passes the runway threshold:** The first leg of the missed approach is activated and simulator aircraft progress will display the remaining distance to the end of the missed procedure.

69. Tutorial - Creating an Aircraft Performance Profile

This tutorial shows how to automatically collect aircraft performance while flying and how to create, merge and fine tune the result.

You should be already familiar with the flight planning features of *Little Navmap*.

69.1. Flight Plan

You can use the flight plan from the IFR tutorial is included in the *Little Navmap* directory: `.../Little Navmap/etc/Tutorial IFR Bembridge (EGHJ) to Wick (EGPC).lnmpln`.

Use main menu `File` -> Open Flight Plan to load the flight plan.

The plan should cover the typical cruise altitude and travel distance for your aircraft. A short hop of a few miles at low altitude does not suffice.

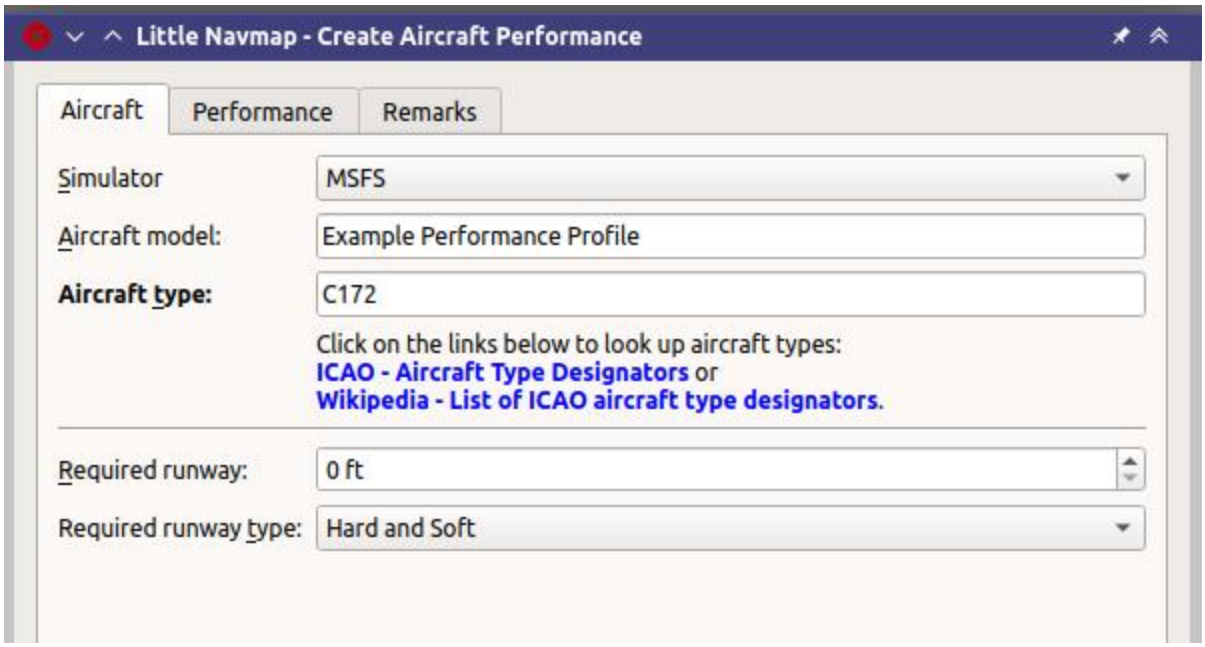
Tip

You can also fly and collect performance without a flight plan. Set the intended cruise altitude in the window Flight Planning to allow *Little Navmap* to detect the cruise phase.

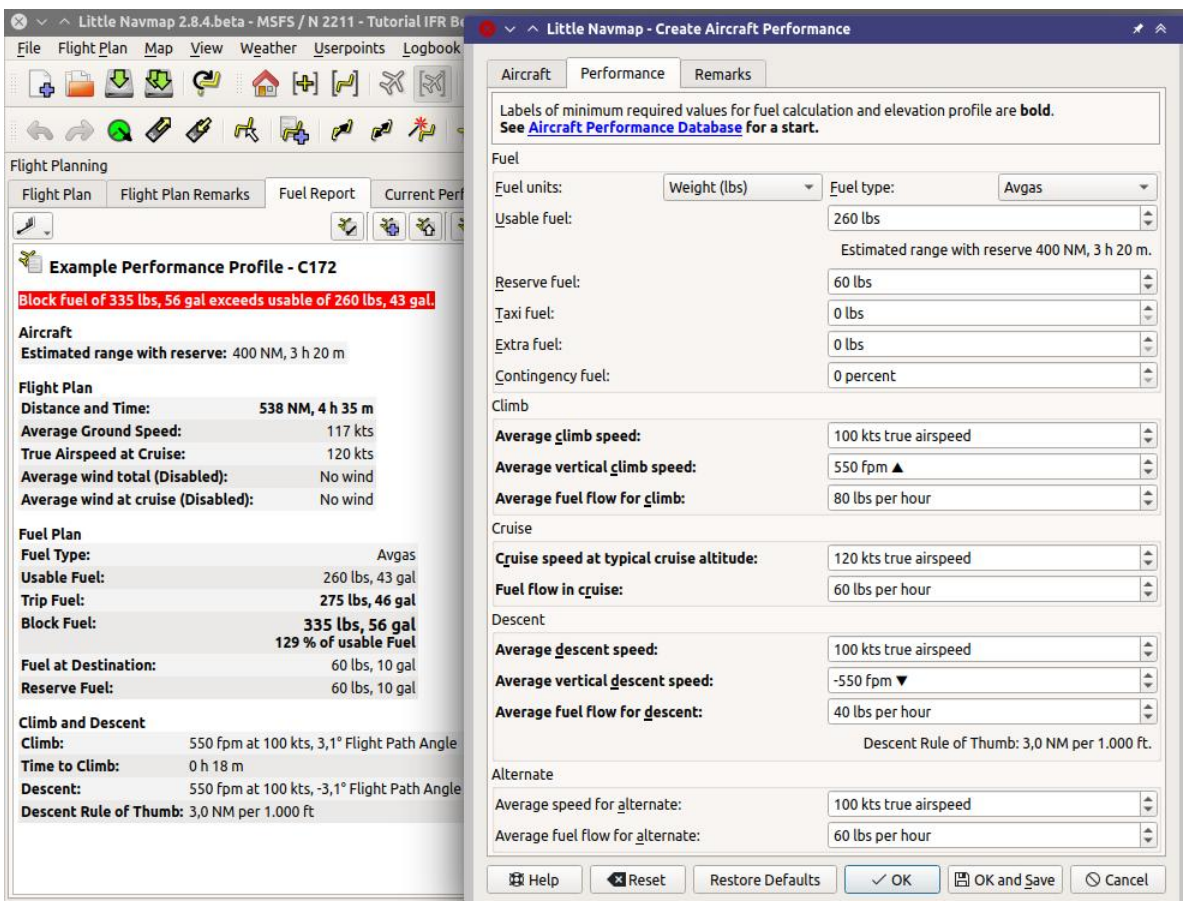
69.2. Aircraft Performance

First start by creating a new and empty performance profile by selecting `Aircraft` -> New Aircraft Performance in the main menu.

First page shows example aircraft name and type.



Second page shows default aircraft performance values. *Click the image to enlarge.*



Leave all as is in the dialog and click OK.

Ignore the warning and error messages in the fuel report for now.

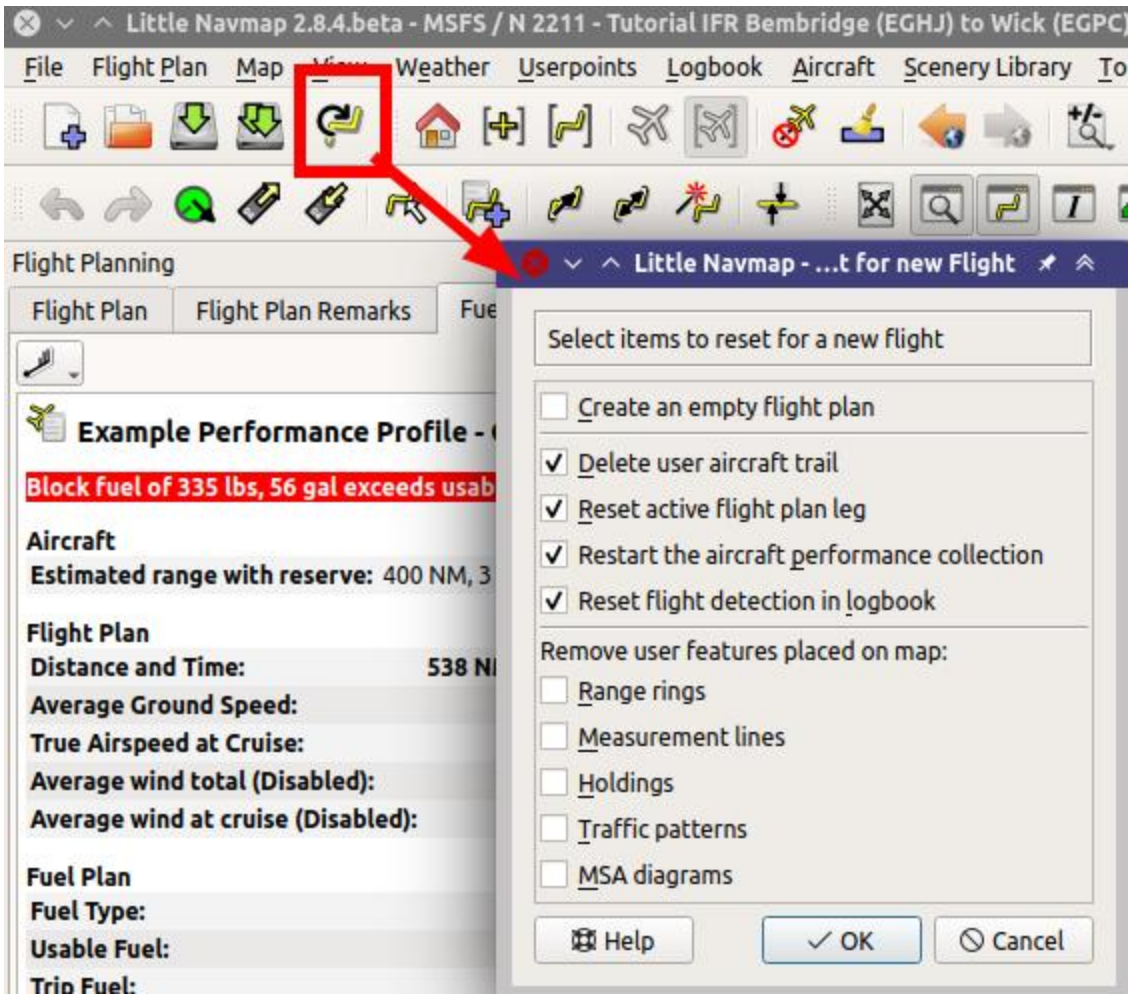
Also ignore the zero values in the Fuel Plan Section. Fuel flow data has to be entered in the performance profile to get a valid fuel prediction.

Tip

Lookup numbers at the Aircraft Performance Database [https://contentzone.eurocontrol.int/aircraftperformance/default.aspx?] or download a community made performance file from Little Navmap Downloads - Aircraft Performance [https://www.littlenavmap.org/downloads/Aircraft%20Performance/] which can be used as a starting point.

Start and load a flight with aircraft engines running or not. Connect *Little Navmap* to the simulator.

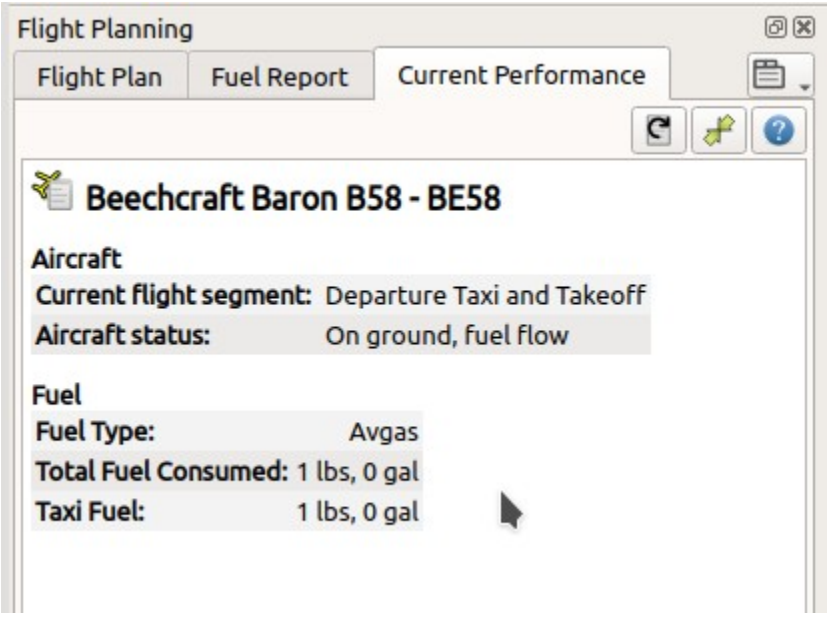
Select `Flight` -> Reset all for a new Flight in the menu. Remove the check mark from `Create an empty flight plan` since a plan is already loaded. Click `OK` to get a clean base for fuel calculation, logbook and other functions.



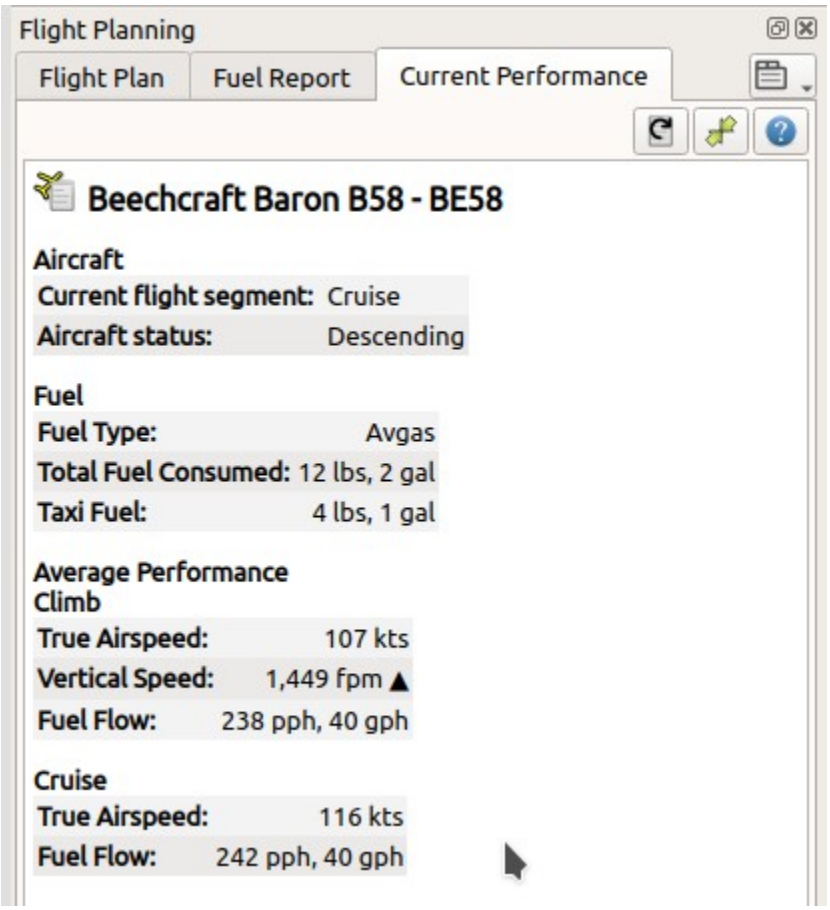
Fly and use typical load, climb and cruise performance settings in the aircraft. Time compression is no issue if you stay a few minutes at cruise to allow *Little Navmap* collecting cruise fuel data.

You can see the detected aircraft type, detected flight phase (climb, cruise and more) as well as all current values collected and averaged by *Little Navmap* in the tab `Current Performance`.

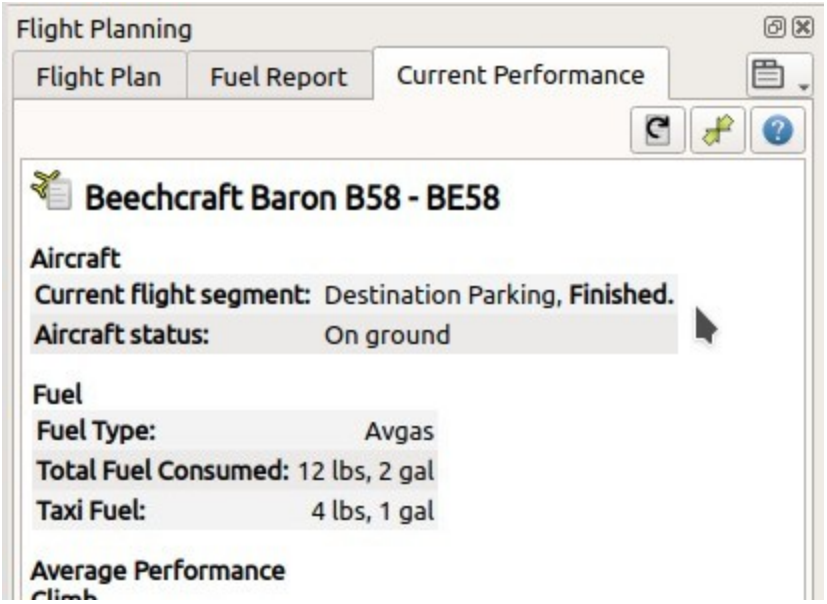
See chapter Aircraft Performance Collection for details.



New flight phases are added when detected. Note that the cruise phase is only detected when flying at flight plan cruise altitude. Set the cruise altitude in the flight plan tab at least if you wish to collect performance without a flight plan.



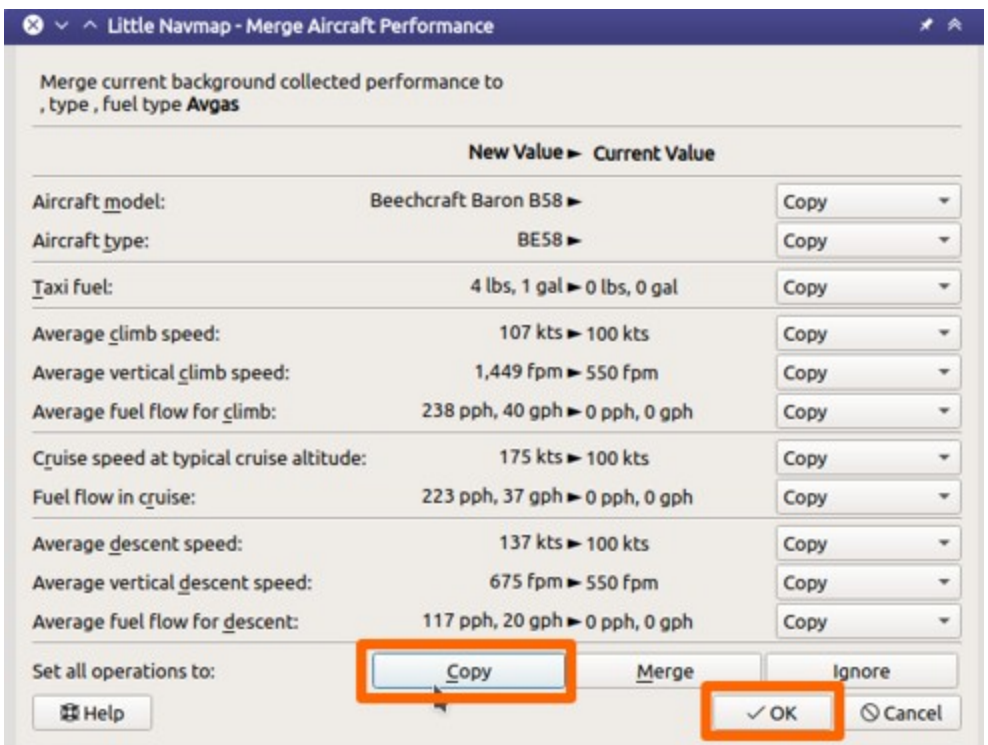
After landing and shutting off engines you can see the text `Current flight segment: Destination Parking, Finished.` in the tab `Current Performance`.



You have a complete aircraft performance collection once the text `Finished.` is shown which is right after touchdown at the destination.

Now select `Aircraft` -> Merge collected Aircraft Performance in the main menu to fill the empty performance profile with the collected values.

Note the header `New Value` (collected data) and `Current Value` (currently loaded or created profile default values) with the values below.



We'd like to use all values for the new profile. Therefore, set all operations to `Copy` in the dialog and click `OK`.

You can also change the operations for each field individually or use the operation `Merge` which will use the average of the new and current value. You can do a merge at any flight phase. For example, if you'd like to fine tune the values during flight. See Aircraft Performance Merge for more.

Adjust the performance using `Merge` when doing more flights after the first one.

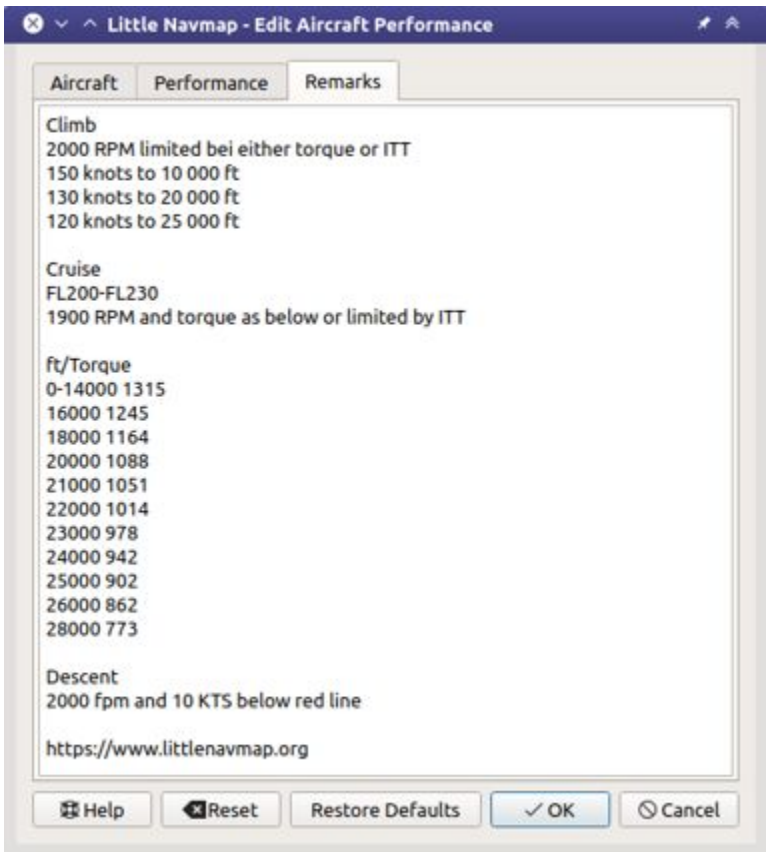
Warning

Do not forget to add at least sufficient reserve fuel. Otherwise you will run out of fuel at destination if you rely on this plan.

You should change the usable fuel and values for alternate after merging. Do this by selecting `Aircraft` -> Edit Aircraft Performance . Note that required values have **bold** labels in the edit dialog.

It is also helpful to add notes like engine power settings in the description file of a performance profile.

Example below for a Beech King Air C-90:



The chapter Aircraft Performance Edit explains details about editing.

Tip

Use performance files for different cruise altitude ranges to get more precise results for large or complex aircraft. For example, one file for FL300-FL350 and one for FL350-FL400.

Use `Aircraft` -> Save Aircraft Performance and save the new performance file to any place like `Documents\Little Navmap\Performance`, for example.

Think about sharing this file with others or send it to me so I can add it to the community download section of littlenavmap.org [https://www.littlenavmap.org/downloads/Aircraft%20Performance/] **.**

70. Issue Report

You can create a bug or issue report manually by selecting Create Issue Report in the main menu `Tools`.

This creates a Zip archive containing all relevant files needed to reproduce a problem.

Use this function if you wish to report a problem which might be only reproducible using your options and other files.

A Crash Report is created automatically if *Little Navmap* detects an improper shutdown of the last session, i.e. a crash.

A Zip file with all important settings and other files is created and can be shown by clicking the blue link in the notification dialog.

Files stored in the issue report:

- Log file `abarthel-little_navmap.log` (also menu item Open Log File and see also Logs).
- The configuration file `little_navmap.ini` (also menu item Open Configuration File and see also Configuration).
- Aircraft performance as loaded from menu item Open Aircraft Performance.
- Flight plan as loaded from menu item Open Flight Plan or a temporary plan `little_navmap.lnmpln` (see Configuration) if not saved.
- Flight plan as stored in memory. Example: `abarthel-little_navmap-be98511a50de4e89a3961c2d0c24bc52-report.lnmpln`
- The user aircraft trail in file `little_navmap.track`. See also Aircraft Trails.
- Content of the tab `Airport` -> `Overview` in the dock window `Information`. This is needed to identify problems with add-on airports, for example. File name is `abarthel-little_navmap-c3511c03151240b48e2849fa79a43402-report-airport.html`, for example.

Upload this file to a platform like FileTransfer.io [https://filetransfer.io/] and send me the link so I can try to reproduce the issue.

Please add all steps that are necessary to reproduce the error.

When an error occurs during loading of the scenery library send me the offending file if size permits. The full name and path of the file is shown on top of the error dialog if a specific file is the cause.

You can also copy and paste the section `Data Sources` from the tabs `Airport` -> `Overview` in the dock window `Information` to a report. This section can help to identify problems with add-on airports. See also Data Sources.

Please use either the forum or email to avoid confusion and additional effort. Please do not use both.

Files and file locations are described in chapter Crash Reports.

Contact and Support [https://albar965.github.io/contact.html]

Note

If you're concerned about privacy when sending log and other files:

The log and configuration files contain system paths (like your `Documents` directory) which will also include your username as a part of the path. They might also contain your computer's name and IP address in your network.

In no case are file names of anything but the flight simulator or its configuration files included. No names or contents of personal files are included in the log and configuration files.

I'd recommend sending the reports by private forum message or by email and not attach them to forum posts where they are publicly visible for everybody.

71. Crash Report

Little Navmap creates a crash report file and shows a notification dialog if it detects an improper shutdown of the last session, i.e. a crash.

Note that there is no need to collect the log and other files for a bug report.

You can then choose to start *Little Navmap* in clean mode which will skip loading last used files such as the flight plan or window layout that may have caused the crash.

Loading of files and settings optionally skipped in clean mode:

- Flight plan
- Aircraft performance
- All search terms
- Information content
- Aircraft trail
- Window layout
- KML files.

No user files are modified or removed. User features like measurement lines or traffic patters are not affected.

See Issue Report **for more information about the report and contact information.**

Files and file locations are described in chapter Crash Reports.

Note

A crash report will also be triggered if you terminate *Little Navmap* from the Windows Task Manager, you have a power outage or if your computer crashes due to a Windows bluescreen, for example.

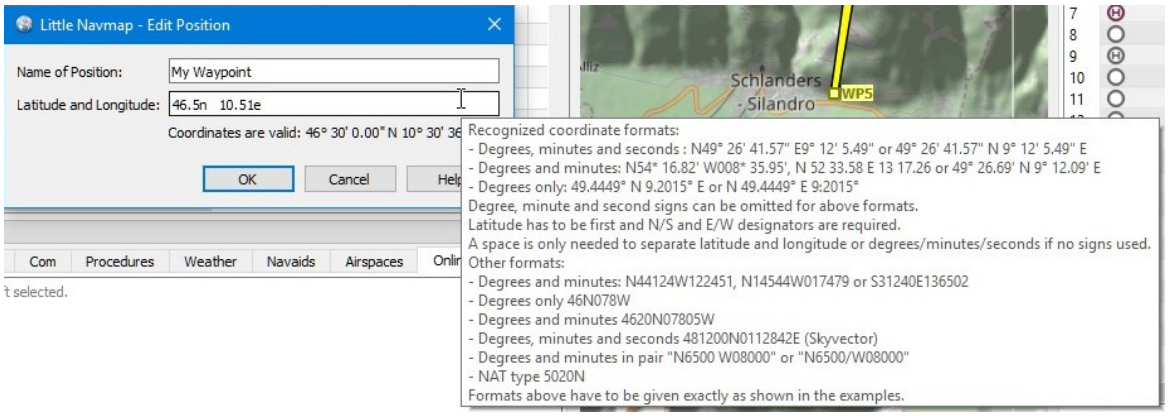
Ignore the crash report for these cases.

72. Coordinate Formats

This chapter briefly describes the recognized coordinate formats in flight plan position dialogs and userpoint dialogs.

The input field shows a message below which indicates if the coordinates were recognized and shows the translated coordinates in the preset format as selected in the options dialog on page Units. A red message is shown in case of error.

Check the displayed translated coordinates to verify that your input was parsed correctly.



Editing an user defined flight plan position. Tooltip gives a quick help on coordinate formats.

72.1. General

- Latitude has to be first and longitude second.
- N/S and E/W designators are required except for the signed formats. Case does not matter.
- Degree, minute and second signs can be omitted if numbers are separated by spaces.
- A space is only required to separate latitude and longitude or degrees/minutes/seconds if no unit signs are used.
- Decimal separator can be period (English) or the locale dependent separator like e.g. comma (German).
- ARINC 424 Code Convention full degree waypoint formats like `57N30`, `5730E` or `57S30` can be read.

Full degree coordinate conventions, examples and respective quadrants.

All dialogs show the read coordinates below the input field in the curretly configured coordinate format. See options page Units for more information.

Tip

You can directly paste coordinates from the Wikipedia like `40°41′21″N 74°2′40″W` into the fields.

72.2. Signed Decimal Formats

For the coordinate formats `Latitude and Longitude with sign` and `Longitude and Latitude with sign`:

- Latitude: Negative is south and positive is north.
- Longitude: Negative is west and positive is east values.

Selecting these display formats will also enable input of signed decimal values.

Comma separated values like `50,07477,8,54053` (comma as German decimal separator) or `50.07477,8.54053` are valid. Spaces before and after the comma are allowed.

Note

The reading order for coordinates (`Latitude and Longitude` versus `Longitude and Latitude`) will also change depending on the selected format if entering signed numbers.

The reading order will not change if the input field uses `N`, `S`, `E` and `W` designators.

72.3. Other Formats

These have to be given exactly as shown in the examples.

- Degrees and minutes: `N44124W122451`, `N14544W017479` or `S31240E136502`
- Degrees only `46N078W`
- Degrees and minutes `4620N07805W`
- Degrees, minutes and seconds `481200N0112842E` (SkyVector)
- Degrees and minutes in pair `N6500 W08000` or `N6500/W08000`
- NAT type `5020N`

72.4. Examples

- Degrees, minutes and seconds: `N49° 26' 41.57" E9° 12' 5.49"` or `49° 26' 41.57" N 9° 12' 5.49" E`
- Degrees and decimal minutes: `N54* 16.82' W008* 35.95'`, `N 52 33.58 E 13 17.26` or `49° 26.69' N 9° 12.09' E`
- Decimal degrees only: `49.4449° N 9.2015° E` or `N 49.4449° E 9:2015°`
- ARINC 424 Code Convention full degree waypoint format: `57N30`, `5730E` or `57S30`

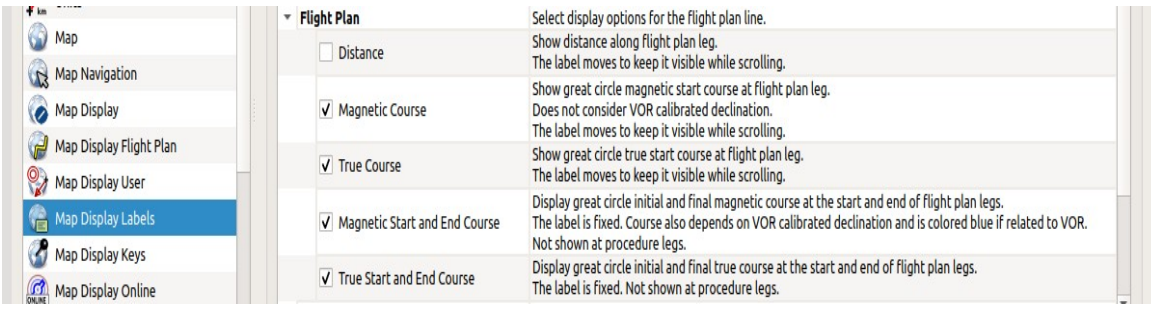
73. Magnetic Declination

Little Navmap uses the magnetic declination [https://en.wikipedia.org/wiki/Magnetic_declination] which is stored either with VOR stations (calibrated declination) or the actual environment declination. The latter one is calculated by the program using the world magnetic model. (WMM [https://en.wikipedia.org/wiki/World_Magnetic_Model]) or loaded from the simulator scenery database.

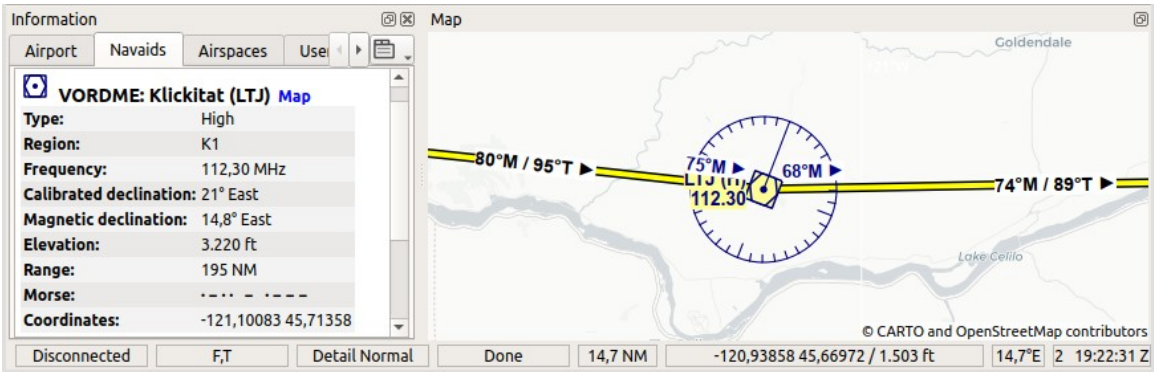
Note that the magnetic declination of a VOR (also: calibration for VOR, VORDME and VORTAC) may differ from the actual declination in a simulator region as it does in reality. The calibration of a VOR might be very old while the real declination in the environment changed in the meantime due to the movement of the magnetic poles. Therefore, magnetic course values might differ when flying inbound or outbound a VOR.

Little Navmap offers several options to display course labels along the flight plan line using VOR calibrated declination or not. This can be changed in the options dialog on page Map Labels.

See Flight Plan for more information on the labels and Magnetic Declination for more information about declination and scenery databases.



Flight plan leg course label related option on page Map Labels. *Click image to enlarge.*



Two flight plan legs showing the additional labels which are needed when using VOR navigation. The VOR has a different calibrated declination (21° East) compared to the actual declination (14.8° East) in this area. Therefore the approach to and departure from `LTJ` has to use the calibrated declination of the VOR station. The two black and moving labels show the magnetic departure course for the respective legs based on actual declination while the two dark blue fixed labels show the magnetic inbound and outbound course for the VOR based on the calibrated declination for `LTJ`. Use the dark blue and fixed labels when flying VOR to VOR and use the black moving labels when using a GPS.

Furthermore consider the different departure and destination true courses for Great Circle [https://en.wikipedia.org/wiki/Great-circle_distance] routes. These appear at long flight plan legs.

A long great circle course leg shown in Mercator projection to show the exaggerated course difference in long flight plan legs. Note the different departure and arrival true courses which are a result of the Great Circle [https://en.wikipedia.org/wiki/Great-circle_distance] route. Although it looks like a detour in the Mercator projection, the great circle route is the shortest route between two points.

74. Remarks

The edit fields `Remarks` allow multi line text and special characters for flight plans, flight plan waypoints, aircraft performance files and userpoints. Formatted text like bold or markdown is not supported.

Links are recognized in the field `Remarks` and can be opened in the dock window `Information` on tab `Navaids` which is shown after clicking on a userpoint or selecting `Show Information` in one of the context menus, for example.

The same applies to userpoints and aircraft performance remarks in the respective information or fuel report tabs.

Normal web links like `http://www.example.com` or `https://www.example.com` are recognized besides directory or file links like `file:///C:/Users/me/Documents/Aircraft%20Notes.txt` on Windows or `file:///home/me/Aircraft%20Notes.txt` on macOS or Linux.

Note that you have to use the forward slash `/` instead of the backslash `\` on Windows as a path separator.

Replace spaces in links with `%20` since *Little Navmap* recognizes links only until the next space.

75. Keyboard Shortcuts

Keyboard shortcuts are available for many functions and are shown in the main menu (see also Main Menu and Toolbars) as well as in all context menus. See Shortcuts in Menus for details.

75.1. Main Menu

75.1.1. File

Menu	Shortcut
File -> New Flight Plan	`Ctrl+N`
File -> Open Flight Plan …	`Ctrl+O`
File -> Save Flight Plan	`Ctrl+S`
File -> Save Flight Plan as LNMPLN …	`Ctrl+Shift+S`
File -> Reset all for a new Flight …	`Ctrl+Alt+Shift+R`
File -> Export Flight Plan as MSFS 2020 PLN …	`Ctrl+Shift+F`
File -> Export Flight Plan as P3D or FSX PLN …	`Ctrl+Shift+P`
File -> Export Flight Plan as FMS for X-Plane 11 and 12 …	`Ctrl+Shift+X`
File -> Export Flight Plan as FlightGear FGFP …	`Ctrl+Shift+G`
File -> Multiexport Flight Plan	`Ctrl+Shift+M`
File -> Multiexport Flight Plan Options …	`Ctrl+Alt+Shift+M`
File -> Save Map as Image for AviTab …	`Ctrl+Alt+Shift+P`
File -> Copy Map Image to Clipboard …	`Alt+Shift+P`
File -> Print Map …	`Ctrl+P`
File -> Print Flight Plan …	`Ctrl+Alt+P`

Menu	Shortcut
File -> Exit	`Ctrl+Q`

75.1.2. Flight Plan

Menu	Shortcut
Flight Plan -> Flight Plan	`F7`
Flight Plan -> Fuel Report	`F8`
Flight Plan -> Undo Flight Plan	`Ctrl+Z`
Flight Plan -> Redo Flight Plan	`Ctrl+Y`
Flight Plan -> Select a Start Position …	`Ctrl+Shift+D`
Flight Plan -> Select Departure Runway or Procedure …	`Alt+Shift+R`
Flight Plan -> Select Destination Runway or Procedures …	`Alt+Shift+U`
Flight Plan -> Edit Flight Plan on Map	`Ctrl+Shift+E`
Flight Plan -> Flight Plan Calculation …	`Alt+Shift+C`
Flight Plan -> Adjust Flight Plan Altitude	`Ctrl+Shift+J`
Flight Plan -> Flight Plan Route Description …	`Ctrl+Shift+N`

75.1.3. Map

Menu	Shortcut
Map -> Go to Home	`Ctrl+Home`
Map -> Go to User Aircraft	`Ctrl+PgUp`
Map -> Center Flight Plan	`Ctrl+PgDown`
Map -> Go to Center for Distance Search	`Ctrl+End`

Menu	Shortcut
Map -> Jump to Coordinates …	`Ctrl+Shift+Home`
Map -> Map follows User Aircraft	`Ctrl+Alt+A`
Map -> Delete User Aircraft Trail	`Alt+Shift+T`
Map -> Map Position Back	`Alt+Left`
Map -> Map Position Forward	`Alt+Right`
Map -> Remove all Highlights and Selections	`Ctrl+H`
Map -> More Map Detail	`Ctrl++`
Map -> Default Map Detail	`Ctrl+0`
Map -> Less Map Detail	`Ctrl+-`

75.1.4. View

Menu	Shortcut
View -> Reset Display Settings	`Ctrl+Alt+R`
View -> Airports -> Show Airports	`Ctrl+Alt+H`
View -> Airports -> Hard surface	`Ctrl+Alt+J`
View -> Airports -> Soft surface	`Ctrl+Alt+S`
View -> Airports -> Seaplane Bases	`Ctrl+Alt+U`
View -> Airports -> Heliports	`Ctrl+Alt+X`
View -> Airports -> Empty	`Ctrl+Alt+E`
View -> Airports -> Add-on no override	`Ctrl+Alt+O`
View -> Airports -> Add-on override zoom	`Ctrl+Alt+Z`

Menu	Shortcut
View -> Airports -> Add-on override zoom and filter	`Ctrl+Alt+Y`
View -> Navaids -> Show VOR Stations	`Ctrl+Alt+V`
View -> Navaids -> Show NDB Stations	`Ctrl+Alt+N`
View -> Navaids -> Show Waypoints	`Ctrl+Alt+W`
View -> Navaids -> Show ILS Feathers	`Ctrl+Alt+I`
View -> Navaids -> Show Low Airways	`Ctrl+V`
View -> Navaids -> Show High Airways	`Ctrl+J`
View -> Navaids -> Show Tracks	`Ctrl+T`
View -> Airspaces -> Show Airspaces	`Ctrl+Alt+C`
View -> Show Flight Plan	`Ctrl+Alt+F`
View -> Show Missed Approaches	`Ctrl+Alt+M`
View -> Show User Aircraft	`Ctrl+Alt+B`
View -> Show User Aircraft Trail	`Ctrl+Alt+T`
View -> Show Selected Altitude Range Arc	`Ctrl+Alt+K`
View -> Show Turn Flight Path	`Ctrl+Alt+L`
View -> Show Aircraft Endurance	`Ctrl+Alt+G`
View -> Show Compass Rose	`Ctrl+Alt+D`
View -> Projection -> Mercator Map Projection	`Alt+Shift+M`
View -> Projection -> Spherical Map Projection	`Alt+Shift+G`
View -> Theme -> CARTO Dark Matter	`Ctrl+Alt+0`

Menu	Shortcut
View -> Theme -> CARTO Positron	`Ctrl+Alt+1`
View -> Theme -> open flightmaps	`Ctrl+Alt+2`
View -> Theme -> OpenStreetMap	`Ctrl+Alt+3`
View -> Theme -> OpenTopoMap	`Ctrl+Alt+4`
View -> Theme -> Atlas (offline)	`Ctrl+Alt+5`
View -> Theme -> Plain Map (offline)	`Ctrl+Alt+6`
View -> Theme -> Political Map (offline)	`Ctrl+Alt+7`

75.1.5. Userpoints

Menu	Shortcut
Userpoints -> Userpoint Search	`F6`
Userpoints -> Undo Userpoint	`Ctrl+Shift+Z`
Userpoints -> Redo Userpoint	`Ctrl+Shift+Y`

75.1.6. Logbook

Menu	Shortcut
Logbook -> Logbook Search	`Shift+F6`
Logbook -> Undo deleting of 3855 Logbook Entries	`Ctrl+Shift+Z`
Logbook -> Redo Logbook Entry	`Ctrl+Shift+Y`

75.1.7. Aircraft

Menu	Shortcut
Aircraft -> Save Aircraft Performance	`Alt+Shift+S`

Menu	Shortcut
Aircraft -> Edit Aircraft Performance …	`Alt+Shift+E`

75.1.8. Scenery Library

Menu	Shortcut
Scenery Library -> Load Scenery Library …	`Ctrl+Shift+L`

75.1.9. Tools

Menu	Shortcut
Tools -> Connect to Flight Simulator …	`Ctrl+Shift+C`
Tools -> Toggle Flight Simulator Connection	`Ctrl+Shift+A`
Tools -> Options …	`Ctrl+Shift+,`

75.1.10. Window

Menu	Shortcut
Window -> Shortcuts -> Map	`F2`
Window -> Shortcuts -> Elevation Profile	`F3`
Window -> Shortcuts -> Airport Search	`F4`
Window -> Shortcuts -> Navaid Search	`F5`
Window -> Shortcuts -> Procedure Search	`Shift+F5`
Window -> Shortcuts -> Userpoint Search	`F6`
Window -> Shortcuts -> Logbook Search	`Shift+F6`
Window -> Shortcuts -> Flight Plan	`F7`
Window -> Shortcuts -> Flight Plan Calculation	`Shift+F7`

Menu	Shortcut
Window -> Shortcuts -> Fuel Report	`F8`
Window -> Shortcuts -> Airport Information	`F9`
Window -> Shortcuts -> Airport Weather Information	`F10`
Window -> Shortcuts -> Navaid Information	`Shift+F11`
Window -> Shortcuts -> Simulator Aircraft Progress	`F12`
Window -> Style -> Fusion	`Shift+F2`
Window -> Style -> Dark	`Shift+F3`
Window -> Recent Window Layouts ->	`Ctrl+Shift+W`
Window -> Reset Window Layout to Default ->	`Ctrl+Alt+Shift+W`
Window -> Fullscreen Map	`F11`
Window -> Show all floating Dock Windows	`Alt+0`
Window -> Allow Window docking	`Alt+9`
Window -> Dock Windows -> Flight Planning	`Alt+1`
Window -> Dock Windows -> Search	`Alt+2`
Window -> Dock Windows -> Simulator Aircraft	`Alt+3`
Window -> Dock Windows -> Flight Plan Elevation Profile	`Alt+4`
Window -> Dock Windows -> Information	`Alt+5`

75.1.11. Help

Menu	Shortcut
Help -> User Manual (Online)	`F1`

Menu	Shortcut
Help -> User Manual - Map Legend (Online)	`Shift+F1`

75.2. Context Menus

75.2.1. Flight Plan Table

Menu	Shortcut
Show Information	`Ctrl+I`
Show Procedures	`Ctrl+Shift+R`
Create Approach	`Alt+Shift+R`
Activate Flight Plan Leg	`Ctrl+L`
Move selected Legs up	`Ctrl+Up`
Move selected Legs down	`Ctrl+Down`
Delete selected Legs or Procedure	`Del`
Edit Flight Plan Position	`Return`
Copy	`Ctrl+C`
Select all	`Ctrl+A`
Clear Selection	`Ctrl+Shift+A`

75.2.2. Search Result Tables and Search Input Fields

Using keyboard shortcuts like `Ctrl+I` for `Show Information` or `Ctrl+M` for `Show on map` are usable directly from the input fields and will apply to the topmost airport in the result table.

The same applies to other tabs like navaid and logbook search as well.

Menu	Shortcut
Jump from any input field to table	`Down`

Menu	Shortcut
Show Information	`Ctrl+I`
Show Procedures	`Ctrl+Shift+R`
Create Approach	`Alt+Shift+R`
Show on Map	`Ctrl+M`
Reset Search	`Ctrl+R`
Show All	`Ctrl+Shift+O`
Copy	`Ctrl+C`
Select all	`Ctrl+A`
Clear Selection	`Ctrl+Shift+A`

75.2.2.1. Procedure Search - Additional Shortcuts

Menu	Shortcut
Jump from input field to tree	`Down`
Show Procedure on Map	`Return`
Insert Procedure into Flight Plan	`Ctrl+Shift+I`
Show Information for Airport	`Ctrl+I`
Show Airport on Map	`Ctrl+M`

75.2.2.2. Userpoint and Logbook Search - Additional Shortcuts

Menu	Shortcut
Add	`Ins`
Edit	`Return`

Menu	Shortcut
Delete	`Del`

75.2.2.3. Flight Plan Route Description - Additional Shortcuts

Button	Shortcut
Create Flight Plan	`Ctrl+Return`

76. Network Setup

This chapter explains how to connect with a remote computer across the network to a simulator on a flying computer.

Note

There is no need to share the scenery library or files of any simulator on the network.

You do not have to copy the simulator scenery library neither do you have to install a second simulator on the client computer.

76.1. How to Prepare a Network Setup

1. Install/extract the whole *Little Navmap* archive on the flying **and** the network computer.
2. Install *Little Xpconnect* into the X-Plane plugins directory if you use X-Plane. See Little Xpconnect for details.
3. Use *Little Navmap* to generate the scenery database on the flying computer. Main menu -> `Scenery Library` -> Load Scenery Library
4. Open the database directory on the flying computer using `Tools` -> `Files and Directories` -> Show Database Files.
5. Copy the database files to the network computer. Always close *Little Navmap* before copying. See Databases for information on what is stored in what database file. There is nothing else to do on the remote computer after copying. The copied file is ready-to-use and there is no need to load the scenery library.

Note

Make sure that the major versions of *Little Navmap* and *Little Navconnect* match, otherwise you might get an error message. Use the version of *Little Navconnect* which is included in the *Little Navmap* download archive if unsure.

Tip

The best way to copy a scenery library database from the flying computer to the remote is a batch file or command script.

Share the folder `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_navmap_db` on the flying computer and then simply run a batch or command file like `copy_lnm_db.cmd` on the remote to copy it over.

Create a command file `copy_lnm_db.cmd` on your remote computer and add the content below. Adapt `MYLFYINGCOMPUTER` to the name or the IP-address of your flying computer.

```
xcopy /F /Y "\\sol\public\little_navmap_db\little_navmap_msfs.sqlite" "%APPDATA%\ABarthel\little_navmap_db"
```

Adapt the database filename `little_navmap_msfs.sqlite` to your simulator. See Scenery Library Databases for database filenames for all simulators.

Then you can reload the scenery library database using LNM on the flying computer, quit *Little Navmap* on both computers and simply double click the `copy_lnm_db.cmd` script to copy the database over to the remote.

76.2. Weather

76.2.1. FSX, P3D and MSFS

The weather information from P3D and FSX is transferred through the connection via *Little Navconnect*. MSFS does not provide weather information at all.

76.2.2. X-Plane

Weather information like winds aloft and airport METARs are read from files in the X-Plane installation directory.

Do the following to get access to X-Plane weather files:

1. Share the weather directories on the flying computer. This is either the X-Plane 11 base directory containing the files `global_winds.grib` and `METAR.rwx` or the directory `Output/real weather` in the X-Plane 12 installation.

2. Open the *Little Navmap* options dialog and go to page Weather Files. Change the path to the network share containing the two X-Plane 11 files or the directory for the X-Plane 12 weather files.

Weather should update automatically in *Little Navmap* once done.

76.3. Flying in a network setup

Startup order does not matter.

- Start the simulator
- Start *Little Navconnect* on the flying computer.
- Run *Little Navmap* on the network/remote computer.
- Connect *Little Navmap* on the network/remote computer to *Little Navconnect* on the flying computer. Main menu -> `Tools` -> Connect to Flight Simulator.

See the two chapters below for more details:

- Running without Flight Simulator Installation: Detailed explanation how to copy scenery library databases to a remote computer without a simulator installation.
- Connecting to a Flight Simulator and chapter Remote Connection explains how to connect from a remote computer in detail.

77. Little Xpconnect

Little Navmap connects to X-Plane using the *Little Xpconnect* X-Plane plugin which has to be installed in X-Plane.

The *Little Xpconnect* plugin is included in the *Little Navmap* archive. You can always find the latest, correct and matching version on your *Little Navmap* installation directory.

The plugin is 64-bit only and is available for Windows, macOS (ARM and Intel) and Linux and can be used in X-Plane 11 and X-Plane 12.

See Installation below for installation instructions.

Network scenario for X-Plane using the Little Xpconnect plugin and the Little Navconnect agent:

Windows, Linux or macOS Machine	Windows, Linux or macOS Machine

X-Plane ◄ ► Little Xpconnect ◄ ► Local Network ◄ ► Little Navmap

Local connection scenario:

Windows, Linux or macOS Machine

X-Plane ◄ ► Little Xpconnect ◄ ► Little Navmap

77.1. Menu

The plugin adds a sub-menu `Little Xpconnect` to the X-Plane menu `Plugins` which contains the following menu items:

- `Fetch AI`: Enable or disable the fetching of AI aircraft and ships (carrier and frigate). Disable AI fetching if you see stutters or performance degradation within X-Plane when using the plugin.
- `Load AI Aircraft Information`: Xpconnect tries to load additional information from related `.acf` files. This is done in background and does not cause stutters or hesitations. You can disable this function if you see problems. Only limited information is available for AI and multiplayer if disabled.
- `Fetch Rate 50 ms` to `Fetch Rate 500 ms`: Xpconnect will get all aircraft parameters at this rate. Lower values result in smoother aircraft movement (see more below) but may induce stutters or decrease performance in X-Plane.

The changes are applied immediately and are saved on exit.

Note that the settings are shared between all plugin installations on the same computer.

Note that the fetch rate affects only the rate of which *Little Xpconnect* gets the data from X-Plane. This can affect X-Plane performance, expecially when using large amounts of AI aircraft.

The option `Update Time Interval` in Connect Dialog in the *Little Navmap* connect dialog window defines the rate *Little Navmap* fetches the data from the plugin. This affects *Little Navmap* performance and fluidity of the aircraft updates together with the setting `Simulator aircraft updates` in the options dialog on page Simulator Aircraft.

It is recommended to keep both update rates equal and not lower than 100 ms.

77.2. Compatibility Error

If a pop up window says that versions are not compatible and and upgrade of *Little Xpconnect* is needed:

> Remove the *Little Xpconnect* plugin from X-Plane and reinstall the new one.

If the latest *Little Xpconnect* plugin is installed:

> There is probably an old version of Little Xpconnect installed wrongly somewhere in your X-Plane plugins path. Maybe it was installed accidentally in the plugins base path without the *Little Xpconnect* directory structure.
>
> Check if there is another directory with the *Little Xpconnect executable* (`win.xpl`, `mac.xpl` or `lin.xpl` depending on operating system) around or if the file is stored in the plugins directory on the top level.
>
> You can see the path of the (wrongly) loaded plugin in the X-Plane plugin manager or in the X-Plane `Log.txt` file.

77.3. Installation

You can install the plugin automatically from the *Little Navmap* menu `Tools` using the menu item Install Little Xpconnect in X-Plane Plugins or manually by copying it from the *Little Navmap* installation directory.

Automatic installation is strongly recommended since it scans the installation directory for duplicates and broken installations.

Important

Do not download the plugin manually. It is included in the download archive of *Little Navmap*.

You have to keep the directory structure intact when installing/extracting *Little Navmap* from a Zip archive. Otherwise this menu item will be disabled if *Little Navmap* cannot find *Little Xpconnect* in its installation folder.

77.4. Automatic Installation

Start the automatic installation from the main menu `Tools` -> Install Little Xpconnect in X-Plane Plugins.

Note that the plugin will be installed in the currently selected X-Plane instance as selected in Scenery Library Menu.

Little Navmap scans the destination directory for duplicates of *Little Xpconnect* and stray pluin files from a broken installation.

macOS users: Read below for Clearing the Quarantine Flag on macOS.

Important

You can choose to let *Little Navmap* delete these directories or files but in any case check if these are really installations of *Little Xpconnect*.

Important

Quit X-Plane before installing the plugin.

77.5. Manual Installation

Delete any old *Little Xpconnect* installations in the plugins directory before copying the new version. Do not merge new and old installations.

Copy the whole plugin directory *Little Xpconnect* into the directory `Resources/plugins` in the X-Plane installation. The complete path should look like:

```
.../X-Plane/Resources/plugins/Little Xpconnect
```

The installation was successful if you can see the menu `Little Xpconnect` in the X-Plane plugins menu.

When connecting with *Little Navmap* select the tab `X-Plane` in the connection dialog. See also Connect to Flight Simulator.

77.6. macOS Architectures

The X-Plane plugin comes in two separate directories for different architectures.

1. `Little Xpconnect arm64`: This is for Apple computers having an Apple Silicon or an Intel CPU. It supports only newer macOS releases from Mojave 10.14 and later.
2. `Little Xpconnect x86`: This is only for Apple computers having an Intel CPU. This supports older macOS releases from Sierra 10.12.

Install `Little Xpconnect arm64` if in doubt.

77.7. Clearing the Quarantine Flag on macOS

You have to remove the quarantine flag from the plugin after downloading and extracting it. Otherwise X-Plane will silently not load the plugin.

The procedure may be slightly different depending on whether you're using Big Sur or Catalina.

1. Copy the whole plugin directory `Little Xpconnect` into `plugins` in `Resources` in the X-Plane installation. The complete path should look like `.../X-Plane 11/Resources/plugins/Little Xpconnect`.
2. Right or Ctrl-Click in the Finder on the included script `Prepare Little Xpconnect.command` in the directory `.../plugins/Little Xpconnect` and select `Open With` and `Terminal`.
3. You will see a dialog `Prepare Little Xpconnect.command cannot be opened because it is from an unidentified developer`. Click `Ok`.
4. Go to `System Preferences` -> `Security and Privacy`. You will see a message mentioning the script `Prepare Little Xpconnect.command`. Click `Open Anyway`.
5. Next a dialog `Are you sure you want to open it?` pops up. Click `Open`.

The script shows a few explanations and asks for your password which allows it to run a command as an administrator. You can look at the script which is a text file to see what commands are executed.

The installation was successful if you can see the menu `Little Xpconnect` in the X-Plane plugins menu.

You have to repeat this procedure each time you update *Little Xpconnect*.

Tip

Use the tool [Mac OS - CleanUp Quarantine Flags](https://forums.x-plane.org/index.php?/files/file/79828-mac-os-cleanup-quarantine-flags/) [https://forums.x-plane.org/index.php?/files/file/79828-mac-os-cleanup-quarantine-flags/] to clean the flags for all X-Plane plugins. Place the downloaded and extracted application in your X-Plane base directory and double click it. A dialog window showing the number of cleaned flags pops up after running.

77.8. Files

The Plugin creates a log file which can be found in

- `C:\Users\YOURUSERNAME\AppData\Local\Temp\abarthel-little_xpconnect.log` for Windows,
- `/tmp/abarthel-little_xpconnect.log` for Linux and
- `/var/folders/RANDOMIZED_DIRECTORY_NAME/abarthel-little_xpconnect.log` for macOS.

Additionally a settings file is created which can be found in

- `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_xpconnect.ini` for Windows,
- `$HOME/.config/ABarthel/little_xpconnect.ini` for Linux and macOS.

The settings can also be changed using the configuration file `little_xpconnect.ini`.

Little Xpconnect configuration file

```
[Options]
FetchAiAircraft=true     # Same as "Fetch AI" in plugin menu.
```

```
FetchAiAircraftInfo=true # Same as "Load AI Aircraft Information" in plugin menu.
FetchRateMs=200          # Data will be fetched from X-Plane every 200 milliseconds. Same as "Fetch Rate" in
plugin menu.
FetchRate=200            # Old obsolete value. Will be deleted on start.
```

78. Customize

Little Navmap creates multiple configuration files in the directory `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel` when started. These allow extended customization of the program.

This chapter shows the Windows file locations. See Files for locations on Linux and macOS.

The files use the Windows-INI style that has groups in square brackets and `key=value` lines. See INI (Wikipedia) [https://en.wikipedia.org/wiki/INI_file] for more information about this type of configuration files.

To undo all changes simply delete a file. It will be created again containing the default values when *Little Navmap* is started.

Single lines can also be deleted and will be restored with the default value when *Little Navmap* is started.

Keys and values are case sensitive. Order in the files is not important if the keys remain in their respective sections. The program might reorder the keys when saving or updating the files.

Important

You have to restart *Little Navmap* to see any changes. Also, do not edit the files while *Little Navmap* is running since it might overwrite your changes.

78.1. Version

Some of the INI files contain a section `[Options]` with a key `Version` as shown below.

```
[Options]
Version=2.0.1
```

Warning

Do not delete the version since *Little Navmap* relies on this information when updating the file. It will reset the file occasionally whenever the default settings change. A backup will be created to save your user customizations

Keep this version section in all files. Otherwise, *Little Navmap* might reset the content.

Examples for backup files: `little_navmap_mapstyle_backup_2.0.0.ini` or `little_navmap_mapstyle_backup.ini`.

The file will be backed up and reset if you delete or change the version.

78.2. GUI

Two user interface styles can be customized. These are `Fusion` and `Dark`. These two styles are available on all operating systems.

Two files are generated that allow the customization for all window, button and dialog colors. These are:

Fusion

```
C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_navmap_fusionstyle.ini
```

Dark

```
C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_navmap_nightstyle.ini
```

The key names in these files are derived from the palette options of the Qt library. Each key consists of the group and role name separated by an underscore. See below for more information on the color formats used.

See here for more information about groups [https://doc.qt.io/qt-5/qpalette.html#ColorGroup-enum] and roles [https://doc.qt.io/qt-5/qpalette.html#ColorRole-enum].

78.3. Map Display

Map colors and styles are loaded from a resource embedded in the program. You can add a file `little_navmap_mapstyle.ini` (e.g. `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\little_navmap_mapstyle.ini` on Windows) to the settings directory to override the default styles.

See chapter Files for settings locations on different operating systems.

Note that your current `little_navmap_mapstyle.ini` is automatically backed up after updating *Little Navmap*.

Download the file from GitHub - little_navmap_mapstyle.ini [https://raw.githubusercontent.com/albar965/littlenavmap/release/3.0/resources/config/little_navmap_mapstyle.ini] and copy this to the settings directory.

The file allows to customize various aspects of the map display and is currently limited to colors and pens. Most key names are self explaining. See below for more information about color and pen values.

78.3.1. Color Format

Color can be in one of these formats which are commonly used in web design:

- `#RRGGBB` each of R, G, B and A is a single hex digit. Each color value ranges from 00 - FF (decimal 0-255)
- `#AARRGGBB` first two digits contain the alpha/transparency value. `00` equals to fully tranparent and `FF` (decimal 255) to opaque.
- SVG color name

SVG color name is one of the colors defined in the list of CSS Colors [https://www.w3schools.com/cssref/css_colors.asp]; for example, `steelblue` or `gainsboro`. Note that you cannot enter an alpha channel value if you use a color name.

You can use the w3schools color picker [https://www.w3schools.com/colors/colors_picker.asp] or the fffuel Simple HEX, RGB & HSL color picker tool for web designers [https://fffuel.co/cccolor/] to get the hex values for a color.

Important

Most web color tools give you the color value in format `#RRGGBBAA` with the transparency at the end of the string. Convert this to the required value by putting the last two characters `AA` to the front to get the needed `#AARRGGBB`.

Examples:

```
Active_Highlight=#308cc6

AlertFillColor=darkred

ApproachFillColor=#3060808a
```

78.3.2. Pen Format

A pen contains the following values in a comma separated list:

- Color as described above
- Pen width as a floating point value measured in pixels. You have to use `.` as decimal separator no matter what your locale defines.
- Pen style. One of the following values: `Solid`, `Dash`, `Dot`, `DashDot` and `DashDotDot`.

Examples:

```
RestrictedPen=#fd8c00, 2, DashDotDot

ModecPen=#509090, 2, Solid

NationalParkPen=#509090, 2.1, Solid
```

78.3.3. Level Configuration

Labels, symbols and zoom layer settings can be changed in the file `maplayers.xml`.

You can download the map layer configuration here: GitHub - maplayers.xml [https://raw.githubusercontent.com/albar965/littlenavmap/release/3.0/resources/config/maplayers.xml] .

Put a copy of this file into the *Little Navmap* settings directory (`C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel\` on Windows) to override the stock settings. *Little Navmap* will watch the file, reload it and redraw the map when it is changed.

See the comments inside the file for more explanations.

Warning

Using wrong settings in this file can crash or freeze the program.

78.4. Icons

To change an icon download it from the GitHub source repository GitHub - Icon Resources [https://github.com/albar965/littlenavmap/tree/release/3.0/resources/icons] or download a Zip archive containing all the stock icons here Little Navmap - Downloads - Customization [https://www.littlenavmap.org/downloads/Customization/].

See below for information and file prefixes to identify the icons.

Modify the icon and save it into the settings directory `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel`. *Little Navmap* will automatically detect and use the icon on next startup.

The formats are limited to PNG, JPG, GIF and SVG (Scalable Vector Graphics (SVG) Tiny 1.2 Specification [https://www.w3.org/TR/SVGMobile12]) where advanced graphics effects like textures will not work.

You can use the free vector drawing program Inkscape [https://inkscape.org] to edit SVG icons. Restart *Little Navmap* to see the changes.

78.4.1. User, AI and Multiplayer Aircraft Icons

See above Icons for download instructions. User, AI and multiplayer aircraft icons are prefixed with `aircraft_`.

All icons for user, AI/multiplayer aircraft, helicopters and ships are stored in the program but can be overloaded by the user.

The icons are:

- `aircraft_boat.svg`
- `aircraft_boat_ground.svg`
- `aircraft_boat_ground_user.svg`
- `aircraft_boat_user.svg`
- `aircraft_helicopter.svg`
- `aircraft_helicopter_ground.svg`
- `aircraft_helicopter_ground_online.svg`
- `aircraft_helicopter_ground_user.svg`
- `aircraft_helicopter_online.svg`
- `aircraft_helicopter_user.svg`
- `aircraft_jet.svg`
- `aircraft_jet_ground.svg`
- `aircraft_jet_ground_online.svg`
- `aircraft_jet_ground_user.svg`

- `aircraft_jet_online.svg`
- `aircraft_jet_user.svg`
- `aircraft_online.svg`
- `aircraft_online_ground.svg`
- `aircraft_small.svg`
- `aircraft_small_ground.svg`
- `aircraft_small_ground_online.svg`
- `aircraft_small_ground_user.svg`
- `aircraft_small_online.svg`
- `aircraft_small_user.svg`

Only used in X-Plane:

- `aircraft_carrier.svg`
- `aircraft_carrier_ground.svg`
- `aircraft_carrier_ground_user.svg`
- `aircraft_carrier_user.svg`
- `aircraft_frigate.svg`
- `aircraft_frigate_ground.svg`
- `aircraft_frigate_ground_user.svg`
- `aircraft_frigate_user.svg`

The suffixes are chosen by vehicle type, status (ground or airborne) and user or AI/multiplayer. The icon is for airborne vehicles if `ground` is missing and for AI/multiplayer vehicles if `user` is missing. For historical reasons all icons are prefixed with `aircraft`.

78.4.2. Userpoint Category Icons

See above Icons for download instructions. Userpoint icons are prefixed with `userpoint_`.

Icons for userpoint categories are stored in the program but can be overloaded by the user as well.

Default category icons can be overloaded with another icon by placing a file with one of the default category names in the settings directory.

New categories can be added by placing a new icon adhering to a certain name pattern in the default directory.

- `userpoint_Airport.svg`
- `userpoint_Airstrip.svg`
- `userpoint_Bookmark.svg`
- `userpoint_Building.svg`
- `userpoint_Cabin.svg`
- `userpoint_Closed.svg`
- `userpoint_DME.svg`
- `userpoint_Error.svg`
- `userpoint_Flag.svg`

- `userpoint_Helipad.svg`
- `userpoint_History.svg`
- `userpoint_Landform.svg`
- `userpoint_Lighthouse.svg`
- `userpoint_Location.svg`
- `userpoint_Logbook.svg`
- `userpoint_Marker.svg`
- `userpoint_Mountain.svg`
- `userpoint_NDB.svg`
- `userpoint_Obstacle.svg`
- `userpoint_Other.svg`
- `userpoint_POI.svg`
- `userpoint_Park.svg`
- `userpoint_Pin.svg`
- `userpoint_Radio Range.svg`
- `userpoint_Seaport.svg`
- `userpoint_Settlement.svg`
- `userpoint_TACAN.svg`
- `userpoint_Unknown.svg`
- `userpoint_VOR.svg`
- `userpoint_VORDME.svg`
- `userpoint_VORTAC.svg`
- `userpoint_VRP.svg`
- `userpoint_Water.svg`
- `userpoint_Waypoint.svg`

The text between the first underscore _ and the `.png` ending defines the category. For example `userpoint_My Places.png` creates a new category `My Places`.

Do not use special characters like `/`, `:`, `;` or `\` for categories. Only letters, digits, space, underscore and dashes are allowed. Special characters like umlauts or accented characters are no problem.

Warning

Adding a large amount of userpoint icons can slow down the program startup significantly.

79. Map Themes

79.1. Installing Map Themes

Additional map themes can be installed in the directory set in options on page Cache and Files, section Map Display Themes. You have to enter a valid path there before using map themes.

New maps come as downloads with different directory structures. Some contain the base directory `data\maps\earth` in the downloaded archive and some do not. Each map installed theme has to consist of a directory containing the related `.dgml` and other files. The name of the map directory and the `.dgml` file have to match. For example `.../norway-topo/norway-topo.dgml`.

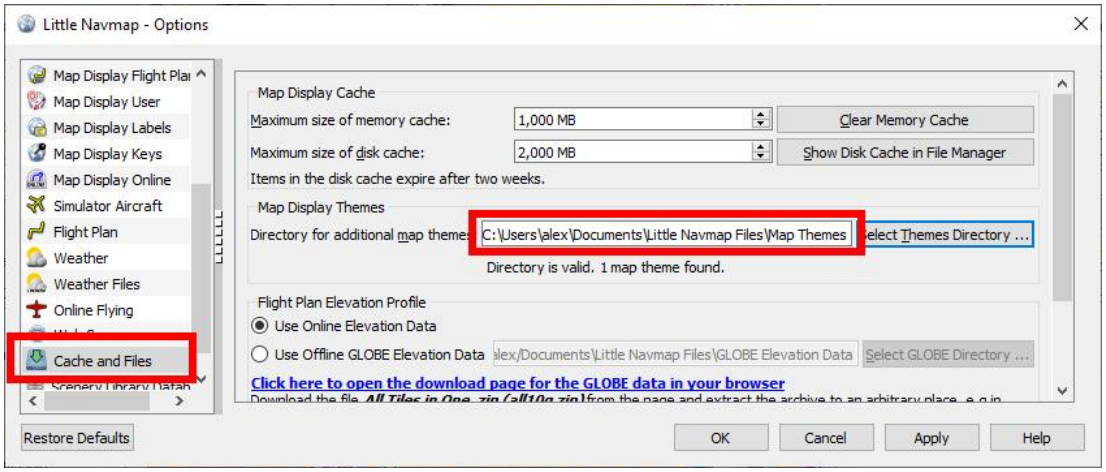
Note that you have to restart *Little Navmap* to see the new map themes.

The menu `View` -> Theme in the main menu and the toolbar drop down box will receive an entry for each additional map theme.

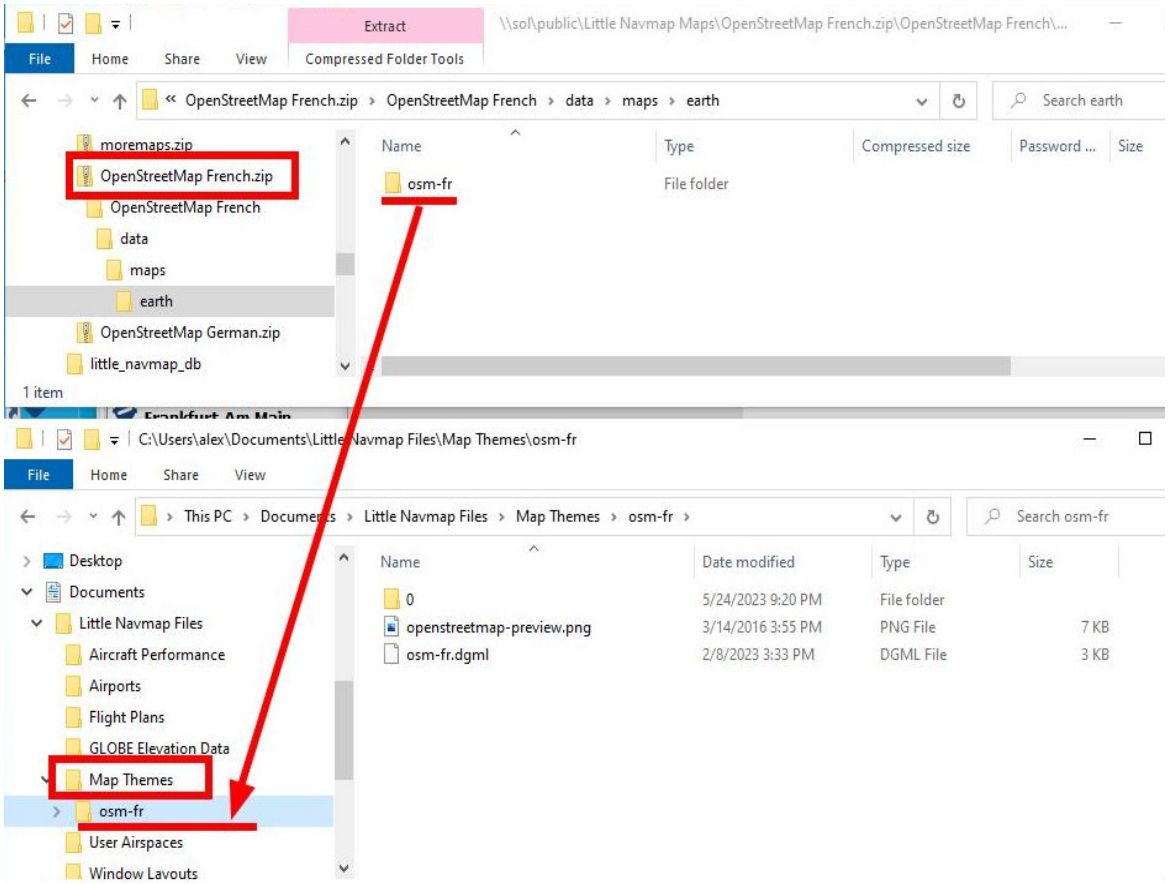
The option Show Country and City Names is enabled for all additional map themes but might not work depending on properties defined in the map's DGML file.

Note

Some map themes require an user account and an API key or token to use them. See options page Map Keys for more information.



Select map theme directory `Documents\Little Navmap Files\Map Themes` in options. The status line below the path shows a valid directory and one map theme found. *Click image to enlarge.*



Installing a map theme from a ZIP file `OpenStreetMap French.zip`. The compressed file contains the subdirectory `data\maps\earth`. You have to copy the directory `osm-fr` containing the file `osm-fr.dgml` into your selected map theme directory `Documents\Little Navmap Files\Map Themes`.

You have to restart *Little Navmap* **to see the new map themes.** *Click image to enlarge.*

Tip

Also check out the Little Navmap Support Forum at AVSIM [https://www.avsim.com/forums/forum/780-little-navmap-little-navconnect-little-logbook-support-forum/] and Little Navmap Downloads - Map Themes [https://www.littlenavmap.org/downloads/Map%20Themes/] for more map themes.

Note

Little Navmap shows an error message on startup if map themes are broken or not installed properly. A message will also be shown if a known discontinued map theme service is detected.

Fix the issues by removing the broken or duplicate map themes and restart *Little Navmap*.

Warning

Do not use the path `.../data/maps/earth` in the installation directory to install maps. This location is deprecated.

Additional map themes can be installed in the directory set in options on page Cache and Files, section Map Display Themes. You have to enter a valid path there before using map themes.

79.2. Creating Map Themes

See the comments in the included file `...\Little Navmap\data\maps\earth\example\example.dgml` or here online example.dgml [https://raw.githubusercontent.com/albar965/littlenavmap/release/3.0/marble/data/maps/earth/example/example.dgml] for more information.

More maps and information about map configuration and DGML files can be found here on the Marble and KDE pages:

- Download more maps for the Marble widget (only Earth maps are supported in *Little Navmap*): Additional Maps [https://marble.kde.org/maps.php]
- A tutorial that shows how to create a map theme based on tiled images: Marble/CustomMaps [https://techbase.kde.org/Marble/CustomMaps]
- A tutorial showing how to create a map theme based on OSM Slippy Maps [https://wiki.openstreetmap.org/wiki/Slippy_map_tilenames]: How to create map themes based on OSM slippy maps [https://techbase.kde.org/Marble/OSMSlippyMaps]
- How to create a historical map for Marble: Historical Maps for Marble [https://techbase.kde.org/Marble/HistoricalMaps]

80. Files

Note that file locations can be overridden using command line options. See Command Line Options for more information.

File paths will differ if using one of the portable scripts (Portable Execution).

Tip

You can open all file locations from the main menu `Tools` -> Files and Directories.

80.1. Important Files to Backup

You can simply create a copy of the Settings Directory `ABarthel` to have a full backup of all configuration options, databases, the logbook, userpoints, aircraft trail and more.

Most important files are: Configuration (`little_navmap.ini`), Aircraft Trails (`little_navmap.track`), Userpoints Database (`little_navmap_userdata.sqlite` in `little_navmap_db`) and the Logbook Database (`little_navmap_logbook.sqlite` in `little_navmap_db`).

All other files can be re-generated from the simulator scenery library or are only temporary storage.

80.2. File Backups

Little Navmap creates a copy of the most important files on startup and keeps up to three additional backup files: `..._backup.sqlite` to `..._backup.sqlite.2`, for example. You can copy these files back to the original if you did something wrong.

This applies to the files for Userpoints Database, Logbook Database and Aircraft Trails.

Furthermore, *Little Navmap* creates backups of important files when starting an updated version to avoid accidental data loss. These files end with `..._update-backup.1` to `..._update-backup.3`.

80.3. Logs

Log files of *Little Navmap* are stored in the directories:

- Windows: `C:\Users\YOURUSERNAME\AppData\Local\Temp\abarthel-little_navmap.log` or `%temp%\abarthel-little_navmap.log`.
- Linux: `/tmp/abarthel-little_navmap.log`
- macOS: `/var/folders/RANDOMIZED_DIRECTORY_NAME/abarthel-little_navmap.log` Use the command below on the macOS terminal to find the log file and open it in Text Edit. Save the file to another place from where you can attach it to an email.

  ```
  open -a TextEdit $(find /private/var/folders/ -name abarthel-little_navmap.log 2>/dev/null)
  ```

The *Little Navmap* keeps up to two log files and rotates these if the file size of 10 MB is exceeded. So you may find up to two log files `abarthel-little_navmap.log` and `abarthel-little_navmap.log.1`.

Send the log file `abarthel-little_navmap.log` if you like to report an error. All two are needed in some cases but sending the first is often sufficient.

Note

Please compress log and other files before sending them by email.

80.4. Settings Directory

This is the main directory where all settings, trails, databases and more are stored.

These are:

- Windows: `C:\Users\YOURUSERNAME\AppData\Roaming\ABarthel` or `%appdata%\ABarthel`
- macOS: `/Users/YOURUSERNAME/.config/ABarthel` or `$HOME/.config/ABarthel`
- Linux: `/home/YOURUSERNAME/.config/ABarthel` or `$HOME/.config/ABarthel`

80.4.1. Configuration

Configuration files ending with `.ini` use the Windows-INI style that has groups in square brackets and `key=value` lines. See here [https://en.wikipedia.org/wiki/INI_file] for more information about this type of configuration files.

- `little_navmap.ini`: INI style configuration file. Text file. Can be opened with Open Configuration File.
- `little_navmap.history`: The map position history. This is a binary file which cannot be opened in text editors.
- `little_navmap.lnmpln`: Temporary flight plan file in LNMPLN format (XML/text). This is used to reload changed flight plans without manual save.

Three more configuration files are created for customization of colors and styles:

- `little_navmap_fusionstyle.ini`: INI style configuration file for customizing the GUI colors of the style `Fusion`.
- `little_navmap_nightstyle.ini`: As above but for the style `Dark`.
- `little_navmap_mapstyle.ini`: INI style configuration file. Text file. Used for customization of the map display.

See Customize for more information.

Note

Note that *Little Navmap* might reset these files when being updated, but only after creating backup files. This is usually mentioned in the change log.

80.4.2. Aircraft Trails

Aircraft trails are stored in separate files in the Settings Directory directory:

- `little_navmap.track`: The main user aircraft trail shown on the map. Binary file. This trail can be exported as a GPX using Export Flight Plan and Trail as GPX in the menu `File`.
- `little_navmap.logbooktrack` and `little_navmap_profile.track` are temporary files for saving trails.

80.4.3. Crash Reports

Crash or issue reports are stored in the Settings Directory directory in the sub-directory `crashreports`. These are normal Zip files containing the most important configuration, flight plan and other files needed to reproduce a crash. An issue report can be created manually by an user by clicking Create Issue Report in the menu `Tools`. Crash reports are automatically collected after *Little Navmap* detects an unclean shutdown. See also Crash Report and Issue Report.

- `little_navmap_crashreport.zip`: Automatically generated crash report after detecting an unclean shutdown from the last session. Follow the instructions in the dialog window if you wish to send the report. Click on the blue links to open files or web pages.
- `little_navmap_issuereport.zip`: Manually created issue report by using Create Issue Report in the menu `Tools`.
- `little_navmap_stacktrace.txt`: More detailed information about crash location in the source code. Not available on all platforms.

80.4.4. Databases

Aircraft trails are stored in the sub-directory `little_navmap_db` below the Settings Directory directory.

All the databases are SQLite [http://sqlite.org] files which can be viewed with e.g. DB Browser for SQLite [https://github.com/sqlitebrowser/sqlitebrowser/releases] if you're interested in relational databases.

The directory can be opened with Show Database Files.

Warning

Do not modify, move, rename or delete databases while *Little Navmap* is running.

Do not let the Navigraph *FMS Database Manager* update databases while *Little Navmap* is running. *Little Navmap* might crash, the update might fail or remain incomplete.

80.4.4.1. Scenery Library Databases

The number of files depends on which simulators you have installed and which scenery libraries you have loaded.

The files are:

- `little_navmap_.sqlite`: An empty dummy database. Can be ignored.
- `little_navmap_fsx.sqlite`: Flight Simulator X
- `little_navmap_fsxse.sqlite`: Flight Simulator - Steam Edition
- `little_navmap_p3dv4.sqlite`: Prepar3D v4
- `little_navmap_p3dv5.sqlite`: Prepar3D v5
- `little_navmap_p3dv6.sqlite`: Prepar3D v6
- `little_navmap_msfs.sqlite`: Microsoft Flight Simulator 2020
- `little_navmap_xp11.sqlite`: X-Plane 11
- `little_navmap_xp12.sqlite`: X-Plane 12
- `little_navmap_navigraph.sqlite`: Navigraph navigation database. Can be either the included database or an update installed by the Navigraph *FMS Data Manager*.

80.4.4.2. Userpoints Database

The file `little_navmap_userdata.sqlite` contains the user defined waypoints.

Little Navmap creates a copy on startup and keeps up to three additional backup files: `little_navmap_userdata_backup.sqlite` to `little_navmap_userdata_backup.sqlite.2`. You can copy these files back to the original database `little_navmap_userdata.sqlite` if you did something wrong.

Tip

Open this directory in your file manager using Show Database Files select the userpoint database and hit `Ctrl+C` (copy file) and `Ctrl+V` (paste file). This will add a copy of the database which will be named `little_navmap_userdata (1).sqlite` or similar.

This is the fastest way to create a backup.

You can apply the same to the Logbook Database files.

80.4.4.3. User Airspaces Database

The file `little_navmap_userairspace.sqlite` contains the user defined airspaces read by using Load User Airspaces.

It is backed up in the same way as the userpoints.

80.4.4.4. Logbook Database

The file `little_navmap_logbook.sqlite` is used to store logbook entries.

Little Navmap creates copies on startup and keeps up to two additional backup files for the user defined waypoints as described above.

80.4.4.5. Other Database Files

Additional files like

- `little_navmap_compiling.sqlite`,
- `little_navmap_compiling.sqlite-journal`,
- `little_navmap_temp.sqlite`,
- `little_navmap_temp.sqlite-journal`,
- `little_navmap_onlinedata.sqlite` or
- `little_navmap_onlinedata.sqlite-journal`

are used by temporary processes like the database compilation or online network data. These can be ignored.

80.5. Disk Cache

The disk cache that is used to store all the downloaded online map tile images can be found here:

- Windows: `C:\Users\YOURUSERNAME\AppData\Local\.marble\data\maps\earth` or `%localappdata%\.marble`
- macOS: `/Users/YOURUSERNAME/.local/share/marble/maps/earth` or `$HOME/.local/share/marble/maps/earth`
- Linux: `/home/YOURUSERNAME/.local/share/marble/maps/earth` or `$HOME/.local/share/marble/maps/earth`

The cache directory `earth` contains one directory for each installed map theme.

You can open the cache directory from menu item `Tools` -> `Files and Directories` -> Show Map Cache

You can delete the cache manually to save space if *Little Navmap* is not running.

Cache size can be changed on page Map Display in options.

Each map theme has a folder in this directory where its tile images are stored. A short name is used which corresponds to the related map theme. This is `mapboxuser` for the theme `MapBox User` or `openstreetmap` for the theme `OpenStreetMap`, for example.

Delete the related directory to clear the cache.

80.6. *Little Navmap* Flight Plan File Format

LNMPLN files are flight plan files using the format specific to *Little Navmap*. They are in XML text format and can only be interpreted by *Little Navmap*. You can use any text editor to modify or look at the files.

See XML (Wikipedia) [https://en.wikipedia.org/wiki/XML] for more information about this file type.

The XML schema for validation can be found here: lnmpln.xsd [https://www.littlenavmap.org/schema/lnmpln.xsd].

Order of elements does not matter. Missing elements will be logged as warning except optional ones.

Flight Plan File Example. Documentation included as XML comments:

```
<?xml version="1.0" encoding="UTF-8"?>
<LittleNavmap xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:noNamespaceSchemaLocation="https://www.littlenavmap.org/schema/lnmpln.xsd">
  <Flightplan>

    <!-- Coordinates are always latitude and longitude in decimal/signed notation -->
    <!-- Altitude in feet. -->

    <!-- ====== Header with metadata ====== -->
    <Header>
```

```
      <FlightplanType>IFR</FlightplanType>                <!-- IFR or VFR as set in user interface -->
      <CruisingAlt>30000</CruisingAlt>                    <!-- feet -->
      <CruisingAltF>30000.0000</CruisingAltF>             <!-- Feet. Optional floating point altitude avoid
                                                               rounding issues when using metric values -->
      <CreationDate>2020-09-11T18:05:15+02</CreationDate>  <!-- Local time with timezone offset -->
      <FileVersion>1.0</FileVersion>                      <!-- File format version -->
      <ProgramName>Little Navmap</ProgramName>
      <ProgramVersion>2.6.0.beta</ProgramVersion>         <!-- Little Navmap version used for saving -->
      <Documentation>https://www.littlenavmap.org/lnmpln.html</Documentation>
      <Description>Flight plan remarks</Description>      <!-- Remarks as entered in user interface tab Remarks.
-->
    </Header>
    <SimData>MSFS</SimData>                    <!-- Use simulator and AIRAC if available -->
    <NavData Cycle="2008">NAVIGRAPH</NavData>  <!-- Use navdata and AIRAC -->

    <!-- ====== Used aircraft performance ====== -->
    <AircraftPerformance>
      <FilePath>Normal Climb and Descent all Equal.lnmperf</FilePath>
      <Type>BE51</Type>
      <Name>Normal Climb and Descent</Name>
    </AircraftPerformance>

    <!-- ====== Departure parking position ====== -->
    <Departure>
      <Pos Lon="-120.538055" Lat="46.569828" Alt="1069.00"/>
      <Start>PARKING 1</Start>    <!-- Name of position -->
      <Type>Parking</Type>        <!-- Type of position.
                                       None, Airport, Runway, Parking or Helipad. -->
      <Heading>5.1</Heading>      <!-- True heading of the position -->
    </Departure>

    <!-- ====== Departure and arrival procedures ====== -->
    <Procedures>
      <!-- SID and STAR are resolved by name and runway when loading -->
      <SID>
        <Name>WENAS7</Name>             <!-- SID name. Only five character SIDs. -->
        <Runway>09</Runway>             <!-- SID departure runway if applicable. -->
        <Transition>PERTT</Transition>  <!-- Transition name if used -->
      </SID>
      <!-- Alternative to SID. Selected runway for departure plus length of runway extension line. -->
      <SID>
      <Name>KYKM9</Name>
        <Runway>9</Runway>
        <Type>CUSTOMDEPART</Type>
        <CustomDistance>3.00</CustomDistance>
      </SID> -->
      <STAR>
        <Name>PIGLU4</Name>             <!-- STAR name. Only five character SIDs. -->
        <Runway>16</Runway>             <!-- STAR arrival runway if applicable. -->
        <Transition>YDC</Transition>    <!-- Transition name if used -->
      </STAR>
      <!-- Approaches are resolved by either ARINC or the combination of Name, Runway, Type and Suffix -->
      <Approach>
        <Name>TATVI</Name>                  <!-- Optional approach name. Name of approach fix.
                                                 ARINC is required if this is not given. -->
        <ARINC>I16-Z</ARINC>                <!-- ARINC name of the approach.
                                                 Type, runway and optional suffix. -->
        <Runway>16</Runway>                 <!-- Optional approach runway.
                                                 Not given for circle-to-land approaches. -->
        <Type>ILS</Type>                    <!-- Optional approach type -->
        <Suffix>Z</Suffix>                  <!-- Optional approach suffix -->
        <Transition>HUMEK</Transition>      <!-- Transition name if used -->
        <TransitionType>F</TransitionType>  <!-- Optional Transition type if available. -->
      </Approach>
      <!-- Alternative to approach. Selected runway for approach plus length of runway extension line,
           altitude at start of final and offset angle.
      <Approach>
        <Name>CYLW34</Name>
        <Runway>34</Runway>
        <Type>CUSTOM</Type>
        <CustomDistance>3.00</CustomDistance>
        <CustomAltitude>1000.00</CustomAltitude>
        <CustomOffsetAngle>0.00</CustomOffsetAngle>
      </Approach> -->
      </Procedures>

    <!-- ====== Alternate airports ====== -->
    <Alternates>
```

```
      <Alternate>
        <Name>Penticton</Name>                                <!-- Optional name -->
        <Ident>CYYF</Ident>                                   <!-- Required ident -->
        <Type>AIRPORT</Type>                                  <!-- Optional type -->
        <Pos Lon="-119.602287" Lat="49.462452" Alt="1122.00"/> <!-- Optional position.
                                                                    Helps to resolve the correct airport. -->
      </Alternate>
      <Alternate>
        <Name>Grand Forks</Name>
        <Ident>CZGF</Ident>
        <Type>AIRPORT</Type>
        <Pos Lon="-118.430496" Lat="49.015633" Alt="1393.00"/>
      </Alternate>
    </Alternates>

    <!-- ====== En-route waypoints including departure and destination ====== -->
    <!-- The elements Ident, Type and Pos are required to resolve the waypoint in the database.
         Region is optional and used for resolving if given.
         Procedure waypoints are never included. -->
    <Waypoints>

      <!-- ====== Departure airport. Other waypoint types are allowed for flight plan snippets. ====== -->
      <Waypoint>
        <Name>Yakima Air Terminal/Mcallister</Name>
        <Ident>KYKM</Ident>
        <Type>AIRPORT</Type>
        <Pos Lon="-120.543999" Lat="46.568199" Alt="1069.00"/>
      </Waypoint>

      <!-- ====== User defined waypoint ====== -->
      <Waypoint>
        <Name>User defined point</Name>
        <Ident>USERPT</Ident>
        <Region>K1</Region>
        <Type>USER</Type>
        <Pos Lon="-120.848000" Lat="47.676601" Alt="24960.89"/>
        <Description>User waypoint remarks</Description>       <!-- Remarks as entered in user interface -->
      </Waypoint>

      <!-- ====== Direct to waypoint ====== -->
      <Waypoint>
        <Ident>DIABO</Ident>
        <Region>K1</Region>
        <Type>WAYPOINT</Type>
        <Pos Lon="-120.937080" Lat="48.833759" Alt="30000.00"/>
      </Waypoint>

      <!-- ====== Airway waypoints ====== -->
      <Waypoint>
        <Ident>IWACK</Ident>
        <Region>K1</Region>
        <Airway>J503</Airway>  <!-- Airway leading towards this waypoint -->
        <Type>WAYPOINT</Type>
        <Pos Lon="-120.837067" Lat="48.932140" Alt="30000.00"/>
        <Description>Waypoint remarks</Description>
      </Waypoint>
      <Waypoint>
        <Ident>CFKNF</Ident>
        <Region>K1</Region>
        <Airway>J503</Airway>
        <Type>WAYPOINT</Type>
        <Pos Lon="-120.767761" Lat="49.000000" Alt="30000.00"/>
      </Waypoint>

      <!-- ====== Destination airport.
                  Other waypoint types are allowed for flight plan snippets. ====== -->
      <Waypoint>
        <Name>Kelowna</Name>
        <Ident>CYLW</Ident>
        <Type>AIRPORT</Type>
        <Pos Lon="-119.377998" Lat="49.957199" Alt="1461.00"/>
      </Waypoint>
    </Waypoints>
  </Flightplan>
</LittleNavmap>
```

80.7. Aircraft Performance File Format

LNMPERF files are files containing aircraft performance files using the format specific to *Little Navmap*. They are in XML text format and can only be interpreted by *Little Navmap*.

See XML (Wikipedia) [https://en.wikipedia.org/wiki/XML] for more information about this type of configuration files.

The XML schema for validation can be found here: lnmperf.xsd [https://www.littlenavmap.org/schema/lnmperf.xsd].

Order of elements does not matter. Missing elements will be logged as warning except optional ones.

Aircraft Performance File Example. Documentation included as XML comments:

```
<?xml version="1.0" encoding="UTF-8"?>
<LittleNavmap xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:noNamespaceSchemaLocation="https://www.littlenavmap.org/schema/lnmperf.xsd">
  <AircraftPerf>

     <!-- ====== Header with metadata ====== -->
    <Header>
      <CreationDate>2020-11-16T22:43:35</CreationDate>
      <FileVersion>1.0</FileVersion>
      <ProgramName>Little Navmap</ProgramName>
      <ProgramVersion>2.6.4.beta</ProgramVersion>
      <Documentation>https://www.littlenavmap.org/lnmperf.html</Documentation>
    </Header>

     <!-- ====== Options ====== -->
    <Options>
      <Name>Epic E1000 G1000 Edition</Name>  <!-- Aircraft name - free text -->
      <AircraftType>EPIC</AircraftType>      <!-- Aircraft ICAO type which is matched to simulator aircraft ICAO
type -->
      <Description>Climb: 80% torque, 1600 RPM, 160 KIAS, max ITT 760°
Cruise: FL260-FL280, 1400 RPM, adjust torque to 55 GPH fuel flow, max ITT 760°
Descent: Idle, 250 KIAS

https://www.littlenavmap.org</Description>  <!-- Remarks as entered in user interface tab Remarks. -->
      <FuelAsVolume>0</FuelAsVolume>        <!-- 0: Used fuel unit is lbs. 1: Used fuel unit is gal. -->
      <JetFuel>1</JetFuel>                  <!-- Indicator for fuel type needed when switching between
                                                 units in user interface.
                                                 Also checked for simulator aircraft. -->
    </Options>

    <!-- ====== Performance data. All values are either lbs or gallons depending on FuelAsVolume.
                Speed is always TAS. Vertical speed is always ft/min. Fuel flow measure in unit per hour. ======
-->
    <Perf>
      <ContingencyFuelPercent>5.0</ContingencyFuelPercent>
      <ExtraFuelLbsGal>0.000</ExtraFuelLbsGal>
      <MinRunwayLengthFt>1600.000</MinRunwayLengthFt>
      <ReserveFuelLbsGal>500.000</ReserveFuelLbsGal>
      <RunwayType>SOFT</RunwayType>                    <!-- Either HARD (hard only), SOFT (hard and soft),
                                                            WATER (water only) or WATERLAND (equals to either
WATER or SOFT) for amphib -->
      <TaxiFuelLbsGal>20.000</TaxiFuelLbsGal>
      <UsableFuelLbsGal>1900.000</UsableFuelLbsGal>
      <Alternate>
        <FuelFlowLbsGalPerHour>361.000</FuelFlowLbsGalPerHour>
        <SpeedKtsTAS>302.000</SpeedKtsTAS>
      </Alternate>
      <Climb>
        <FuelFlowLbsGalPerHour>464.807</FuelFlowLbsGalPerHour>
        <SpeedKtsTAS>185.220</SpeedKtsTAS>
        <VertSpeedFtPerMin>2479.589</VertSpeedFtPerMin>
      </Climb>
      <Cruise>
        <FuelFlowLbsGalPerHour>361.000</FuelFlowLbsGalPerHour>
        <SpeedKtsTAS>302.000</SpeedKtsTAS>
      </Cruise>
      <Descent>
        <FuelFlowLbsGalPerHour>222.000</FuelFlowLbsGalPerHour>
        <SpeedKtsTAS>201.000</SpeedKtsTAS>
        <VertSpeedFtPerMin>2000.000</VertSpeedFtPerMin>
      </Descent>
    </Perf>
```

```
  </AircraftPerf>
</LittleNavmap>
```

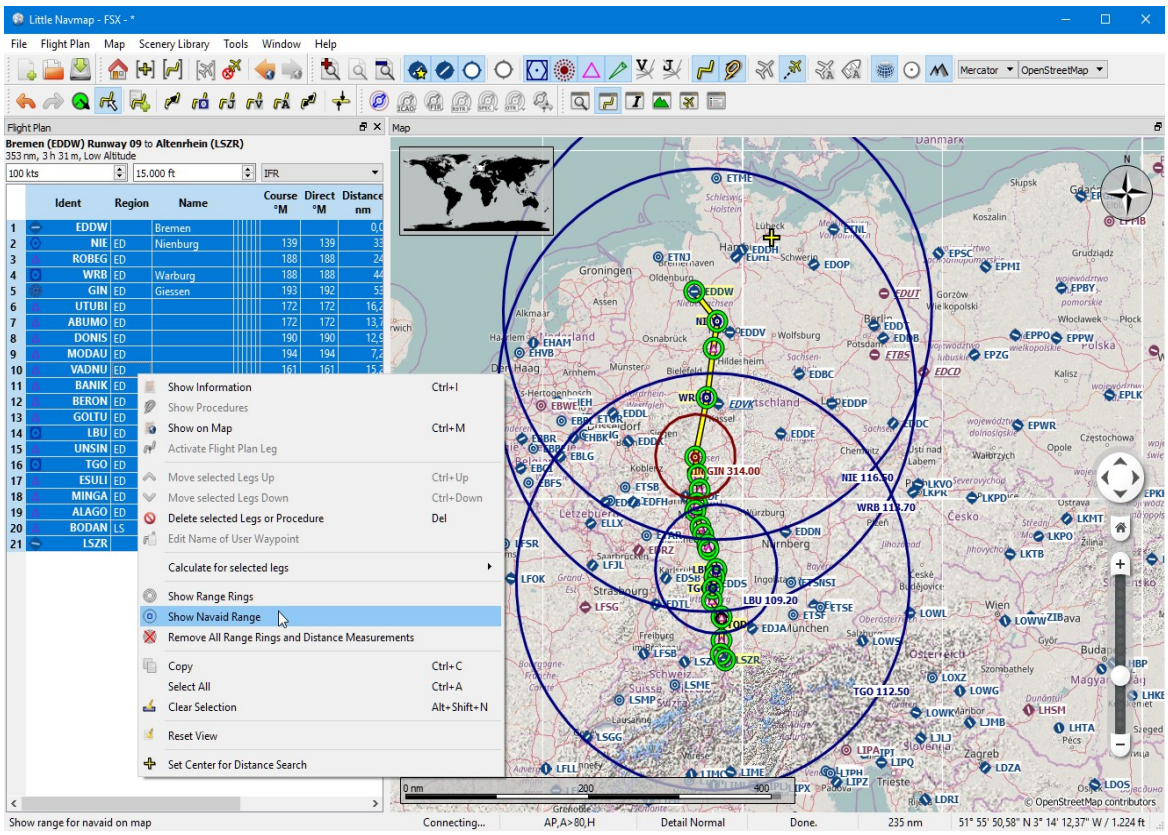
81. Tips and Tricks

81.1. Show all Navaid Ranges of a Flight Plan

Select all legs in the flight plan table, then right-click on any leg and select `Show Navaid Range` . This will place a range ring around every radio navaid in the flight plan.

See also [Add Navaid Range Ring](#).

Remove the range rings by right clicking onto the center and select `Remove Range Ring` from the context menu.

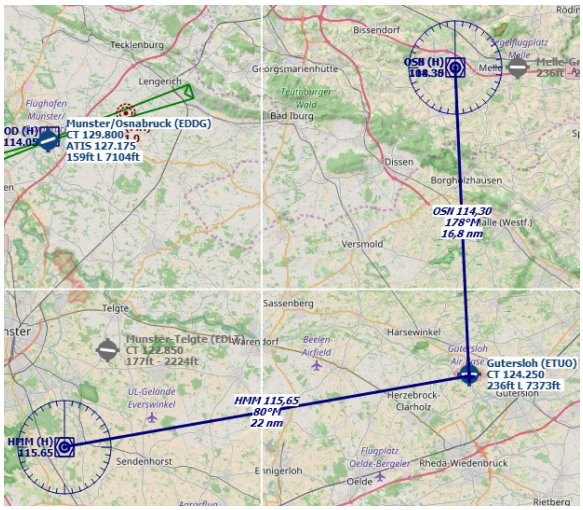


Radio navaid range rings along a flight plan. *Click image to enlarge.*

81.2. Use the measurement lines to get a VOR Radial Intersection

Measurement lines can start at airports or navaids where they use the magnetic declination if available. You can use them to find an airport by radial and distance if you like to navigate the old fashioned way.

See also [Measure Distance from here](#).



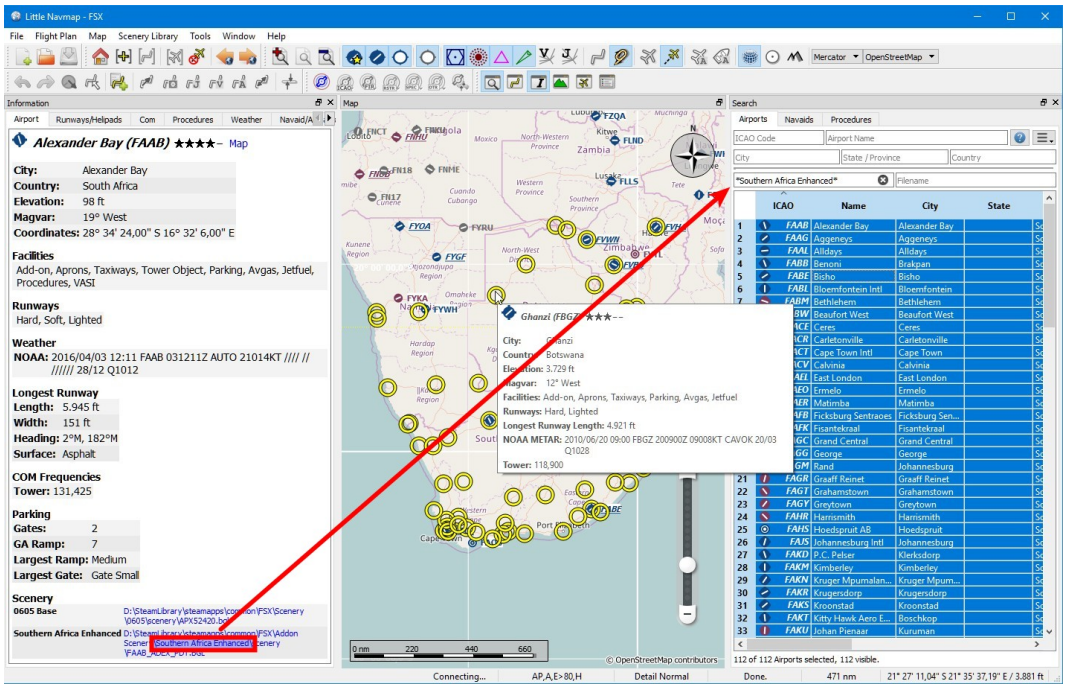
Example that gets radial and distance from two VORs for `ETUO`. Measurement lines can also start at NDBs or waypoints. Note the suffix `°M` which indicates magnetic course. *Click image to enlarge.*

The same can be used when flying airways without GPS. In the example below fly 323 degrees magnetic to VOR `SFD` (radial 143). You are at `WAFFU` when the DME shows 13.7 NM. Then turn left to 280°M until you intercept 302° to `GWC`. *Click image to enlarge.*

81.3. Search for Add-On Airports

You can use the scenery path to look for add-on airports of a certain developer. Click on one of the add-on airports and copy the relevant part of the path from the information window. Insert this path fragment into the `Scenery Path` input field in the airports tab of the search dock window.

See also Text filters.

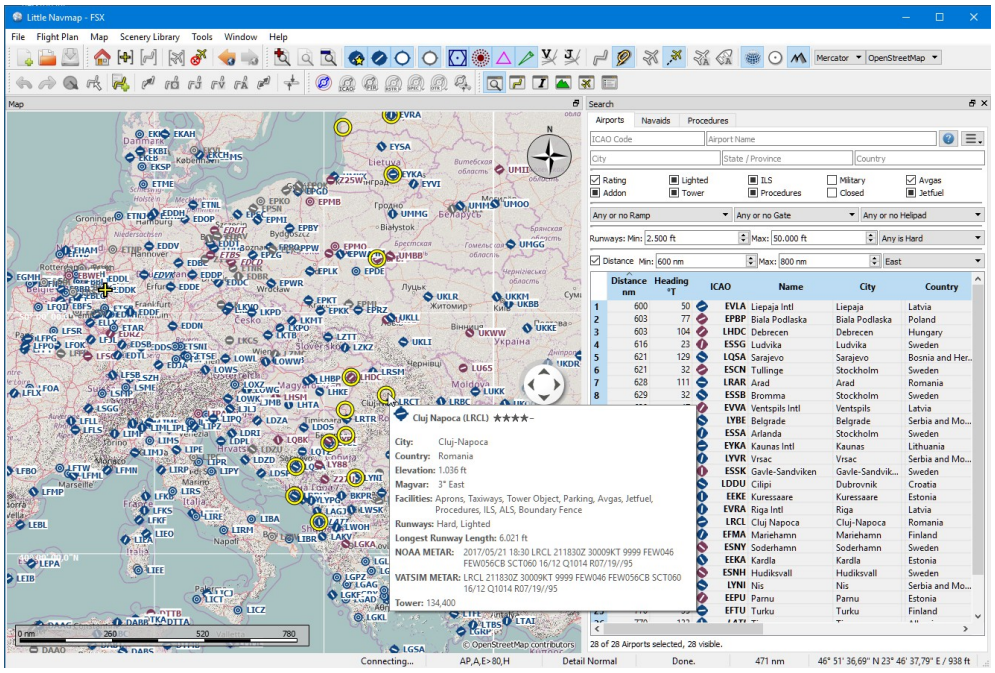


Select all in the result table to get all airports highlighted on the map. *Click image to enlarge.*

81.4. Use the Search Function to plan a Round the World Trip

The spatial search function is useful to plan a round the world tour. Assume you'd like to go east:

1. Go to the dock window `Search`, right-click into the result table and select `Reset Search` to remove all search criteria that may affect the query.
2. Set your departure airport.
3. Right-click on your departure airport in the search or on the map and select `Set Center for Distance Search` . This is the center point for the spatial search.
4. Add any additional criteria in the search like lighted runways, procedures, fuel, minimum runway length and more.
5. Click the checkbox before `Distance`, adjust the minimum and maximum distance and set direction to `East`.
6. Select all in the result table to see the airports on the map.
7. Choose your next destination airport.
8. Add as destination.
9. Calculate plan.
10. Fly.
11. Back to 2. until you are done around the world.



The image above shows a query result for airports in the east. Note that the black/yellow highlight circles have tooltips too no matter if the airport is visible or not. *Click image to enlarge.*

82. Portable Execution

Running *Little Navmap* in portable mode instructs the program to place all settings, databases and cached files into the installation directory (i.e. the directory containing the executable file). No directories or files are created on the computer running the program from a memory stick, for example.

This mode is available for all operating systems supported by *Little Navmap*.

You can also use the portable mode to test new *Little Navmap* releases without affecting your current settings or trying different simulator scenery databases.

Scripts allow to run *Little Navmap* in portable mode by passing command line options to the program:

- Windows: `Little Navmap Portable.cmd`, this file not present when using the Windows installer.
- macOS: `Little Navmap Portable.command`
- Linux: `Little Navmap Portable.sh`

Three directories are created when running these scripts:

- `Little Navmap Cache` for the online map image tiles (see Disk Cache for used directory when using normal execution).
- `Little Navmap Logs` for log files instead of the system directory for temporary files (see Logs for normal execution).
- `Little Navmap Settings`: Store for settings and databases (see Configuration for normal execution).

See Command Line Options for more information.

Important

You have to download and extract one of the Zip archives of *Little Navmap* to use this functionality on Windows. It will not work if you use one of the Windows installers. See Installation for more information.

Note

You have to install updates to the navigation database manually if you run in portable mode. Replace and/or update the file `YOURINSTALLATIONFOLDER/Little Navmap Settings/little_navmap_db/little_navmap_navigraph.sqlite` to update you navigation database.

83. Command Line Options

Several command line options to define paths or files to load are available.

Start *Little Navmap* with the help option `littlenavmap.exe -h` (Windows), `"Little Navmap.app/Contents/MacOS/littlenavmap" -h` (macOS) or `./littlenavmap -h` (Linux) to get more information on the terminal or the command line.

Note that paths or files containing spaces or special characters have to be put in double quotes `"`.

Example: Load a flight plan file:

```
littlenavmap.exe --flight-plan "IFR Ireland West Knock (EIKN) to Benbecula (EGPL).lnmpln"
```

Example: Create a flight plan from the given route description:

```
littlenavmap.exe -d "KYKM WENAS7 PERTT 4741N12051W DIABO J503 FOLDY YDC PIGLU4 CYLW CYYF CZGF"
```

All files passed to *Little Navmap* without one of the `-` or `--` options below are checked for file type and loaded into the program. All supported flight plan formats are loaded (see Open Flight Plan for a list) as well as `.lnmperf` aircraft performance files (Open Aircraft Performance) and `.lnmlayout` window layout files (Open Window Layout).

For all files without an option specifying the type, the file type is detected by the content and not by the extension.

All files are passed to an already running *Little Navmap* instance, if detected. This will activate the other window and pass all files or parameters on the command line to the other instance. This applies to the options `--flight-plan`, `--flight-plan-descr`, `--aircraft-perf` and `--layout`. This is functional on all supported operating systems. A question dialog might appear asking to discard changes, if any.

Note

Make sure your flight plan is free of errors like a too low cruise altitude or procedure altitude violations to avoid warning dialogs or a modified flight plan blocking the loading of subsequent flight plans.

Note

`--flight-plan-descr` reads the route string using the current options set in the drop down menu button in the Flight Plan Route Description dialog window.

83.1. Options

Both short and long options are available.

`-h, --help`

Displays help on command line options.

`--help-all`

Displays help including Qt specific options.

`-v, --version`

Displays version information.

`-q, --quit`

Quit an already running instance. The running instance might still ask about exiting or saving files.

`-p, --settings-path <settings-path>`

Use <settings-path> to store options and databases into the given directory. <settings-path> can be relative or absolute. Missing directories are created. Path can be on any drive.

`-l, --log-path <settings-path>`

Use <log-path> to store log files into the given directory. <log-path> can be relative or absolute. Missing directories are created. Path can be on any drive.

`-c, --cache-path <cache-path>`

Use <cache-path> to store tiles from online maps. Missing directories are created. Path can be on any drive.

`-f, --flight-plan <flight-plan>`

Load the given <flight-plan> file on startup. Can be one of the supported formats like `.lnmpln`, `.pln`, `.fms`, `.fgfp`, `.fpl`, `.gfp` or others.

`-d, --flight-plan-descr <flight-plan-descr>`

Parse and load the given <flight-plan-descr> flight plan route description on startup. Example `EDDF BOMBI LIRF`.

`-a, --aircraft-perf <aircraft-perf>`

Load the given <aircraft-perf> aircraft performance file `.lnmperf` on startup.

`-y, --layout <layout>`

Load the given <layout> window layout file `.lnmlayout` on startup.

`-g, --language <language>`

Use language code <language> like `de` or `en_US` for the user interface. The code is not checked for existence or validity and is saved for the next startup.

84. Appendix

84.1. Tips for slow Computers

- Dialog `Options` -> `Map` -> `Details while scrolling ...`: Use `Normal ...`
- Dialog `Options` -> `Simulator Aircraft` -> `Simulator Aircraft scroll box size ...`: Use a higher value to reduce map updates.
- Close the window `Flight Plan Elevation Profile`. It will stop all background processing when closed.
- Avoid airspaces. Switch them off using the button on the airspaces toolbar.
- Switch off all AI traffic in the dialog `Connect`. See Options.
- Use the map projection `Mercator`. It consumes less resources since it can use the downloaded image tiles as is and does not transform them to the spherical format.

84.2. Troubleshoot

See also Little Navmap - Frequently asked Questions [https://albar965.github.io/littlenavmap-faq.html] which is updated regularly.

84.3. Known Problems and Frequently asked Questions

See also Little Navmap - Frequently asked Questions [https://albar965.github.io/littlenavmap-faq.html] which is updated regularly.

84.4. How to report a Bug

A screenshot of the full *Little Navmap* window including title or a flight plan depending on issue might be helpful at first.

Apart from that you can send me an issue report which provides all needed information for reproducing a crash or other problem. See chapter Issue Report.

85. Glossary

3D

X-Plane airport which contains at least one 3D object. May be a fully constructed major airport.

Airport

Means all airports, water airports, airstrips or heliports.

Add-on airport

FSX/P3D: All scenery data that is found outside of the base flight simulator `Scenery` directory is considered an add-on.

X-Plane: All airports in the `Custom Scenery` directory are considered add-on airports and will be highlighted accordingly.

Microsoft Flight Simulator 2020: All airports located in the `Community` directory and the `Official\OneStore` or `Official\Steam` are considered to be add-on airports. Exceptions are `fs-base`, `fs-base-genericairports` and `fs-base-nav`.

Approach Procedure

An approach procedure is a series of maneuvers for the transfer of an aircraft in instrument flight conditions from the initial approach to a landing or to a point from which a landing may be made visually. If a flight plan includes a standard arrival procedure (STAR), an approach procedure will normally follow the STAR.

Arrival Procedure

Approach, transition or STAR procedure.

BGL

A binary file with the extension BGL which is part of a flight simulator scenery containing airport, navaid or airway information. These files can also contain traffic, landclass, elevation or other information which is not relevant for *Little Navmap*.

Checkbox

An user interface element that allows to toggle a setting between two states (on and off) or three states (on, off and not applicable).

CSV

Comma-separated values text file.

DAT

A text file format used by X-Plane to store airport, navaid and procedure information.

Departure Procedure

SID (standard instrument departure) procedure.

Dialog

A dialog window requiring user input. Most dialogs block the whole applicaton until closed.

DME

Distance measuring equipment or a radio navaid.

Empty airport

An airport that has no taxiways, no parking positions or gates, no aprons and is not an add-on airport and is not a water airport.

FACF

Final approach course fix. A point aligned on the final approach course of an instrument procedure.

FAF

Final approach fix. The point where the final approach segment begins on the instrument approach.

Fix

This term refers to a waypoint, radio navaid or an calculated point on a procedure. A fix might be defined by VOR radial and distance, for example.

Flight Plan Position

An user defined waypoint which is part of the flight plan.

FLP

Flight plan format used by the X-Plane FMS, Aerosoft Airbus and other add-on aircraft.

FMS

Flight plan format used by X-Plane 11 and 12. Can be loaded into the stock GPS, FMS or add-ons.

FS9

Flight Simulator 2004.

FSX

Flight Simulator X or Flight Simulator - Steam Edition.

ft

Feet. 0.3048 meter.

GIS

A geographical information system like Google Earth for example.

LDA

Localizer type directional aid. A type of localizer-based instrument approach to an airport.

IGS

Instrument guidance system – a modified ILS to accommodate a non-straight approach.

ILS

Instrument landing system.

IPv4

Internet Protocol version 4. Slowly replaced by IPv6. Often used in parallel with IPv6. IP addresses look like `192.168.1.1`.

IPv6

Internet Protocol version 6 replacing IPv4. IP addresses look like `fe80::c0b9:1832:abc5:d5a1`.

Initial Fix

This is the first fix of a procedure.

Intersection

In aviation, an intersection is a virtual navigational fix that helps aircraft maintain their flight plan. This manual also uses the synonym waypoint.

Logbook Entry

Created by the user or automatically on finishing a flight containing takeoff and landing.

LNMPLN

Own flight plan format of *Little Navmap*.

MAP

Missed approach point. The point on the final approach which represents the termination of the final approach and the start of the missed approach.

MSFS

Microsoft Flight Simulator 2020.

Navaid

VOR, VORTAC, TACAN, NDB or waypoint/intersection. Also ILS and Localizer.

NDB

Non directional beacon - radio navaid.

NM

Nautical miles. 1.852 km, 1' (one minute or 1/60°) latitude or 1' longitude at the Equator.

P3D

Prepar3D v3 to v5.

Parking

GA ramp, cargo ramp, fuel box or gate at an airport.

PLN

FSX and P3D flight plan format.

POI

Point of interest. A userpoint type.

Procedure

A STAR, SID or approach and the respective transitions.

Radio navaid

VOR, VORTAC, TACAN or NDB.

Rating

Airport zero to five star rating depending on facilities.

Scenery Library Database

This is an internal database (SQLite [http://sqlite.org]) that is created by *Little Navmap* when reading all the flight simulator BGL or DAT files. It allows fast complex searches and map display.

SDF

Simplified directional facility is a localizer-based instrument non-precision approach to an airport, which provides a final approach course similar to ILS and LDA approaches, but not as precise.

SID

A standard instrument departure is an air traffic control departure procedure that helps to simplify clearance delivery procedures. A SID will keep aircraft away from terrain but it is optimized for air traffic control route of flight and does not necessarily provide the best climb gradient. It provides a balance between terrain and obstacle avoidance, noise abatement and airspace management.

SimConnect

A programming interface that allows applications to read and write flight simulator parameters from FSX, P3D and MSFS.

STAR

A standard terminal arrival is a flight route that usually covers the phase of a flight between the last point of the route filled in the flight plan and the first point of the approach to the airport, normally the initial approach fix (IAF). A STAR connects the en-route phase with the approach phase of the flight.

Start position

Used for departure in flight plans. Either runway, helipad, GA ramp, cargo ramp, fuel box or gate.

TACAN

Tactical air navigation system - radio navaid used by military aircraft.

TOC

Top of climb.

TOD

Top of descent.

VOR

VHF omni directional radio range - radio navaid.

VORDME

VHF omni directional radio range with distance measuring equipment - radio navaid.

VORTAC

Co-located VHF omnidirectional range (VOR) beacon and tactical air navigation system (TACAN) beacon.

Userpoint

An user defined waypoint like a bookmark, point of interest or visual reporting point (VRP).

User Feature

Any display object like traffic patterns or measurement lines which can be added or removed by the user.

UTC

Universal coordinated time. Also Zulu time.

VRP

Visual reporting point for VFR flights. A userpoint type.

Waypoint

It is a navaid defined by coordinates. Synonym for intersection in this manual.

86. License

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Note

Keep in mind that actual altitude shown in *Little Navmap* might differ from indicated altitude even with a correct baro setting.

This is an effect of the outside air temperature (OAT) on actual altitude where low temperatures affect the aircraft altimeter. When temperature is less than ISA conditions an aircraft will be lower than the altimeter reading.

This effect is currently modeled in X-Plane 12 and MSFS.

Corrections have to be applied when the aerodrome temperature is 0°C or colder:

- DH/DA or MDH/MDA and step-down fixes inside the final approach fix (FAF).
- All low altitude approach procedure altitudes in mountainous regions (terrain of 3000 ft AMSL or higher)

See SKYbrary - Altimeter Temperature Error Correction [https://skybrary.aero/articles/altimeter-temperature-error-correction] for more information.

Warning

Always save a copy in the default LNMPLN format before exporting to other formats. This allows *Little Navmap* to restore all flight plan properties like procedures, alternate airports and remarks.

Note that the LNMPLN format is only understood by *Little Navmap*. Do not try to load it into simulators or add-ons.

Tip

Store FMS files into the `Output/FMS plans` directory inside the X-Plane directory if you would like to use the flight plan in the X-Plane GPS, the X1000 or the FMS.

You have to load the FMS flight plans from the stock FMS or GPS when sitting in the cockpit and avionics switched on. Do not try to it as a `.sit`, `.rep` or other file type from the X-Plane menu.

See here in the user manuals for the respective units: X-Plane User Manuals [https://www.x-plane.com/support/manuals/] Look for a chapter `Loading a (saved) Flight Plan` in the PDF manual for the navigation device.

Warning

Do not use the path `.../data/maps/earth` in the installation directory to install maps. This location is deprecated.

Additional map themes can be installed in the directory set in options on page Cache and Files, section Map Display Themes. You have to enter a valid path there before using map themes.

Tip

You can use `Window` -> Reset Window Layout to Default if the main window of *Little Navmap* is not or only partially visible. Activate the main window of *Little Navmap* by either clicking on the visible part or by using the `Alt+Tab` function of your operating system. The window only needs to be active and not visible.

Then press the shortcut `Ctrl+Alt+Shift+W` to reset the window layout which brings the main window back on screen.