

FreeAirMap 2.6

Network enabled Moving Map for MS Flightsimulator, FSX, FS2004, Prepar3D, X-Plane, FlightGear, and Aerofly FS 2



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Introduction

GEMINI FreeAirMap is a Moving Map software for the Microsoft flight simulator FSX, FS2004, Lockheed Martin Prepar3D, Laminar Research X-Plane, FlightGear, and IPACS Aerofly FS 2 by using free navigational and geographical card material from the internet. With it the smallest scenery details also reveal themselves in the flight worldwide. From railway lines, highways down to the smallest streets, forest ways, lakes, cultivation areas and even single buildings, nature conservation parks, and vegetation everything is recognizable.

This navigation help is up to now unmatched in the flight simulator and the guidance is practically indispensable particularly for VFR flights and for users of photo-realistic sceneries. This version comes with airport charts generated from the simulators data. Navigation aids like NDBs, VORs, waypoints, ILS, airspace and airways can be used as overlay on top of the chart in use.

PDF files of airports and/or approach charts can be used in FreeAirMap. FreeAirMap supports the georeferencing of own airport charts.

FreeAirMap supports overlay of the maps with real-time weather radar information as well as the real-time weather station option for FSX and P3D. Also new is the ability to customize the size of the navigation icons such as VOR, NDB, etc. individually. Also, joystick button functions can be assigned in FreeAirMap.

FreeAirMap is a standalone EXE-programm which can be used both locally and remote (network installation) with FSX, FS2004, Prepar3D, X-Plane, and FlightGear. A server setup is always needed, however; client installation can be done up to 20. FreeAirMap can be installed on one (or several) inefficient pc(s) so that Flightsimulator/X-Plane/FlightGear runs with full speed on a fast computer.

FreeAirMap can be run "frameless" and always "on top". This is especially useful together with the "non exclusive" fullscreen mode of Prepar3D. FreeAirMap can also be used to switch Microsoft FSX and FS2004 into the "non exclusive" fullscreenmode.

The FreeAirMap window can be set optionally to aspect ratios of 16:9, 16:10, 4:3 and to any ratio. Therefore the aspect ratio can be retained in fullscreen mode so that even circular switches will stay circular.

FreeAirMap can be used in the independent EXE version both locally and remotely (network installation). **However, a server installation is always required, i.e. there must always be an installation on the PC on which the respective simulator is installed.** Up to 20

client installations can be operated (does not apply to FlightGear). This allows FreeAirMap to be installed on one (or more) underperforming PC (s) while the flight simulator is running without restrictions on a fast computer.

System requirements:

1. Windows Vista or Windows 7 / Windows 8, Windows 8.1, Windows 10, under Vista Service Pack 2 and platform update (KB 971644) are required.
2. Active internet connection.
3. DirectX11 compatible Graphics card with 512 MB VRAM (1024 MB suggested)
4. Service Pack 2 or Acceleration Pack for FSX (not required for FS2004, Prepar3D or X-Plane)
5. SimConnect-Installation (not required for FS2004 and X-Plane)
6. All computer must be configured for the use of TCP/IP and UDP protocol.
7. All computer in a network should use a fixed ip-address. If DHCP is used it is required that the ip-address of the computers do not change after a restart of the operating system.
8. Existing Firewall software must not block the port which FreeAirMap will be use (see the chapter on the network configuration).
9. One of the Flight Simulators FSX, FS2004, Prepar3D, X-Plane, and/or FlightGear.

FreeAirMap can be obtained in 6 different versions: one for MSFS, FS2004, one for FSX/Prepar3D, one for X-Plane, one for FlightGear, and one for Aerofly FS 2. This manual describes all versions.

To use FreeAirMap with Flightsimulator FSX/Lockheed Martin Prepar3D SimConnect must be installed at the server computer (pc where FSX / Prepar3D is installed) and the client computer. The configuration of SimConnect can be found on page 32. The FreeAirMap installer will support the configuration of SimConnect. Only in special cases a manual configuration is required. For FS2004, X-Plane, and FlightGear no 3rd party components need to be installed. If in the following the term "Flightsimulator" is used then this stands for "X-Plane" in case of an installation for X-Plane or "FlightGear" in case of an installation for FlightGear or "FSX" in case of an installation for FSX. FlightGear is available on Linux, Windows, and Mac OS while FreeAirMap supports only Windows. In a networked configuration with FlightGear on Linux or Mac OS FreeAirMap can be used if it is installed on a second Windows PC.

For MSFS a proxy component is installed in the startup folder of the logged in user.

For Aerofly FS 2, a DLL plugin is installed in the folder

C:\Users\<Username>\Documents\Aerofly FS 2\external_dll

The following additional maps can be used with FreeAirMap:

- ESA Sentinel-2 satellite charts
- ICAO Karten from Open Flightmaps
- Eurocontrol regional charts of the upper and lower airspace
- US Sectionals
- US IFR low and high altitude charts
- US Atlantic and Pacific planning charts
- TPC- and ONC charts
- OpenStreetMap
- Topographic map of New Zealand
- Topographic map of Australia
- OpenTopoMap
- Real time weather radar Rainviewer (2018 Lucky Apps)

Note: Information in this document is subject to change without notice and does not bear any commitment on the part of GEMINI Software. All information on FlightGear in this document is based on version 2020.3.11.

Some functions of FreeAirMap cannot be used with Aerofly FS 2, because the SDK of the IPACS simulator unfortunately does not offer the possibilities for plugins that all other simulators offer.

This version of FreeAirMap can also display satellite charts from MapQuest. The precondition for the usage of MapQuest satellite charts is a registration at MapQuest. A MapQuest account is free available under certain conditions (July 2106).

Sentinel-2 charts and MapQuest charts can not be used at the same time.

Quick Start

Run the install program FreeAirMap_XXX.exe (XXX stands for Prepar3D, FSX, FS2004, X-Plane, or FlightGear) and follow the instructions. Normally you can except all default settings of the installer.

At the end of the install programm FreeAirMap can be started. In case of problems or if an client/server installation is required you are asked to read the [Installation](#) chapter first. The description of the Softkey-Functions can be found here: [Operating Instructions](#)

Non-exclusive fullscreen display mode

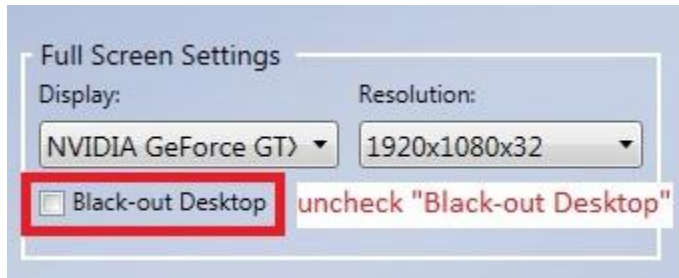
AirMAP is a separate Windows application that runs independently and outside of Prepar3D and X-Plane. Unlike all previous old-style so called FSX GAU (for GAUGES) panels or integrated X-Plane instruments, FreeAirMap can run on a separate CPU core and in a separate memory address space, which provides maximum performance with no frame rate penalties for the main flight simulator application. FreeAirMap communicates with Prepar3D or X-Plane via a very small communication link that uses virtually no resources from the main simulator. This makes it also possible to run several FreeAirMap instances simultaneously, displaying different map styles or zoom levels at the same time.

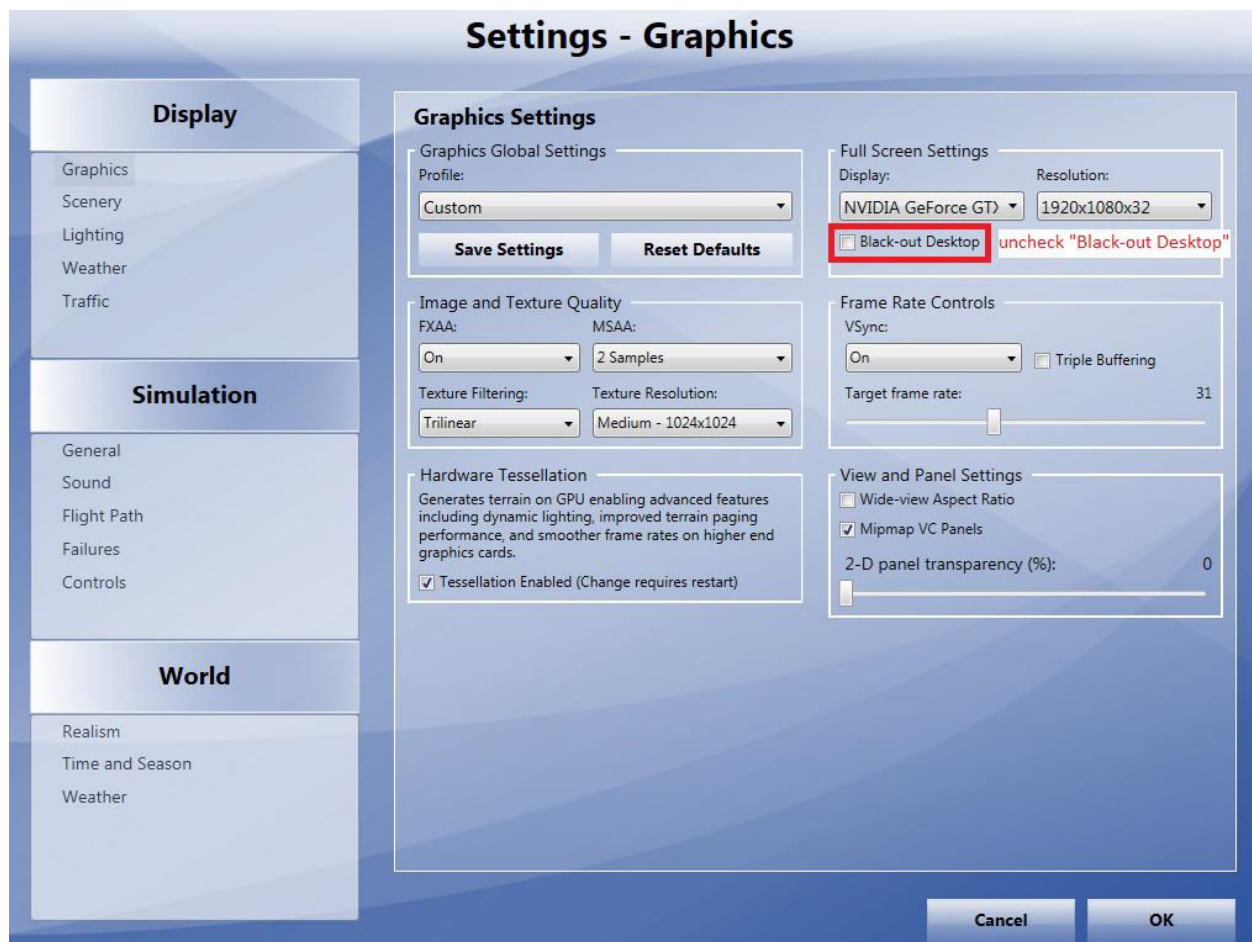
There are also some special side effects to be aware of: No separate stand-alone graphics application can be displayed while the main simulator (P3D/FSX/FS2004 or X-Plane/FlightGear) is running in exclusive full screen mode. Make sure to run the simulator only in so-called „NON-exclusive full screen“ mode, only then can the FreeAirMap panel be displayed on top of the underlying simulator, in windowed or in full screen mode. The required display settings are illustrated below for P3D and X-Plane:



windowed non-exclusive full screen mode non-exclusive full screen mode

In Prepar3D, un-check „Black-out Desktop“ for non-exclusive, full-screen mode. This works in virtual cockpit and 2D cockpit mode.



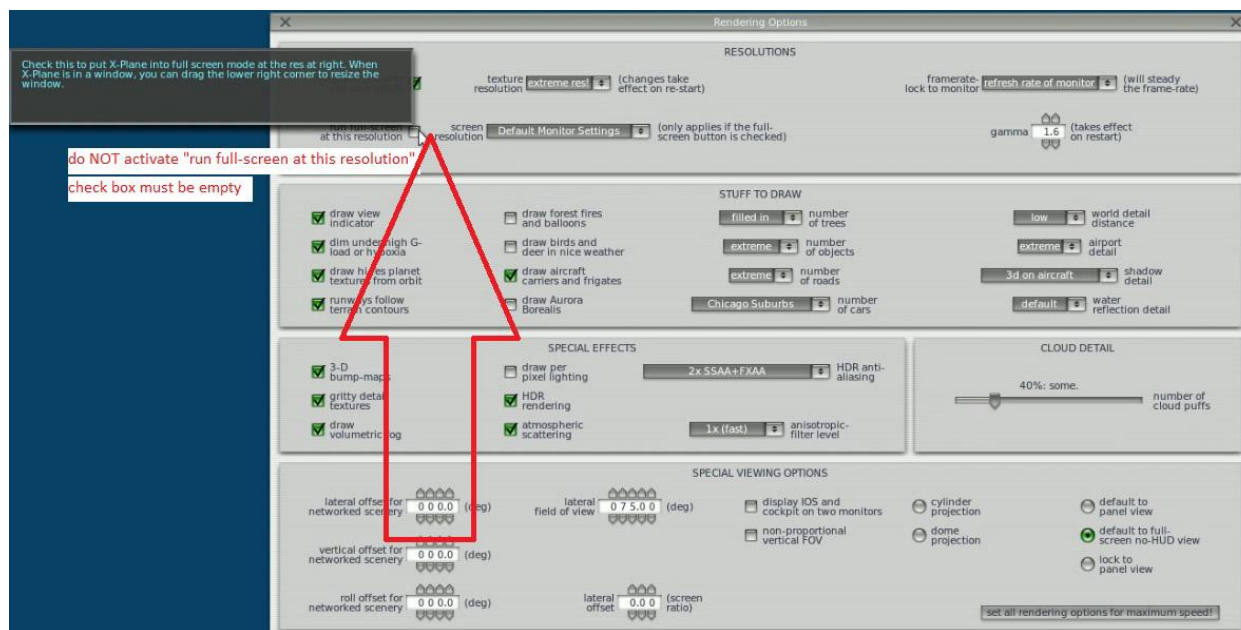


Similarly, do NOT switch FSX/FS2004 via ALT-Enter into exclusive full-screen mode, otherwise theFreeAirMap panel will not be displayed. Instead, use the new FULLSCRN softkey inFreeAirMap which will toggle the simulator from non-exclusive windowed mode (removing the blue default Windows menu bar) to non-exclusive full screen mode and back.

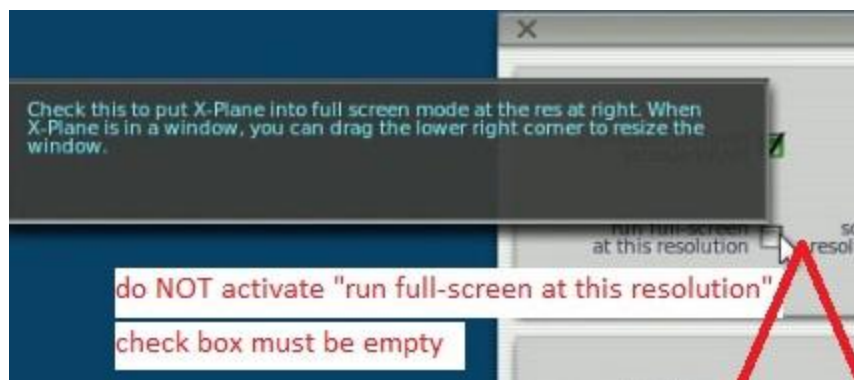


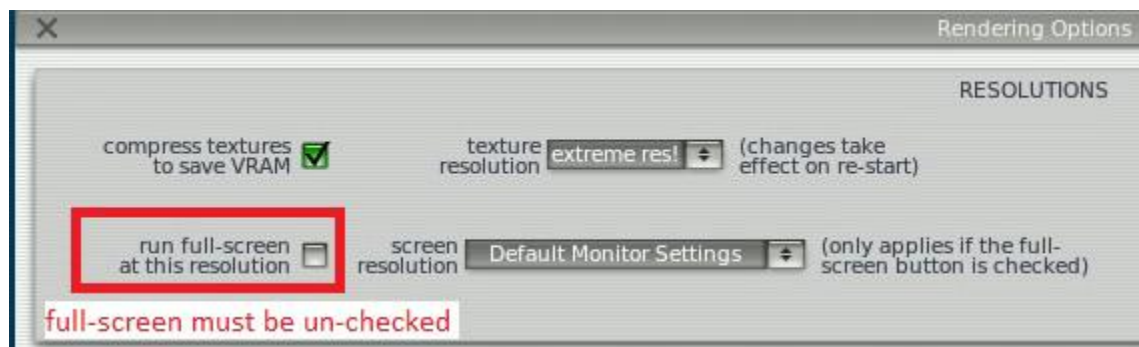
FreeAirMAP Softkey sequence: MENU/CONFIG/MISC/FULLSCRN

Un-check the corresponding non-exclusive setting for X-Plane under „Display Options“

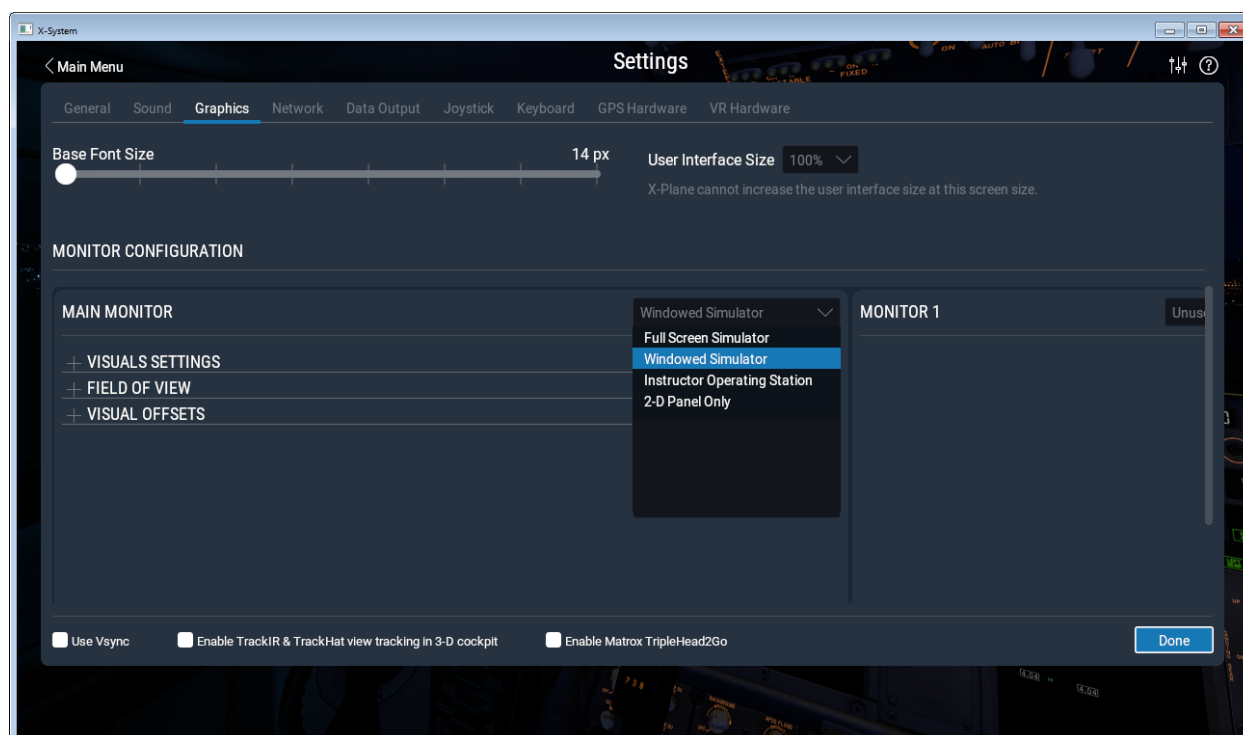


un-check the check box „run full screen at this resolution“ under „Rendering Options“



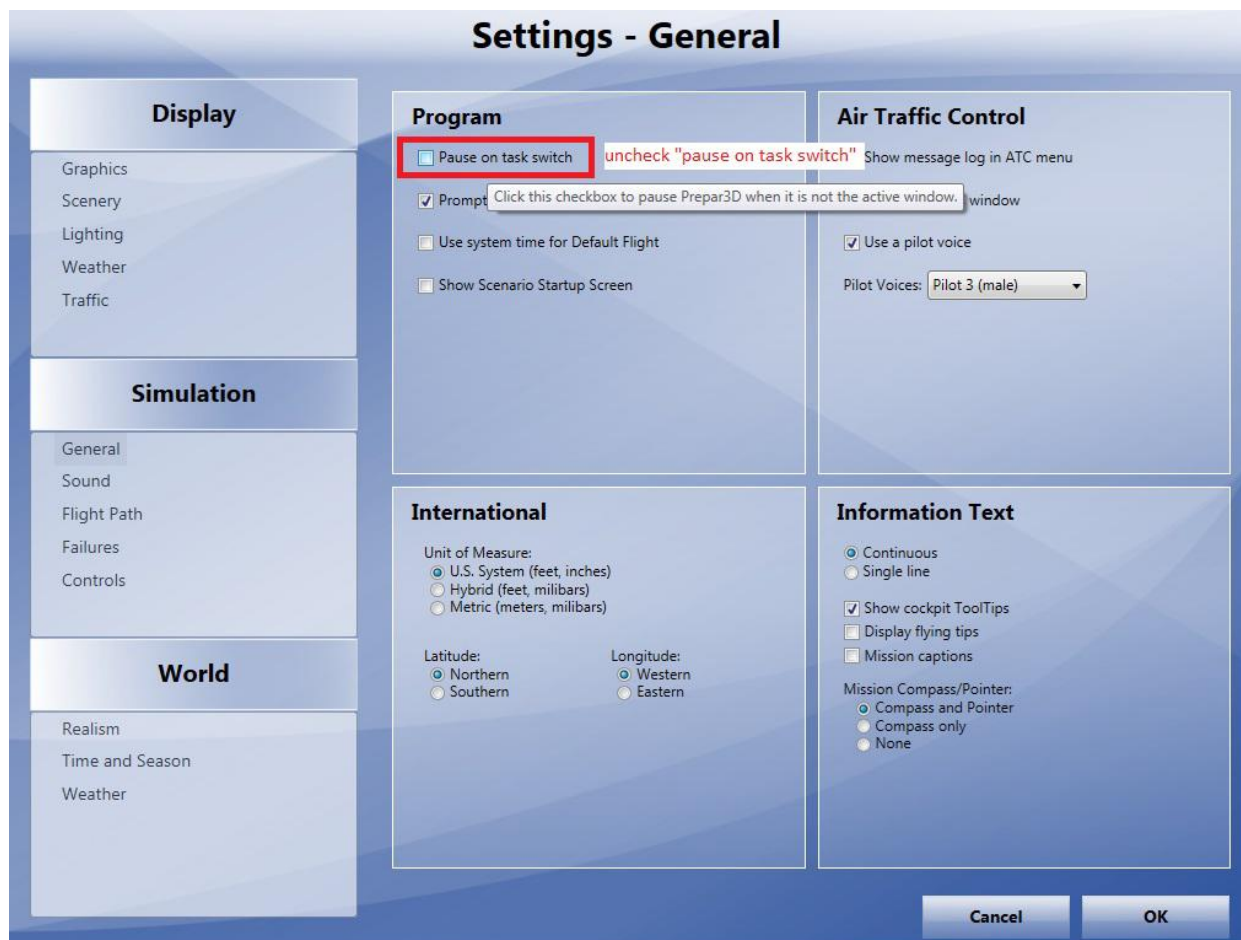


In X-Plane 11, the "Windowed Simulator" option must be selected accordingly under the settings for the main monitor:



PAUSE mode in Prepar3D/FSX/FS2004

Uncheck „Pause on task switch“ under Settings – General in Prepar3D or FSX/FS2004, otherwise the simulator will always switch to temporary pause mode whenever you click on the FreeAirMap panel, in other words when FreeAirMap has the focus.





toggle ontop status in X-Plane

In X-Plane, theFreeAirMap panel will hide behind the X-Plane screen and disappear whenever you click anywhere outside theFreeAirMap panel on the X-Plane cockpit or open a pull down menu. Pressing the ESC key will bring theFreeAirMap panel again back to front ontop of the X-Plane screen. The ESC key can be used to toggle betweenFreeAirMap visible status ontop or invisible behind the X-Plane screen at any time. This can be useful to temporarily access any X-Plane instruments that might otherwise be hidden or covered by theFreeAirMap panel.

Installation

To install GEMINI FreeAirMap for FSX/FS9/Prepar3D the install program FreeAirMap_XXX.exe (XXX is a placeholder for FS9, FSX, P3D,X-Plane and FlightGear) must be run. The Installer can execute 2 different types of installation. If FreeAirMap runs on the same pc as Flightsimulator/X-Plane/FlightGear (**Default or Server-Installation**) the installer will install all components ofFreeAirMap which are necessary to runFreeAirMap at this PC and to runFreeAirMap at a second PC when an installation at a second PC has been completed. Due to technical reasons a server installation for FlightGear can only be used with client-installations of FreeAirMap at a different PC (see later on).

FreeAirMap can also be installed on a different PC in the local network, where Flightsimulator/Prepar3D/X-Plane/FlightGear is not installed. Therefore one PC can be used for Flightsimulator/Prepar3D/X-Plane/FlightGear and another PC can be used for FreeAirMap. During this **Client-Installation** only the necessary client components will be installed. To make the Client-Installation work, also a Standard-Installation on the Flightsimulator/Prepar3D/X-Plane/FlightGear PC is necessary because the server-components of FreeAirMap must be installed on the Flightsimulator/Prepar3D/X-Plane PC. In the following the installation dialogs of the Standard- and the Client-Installation are described in detail. The installer supports only the Windows platform.

Installation Path

GEMINI FreeAirMap must have read and write access to files at runtime. In Windows Vista or Windows 7/Windows 8 the file access rights depend on the location of the files. I.e. files in the **program files** directory are write protected. A write access to these files is only possible if an application runs with administration rights.

Therefore FreeAirMap suggests during installation a default path which will be not under the program files directory of Windows. If you choose during installation a different path, which needs adminstration rights you can use FreeAirMap only if you start the program with adminstration rights. To do this you can click with the right mouse button on the FreeAirMap.exe file. A context menu will pop up. In the context menu you must select the entry "Start as Administrator".

If a FreeAirMap installation already exists, FreeAirMap will suggest this directory to use already installed maps.

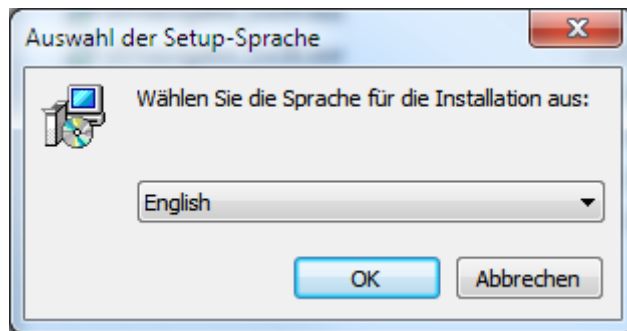
During installation under Windows (Vista / Windows 7 / Windows 8 / Windows 10) the installer needs also administration rights. You will be asked to grant this right. You must grant this right otherwise FreeAirMap cannot be installed If you are logged on without administrator

rights Vista / Windows 7 / Windows 8 / Windows 10 will ask you for the administrator password. After entering the administrator password you can install FreeAirMap.

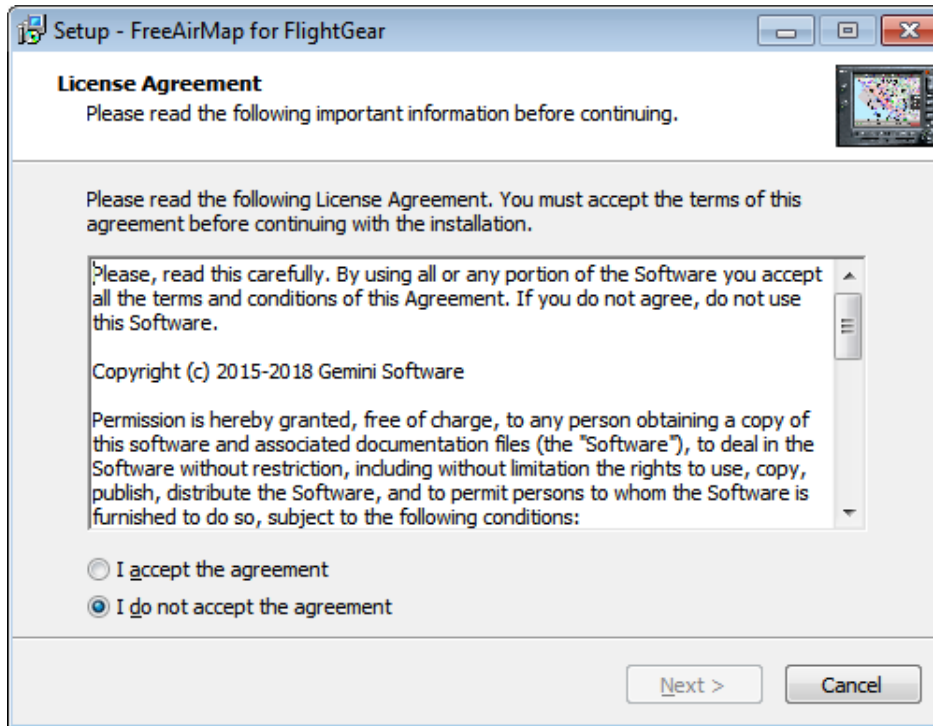
In this chapter the installation dialogs are described. Normally the installation will be self explanatory therefore feel free to proceed to the next chapter.

Default- / Server-Installation

After start of the installer you can select the desired language:

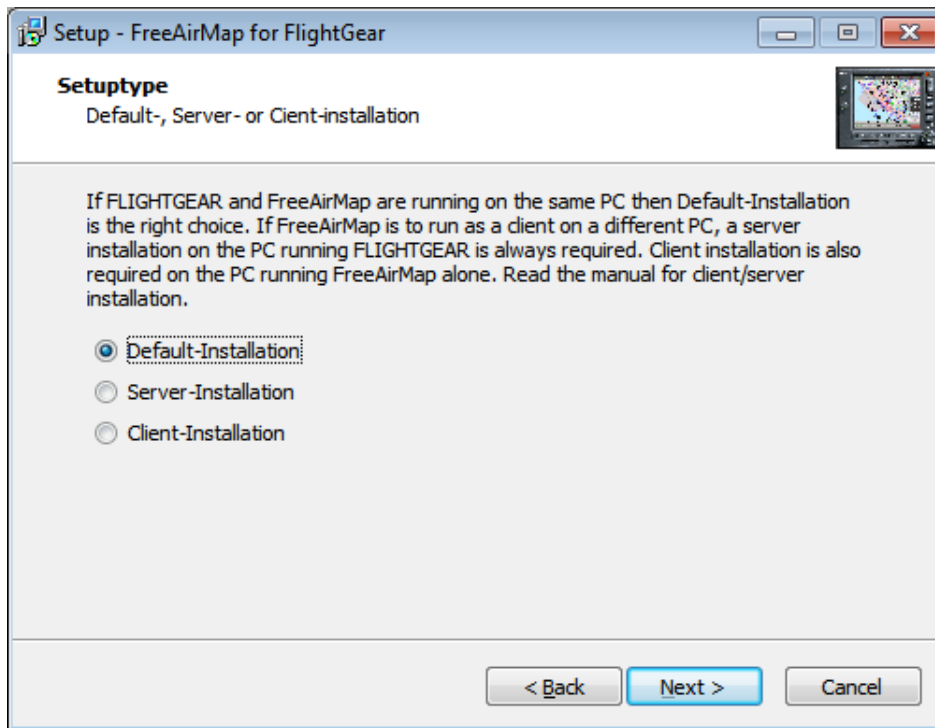


Then the license condition will be displayed:



This is followed by the selection of the installation type (default, server or client). When choosing default or server, the installation program must be run on the PC that also runs the simulator. When selecting Client, the installer must be run on the PC running FreeAirMap alone.

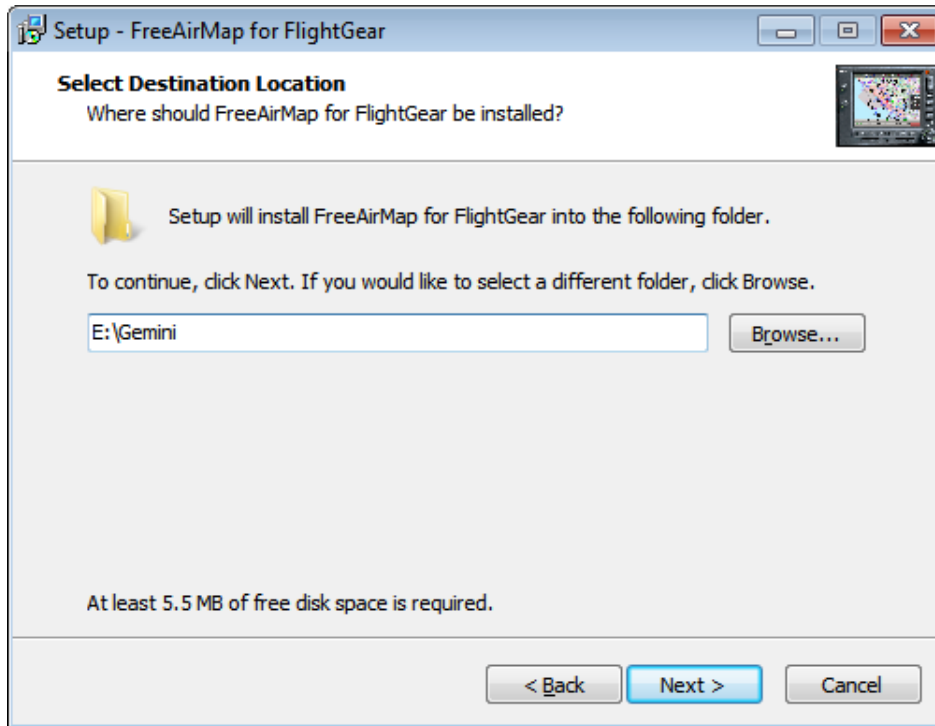
The default installation type is the right choice if you want FreeAirMap to run on the same PC the simulator is running on. However, if you want FreeAirMap to run on a PC that does not have a simulator installed, then you must perform a client / server installation



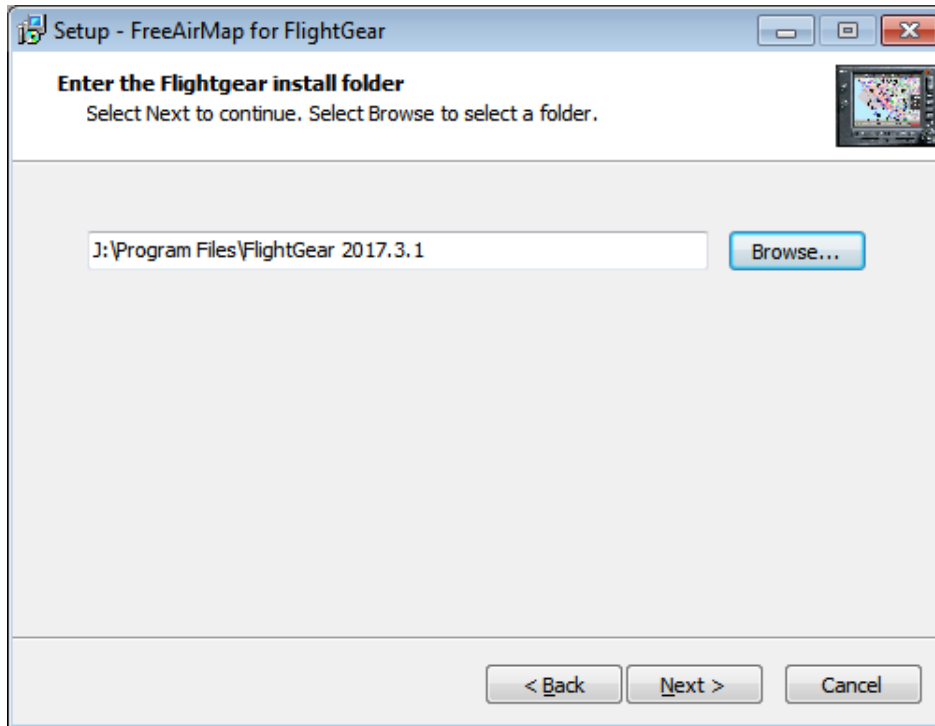
For a client / server installation, a server installation must be performed on the PC running the simulator. For this one chooses in o.g. Selection dialog "Server installation". Subsequently, a client installation must be performed on the PC on which FreeAirMap is to run alone (selection: client installation). The installation process and the dialogues are identical in all but one of the three cases (see below).

Note: With the exception of MSFS, all components of FreeAirMap are installed during a server installation. For MSFS, only the FAM_MSFS_Proxy is installed in the autostart folder during a server installation.

The next step asks for the installation location for FreeAirMap. If the installer finds an existing installation of FreeAirMap then this path will be suggested. This path should be used as it is the only way to use existing maps or features of the previous installation.



Then, for a default and server installation, the path to the installed simulator will be asked. However, this does not apply to the MSFS

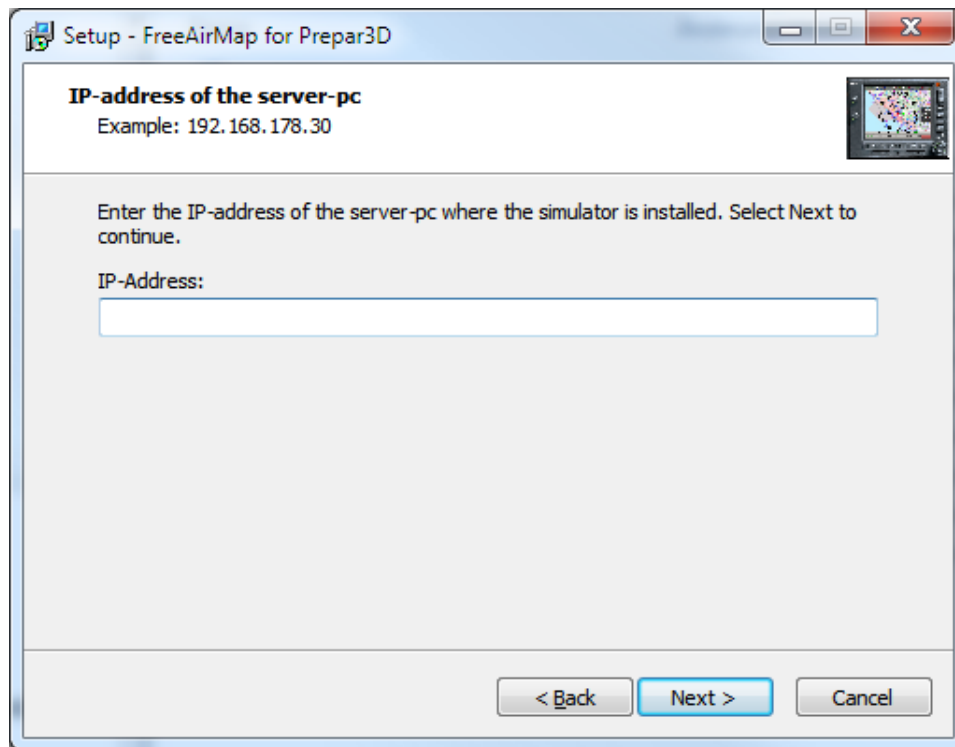


If the installer finds an installed simulator, the appropriate path is suggested. For X-Plane and FlightGear, the path must always be entered manually. If there is more than one simulator installation in parallel, e.g. Prepar3D v2 and Prepar3D v4, then the installer needs to be run multiple times. In the first run, the path to Prepar3D v2 must be entered in this dialog, and the path to Prepar3D v4 must be entered at the second pass. If X-Plane and Prepar3D are in parallel, then the X-Plane and Prepar3D installers must be run one after the other.

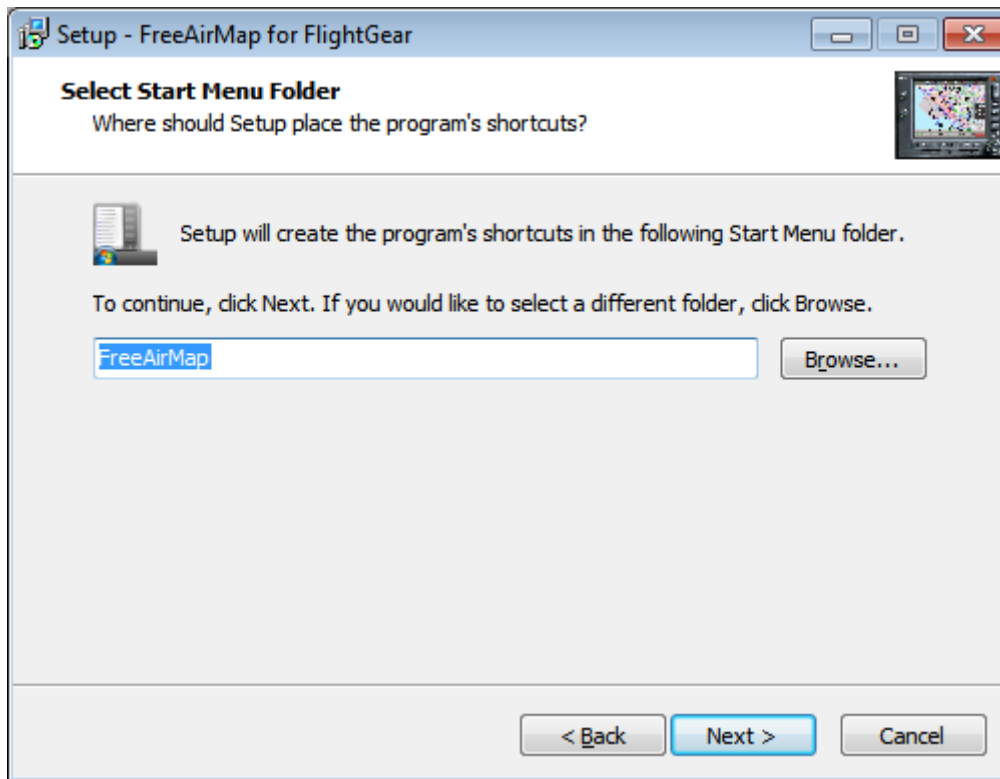
If a server installation or a client installation is carried out, then the IP address is queried.

For FS2004, FSX, Prepar3D and X-Plane, the IP address of the server PC, i.e. the PC running the respective simulator, is entered here. In a server installation, FreeAirMap can be used on the server PC as well as on up to 10 different client PCs.

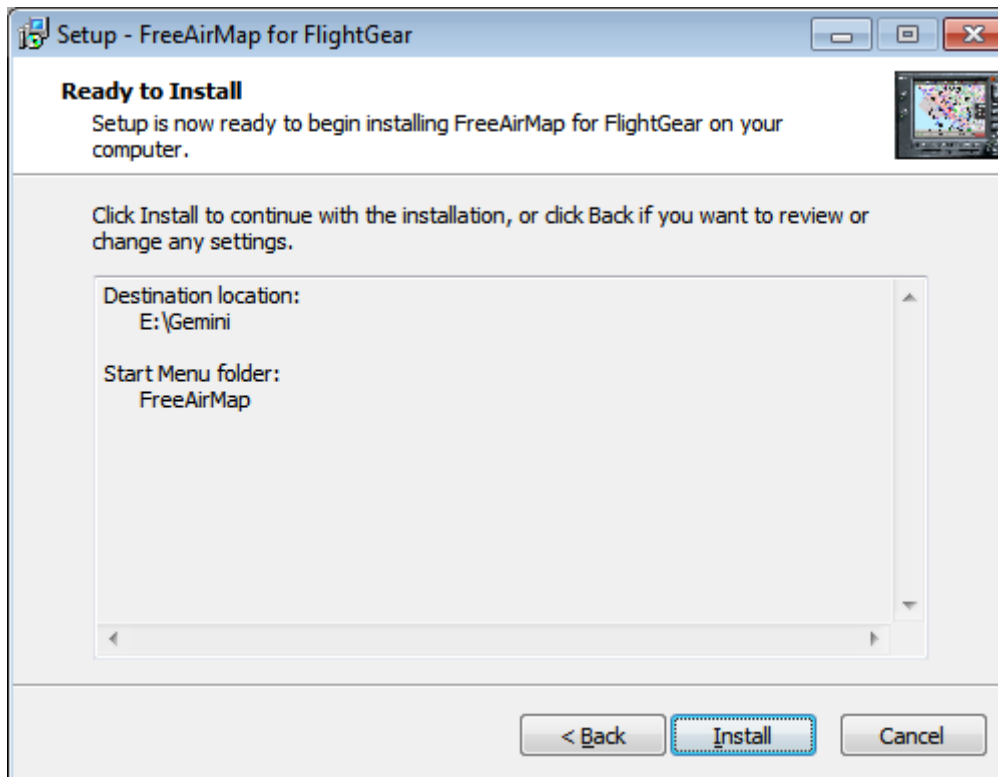
If an installation is performed for FlightGear, the query for the IP address will only be done during the server installation. In this case, it is not necessary to enter the IP address of the PC on which FlightGear is installed, but the IP address of the client PC on which FreeAirMap is installed or to be installed. For technical reasons, FreeAirMap can not be used on the server PC for a server installation for FlightGear, but only on the client PC. For MSFS, the IP address is only queried for a client installation.



In the next step, the location for the program link entry can be changed under "Start - Programs".

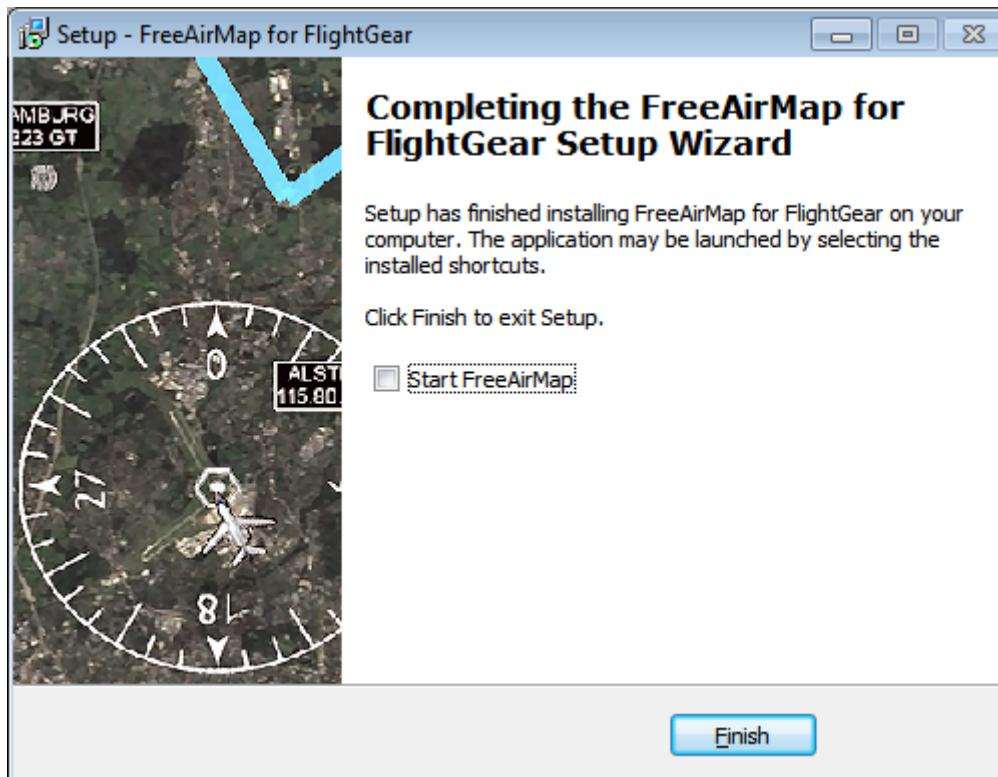


Finally, the selected installation settings are displayed before installation.



After completing the installation of the FreeAirMap files, any necessary DirectX files and C++ runtime libraries will be installed. Then Simconnect is installed, for FSX and P3D if Simconnect is not yet available.

At the end of the installation FreeAirMap can be started.



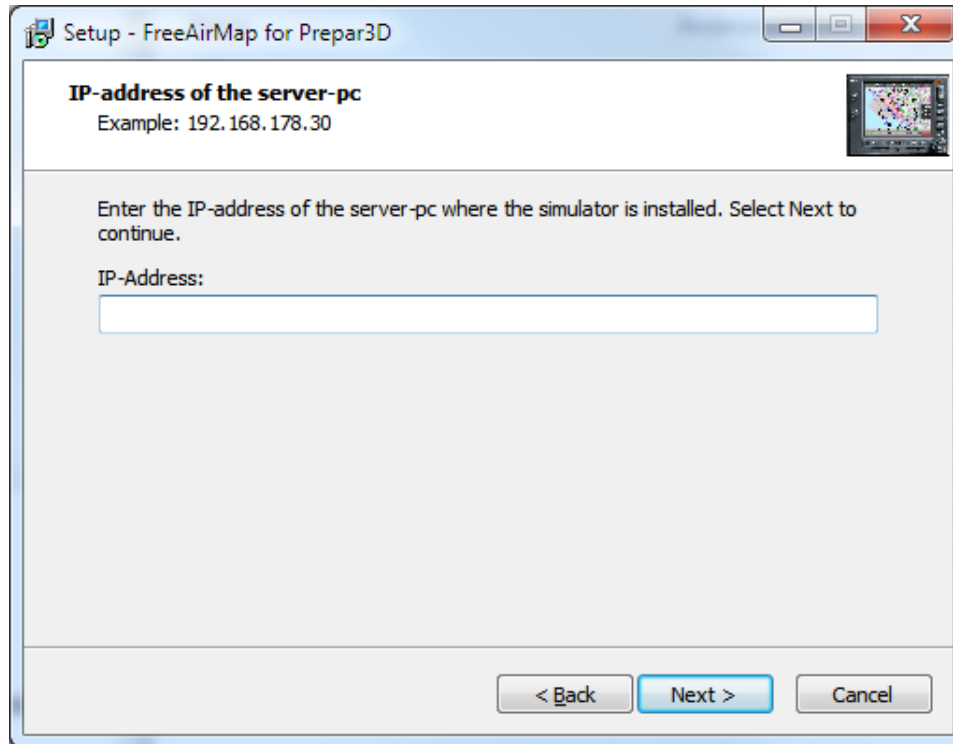
When installing for MSFS, a restart is required, as the FAM_MSFS_Proxy is installed in the autostart folder and the proxy must be running for the connection between FreeAirMap and MSFS to work. The proxy can also be started manually if necessary. To do this, an icon is created on the desktop. The proxy is started immediately before the installation is complete, as the user still has to enable the Windows firewall

Client-Installation

A Client-Installation should be selected if you want to run FreeAirMap on a pc in the local network where Flightsimulator/Prepar3D/X-Plane does not run. During a Client-Installation all required network components of FreeAirMap will be installed on the client pc. If additional FreeAirMap charts shall be used with FreeAirMap on the client pc these charts must also be installed on the client pc. But even

if you want to use FreeAirMap only at the client pc you must also prepare a Standard-Installation at the pc where Flightsimulator runs because the server-components ofFreeAirMap must be installed there.

The dialog sequence during Client-Installation is similar to the description above. The dialog for entering the path to the simulator is now replaced by the question about the IP address of the server PC.



The IP address is entered by the installation program in the files Simconnect.cfg (P3D / FSX only) and AirMap.ini, which are located in the FreeAirMap \ System folder after installation on the client PC. It is necessary to enter the IP address so that FreeAirMap can communicate with the flight simulator / X-Plane / FlightGear from the client PC.

The determination of the IP-address of the server is described at page [38](#) . (Note: in a client-installation for FlightGear the ip-address is not required.) For MSFS, the IP address is entered in the Airmap.ini file.

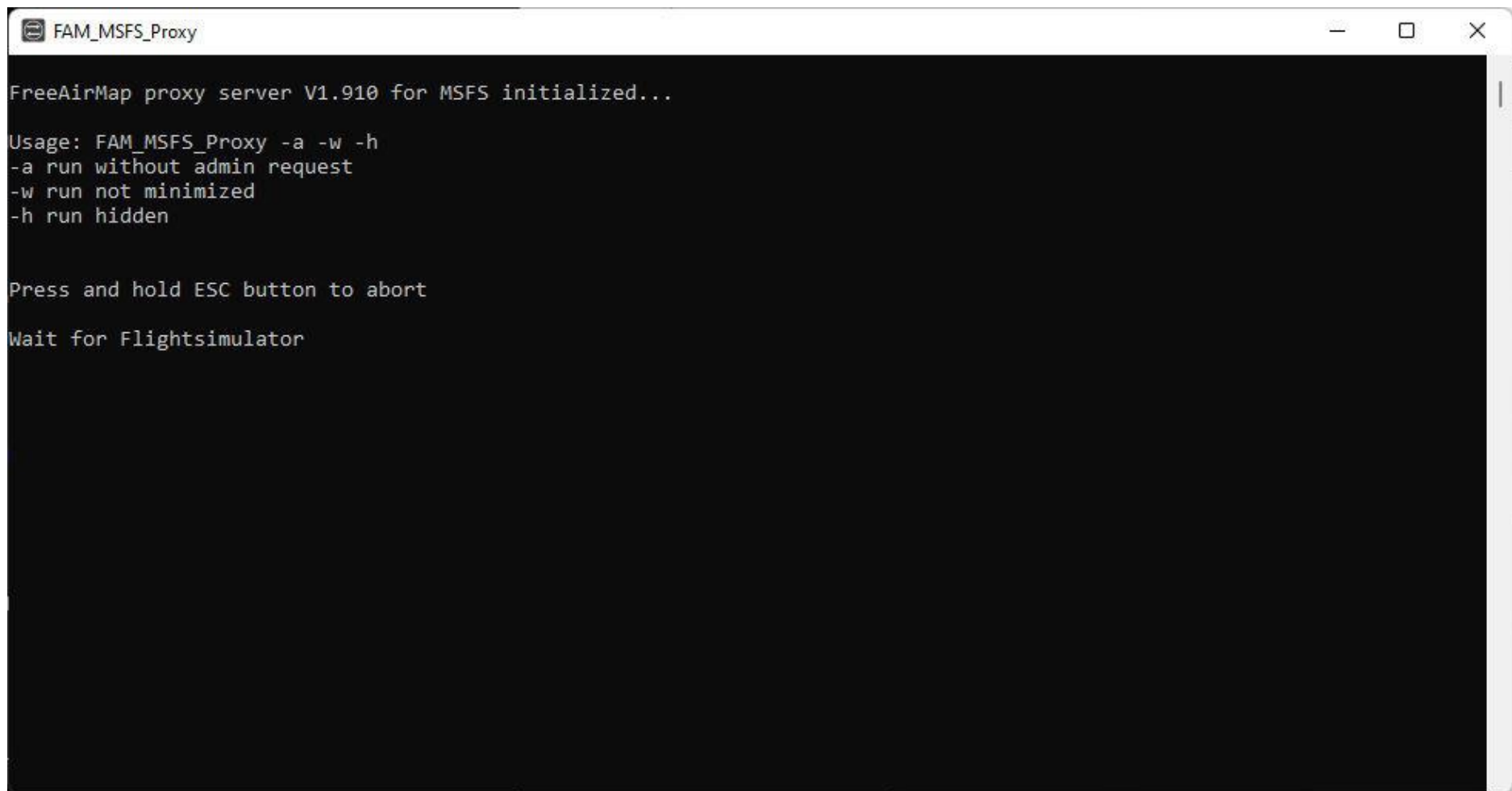
Network Configuration for Microsoft Flightsimulator

The communication between FreeAirMap and the Microsoft Flightsimulator takes place via FAM_MSFS_Proxy.exe, which is installed in the autostart folder of the logged-in user during installation. This ensures that the proxy is also started automatically when the computer is started. If FreeAirMap is running on the same PC as MSFS, no further measures are required. The proxy must not be blocked by the Microsoft firewall. If the proxy does not work, it can be started via the desktop icon. The proxy server automatically requests admin rights when it is started, provided it is running under a user without admin rights. This is necessary to access the stored flight plans. If the logged-in user already has admin rights, the start can be provided with the option -a (start without admin rights, see following description) under the properties of the proxy server (desktop icon).

In the case of a client installation, the IP address (IPv4) of the PC on which the simulator (including the proxy) is running is requested during installation. This IP address is stored in the Airmap.ini.



Konfiguration of the firewall for FAM_MSFS_Proxy.exe



```
FAM_MSFS_Proxy

FreeAirMap proxy server V1.910 for MSFS initialized...

Usage: FAM_MSFS_Proxy -a -w -h
-a run without admin request
-w run not minimized
-h run hidden

Press and hold ESC button to abort

Wait for Flightsimulator
```

Output of the proxy-server before connection to MSFS and FreeAirMap.

The proxy server can optionally be run via the command line with the options:

-a run without administrator rights

-w run unminimised

-h hide window

Network configuration for IPACS Aerofly FS 2

The communication between the Aerofly Simulator and FreeAirMap is done via the AirMapAeroflyfs2Connect.dll module, which is installed in the folder

c:\users\<username>\documents\Aerofly FS 2\external_dll

As long as Aerofly FS 2 and FreeAirMap are used on the same PC, no further measures are necessary. However, Aerofly FS 2 must be executed in "Window" mode and not in "fullscreen" mode. During installation, the configuration file main.mcf is modified accordingly.

If Aerofly FS 2 and FreeAirMap run on different PCs, Aerofly FS 2 can run in any graphics mode. In this case, during installation on the client PC (the PC running FreeAirMap) the IP address of the "Aerofly" PC must be entered.

Function buttons that are not supported by Aerofly are shown in FreeAirMap "grey" as disabled. Some functions that are not deactivated will work on some, but not all Aerofly aircraft.

SimConnect Configuration/Installation

The following description is only relevant if the installation of Simconnect by the FreeAirMap installer was unsuccessful.

A SimConnect installation and configuration is only required if FreeAirMap is used with Flightsimulator FSX or Prepar3D. It is **not required** for MSFS, FS2004, X-Plane, and FlightGear.

If on the server Flightsimulator FSX/P3D is installed then normally Simconnect will be also installed. If this is not the case then SimConnect must be installed.

Default- or Server-Installation

The required Simconnect-installation at the pc where Flightsimulator FSX/P3D v1.4 runs can be done easily. You have to install the Service Pack 2 of Flightsimulator or the Acceleration Pack of Flightsimulator. If you have P3D V2 the simconnect install package can be found in the redistrib folder of the P3D install folder.

For FSX service Pack 2 can be downloaded from the internet:

<http://www.microsoft.com/Products/Games/FSInsider/downloads/Pages/FlightSimulatorXServicePack2.aspx>

Before installation of Service Pack 2 you must probably install Flightsimulator Service Pack 1 which can be downloaded from

<http://www.microsoft.com/Products/Games/FSInsider/downloads/Pages/FlightSimulatorXServicePack1.aspx>

After installation of the service packs Simconnect will be up to date.

Prepar3D will install the correct simconnect version during setup. The package is located in the redistrib \ Interface folder. For FreeAirMap the file SimConnect.msi from the subfolder FSX-SP2-XPACK \ lib is required.

FSX owners who do not have this option must use the Simconnect installation package from Microsoft, which is part of the Microsoft SimConnect SDK, for a client / server installation.

Client-Installation

The installation of Simconnect at a client pc is a little bit more complicated, because Flightsimulator/Prepar3D is normally not installed at the client pc. To install Simconnect on a pc without Flightsimulator you need the SimConnect.msi install program.

This program is part of the P3D installation and can be found in the redist folder of the P3D installation folder.

For FSX this program is part of the Flightsimulator SDK. If you have installed Flightsimulator with Service Pack 2 you need the Flightsimulator SDK SP2. This SDK can be downloaded from

<http://download.microsoft.com/download/3/C/A/3CAD9417-A0BE-4892-9224-4A4479F9F633/sdk.msi>

After installation of the SDK you will find the Simconnect installation file SimConnect.msi in the subfolders of the SDK installation. The installer file SimConnect.msi must then be executed at the client pc. The same is true for Prepar3D .

If you have installed Flightsimulator together with the Acceleration pack you will find the SDK on the FSX XPACK DVD in the SDK subfolder. After installation of the SDK you will find the Simconnect installation file SimConnect.msi in the folder \SDK\Core Utilities Kit\SimConnect SDK\lib of the SDK installation. The installer file SimConnect.msi must then be executed at the client pc.

Note: At [http://www.fsdeveloper.com/wiki/index.php?title=SDK_Installation_\(FSX\)](http://www.fsdeveloper.com/wiki/index.php?title=SDK_Installation_(FSX))

you will find detailed information of the required installer packages for FSX and the SDK.

Configuration of dll.xml and SimConnect.xml (Standard-installation)

If the SimConnect configuration during installation of FreeAirMap failed then some configuration setting have to be done manually. In the following the entries which must be changed according to your special environment are marked:

At the server computer the files **dll.xml** and **SimConnect.xml** will be found at:

FSX:

C:\User\<Username>\AppData\Roaming\Microsoft\FSX

FSX Steam Edition:

C:\User\<Username>\AppData\Roaming\Microsoft\FSX or

C:\User\<Username>\AppData\Roaming\Microsoft\FSX-SE

Prepar3D v1.4:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D

Prepar3D 2:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D v2

Prepar3D 3:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D v3

Prepar3D v4:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D v4

Prepar3D v5:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D v5

Prepar3D v6:

C:\User\<Username>\AppData\Roaming\Lockheed Martin\Prepar3D v6

Both files are text files and can be edited with any text editor (e.g. Windows notepad/Editor). In the file **dll.xml** an entry must be added so that the Flightsimulator FSX will load theFreeAirMapConnect.dll from theFreeAirMap install directory. The content of the dll.xml will similar to the following description:

FSX and Prepar3D v1.4, v2 und v3

```
<?xml version="1.0" encoding="Windows-1252"?>
<SimBase.Document Type="Launch" version="1,0">
  <Descr>Launch</Descr>
  <Filename>dll.xml</Filename>
  <Disabled>False</Disabled>
  <Launch.ManualLoad>False</Launch.ManualLoad>
  <Launch.Addon>
    <Name>AirMapConnect</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>D:\Daten\GEMINI\AirMap\System\AirMapP3Dv2Connect.dll</Path>
  </Launch.Addon>
</SimBase.Document>
```

If other modules have been installed before the FreeAirMap net installation, which also use SimConnect then there may be more sections which are bounded by the key words <Launch.Addon> und </Launch.Addon>. Between these boundaries the attributes for the module are described. In the example above are the parameter for the FreeAirMapP3Dv2Connecte.dll of FreeAirMap described. If the section for FreeAirMap has not been set by the FreeAirMap install program it must be manually added. The following parameters for this module must be edited :

```
<Disabled>False</Disabled>
```

The value must be set to **False** not to True.

```
<Disabled>False</Disabled>
```

The value must be set to **False** not to True.

```
<Path>D:\Daten\GEMINI\AirMap\System\AirMapConnect.dll</Path>
```

For the path **D:\Daten\GEMINI\AirMap\System\AirMapP3Dv2Connect.dll** the actual installation path of FreeAirMap on your computer must be set.

Prepar3D v4

The configuration of the DLL.xml from Prepar3D v4 is equivalent to Prepar3D v2, but the names of the DLL files are different. For P3Dv4 the file name is:

AirMapP3Dv4Connect.dll

Prepar3D v5 / Prepar3D v6

The configuration of the DLL.xml from Prepar3D v5 and Prepar3D v6 is equivalent to Prepar3D v4, but the names of the DLL files are different. For P3Dv5 and P3Dv6 the file name is:

AirMapP3Dv5Connect.dll

In the SimConnect.xml file, the values for the IP address and port for the TCP / IP connection must be set. The SimConnect.xml can look like this:

```
<?xml version="1.0" encoding="Windows-1252"?>
<SimBase.Document Type="SimConnect" version="1,0">
  <Descr>SimConnect</Descr>
  <Filename>SimConnect.xml</Filename>
  <Disabled>False</Disabled>
  <SimConnect.Comm>
    <Disabled>False</Disabled>
    <Protocol>IPv4</Protocol>
    <Scope>global</Scope>
    <Address>192.168.178.30</Address>
    <MaxClients>64</MaxClients>
    <Port>1236</Port>
```

```

    <MaxRecvSize>4096</MaxRecvSize>
    <DisableNagle>False</DisableNagle>
</SimConnect.Comm>
<SimConnect.Comm>
    <Disabled>False</Disabled>
    <Protocol>IPv4</Protocol>
    <Scope>local</Scope>
    <Address></Address>
    <MaxClients>64</MaxClients>
    <Port></Port>
    <MaxRecvSize>4097</MaxRecvSize>
    <DisableNagle>False</DisableNagle>
</SimConnect.Comm>
</SimBase.Document>

```

Probably your SimConnect.xml file may contain additional sections on the IPv6 protocol and a Pipe Server connection. You must configure only the yellow marked entries:

```
<Disabled>False</Disabled>
```

value must be set to **False** not to True.

```
<Disabled>False</Disabled>
```

value must be set to **False** not to True.

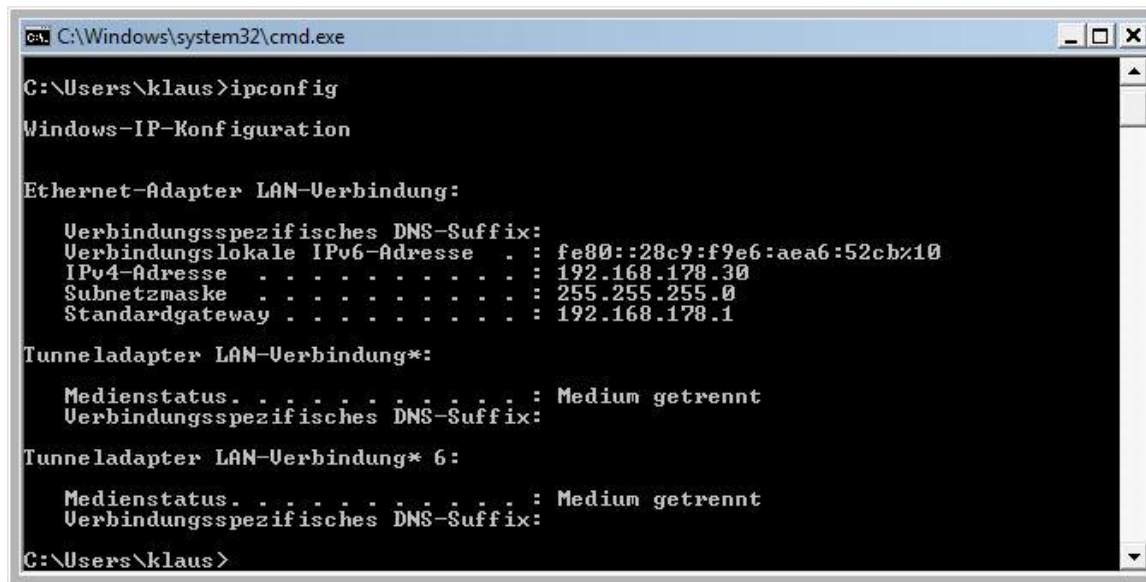
```
<Address>192.168.178.30</Address>
```

The IP-address must be set to the IP-address of the computer where this file is stored (the pc where Flightsimulator runs)

Determination of the IP-Address

The IP-address of the pc where Flightsimulator runs can be done with the command **ipconfig**. To enter this command a command shell must be opened. Under Windows XP a command shell can be opened via the Start - Execute Menu. In the Execute line the command **cmd** must be entered.

Under Windows Vista/Windows7 a command shell can be opened via the Start - Search Menu. In the Search line the command **cmd** must be entered. In the command shell type '**ipconfig**' (in Windows 10 you enter cmd in the input window "Search web and Windows"):



```
C:\Windows\system32\cmd.exe

C:\Users\klaus>ipconfig

Windows-IP-Konfiguration

Ethernet-Adapter LAN-Verbindung:

    Verbindungsspezifisches DNS-Suffix:
    Verbindungslokale IPv6-Adresse . . : fe80::28c9:f9e6:aea6:52cb%10
    IPv4-Adresse . . . . . : 192.168.178.30
    Subnetzmaske . . . . . : 255.255.255.0
    Standardgateway . . . . . : 192.168.178.1

Tunneladapter LAN-Verbindung*:

    Medienstatus. . . . . : Medium getrennt
    Verbindungsspezifisches DNS-Suffix:

Tunneladapter LAN-Verbindung* 6:

    Medienstatus. . . . . : Medium getrennt
    Verbindungsspezifisches DNS-Suffix:

C:\Users\klaus>
```

You will find the required IP-address in the line IPv4-Address. This value must be entered into the SimConnect.xml file as described below.

IPAddress=192.168.178.30 (this value is only an example)

<Port>1236</Port>

If in your SimConnect.xml a port value file is already set because another application uses SimConnect too, then the value must not be changed. In this case you must set this port value also in the SimConnect.cfg file on the client computer if you have a client installation on a second computer (read the following description).

<Disabled>False</Disabled>

value must be set to **False** not to True.

With these settings in the dll.xml and SimConnect.xml files the configuration at the server is complete.

Configuration of the SimConnect.cfg file (Client-Installation)

At the client computer (or computers) the settings of the **SimConnect.cfg** file must be edited if this has not been already done during the client installation of FreeAirMap. The SimConnect.cfg file can be found in the install directory of FreeAirMap at the client computer ...GEMINI\AirMap\System. The content of the SimConnect.cfg looks like::

```
[SimConnect]
Protocol=IPv4
Address=192.168.178.30
Port=1236
MaxReceiveSize=4096
DisableNagle=0
```

The "Address" and the "Port" must be set.

Address=192.168.178.30

For Address the IP-address of the server must be set (look at Simconnect.xml, section IPv4, global).

Port=1236

The value of the "Port" must be the same as the value on the server (look at Simconnect.xml, section IPv4, global).

In addition to the Simconnect.cfg configuration described above, two additional entries for the FSX and Prepar3D must be added to the AirMap.ini file on the client PC:

```
[Prepar3D]  
port=54322  
IPAddress=192.168.178.30
```

For the address, the value of the IP address of the Prepar3D PC (server) must be entered here (see above Simconnect.cfg configuration).

Port=54322

For the port, the value of the port of the Prepar3D PC (server) must be entered here (54322 is the default value).

The port value only has to be changed if this port is already occupied by another program. If the port value is changed, then this value must also be entered in the corresponding section of the AirMap.ini on the server PC (Prepar3D-PC), so that the server uses the same port.

FS2004 Network configuration

Default-Installation (Server)

To use FreeAirMap with Flightsimulator FS2004 the module **FreeAirMapFS9Connect.dll** must exist in the Modules folder of Flightsimulator FS2004. This file will be installed during the FreeAirMap installation. In the configuration file **FreeAirMap.ini** in the FreeAirMap install directory **FreeAirMap\System** the following entries must exist or be added:

```
[FS2004]
IPAddress=127.0.0.1
Port=54321
```

At the server computer the default IP-address 127.0.0.1 (loop back) must not be changed. The default value of the "Port" will be set during installation to 54321. This value must only be changed if another application uses the same port.

Client-Installation

At the client computer the IP-address and the port must be set in the **FreeAirMap.ini** file. The **FreeAirMap.ini** file is in the FreeAirMap install directory **...GEMINI\AirMap\system**. In this file the following section will be set during installation:

```
[FS2004]
IPAddress=127.0.0.1
Port=54321
```

The IP-address must be set to the IP-address of the server computer. If Flightsimulator FS2004 runs at the computer with IP-address 192.168.178.30 then this value must be set here:

```
IPAddress=192.168.178.30
```

The port must be set to the same value as in the **FreeAirMap.ini** file at the server computer, in this example to Port=54321. Normally this value will be set during client installation of FreeAirMap.

X-Plane Network Configuration

Default (Server)

During a server installation the file GEMINIServer.ini will be saved to the X-Plane subdirectory Resources\plugins. This file contains the following entries:

```
[GEMINI SoftwareFreeAirMap]
port=12345
```

The value 12345 of the port is the default value for FreeAirMap. This value need not to be changed unless this port is already blocked by another application. If you change this value and if also a client installation has been done than the same port value must be set in theFreeAirMap.ini file on the client computer.

During installation of FreeAirMap 3 plugns will be copied to the X-Plane folder resources\plugins:

AirMapServer.xpl and

AirMapServer64.xpl

FreeAirMapMenu64.xpl (can be used only with 64-bit version of X-Plane)

These plugins are required for the communication between FreeAirMap and X-Plane. If you have more than one X-Plane installation on your pc than these plugins must be copied to all resources\plugins folder.

Client

During a client installation you will be asked for the ip-address of the server. If the ip-address is not known at this time it can be determined later. In this case the value of the ip-address must be set into theFreeAirMap.ini file in the GEMINI\AirMap\System folder at the client pc. The corresponding section of this file reads as follows:

[X-Plane]
IPAddress=127.0.0.1
Port=12345

FlightGear Network Configuration

The following description is important only if the network configuration (IP address, port) of FreeAirMap was unsuccessful.

FlightGear and FreeAirMap run at the same pc

The communication between FlightGear and FreeAirMap will be controlled by the generic protocol. Due to this fact the role of FlightGear is different to the role of all other simulators (FSX, P3D, X-Plane). While FSX, P3D, and X-Plane can be used as servers in a networked configuration FlightGear cannot. This is due to restrictions of the generic protocol. FlightGear has to be configured as a client and FreeAirMap as the server. Therefore only one instance of FreeAirMap can be used with FlightGear at a time.

In the standard installation FlightGear and FreeAirMap run at the same pc on a Windows platform. The IP address used is the local address 127.0.0.1. In the FlightGear subfolder data\protocol the files

freeairmap.xml und
freeairmapai.xml
freeairmaptime.xml

will be stored.

On the Linux platform (**Ubuntu e.g**) the subfolder can be found at:

/usr/share/games/flightgear/Protocol

To use the generic protocol FlightGear must be run with the following command line parameters:

```
--generic=socket,out,10,127.0.0.1,12347,udp,freeairmap  
  
--generic= socket,out,1,127.0.0.1,12348,udp,freeairmapai  
  
--generic=socket,in,1,127.0.0.1,12349,udp,freeairmaptime --launcher
```

During the standard installation on Windows a desktop icon will be stored with these command line parameters.

The port values 12347, 12348, and 12349 are defaults set by FreeAirMap. These values have to be changed only if these ports are used by other programs. If these values have to be changed then also the values in the AirMap.ini file must be changed:

```
[FlightGear]
Port=12347
AIPort=12348
timevar=12349
IPAddress=127.0.0.1
```

The parameter behind "out" in the command line, in this case 10 and 1 is the frequency of the data transfer rate. The value of 10 can be reduced to 5 if necessary. The value of 1 should not be changed.

FlightGear and FreeAirMap run on separate pc in the local network

If FlightGear and FreeAirMap should run on different pc's in a local network, then the installer will support the installation on both pcs, if they are both based on Windows. If FlightGear runs on a Linux or Mac OS platform the xml-file for the generic protocol must be manually copied to the protocol subfolder of FlightGear.

FreeAirMap must always run on a Windows pc. After installation of FreeAirMap on the client pc the xml files can be found in the FreeAirmap\System\FlightGear subfolder.

In a server installation on Windows, only the protocol files are copied to the corresponding protocol folder of FlightGear and a desktop icon is created with the required start parameters for FlightGear. In the Gemini folder is essentially only the application for uninstalling. FreeAirMap can not be run on this PC, but only on the client PC.

At the start of FlightGear the command line parameter must be as described above with an important modification. the ip-address must be the address of the Windows pc running FreeAirMap. :

```
--generic=socket,out,10,192.168.178.21,12347,udp,freeairmap
--generic= socket,out,1,192.168.178.21,12348,udp,freeairmapai
```

```
--generic=socket,in,1,192.168.178.21,udp,freeairmaptime --launcher
```

On the Windows pc where FreeAirMap is running the configuration file Airmap.ini will contain the following parameters:

```
[FlightGear]
Port=12347
AIPort=12348
timevar=12349

IPAddress=0.0.0.0
```

Again a change of the port values is only required if a different application occupies these ports.

When FreeAirMap starts, the local firewall will report that FreeAirMap is requesting a share. This release must be granted because otherwise no communication between FlightGear and FreeAirMap is possible.

In a client/server configuration the FlightGear flightplans cannot be displayed in the FreeAirMap panel!

FSX Steam Edition

FreeAirMap can be used with FSX Steam Edition but the FreeAirMap installer does not support the installation for FSX SE directly. You may run the FreeAirMap installer, but the installer will not find the installation path to FSX SE. You can browse the installation path and run the installer. There are two possible situations after running the installer.

If there is already an installation of FSX on the pc where FSX SE is installed then FSX Steam Edition created a folder:

C:\User\<username >\AppData\Roaming\Microsoft\FSX-SE

You have to copy the dll.xml file from the corresponding FSX folder:

C:\User\<username>\AppData\Roaming\Microsoft\FSX

to the FSX-SE folder.

If there is only an FSX-SE installation, then FSX Steam Edition creates the folder

C:\User\<username>\AppData\Roaming\Microsoft\FSX

and the FreeAirMap installer will store the dll.xml file into this folder.

For all other configuration settings see [Configuration of dll.xml and SimConnect.xml \(Standard-installation\)](#)

Installation Hints

It is recommended to start with a Standard-installation (server installation). If during a Standard-installation no error message is displayed you can start Flight Simulator/Prepar3D and FreeAirMap. If the communication between Flight Simulator/Prepar3D and FreeAirMap do not work you should first check the configuration of the dll.xml SimConnect.xml files as described above. If this does not help you must probably deactivate your Firewall and/or Antivirus program. If you still have problems you must check your tcp/ip and udp settings.

If you have communication problems with FS2004/X-Plane after Standard-Installation you should check IP-Address and port setting in theFreeAirMap.ini file. If this does not help you must probably deactivate your Firewall and/or Antivirusprogram. If you still have problems you must check your tcp/ip and udp settings.

When FreeAirMap runs on the Flightsimulator/Prepar3D/X-Plane pc without problems you can begin with a client installation, if required. If after client installation the communication between Flight Simulator/X-Plane on the server and FreeAirMap on the client do not work you should check the IP-address and port settings as described above. If you have a firewall on the client computer FreeAirMap must not be blocked by the firewall.

Advanced users can also perform the following steps to test the Simconnect installation:

On the server PC, ie the PC running the flight simulator FSX or P3D, you can check in a command window (cmd.exe) with the help of the command netstat -na, whether the Simconnect server (FSX / P3D) is open listening to the configured port. Of course, the respective simulator must be started. Then lines of the following kind are output:

```
TCP 192.168.178.30:1236 0.0.0.0:0 LISTEN
```

The IP address 192.168.178.30 and port 1236 correspond to the values in the Simconnect.xml file. If the line is missing, then no Simconnect server has been started.

The accessibility of the Simconnect server can be checked on the client PC using the telnet command. Enter the command

telnet 192.168.178.30 1236

If then no error message and no timeout occurs, but an empty input line is displayed, the Simconnect server is reachable. Otherwise, the network or firewall settings will not work.

If the telnet command is not recognized by Windows, then the telnet client under the Control Panel / Programs must first be activated.

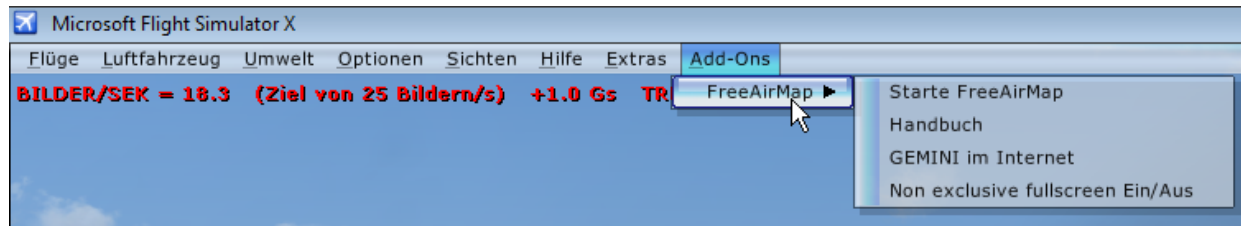
Deinstallation

In the selected installation folder (for example, C:\Gemini), an executable named unins000.exe is placed. Running this file uninstalls FreeAirMap. If after uninstalling there are still FreeAirMap folders or files, they can be safely deleted manually. Alternatively, uninstalling can also be done via the Windows Control Panel. In the Windows Control panel the correct name of the installed FreeAirMap version will be displayed. This is helpful if FreeAirMap is installed for more than one simulator.

If changes have been made to the DLL.xml or SimConnect.xml, these changes can only be removed manually. The changes made can be found in the chapter [Configuration of dll.xml and SimConnect.xml \(Standard-installation\)](#) . Before changing the DLL.xml file, a backup copy (dll.xml.bak) has been created in the same folder. This file may need to be renamed dll.xml only.

Operating Instructions

There are 3 methods to start FreeAirMap: via the desktop icon, via the menu entry under the start menu ("Start"- "Programs" - "Geminissoftware") or via the FSX/Prepar3d Add-ons menu. There is a corresponding plugin menu entry for X-Plane. There is no corresponding menu item for FlightGear, Aerofly FS 2, and MSFS.



The menu entries have the following meaning:

RunFreeAirMap runs FreeAirMap

Manual runs the online manual (Adobe pdf reader required)

GEMINI website runs the default browser and display the GEMINI website

Non exclusive fullscreen On/Off toggles the non exclusive fullscreen mode for FSX/FS2004 (not available for Prepar3D because Prepar3D supports this mode already).

After start of FreeAirMap the map region corresponding to the current position of the aircraft will be displayed.



Description of the Instrument buttons

Info-Line: This line displays the current state and/or flightplan information. The info-line will be toggled by the INFO-softkey.

North Vector: This symbol marks the north direction of the map. This is primarily important in "track up" mode.

Brightness: Turning of this knob will change the brightness of the screen. A mouse click to the left / right of the knob will decrease/increase the brightness. The brightness can also be changed by turning the wheel of the mouse.

Zoom scale for sat-charts: This zoom scale allows the direct selection of a sat-charts zoom level. The current zoom level is shown in red.

Softkeys: Up to 2 softkey rows with a total of 14 softkeys can be displayed. The description of the softkey functions will follow.

Nearest: This key toggles the NEAREST airport function.

Flightplan: The FPL key can be used to switch the flight plan route on/off (for FlightGear this function can only be used if FreeAirMap and FlightGear are running on the same PC); for AeroFly FS 2 another softkey level is displayed).

RNG ^: Activation of this button will reduce the map resolution (zoom out).

Wind direction and speed: In this field the current wind direction and speed will be displayed. With the right mouse button this display can be toggled between absolute and relative wind direction. In relative direction mode the wind arrow and the text will be displayed in green. Absolute direction means that the wind direction will be shown relative to the map with north up. Relative direction means that the wind direction will be shown relative to the direction of the airplane independent of the chart orientation.

RNG v: Activation of this button will increase the map resolution (zoom in).

The functions "Zoom in" and "Zoom out" are also available by turning the mouse wheel on the map.

fix softkeys: The softkeys at the bottom of the instrument border can be fixed like the Windows taskbar. If the softkeys are not fixed they will only be shown if the mouse cursor is within the area of the softkeys. If the mouse cursor is moved out of this area the softkeys will be hidden after about 2 seconds. The same is true for the zoom scale of the sat-charts.

Declutter nav-labels: Successive pressing of this key results in different representations of the navigation symbol labels: normal, medium, small, and hidden. If the labels are hidden selected labels can be displayed by hovering of the mouse above the corresponding nav symbol.

APT: show/hide airport layout: Activation of this softkey toggles between actual map view and taxiway view of the nearest airport. The zoom factor for the taxiway layout can be defined in section *[AirMapX G500]* variable *TaxiwayZoomFactor* in the *FreeAirMap.ini* file. Default is 1.0.

Description of the Softkeys

Main level



CONFIG: Activation of this key shows the "CONFIG-softkeys".

PANEL: Activation of this key toggles the instrument panel on/off.

AI/TCAS: Activation of this button with the left mouse button will toggle the AI-/Multiplayer overlay. The modes are: AI-On, TCAS-On, Off (not available for Aerofly FS 2).

VECTOR: Activation of this button will toggle a vector at the nose of the aircraft which shows the flight direction. There are 3 different modes: Off (Vector not visible), 1 Min (the endpoint of the vector is at the position the aircraft will reach in 1 minute), Border (Vector ends always at the border of the).

FLT PLN: Switches on/off the display of the route of the active flight plan above the displayed map (For FlightGear this function is only usable if FreeAirMap and FlightGear are running on the same PC; for Aerofly FS 2 another softkey level is displayed).

MOVE MAP: After activating this function, the map can be moved with the help of the mouse. After deactivation, the map is centered again on the position specified by the respective simulator. If the function is active, then an additional button is displayed when connecting to FSX, P3D and X-Plane 64-bit:



SET POS.: Pressing this function will move the simulator to the position shown in the map. **This function is not available for FS9, FlightGear, X-Plane 32-Bit and Aerofly FS 2!**

INFO: This button shows/hides the info line. Aerofly FS2 and Flightgear, another softkey level is displayed.

MAP: Activation of this button toggles the softkey display for the map selection.

NAV: Activation of this key displays the "NAVIGATION"-softkeys.

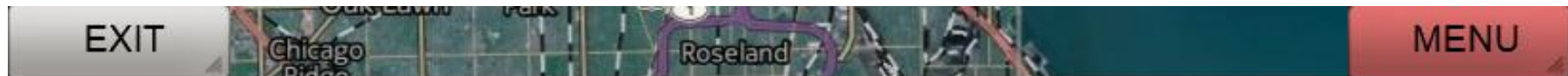
NORTH UP: Activation of this button will toggle the displayed map between North up and Track up. In TRACK UP mode the nose of the aircraft will always show up and the map will be rotated according to heading.

ROSE: Activation of this button toggles the compass rose. If there is wind a second activation of this button will display a wind vector. Another activation of this button will show the numeric values of wind direction and strength next to the wind vector. While the compass rose is active the standard "North vector" will not be displayed.

TRK: Activation of this key toggles the flightpath plotting.

CLR TRK: Activation of this key erases the current flightpath plot.

ESC: Activation of this key displays the previous softkeys. At the highest level the activation of this key will hide all softkeys with the exception of 2:



EXIT: Activation of this key will stop the FreeAirMap program.

MENU: Activation of this key will show the softkeys again.

Flightplan level for Flightgear and Aerofly FS2



AFS2 PLN: Loads basic flight plan route data from Aerofly FS2.

LOAD PLN: Loads a flight plan route from the hard disk (pln format).

SAVE PLN: Saves a loaded flight plan route to the hard disk (pln format).

DEL WPT: Deletes a waypoint from the route that is clicked with the mouse.

ADD WPT: Adds a waypoint to the route that has been clicked with the mouse.

MOVE MAP: After activating this function, the map can be moved with the mouse.

ESC: The ESC button is used to exit the respective softkey level and return to the softkey level above.

SHOW NAV: After activating this function, the map is overlaid with VOR, NDB and waypoints.

Info level for Flightgear and Aerofly fs 2



NO INFO: Hides the info line.

INFO: Displays standard information.

STATE INFO: Displays supplementary status information.

FPL INFO: Displays additional information on the flight plan (prerequisite: flight plan is loaded).

PILOTLOG: Displays the pilot log file.

ESC: Activation of this key displays the previous softkeys.

MAP-Softkey Level

The number of softkeys depend on type and number of local installed charts and the availability of a chart at the current position. The following example is from the original FreeAirMap installation.



SAT: Activation of this key selects satellite charts.(Only available if a MapQuest consumer key has been put into the Airmap.ini file)

OpenAIP: OpenAIP navigation data can be overlaid on the following maps: SAT, OSM and OPN TOPO. Free registration and the creation of an ApiKey with OpenAIP is required to use OpenAIP data (<https://www.openaip.net>).

OSM: Activation of this key selects Open Street Map.

OPN TOPO: Activation of this key selects Open Topomap.

TERRAIN: Activation of this key will show a terrain overlay on top of the active map.

WEATHER: The current map is overlaid with a real-time weather radar map. If the terrain map is active, it will be disabled

ESC: Activation of this key displays the previous softkeys.

VFR: If the VFR-softkey is visible activation of this key will show the VFR/Sectional map.

TPC: When the TPC softkey is displayed, you can switch to a Tactical Pilot Chart

ONC: When the TPC softkey is displayed, you can switch to a Tactical Pilot Chart

AIRPORT: If the AIRPORT softkey is displayed, a georeferenced airport map can be superimposed on the current map (if a corresponding map is available in the "Airports" directory).

APPR: If the Appr-softkey is visible activation of this key will show the Approach map. The map will be displayed as overlay on top of the actual map. If there is more than one approach map a selection dialog will be displayed.

IFR LOW: Activation of this softkey loads the Low Altitude IFR Enroute Aeronautical Charts of the US.

IFR HIGH: Activation of this softkey loads the High Altitude IFR Enroute Aeronautical Charts of the US

IFR PLN: Activation of this softkey loads the IFR Enroute Aeronautical Planning Charts (Atlantic and Pacific)

If more add on charts are installed some or all of the following softkeys may be shown:

TAC: If the TAC-softkey is visible activation of this key will show the Operational Navigation Chart.

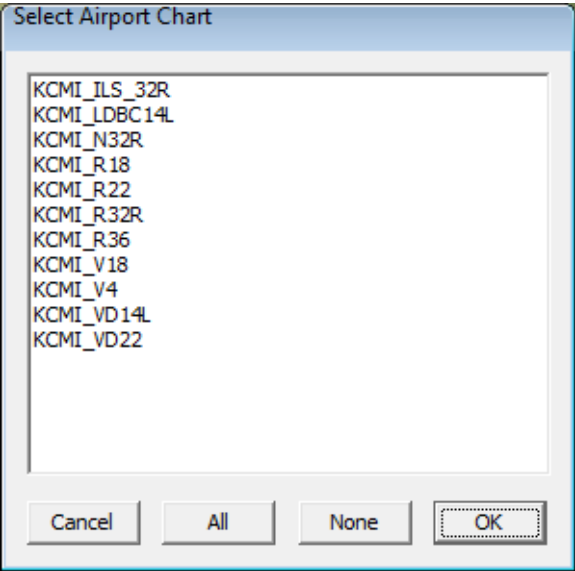
ICAO: If the ICAO-softkey is visible activation of this key will show the ICAO map.

TOPO: If the Topo-softkey is visible activation of this key will show the Topo map.

ARRIVAL: If the Arrival-softkey is visible activation of this key will show the Arrival map. The map will be displayed as overlay on top of the actual map. If there is more than one approach map a selection dialog will be displayed (see approach chart).

DEPART: If the Depart-softkey is visible activation of this key will show the Departure map. The map will be displayed as overlay on top of the actual map. If there is more than one approach map a selection dialog will be displayed (see approach chart).

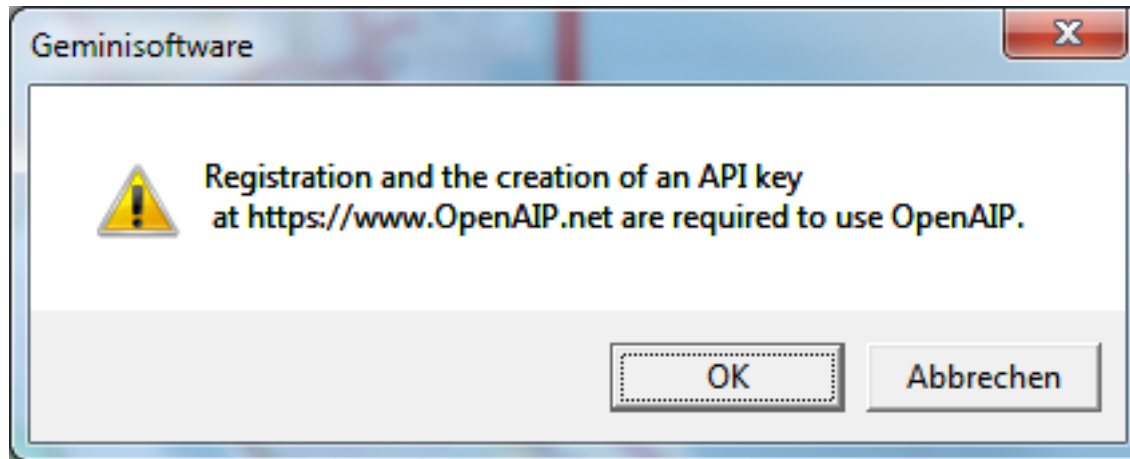
Selection of Approach charts



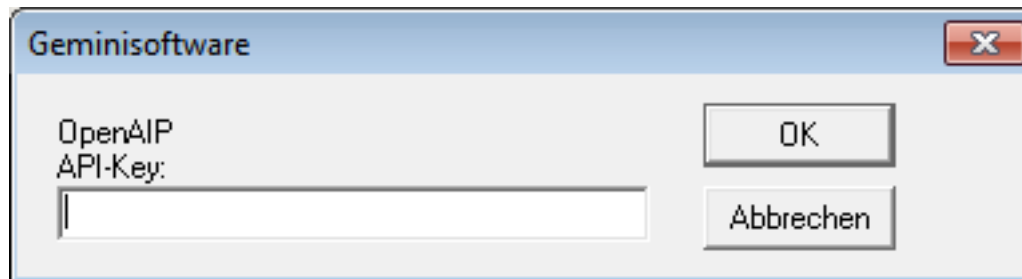
After selection an pressing of OK the chart will be displayed above the current background chart

OpenAIP ApiKey

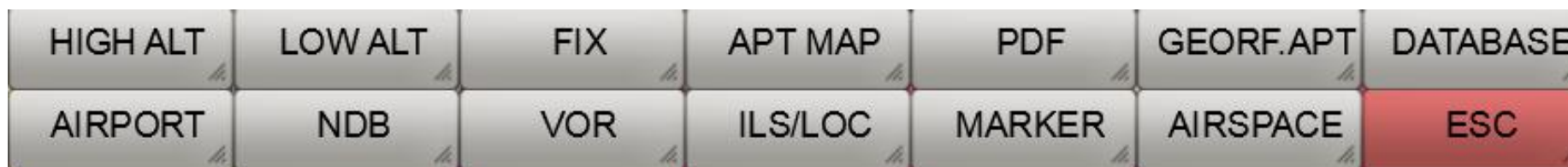
If the OPENAIP button is pressed and no ApiKey has yet been stored, the following message is displayed:



If an ApiKey is available, it can be stored permanently after selecting OK:



NAV-Softkey Level



HIGH ALT: Activation of this softkey will plot the High Altitude Airways on top of the current chart.

LOW ALT: Activation of this softkey will plot the Low Altitude Airways on top of the current chart.

FIX: Activation of this softkey will plot waypoint symbols on top of the current chart.

APT MAP: Activation of this softkey will show the airport selection keys.

PDF: This softkey enables the selection and display of pdf files (more on this topic can be found in chapter on).

GEOREF APT: If an airport map has been selected the airport map can be overlaid on top of the current chart (green) or theFreeAirMap can be displayed in fullscreen mode. This softkey toggles between both states.

DATABASE: Use this button to select the navigation database to be used. If the version of FreeAirMap belonging to the respective database is not installed, the download and installation of the database is offered automatically.

AIRPORT: Activation of this softkey will plot small airport symbols on top of the current chart.

NDB: Activation of this softkey will plot NDB symbols on top of the current chart.

VOR: Activation of this softkey will plot VOR symbols on top of the current chart.

ILS/LOC: Activation of this softkey will plot ILS coni on top of the current chart. If no airport chart has been selected all ILS coni will be displayed.

MARKER: Activation of this softkey will plot Marker symbols on top of the current chart.

AIRSPACE: Activation of this softkey will show the airspace selection softkeys..

ESC: Activation of this key displays the previous softkeys.

Database Selection



X-PLANE: The X-Plane navigation database is used independently from the active simulator (Version 1150 - data cycle 1802, build 20200623).

FS2004: The FS2004 navigation database is used independently from the active simulator (Release: 2003)

FSX: The FSX navigation database is used independently from the active simulator (release: 2007)

P3D: The P3D navigation database is used independently from the active simulator (2020).

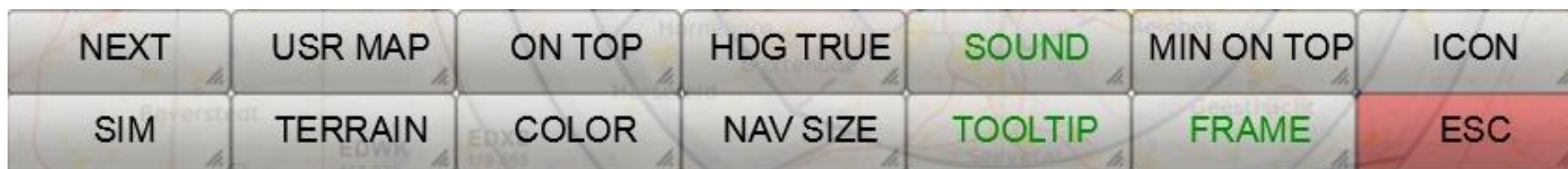
Flightgear: The Flightgear navigation database is used independently from the active simulator (810 Version - data cycle 2013.10, build 20131334).

MSFS: The MSFS navigation database is used independently of the active simulator (as of 2021). If Aerofly FS2 is used, the database for AFS2 appears here. Since the IPACS navigation database is not accessible, the current MSFS database is used as a substitute.

ESC: Activation of this key displays the previous softkeys.

Note: The aerodrome maps of P3D and MSFS used by FreeAirMap are not up to date.

CONFIG-Softkey Level



NEXT: Activation of this softkey displays the next layer of configuration softkeys.

USR MAP: Activation of this softkey will display the softkeys for user maps.

ON TOP: This softkey toggles the "on top" feature of the FreeAirMap window. If active (green) FreeAirMap will stay always above all other windows on the desktop even in non exclusive fullscreen mode.

HDG TRUE: This softkey toggles the heading information in the info line and the windrose between "magnetic" and "true".

SOUND: Activation of this softkeys shows the sound volume dialog. (traffic and TAWS alerts).

MIN ON TOP: This softkey allows the FreeAirMap window to be switched between a minimum size and its normal size. This feature is useful when using Head Mounted Displays

ICON: With this softkey the aircraft symbol can be selected.

SIM: Activation of this softkey shows the simulator selection softkeys.

TERRAIN: Activation of this softkeys shows the terrain configuration softkeys.

COLOR: Activation of this softkey shows the color configuration softkeys. The color of serveral symbols (e.g. VOR, NDB, aircraft) can be configured.

NAV SIZE: This softkey starts the dialog for setting the size of navigation symbols (NDB, VOR, etc.).

TOOLTIP: Activation of this key toggles the tooltips of knobs, buttons, and softkeys (green = on, white = off).

FRAME: Activation of this softkey toggles the visibility of the FreeAirMap window frame. If the FreeAirMap window frame is hidden the window can still be moved. To move the window the window can be dragged with the mouse if the mouse cursor is within the first 20 pixel at the top of the window. The window can be resized by dragging the left, right, bottom or corner edge.

ESC: Activation of this key displays the previous softkeys.

CONFIG-Softkey Level (continuation)



NEXT: Activation of this softkey displays the next layer of configuration softkeys.

ASPECT: Activation of this softkey toggles the aspect ratio of the FreeAirMap window. If the window is set to a certain aspect ratio this ratio will be contained even if the window is resized. This ensures that rounded elements will stay rounded. The following aspect ratios are available: 16:9, 16:10, 4:3 and free.

RESET: Activation of this softkey sets all important settings to their default values.

OPT OFF: Activation of this softkey toggles the graphics performance optimization between **OPT OFF**, **OPT MIN** and **OPT MAX**. The graphical quality is best in state OPT OFF but it has the lowest performance. In state OPT MIN the text output is speed optimized but the quality is less. In state OPT MAX performance and speed are high but in "Track Up" mode only navigation symbols near to the center of the screen are displayed.

NRST LIMITS: Activation of this softkey opens the runway limits dialog. In this dialog runway surface and length can be defined, which are used by the "**NEAREST**" airport and "**DIR TO**" function for the selection of the nearest airport. Only airports with a corresponding surface and a runway length which is larger or equal to this value will be shown.

FULLSCRN: This softkey sets the simulator window to non-exclusive fullscreen mode. A second click on this softkey will restore the simulator's window. If FreeAirMap is "on top" FreeAirMap will stay on top if it is connected to P3D/FSX. If FreeAirMap is connected to X-Plane a mouse click on the X-Plane window will hide FreeAirMap even if FreeAirMap is set on top. Press the **ESC** key on the keyboard to show FreeAirMap on top again (not available for MSFS and P3D).

BTN ASSGN: This softkey opens the dialog for assigning joystick buttons to FreeAirMap softkeys. This makes it possible to assign individual FreeAirMap functions to joystick buttons.

FEET: Activation of this key toggles the altitude display between feet (ft) and meter (m).

TEMP C: Activation of this key toggles the temperature display between °C and °F.

MANUAL: Activation of this softkey opens the FreeAirMap manual. A PDF-reader or an internet browser must be installed.

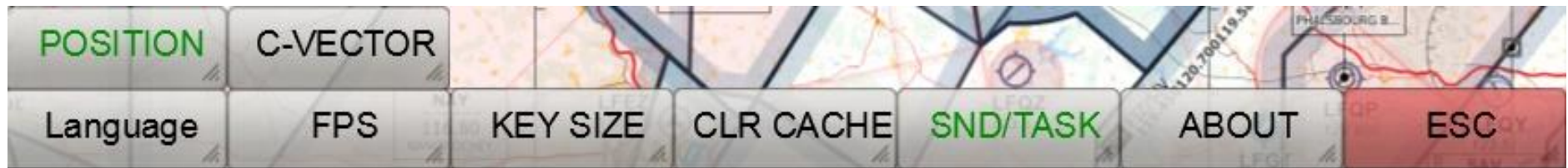
CPU: Activation of this key displays the dialog for selection of the CPU usage and the assignment of FreeAirMap to a CPU core.

TRANSP: This softkey allows the display of 2 knobs in the instrument panel, which can be used to set the transparency of the terrain and airport map overlays.

WX STATION: FreeAirMap has its own simple real-time weather station, which can only be used together with the weather radar. This weather station only supports Prepar3D and FSX. It should only be activated if no real-time weather add-on is available for the simulator used.

ESC: Activation of this key displays the previous softkeys.

CONFIG-Softkey Level (continuation)



Language: This button is used to switch the language of the tooltips.

FPS/TXN: Activation of this key toggles the frame rate display and the transaction counter at the info line of FreeAirMap (green/white). The transaction counter is only available if a MapQuest consumer key has been put into the Airmap.ini file.

KEY SIZE: Activation of this softkey toggles the size of the softkeys. Larger softkeys improve the operation of FreeAirMap on touch panels.

CLR CACHE: Activation of this softkey deletes the chart cache. This can be useful to save disk space. The clearing of the cache can be helpful if the map charts are not correctly drawn to screen.

SND/TASK: This function activates the sound output on FS2004 and FSX when changing the focus to FreeAirMap. When enabled, FreeAirMap will immediately return Focus Control to FS2004 / FSX for continued sound output. In this state, however, the mouse wheel can not be used to change the map zoom. When inactive, the mouse wheel can be reused, but FS2004 and FSX sound remain silent when changing focus to FreeAirMap.

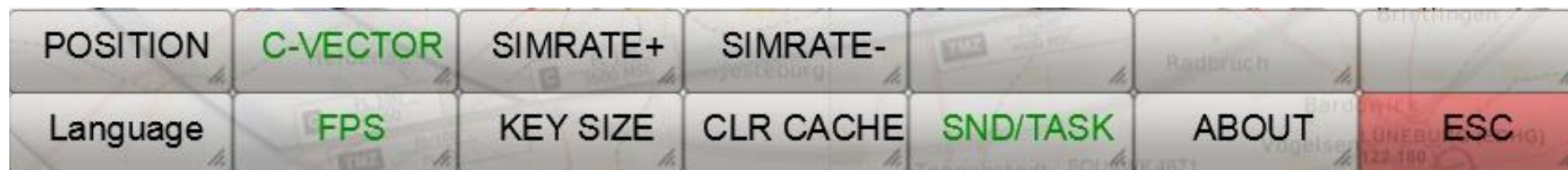
ABOUT: Activation of this key shows program information on GEMINI FreeAirMap .

ESC: Activation of this key displays the previous softkeys.

POSITION: This button switches the display of the current position in the info line on/off.

C-VECTOR: By activating this function, the 1-minute vector in the curve flight is displayed as a circle segment.

There are 2 additional softkeys for the MSFS:



SIMRATE+: This button can be used to increase the simulation rate of the MSFS. The current simulation rate is shown in the status bar at the top of the screen.

SIMRATE-: This button can be used to reduce the simulation rate of the MSFS. The current simulation rate is shown in the status bar at the top of the screen.

The simulation rates of all other supported simulators can be set via the menus of the respective simulators and are also displayed there.

SIM-Softkey Level



X-PLANE: Activation of this key connects FreeAirMap to X-Plane (if X-Plane is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

Aerofly2: Activation of this key connects FreeAirMap to Aerofly FS 2 (if Aerofly FS 2 is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

FSX: Activation of this key connects FreeAirMap to FSX/P3D v1.4 (if FSX/P3D v1.4 is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

P3D: Activation of this key connects FreeAirMap to P3D v2 - v4 (if P3D v2 - v4 is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

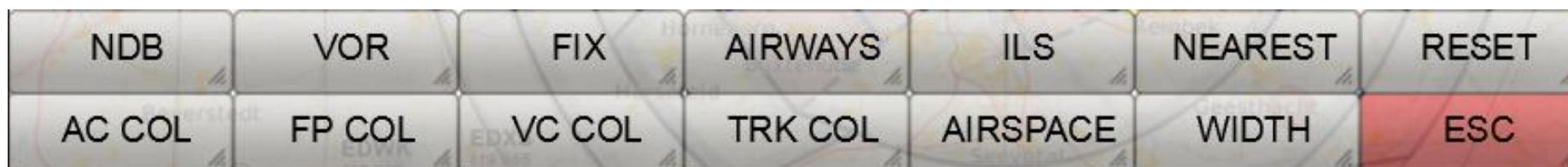
FlightGear: Activation of this key connects FreeAirMap to FlightGear (if FlightGear is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

MSFS: A mouse click on this softkey establishes a connection to the MSFS simulator (can only be used if MSFS is installed). The connection only needs to be established once. If the FAM_MSFS_Proxy is not running, this is indicated in the upper status line. Each time FreeAirMap is started again, the connection to MSFS is established automatically (softkey labeling green).

ESC: Activation of this key displays the previous softkeys.

FS9: Activation of this key connects FreeAirMap to FS9 (if FS9 is installed and running). If the connection is established the text color of this key will turn to green and at the upper right of the Instrument a green led near to the text "GPS 500" will flash up. This key must be selected only once to establish the connection.

COLOR-Softkey Level



NDB: Activation of this softkey shows the color selection dialog for NDB symbols.

VOR: Activation of this softkey shows the color selection dialog for VOR symbols.

FIX: Activation of this softkey shows the color selection dialog for waypoint symbols.

AIRWAYS: Activation of this softkey shows the color selection dialog for airways.

ILS: Activation of this softkey shows the color selection dialog for ils coni.

NEAREST: Activation of this softkey shows the color selection dialog for the NEAREST vector.

RESET: Activation of this softkey will reset all colors to default.

AC COL: Activation of this softkey shows the color selection dialog for the aircraft symbol.

FP COL: Activation of this softkey shows the color selection dialog for flightplan path.

VC COL: Activation of this softkey shows the color selection dialog for direction vector.

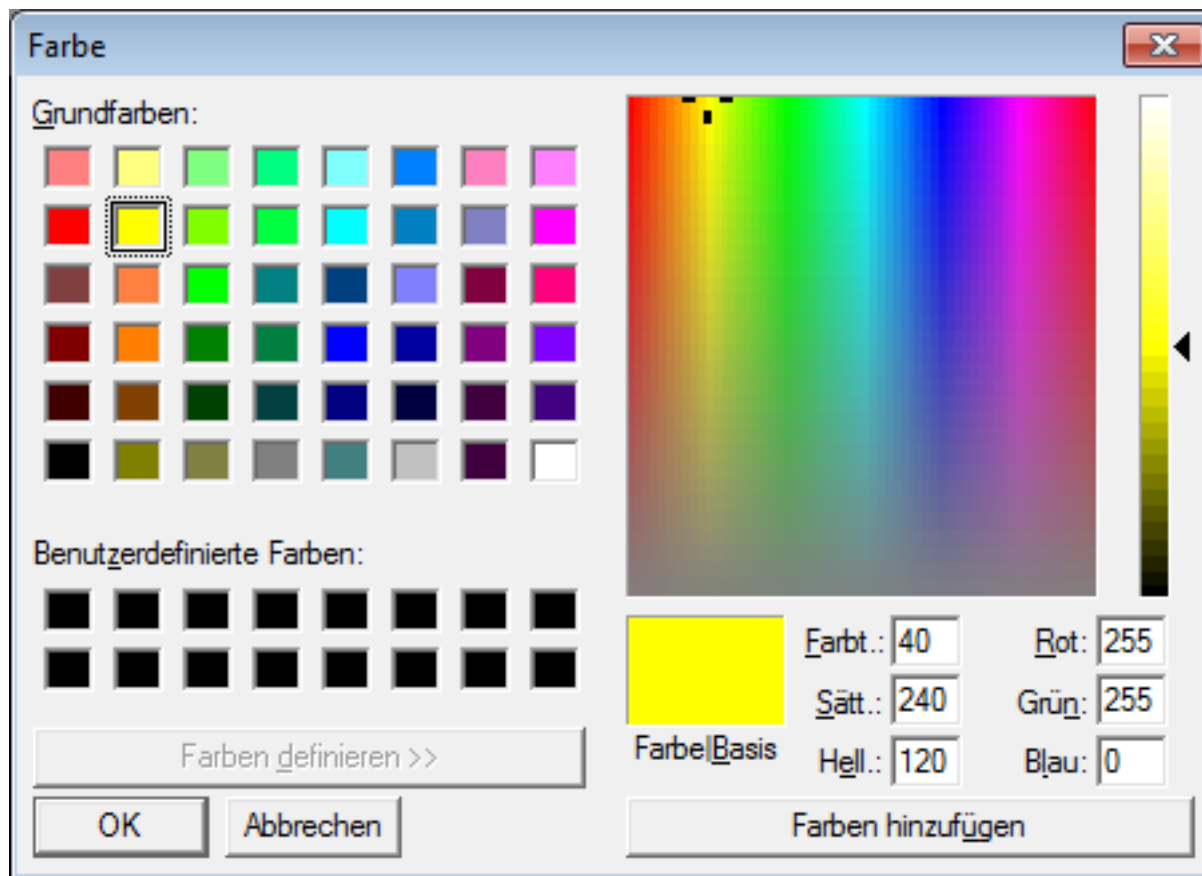
TRK COL: Activation of this softkey shows the color selection dialog for flightpath plot color.

AIRSPACE: This button displays the softkeys for setting the airspace colours.

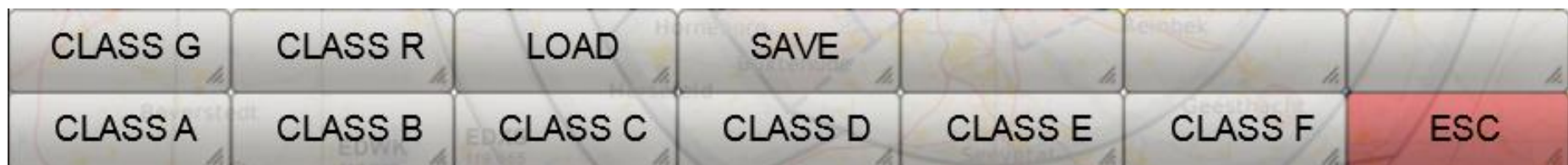
WIDTH: This softkey shows the line width change softkeys.

ESC: Activation of this key displays the previous softkeys

After selection of one of the COL-Softkeys the following color selection dialog will be displayed:



AIRSPACE COLOR-Softkey Level



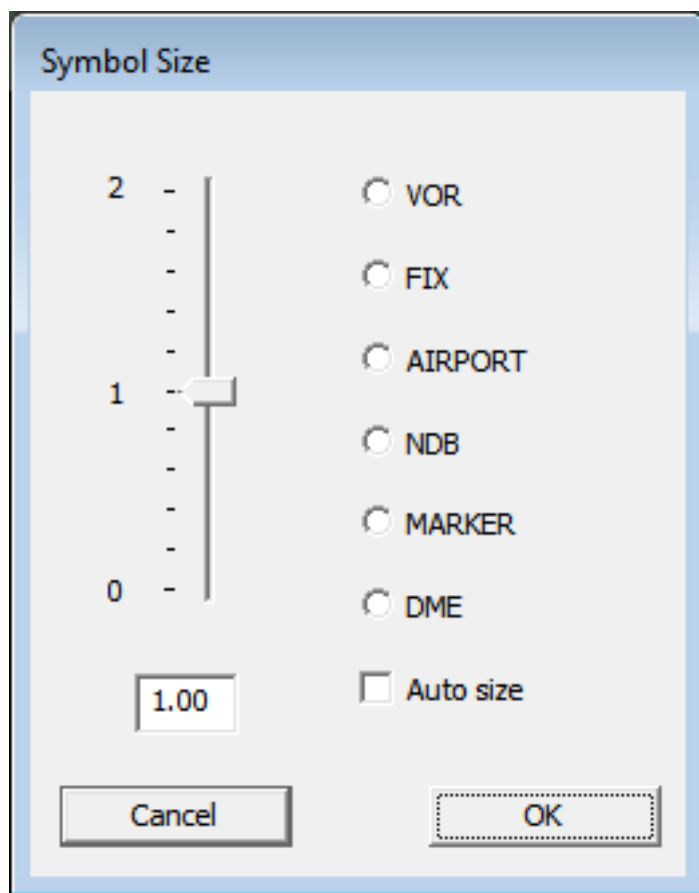
CLASS A - CLASS R: After selecting this softkey, the colour selection dialogue for this airspace is displayed..

LOAD: This softkey loads a previously saved Airspace colour file.

SAVE: This softkey saves the airspace colour selection to a file.

ESC: Activation of this key displays the previous softkeys.

NAV SIZE-Dialog



The NAV SIZE dialog allows you to adjust the size of the navigation icons. To set the size, the radio button of the navigation symbol must first be selected. Thereafter, the slider can be set to the desired size value. If the checkbox "Auto size" is selected, the size setting will be done according to standard values as before.

WIDTH-Softkey Level



FPLAN: This softkey selects the flightplan route line for width change. The width change will be done with the WIDTH + and WIDTH - softkeys.

VECTOR: This softkey selects the vector line. The width change will be done with the WIDTH + and WIDTH - softkeys.

TRACK: This softkey selects the track line. The width change will be done with the WIDTH + and WIDTH - softkeys..

DIR TO: This softkey selects the vector to the nearest airport. The width change will be done with the WIDTH + and WIDTH - softkeys.

WIDTH +: Activation of this softkey encreases the width of flightplan path/vector/flight path plot. To select flightplan path, vector or flight path plot the corresponding softkey must be first selected .

WIDTH -: Activation of this softkey decreases the width of flightplan path/vector/flight path plot. To select flightplan path, vector or flight path plot the corresponding softkey must be first selected .

USR MAP-Softkey Level



LOAD: Activation of this softkey opens the file load dialog. Any file in PNG- or GIF-Format can be loaded.

EDITOR: Activation of this softkey opens the georeferencing editor. Only georeferenced maps can be used as overlay on top of the actual displayed map. More information on georeferencing with the editor can be found in the chapter [Geo-Reference Editor](#) and [User Maps](#) .

ROTATE-: Activation of this key rotates the user map by 90° counter clockwise.

ROTATE+: Activation of this key rotates the user map by 90° clockwise.

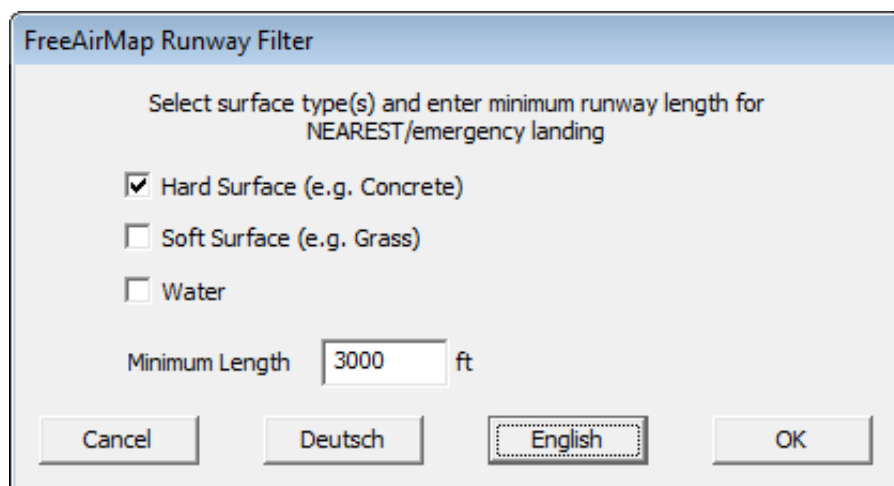
RESET: Activation of this key fits the user map to the screen.

OVERLAY: If the user map is geo referenced the lettering of this key will be yellow. In this state activation of this key displays the user map as overlay on top of the actual map. If the map is not geo referenced (white lettering) the overlay is not possible.

ESC: Activation of this key displays the previous softkeys.

NRST LIMITS-Dialog

After selection of **NRST LIMITS** the following dialog will be shown:

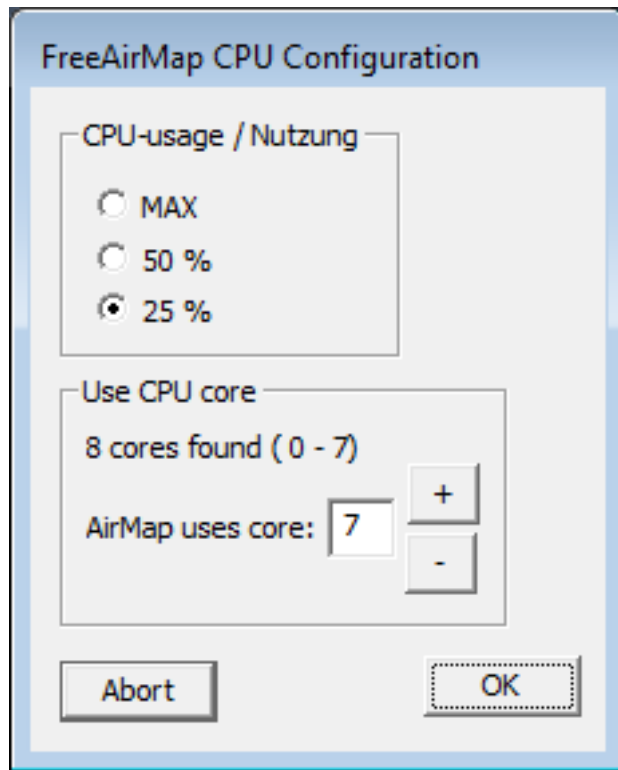


The dialog box is titled "FreeAirMap Runway Filter". It contains the instruction "Select surface type(s) and enter minimum runway length for NEAREST/emergency landing". There are three checkboxes: "Hard Surface (e.g. Concrete)" which is checked, "Soft Surface (e.g. Grass)" which is unchecked, and "Water" which is unchecked. Below these is a text input field for "Minimum Length" containing the value "3000" followed by a unit selector "ft". At the bottom are four buttons: "Cancel", "Deutsch", "English" (which is highlighted with a dotted border), and "OK".

In this dialog the limits for the selection of the "nearest"-airport will be set. You can set the runway surface and the minimum runway length for airports which shall be used in the search for the nearest airport.

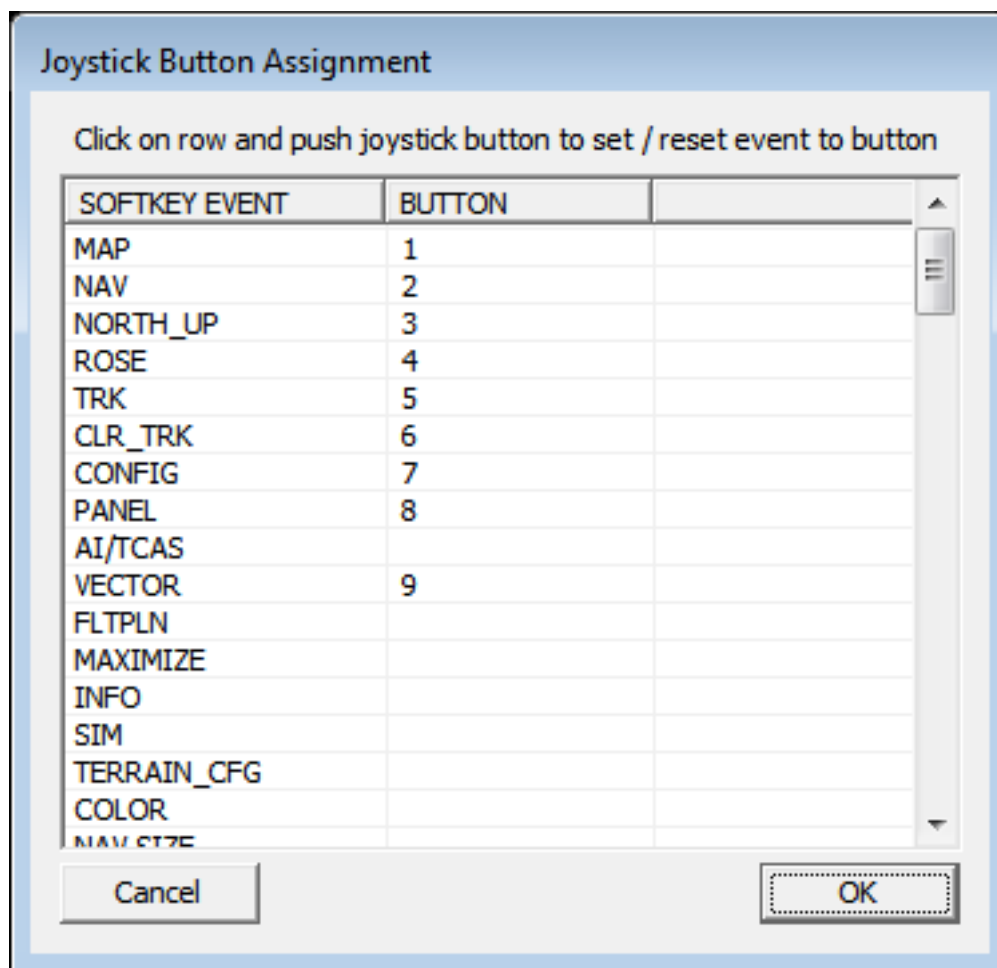
CPU-Usage Dialog

After selection of **CPU** the following dialog will be displayed:



In this dialog FreeAirMap can be assigned to a CPU core and the usage of this core can be set to 25%, 50% or MAX.

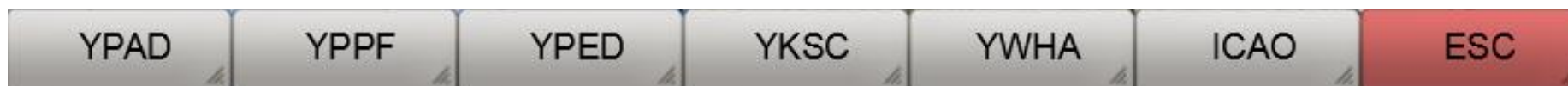
BTN ASSGN-Dialog



The BTN ASSGN dialog is used to assign the joystick button to softkeys. The left column lists the softkeys that can be assigned to a joystick button. The assignment is made by selecting an Event softkey by clicking with the mouse and then pressing the button of the joystick to be assigned to this softkey.

The assignment can be deleted again, in which either the same joystick button is assigned with another softkey event or the same event is assigned again with the same button.

APT MAP - Softkey Level



YPAD: Activation of this softkey will display the airport with ICAO id YPAD. This softkey and the following are ordered according to there distance to the aircraft, this means softkey labels will change position and lettering while the aircraft changes position.

YPPF: Activation of this softkey will display the airport with ICAO id YPPF.

YPED: Activation of this softkey will display the airport with ICAO id YPED.

YKSC: Activation of this softkey will display the airport with ICAO id YKSC.

YWHA: Activation of this softkey will display the airport with ICAO id YWHA.

ICAO: Activation of this softkey will open the airport map load-by-ICAO dialog.

ESC: Activation of this key displays the previous softkeys

If an airport has been selected additional softkeys will be shown if the softkey **GEOREF.APT** is not activated.



GROUND: Activation of this softkey show/hides the ground frequencies if the airport map is shown full size and not in overlay mode.

CLEARANCE: Activation of this softkey show/hides the clearance frequencies if the airport map is shown full size and not in overlay mode.

TOWER: Activation of this softkey show/hides the tower frequencies if the airport map is shown full size and not in overlay mode.

DEPARTURE: Activation of this softkey show/hides the departure frequencies if the airport map is shown full size and not in overlay mode.

APPROACH: Activation of this softkey show/hides the approach frequencies if the airport map is shown full size and not in overlay mode.

ATIS: Activation of this softkey show/hides the Atis frequencies if the airport map is shown full size and not in overlay mode.

RWY/ILS: Activation of this softkey show/hides the ils frequencies if the airport map is shown full size and not in overlay mode..

YPAD: Activation of this softkey will display the airport with ICAO id YPAD. This softkey and the following are ordered according to there distance to the aircraft, this means softkey labels will change position and lettering while the aircraft changes position.

YPPF: Activation of this softkey will display the airport with ICAO id YPPF.

YPED: Activation of this softkey will display the airport with ICAO id YPED.

YKSC: Activation of this softkey will display the airport with ICAO id YKSC.

YWHA: Activation of this softkey will display the airport with ICAO id YWHA.

ICAO: Activation of this softkey will open the airport map load-by-ICAO dialog.**ESC:** Activation of this key displays the previous softkeys.

AIRSPACE- Softkey Level



CLASS F: Activation of this softkey toggles the display of the Class F airspace.

CLASS G: Activation of this softkey toggles the display of the Class G airspace.

CLASS R: Activation of this softkey toggles the display of the Class R airspace.

INFO: Activation of this softkey toggles the label of the airspaces.

OFF: Activation of this softkey hides all airspaces.

ALL: Activation of this softkey shows all airspaces.

CLASS A: Activation of this softkey toggles the display of the Class A airspace.

CLASS B: Activation of this softkey toggles the display of the Class B airspace.

CLASS C: Activation of this softkey toggles the display of the Class C airspace.

CLASS D: Activation of this softkey toggles the display of the Class D airspace.

CLASS E: Activation of this softkey toggles the display of the Class E airspace.

ESC: Activation of this key displays the previous softkeys.

NEAREST-function

The NEAREST-function will display information of the nearest airport which fulfills certain conditions. The conditions are:

- minimum runway length and
- runway surface.

If the NEAREST-function is active an info window will be displayed at the right side of the screen. This info window contains important information on the nearest airport (see next figure):

A vector from the airplane symbol will display the direction of the nearest airport (green in this figure). At the right side of the screen the following information will be displayed in the info window:

- ID or ICAO-designation of the airport
- elevation of the airport in feet

- heading to the airport
- distance to the airport in nautical miles
- estimated time enroute to the airport (ETE)
- designation of the longest runway
- runway length in feet.

The softkey "APT" at the right of the screen will toggle between the map and the airport chart of the nearest airport.



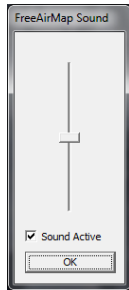
Color selection Dialog

The color selection dialog of several symbols can be set by a standard Windows dialog:



After selection of the desired symbol the color selection dialog will be displayed. After selection of the color the dialog can be closed via OK and the selected color will be used for the selected symbol.

Volume Control



The volume for the TCAS/Terrain warning sound will be controlled by a slider. The following figure shows the volume control dialog which will be displayed after selection of the CONFIG - and SOUND softkey. Initially the position of the slider will show the current volume setting.

Aerofly FS2 and flight route display

The flight route used by Aerofly FS2 can be reproduced in FreeAirMap and thus also displayed. To do this, however, a few additional steps must be carried out.

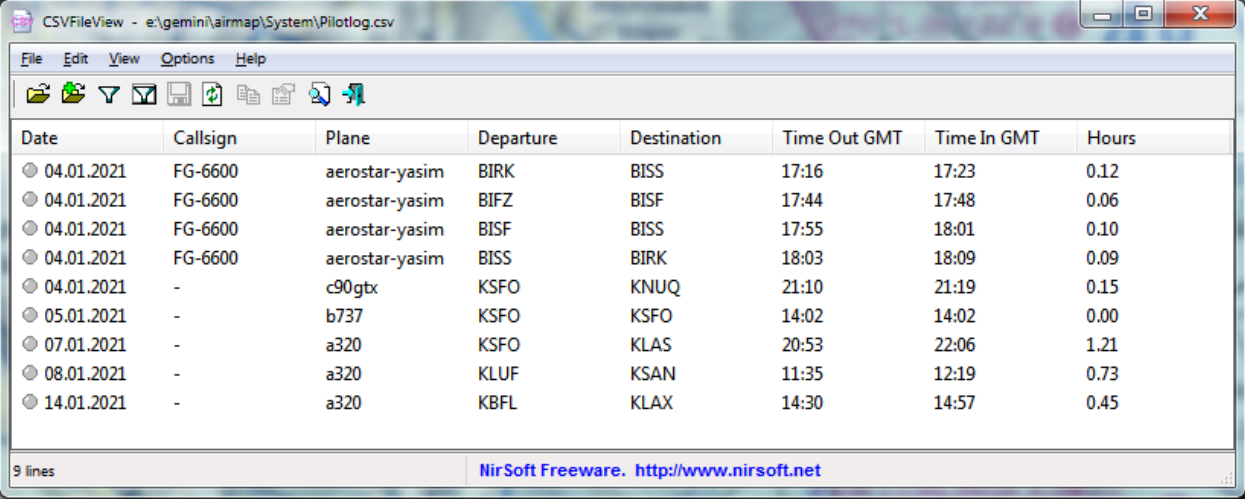
With the activation of the softkey "FLT PLN" another softkey level is displayed for Aerofly. As described elsewhere, a rudimentary form of the flight route can be loaded from Aerofly with the softkey "AFS2 PLN". This loads the information stored in the Aerofly FS2 main.mcf file. From this information, a route is created from SID, STAR and Final using its own database, which matches the AFS2 route as closely as possible. An exact match is only possible in exceptional cases, as AFS2 neither provides an interface for transferring the route data nor is the navigation database used by AFS2 available. Many SID/STAR routes used by AFS2 are outdated and therefore cannot be reproduced by a current database.

However, the deviations of the AFS2 route from the route displayed in FreeAirMap can be corrected manually. The softkeys "ADD WPT" and "DEL WPT" are used to add and delete a waypoint. This means that deviating waypoints can be deleted and missing waypoints can be added. To carry out this correction, the softkeys "MOVE MAP" and "SHOW NAV" can be used to move the map and to show additional VORs, NDBs and waypoints.

Once the displayed route has been corrected, it can be permanently saved with the "SAVE PLN" softkey. A permanently saved route can be loaded with the "LOAD PLN" softkey.

Pilotlog

Flightgear and Aerofly fs 2 do not have a pilot log. This function is emulated by FreeAirMap in a simple form. The following information is recorded in the pilot log:



The screenshot shows a window titled 'CSVFileView - e:\gemini\airmap\System\Pilotlog.csv'. The window contains a table with 8 columns: Date, Callsign, Plane, Departure, Destination, Time Out GMT, Time In GMT, and Hours. There are 9 lines of data. The status bar at the bottom indicates '9 lines' and includes a link to 'NirSoft Freeware. http://www.nirsoft.net'.

Date	Callsign	Plane	Departure	Destination	Time Out GMT	Time In GMT	Hours
04.01.2021	FG-6600	aerostar-yasim	BIRK	BISS	17:16	17:23	0.12
04.01.2021	FG-6600	aerostar-yasim	BIFZ	BISF	17:44	17:48	0.06
04.01.2021	FG-6600	aerostar-yasim	BISF	BISS	17:55	18:01	0.10
04.01.2021	FG-6600	aerostar-yasim	BISS	BIRK	18:03	18:09	0.09
04.01.2021	-	c90gtx	KSFO	KNUQ	21:10	21:19	0.15
05.01.2021	-	b737	KSFO	KSFO	14:02	14:02	0.00
07.01.2021	-	a320	KSFO	KLAS	20:53	22:06	1.21
08.01.2021	-	a320	KLUF	KSAN	11:35	12:19	0.73
14.01.2021	-	a320	KBFL	KLAX	14:30	14:57	0.45

Terrain

GEMINI FreeAirMap Terrain is a altitude radar simulation which overlays the distance to the ground as a colored representation on theFreeAirMap charts.

The use of such a terrain radar consists in the fact that one can recognise instantly where the flight altitude can become critical in the immediate neighborhood of the airplane relatively to the ground. This is indispensable if flying in mountainous area.

Terrain can be used worldwide if it is used together with FreeAirMap. If it is used together with anyFreeAirMap chart product the terrain overly can be displayed only at regions which are covered by theFreeAirMap chart product. The horizontal resolution of the terrain data is about 90 m in latitude range between +60° and – 60°. Above +60° and below -60° the accuracy is about 1000 m. The vertical resolution is 35 m (115 ft).

User Interface

Terrain Radar can be activated by selection of the "**MAP**"- and "**TERRAIN**" - softkey.



The Terrain Radar can be activated/deactivated by pressing the "**TERRAIN**"-softkey.

TERRAIN - Softkeys



ELEVATION: (Minimum Enroute Altitude, MEA) Toggles the display of the highest altitude value in feet within the actual square degree. The MEA values used here are based on the definition of the "**Off Route Terrain Clearance Altitude**". These values ensure that a minimum safety distance of 1000 feet below 8000 feet and 2000 feet above 8000 feet is maintained. If the MEA in a square degree nearby is larger the display will toggle between both values. The higher value will be displayed in red.

OBSTACLE: Toggles the display of the obstacles.

MEA In FP: If active (green) the MEA value will be displayed at every waypoint of the active flightplan.

LEVEL: If this function is active the coloring of terrain will be done only for terrain above msl (mean sea level). Regions at and below msl will not be colored even if the flight altitude is low.

GPWS: This button activates the "Ground Proximity Warning System". This activates the callouts for the altitudes 500, 100, 50, 40, 30, 20 and 10.

TAWS DATA: This button activates the dialog for defining the altitudes for the transition of the flight phases Departure to Enroute and Enroute to Approach. These altitudes are used by the TAWS to avoid false alarms (example: Terrain warning on approach to the landing is not desirable because the approach to the ground is intended).

TAWS: This softkey enables/disables the TAWS mode (green/white). TAWS is an acronym for Terrain Alert and Warning System.

MODE1: Activation of this softkey toggles between the Terrain modes **MODE1**, **MODE2**, **MODE3**. In each mode a different terrain display will be shown. See images below.

PATH: This Softkey activates the extended TAWS mode (green if active). In this mode the terrain display depends on the actual radaraltitude, the horizontal speed, and the vertical speed. The terrain color will be calculated from the altitude which will the aircraft will have when it will be at the corresponding position, e.g. the sink/climb rate and speed will be taken into account.

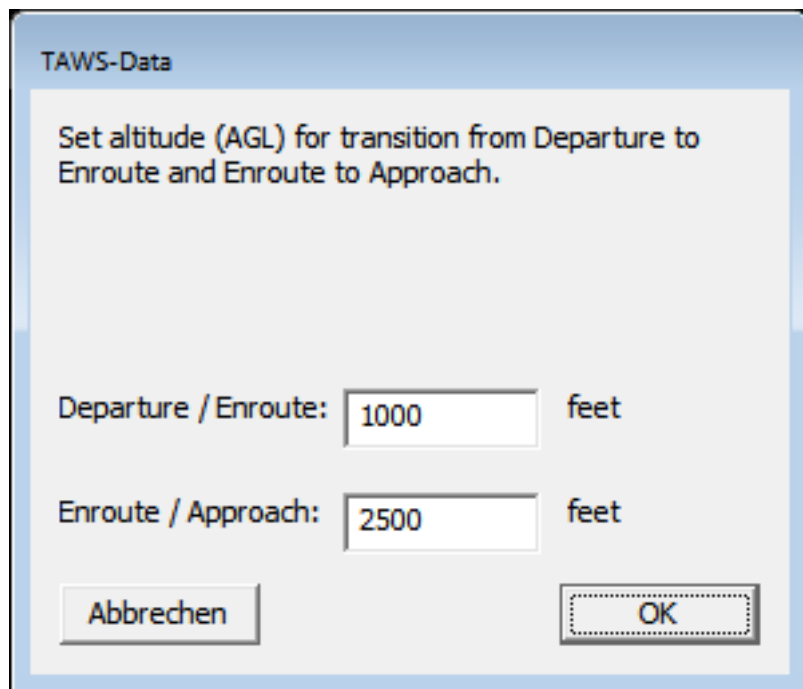
ENROUTE: This Softkey toggles between the states **DEPARTURE**, **ENROUTE** und **ARRIVAL**. These states have define which alerts will be triggered within the TAWS system. If the lettering of this key is yello then the flight phase will be automatically determined (this may be wrong). By pressing this key the user can select the flight phase by himself (green lettering).

DISABLE: This Softkey can be used to clear any active TAWS alert. If a TAWS alert is triggered the terrain Softkeys will be automatically displayed.

LEGEND: Show/Hide the altitude caption.

ESC: Activation of this key displays the previous softkeys.

TAWS DATA Dialog



TAWS-Data

Set altitude (AGL) for transition from Departure to Enroute and Enroute to Approach.

Departure / Enroute: feet

Enroute / Approach: feet

If the departure / enroute altitude threshold is crossed from bottom to top, the flight phase transition from departure to enroute takes place automatically. The transition also takes place when no flight plan is loaded.

If the Enroute / Approach altitude threshold is crossed from top to bottom, the flight phase is automatically switched from Enroute to Approach. A change in the radar height due to a change in the height of the terrain alone is not sufficient for this.

Terrain Display

The Terrain Radar has 3 different modes. In **MODE1** mode the terrain will be displayed with 3 colors. The meaning of the colors are explained by a legend at the left of the screen. Terrain in red will reach from -100 feet to the highest point of the terrain. Terrain in yellow

will reach from -1000 feet to -100 feet below the aircraft. Terrain in black will reach from -2000 feet to -1000 feet below the aircraft and terrain below -2000 feet will not be colored.

Depending on the relative height of the aircraft above the local terrain the color of the terrain will permanently be changed.

The transparency of the terrain overlay can be continuously adjusted by the "Transparency"-dial at the instrument panel.



In **MODE2** the terrain will be displayed with 4 colors. The meaning of the colors are explained by a legend at the left of the screen.

Terrain in red will reach from 1000 feet above the aircraft up to the highest point of the terrain. Terrain in yellow will reach from -500 feet below the aircraft up to 1000 feet above the aircraft. Terrain in dark green will reach from -1000 feet to -500 feet below the aircraft. Terrain in light green will reach from -2000 feet up to -1000 feet below the aircraft and terrain -2000 feet below the aircraft will not be colored.

Depending on the relative height of the aircraft above the local terrain the color of the terrain will permanently be changed.

The transparency of the terrain overlay can be continuously adjusted by the "Transparency"-dial at the instrument panel.



In **MODE3** the terrain will be colored according to its absolute height. This means that the color will **not** change with aircraft height.



Obstacles

If the obstacle option is active the obstacles will be displayed as small symbols on top of the current map. The symbols will be displayed if the the altitude difference between the aircraft and the MSL altitude of the obstacle is less than 1000 feet (light blue). If the altitude difference is less than 300 feet the symbols will turn red.



The following symbols will be used:



less 1000 feet (AGL)



less 1000 feet (AGL) with warning light



1000 feet or higher



1000 feet or higher (AGL) with warning light.

The obstacle database is incomplete. It contains data for the following countries:

- United States
- Austria
- Belgium
- Denmark
- Finland
- France
- Germany
- Great Britain
- Iceland
- Ireland
- Italy
- Luxembourg
- Netherland
- Norway
- Portugal
- Spain
- Sweden
- Switzerland

TAWS

TAWS is an acronym for **T**errain **A**lert and **W**arning **S**ystem.

The TAWS will be active under following conditions:

- excessive decent rate
- premature descent caution
- negative climb rate
- terrain avoidance

The excessive decent rate alert depends on decent rate and current radaraltitude.

The premature descent caution alert depends on the flight phase (approach) and the distance to the airport.

The negative climb rate alert is only active during departure flight phase.

The terrain avoidance alert depends on flight phase (departure, enroute, approach). In general the alert will be triggered about 1 minute before touching the ground if the current horizontal and vertical speed will be maintained.

Note: If the flight phase is not correctly set the warnings may be different and confusing.

Terrain Profile

After activating the profile function, the terrain profile is displayed in the direction (heading) of flight. The scaling takes place automatically according to the lowest and highest terrain point. The range of the profile is limited to a maximum of about 36 nautical miles depending on map resolution. The current altitude position of your own aircraft is shown by a white marking on the left edge.



After hiding the instrument frame, the profile is displayed across the entire width of the screen.

AirMap.ini File

In the subdirectory **System** within the install directory of FreeAirMap (normally located at **..GEMINI\AirMap\System**) the file **FreeAirMap.ini** can be found after installation. This file contains parameter which can be manually edited:

[Terrain]

Color1=0,240,11

Color2=49,152,97

Color3=255,255,148

Color4=254,0,1

Color5=125,1,0

Blendfactor=0.500000

The parameters Color1 – Color5 define the color used in MAP2 mode. The color of MAP1 and MAP3 mode cannot be changed.

The parameter Blendfactor is the default value for the transparency of the terrain overlay. This value can be altered with the slider at the instrument border.

Font size

The size of the font of the status line and tooltips can be stored in the Airmap.ini file. The Font section is used for this purpose:

[Font].

Stateline=10

tooltip=16

Realtime Weatherradar Overlay

The overlay of maps with a rain radar map includes the following countries:














Argentina
Australia
Austria
Belarus
Belgium
Belize
Bermuda
Brazil
Bulgaria
Cambodia
Canada
Cayman Islands
China
Colombia
Croatia
Cuba
Curaçao
Czech Republic
Denmark
Estonia
Fiji
Finland
France
French Guiana
Germany
Greece

Guadeloupe
Guatemala
Hong Kong
Hungary
Iceland
India
Iran
Ireland
Israel
Italy
Japan
Kuwait
Latvia
Lithuania
Malaysia
Malta
Marshall Islands
Martinique
Mexico
New Zealand
Norway
Oman
Panama
Paraguay
Philippines
Poland

Portugal
Qatar
Romania
Russia
Saudi Arabia
Serbia
Singapore
Slovakia
Slovenia
South Korea
Spain
Sweden

Switzerland
Taiwan
Thailand
Trinidad and Tobago
Turkey
Ukraine
United Arab Emirates
United Kingdom
United States
Venezuela
Vietnam

The real-time weather radar consists of 2 components: the graphical representation of the humidity and a weather station. The coloring has the following meaning:

	Niesel (möglich)	Drizzle (possible)
	Niesel	Drizzle
	Leichter Regen	Light rain
	Leichter Regen	Light rain
	Regen	Rain
	Regen	Rain
	Starker Regen	Heavy rain
	Starker Regen	Heavy rain
	Starker Regen	Heavy rain
	Sturm	Storm
	Sturm	Storm
	Hagel	Hail
	Hagel	Hail

The FreeAirMap weather station can only be used for Prepar3D and FSX. X-Plane and Flightgear have their own real-time weather . The FreeAirMap real-time weather station is based on up-to-date station data provided by the NOAA. This weather station is very simple and does not replace freeware or payware weather add-ons. If there is a real-time weather add-on for FSX or P3D, then it should be used.

If the real-time weather radar is activated, then the time is set to real time in the respective simulator. That can have unexpected consequences.

Example: If a user from Germany places their flight simulator in Frankfurt at 12:00 CET at the start of the program and then decides to change airport, for example to Denver in the US, then usually the time is not changed, even if the system time is used because the system time depends on the location of the PC. In fact, in Denver, real time is much earlier. Since real-time weather data can only be used correctly at each location if the local time is set correctly, FreeAirMap will automatically change the time in the simulator. If it is night, you can manually reset the time, but FreeAirMap will reset the time.

Example: When flying a long distance, it is sometimes desirable to increase the simulation rate so that the flight does not take so long. When using the real-time weather radar, the weather simulation is deactivated because in this situation, the flight simulator is misused as a time machine and flies into the future. But there are no real-time weather radar data. As soon as the simulation rate is set to 1.0 again, a time correction takes place again and the weather radar is reactivated.

But you may safely move the map in the direction of your flight and reposition the aircraft without changing time and simulation rate.

Using GEMINI FreeAirMap on a screen with a simulator

FreeAirMap can run without a windows frame and "on top", i.e. the FreeAirMap window will always be above any other window. In this mode FreeAirMap is always above the Flightsimulator window even when FreeAirMap does not have the focus. FreeAirMap sound (traffic or TAWS alerts) will be played even if FreeAirMap does not have the focus.



The frameless FreeAirMap window can be moved around and resized with the help of the mouse. If one moves the mouse cursor to the edge of the FreeAirMap window the resize cursors will be displayed and the window can be resized as usual. At top of the FreeAirMap window a virtual title line of about 20 pixel exist where the window can be dragged.

Usage of PDF-Files

Several aviation charts are free available from the internet as PDF document. FreeAirMap supports the usage of these charts. Without additional configuration FreeAirMap will try to run a local installed PDF-Reader (Adobe PDF Reader is suggested) when Softkey "**PDF**" in the softkey-layer **NAV** has been activated and an PDF has has been selected for loading.

The Adobe Reader can be downloaded from the internet:

<http://www.adobe.com/products/reader.html>

This kind of usage of PDF documents is not suggested because the charts will not be displayed within FreeAirMap itself. PDF documents can be displayed within FreeAirMap if the free available software **mupdf** is installed.

Mupdf can be downloaded from the internet:

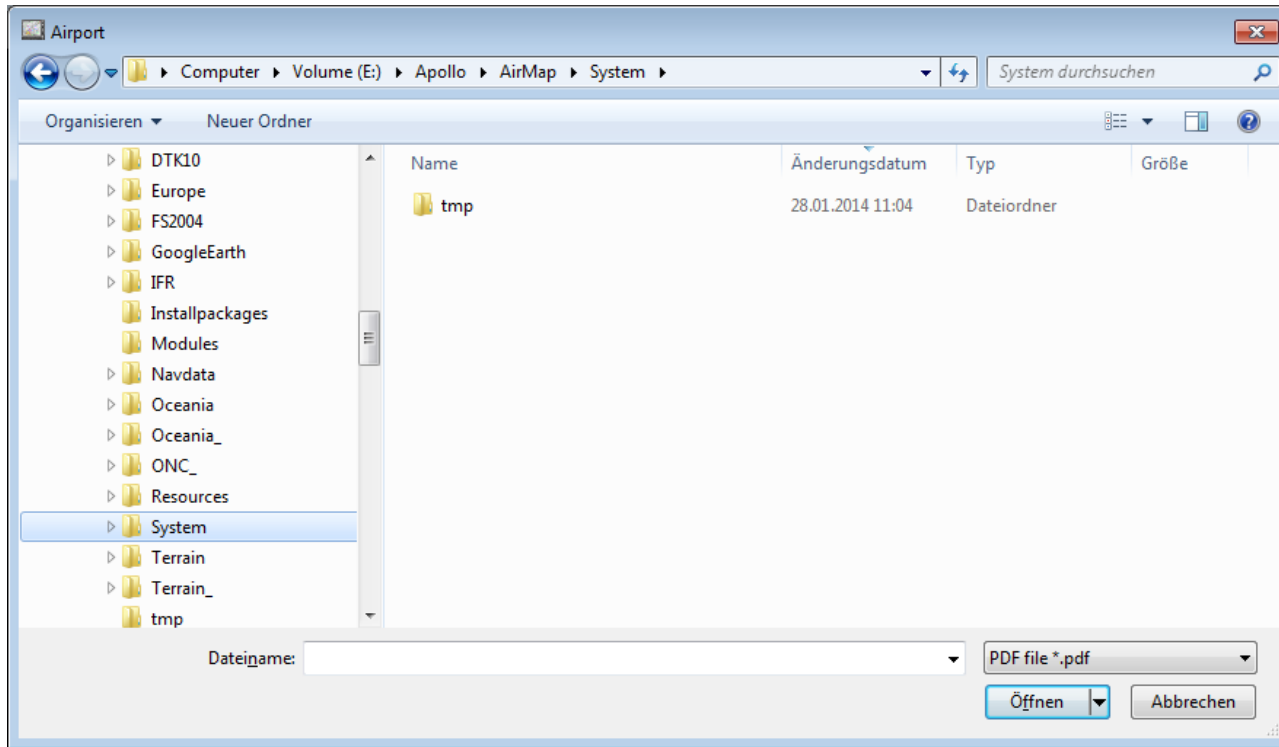
<https://geminissoftware.de/tmp/mupdf-1.3-windows.zip>

The zip-file contains 4 executable files: mudraw.exe, mupdf.exe, mupdf-v8.exe und mutool.exe.

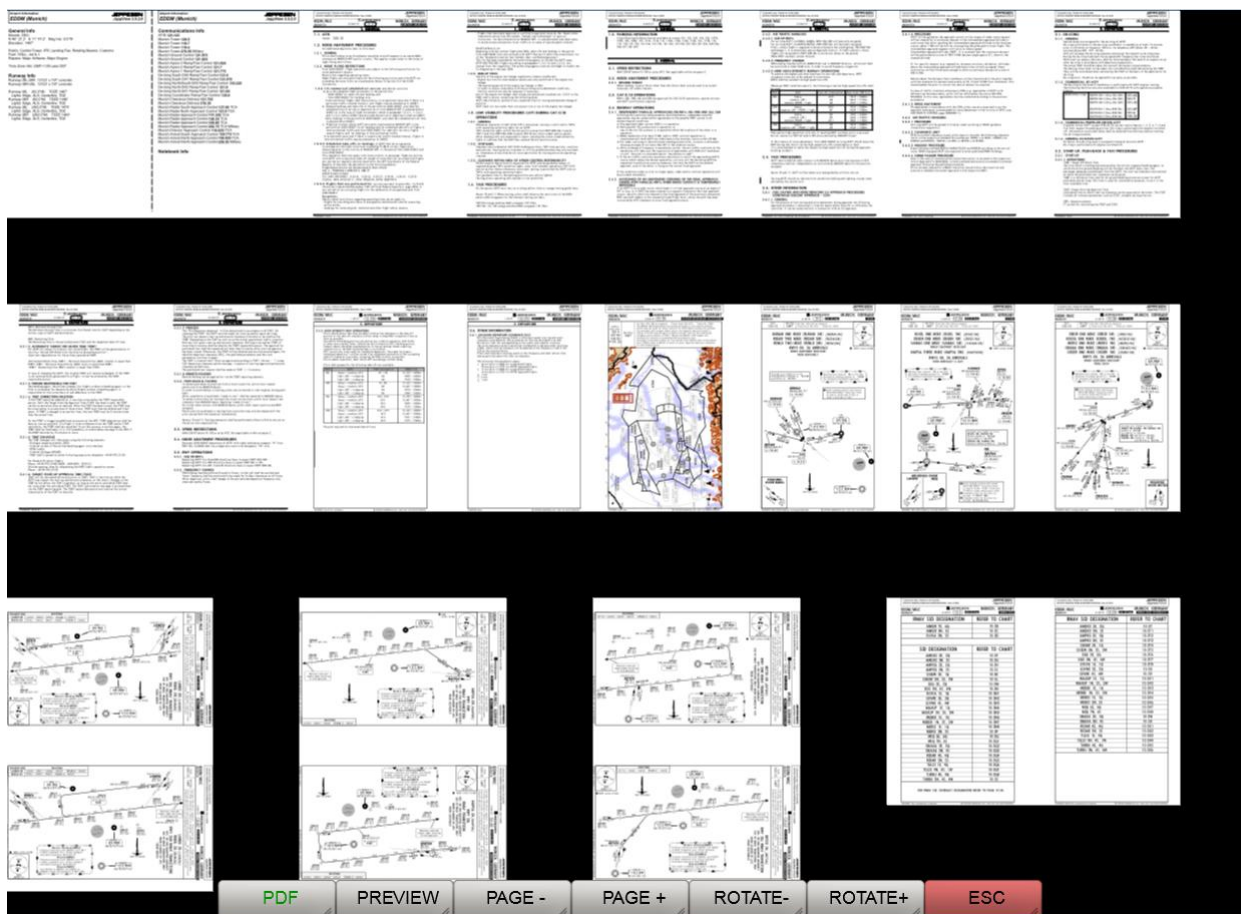
To display PDF files within FreeAirMap the files mudraw.exe and mutool.exe are required. Both files must be copied to theFreeAirMap\System folder of the FreeAirMap installation.

FreeAirMap will also support the older 1.1 version of mupdf. The older version does not contain the mutool.exe. Instead the file mubusy.exe from the 1.1 version must be copied to the FreeAirMap\System folder.

If the files mudraw.exe and mutool.exe or mudraw.exe and mubusy.exe have been copied to the FreeAirMap\System folder PDF files can be displayed within FreeAirMap. Activation of the Softkey "PDF" opens the file dialog:



If a selected PDF file consist of only 1 page the page will be displayed immediately. If the PDF file contains more than 1 page then the pages will be converted to a preview version and the preview of the pages where shown:



A page can be selected for display by clicking on the preview page. The softkeys of the PDF administration have the following function:



PDF: Activation of this softkey opens the file selection dialog.

PREVIEW: In preview mode this key has the same function as the ESC-softkey: the preview will be closed and the previous mode and softkeys will be displayed. In the PDF view mode the activation of this key will show the preview again.

PAGE-: If more than 1 page exist activation of this key will go to the previous page (within the document or within the preview).

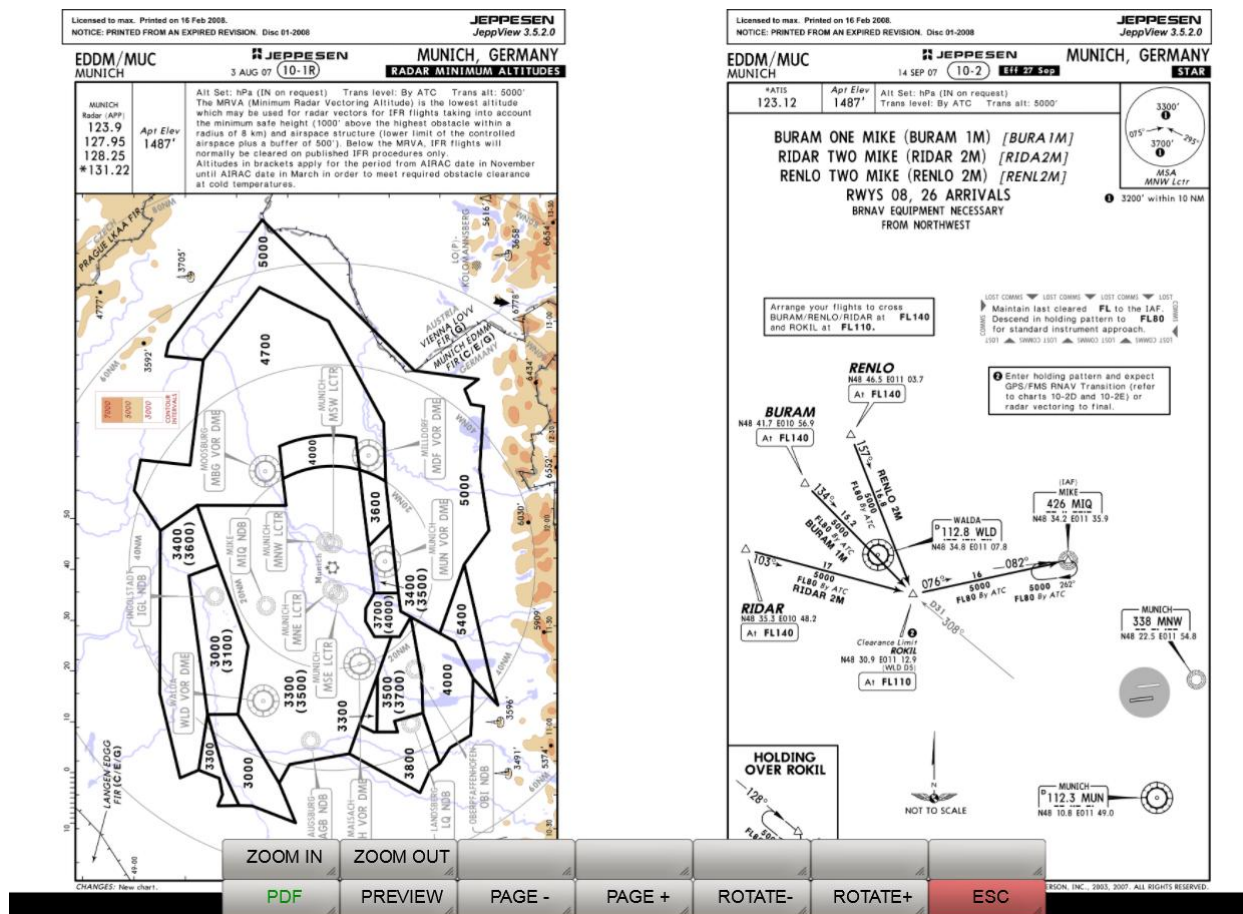
PAGE+: If more than 1 page exist activation of this key will go to the next page (within the document or within the preview).

ROTATE-: In preview mode this key is without function. In PDF view mode this key will rotate the actual page counter clockwise.

ROTATE+: In preview mode this key is without function. In PDF view mode this key will rotate the actual page clockwise.

ESC: Activation of this key displays the previous softkeys.

After selection of a page in preview mode the page will be displayed in view mode:



The page can be resized or rotated and be dragged with the mouse. In view mode additional softkeys will be shown.



ZOOM IN: Encreases the chart.

ZOOM OUT: Decreases the chart.:

PDF: Opens the file selection dialog..

PREVIEW: Shows the preview mode.

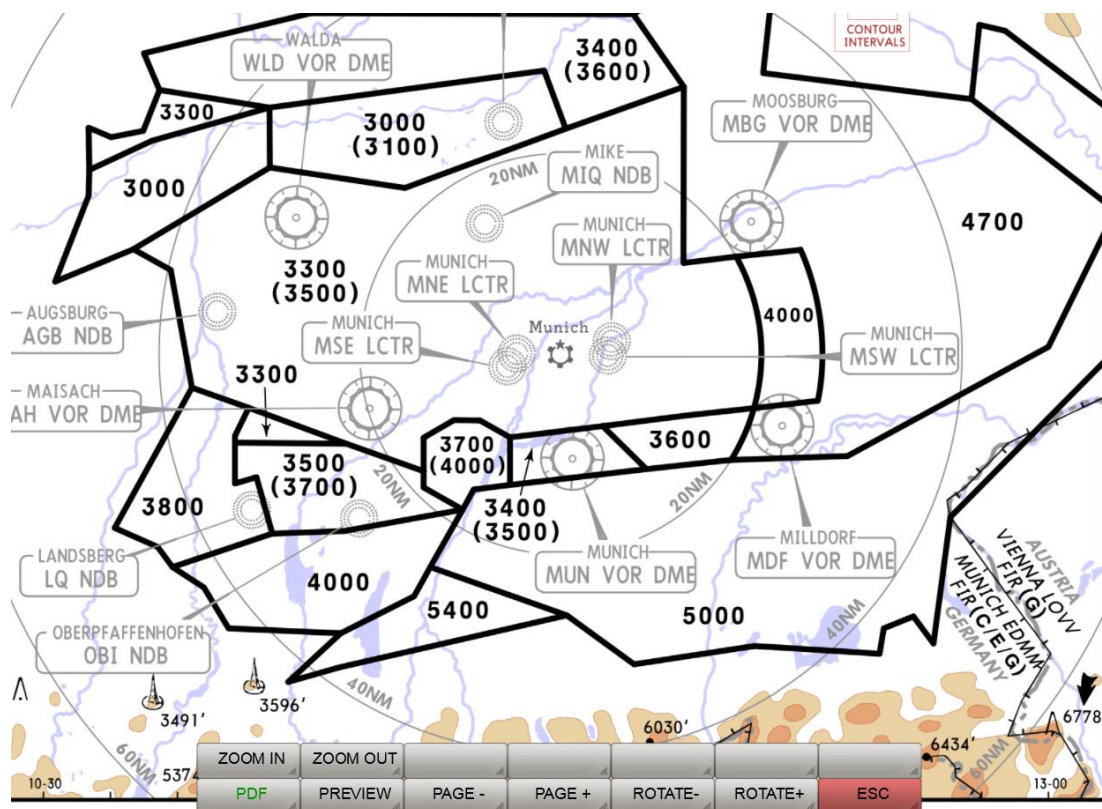
PAGE-: -: If more than 1 page exist activation of this key will go to the previous page within the document.

PAGE+: If more than 1 page exist activation of this key will go to the next page within the document.

ROTATE-: In preview mode this key is without function. In PDF view mode this key will rotate the actual page counter clockwise.

ROTATE+: In preview mode this key is without function. In PDF view mode this key will rotate the actual page clockwise

ESC: Activation of this key displays the previous softkeys.



Encreased and centered PDF page.

User Maps

User maps of airports, approach-, arrival-, and departure-procedures can be used with FreeAirMap if these maps are adequate geo referenced. To adequate geo reference these maps the integrated geo reference editor of FreeAirMap can be used. All maps must be in PNG- or GIF-format. The maps must also include visible marks of latitude and longitude and the maps must be drawn to scale. This is often not the case for arrival- and/or departure maps (this can be checked if on the maps the lettering "Chart not to scale" is drawn). Also all maps must be rectified (latitude and longitude must be perpendicular to each other and the must be oriented so that north is up e.g. the longitude lines will go from bottom to top).

All "User maps" are stored in subdirectory "Airports" in the FreeAirMap install directory. The airports-subdirectory contains a hierarchical substructure. At first level subdirectories named by the ICAO designation of the corresponding airport will be found. Below this level the following subdirectories can be found:

Info	contains the airport layout
Approaches	contains ILS-, VOR- and/or NDB-approach maps
Arrivals	contains STARs
Departures	contains SIDs

When a map was geo referenced by the integrated geo reference editor each map is accompanied with a text file of the same name which contains the geo reference information. In principle this file can be provided with any text editor if the correct assignment of coordinates and pixel position is known.

FreeAirMap will be delivered with some airport and approach maps which can be used as example,

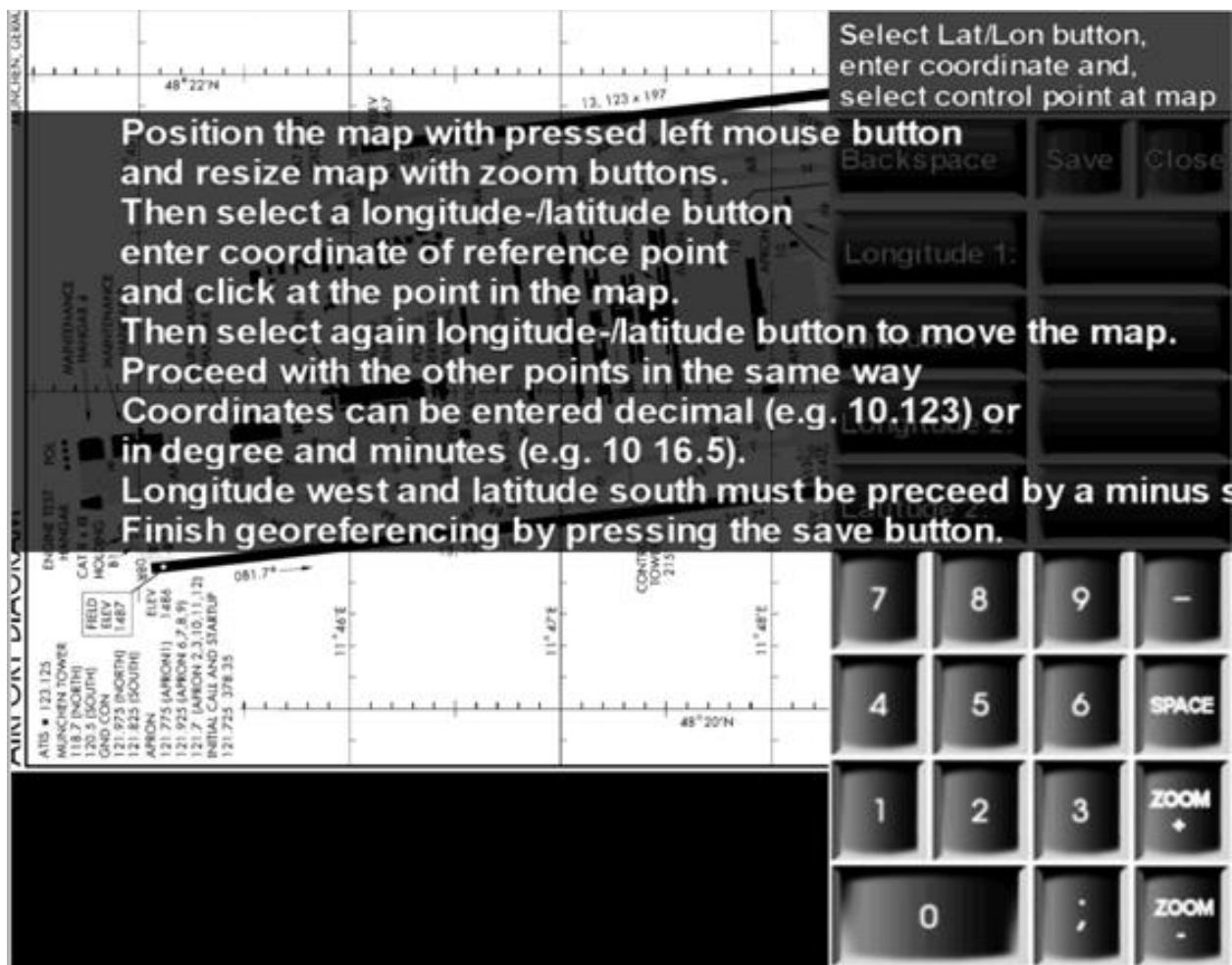
To geo reference a user map the following steps must be executed:

1. A new subdirectory with the ICAO name of the airport must be created in the Airports subdirectory.

2. In this new subdirectory another subdirectory (Info, Approaches, Arrivals, Departures) corresponding to the user map must be created.
3. The user map must be stored in this subdirectory.

If this subdirectory already exists then the new map must of cause only be stored in this subdirectory.

4. Activation of the "Map"-button at the instrument border of the G500+ to show the Map-softkeys.
5. Activation of the "Usr Map"-softkey to run the map preview mode.
6. Activation of the "Load"-softkey to run the map load dialog.
7. Navigate in the map load dialog to the map which should be geo referenced and load it.
8. Activation of the "Editor"-button at the instrument border of the G500. The user map will be loaded into the geo reference editor (see next picture).



The user instructions will be shown as overlay on the user map. The instructions can be hidden by a mouse click on the screen.

To geo reference a user map 2 pairs of pixel values and geographic coordinates in degree must be determined. To ensure that the geo referencing is accurate the selected points should be as distant as possible from one another and if possible they should be diagonal on the map. To achieve this it might be necessary to zoom and move the map. The map can be dragged with the left mouse button. The scale of the user map can be changed with the ZOOM+ and ZOOM- buttons.

In the following example the map of the Munich airport EDDM will be used (the map will be delivered with the FreeAirMap). Follow the instructions above and select the map from the EDDM\info subdirectory and run the geo reference editor.

At the right side in the following picture you will find 4 buttons with the lettering Geo.Lon 1, Geo.Lat. 1, Geo.Lon 2 und Geo.Lat 2. These buttons are used to inform the editor which coordinate value should be stored next.

Activation of one of these buttons will result in a color change of the button. This will signal the current selection state. If another button was selected before the selection of latter will be reset..

To the right of these buttons there is an entry field where the geographic coordinate value must be entered. After selection of one of the buttons described above the value of a geographic coordinate can be entered via the displayed numerical keyboard..

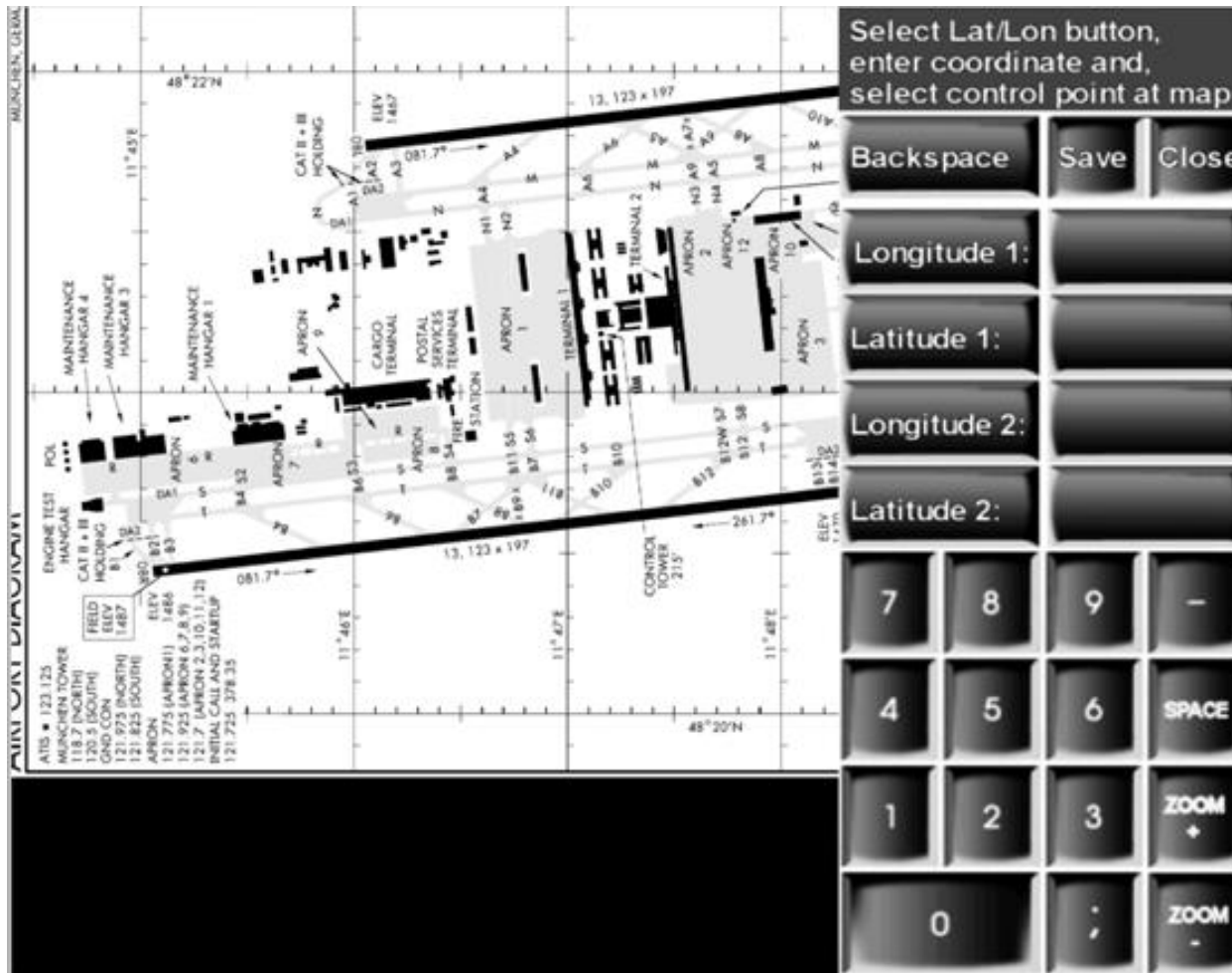
Example: If the airport map of EDDM is dragged back and forth within the editor then one will see that the following coordinate lines can be used for geo referencing the longitude: 11° 45'E, 11° 46'E, 11° 47'E, 11° 48'E und 11° 49'E. For latitude the geographic coordinate lines at 48° 22'N, 48° 21'N und 48° 20'N can be used. To achieve a maximum of accuracy one should use the following geographic coordinates for geo referencing:

11° 45'E 48° 22'N, 11° 49'E 48° 22'N, 11° 45'E 48° 20'N und 11° 49'E 48° 20'N

First the map will be dragged to the position the point 11° 45'E 48° 22'N. If necessary the map should be zoomed so that an accurate mouse click at this point is possible. Then the Geo.Long1 must be selected. This button will be highlighted. Then the numerical value of the geographic longitude must be entered via the displayed numeric keyboard. In this case 11 45.

Between 11 and 45 there must be a space (use the "Space"-button of the displayed numeric keyboard). Then click with the left mouse button on the map at the selected coordinate point or the selected longitude line to assign the pixel value to the entered geographic coordinate value. After this action a short red vertical stroke will be displayed at the selected position. If this stroke is not at the desired position you can repeat clicking with the left mouse button until you are satisfied with your selection. The number field (11 45) is now also highlighted to signal that the pixel value and the geographic longitude value are now assigned.

To determine the geographic latitude of the selected point you must first activate the button Geo.Lat 1. This button will then be highlighted and the button Geo.Lon 1 is no longer highlighted. Now you must enter to the right of the highlighted button the numeric value of the geographic latitude. In this case 48 22



Geo-Reference Editor with displayed numerical keyboard

Then again the corresponding point in the user map must be clicked with the left mouse button. Now a red horizontal stroke will be displayed in the map at the clicked position.

When the first point has been assigned normally the map must be moved to determine the next coordinate point. Therefore the selection of the button must be reset. This can be done by clicking on the currently selected button, in this case the button Geo.Lat1. Without this de-selection every mouse click would be interpreted as a new coordinate assignment..

The 2. point will be determined in the same way:

- Selection of button Geo.Lon2
- Entry of the numeric geographic longitude 11 49
- Mouse click on the map at the corresponding position: a red vertical stroke will be displayed
- Selection of button Geo.Lat2
- Entry of the numeric geographic latitude 48 20
- Mouse click on the map at the corresponding position: a red horizontal stroke will be displayed
- Storing of the coordinate assignment by activation of the button "Save"

Now the geo referencing of the user map is complete.

The following should be noted:

Geographic longitudes east of Greenwich will be entered as positive numbers (see this example)

Geographic longitudes west of Greenwich will be entered with a minus sign (e.g. -120 33 for 120° 33' W)

Geographic latitudes north of the equator will be entered as positive numbers (see this example)

Geographic latitudes south of the equator will be entered with a minus sign (e.g. -45 22 for 45° 22'S)

If coordinates are entered in degree and minutes the entries of degree and minutes must be separated by a space (see this example

If coordinates are entered as decimal degree the entries must be done with a decimal point as separator (e.g. 10° 12' E will be entered as 10.2).

Keyboard Operation

Nearly all functions of FreeAirMap can be triggered by combination of 2 keys. The left mouse button can be simulated by pressing the **Shift-** or **Ctrl-**key. But it is not sufficient to press the Shift or Ctrl-key to simulate the left mouse button. A second key must be pressed simultaneously to define the button at the FreeAirMap instrument which should be activated.

In the following the combinations of keys and there function are described.

Keycodes for the operation of the softkeys

Lower softkey row from left to right:

shift + 1	Softkey 1
shift + 2	Softkey 2
shift + 3	Softkey 3
shift + 4	Softkey 4
shift + 5	Softkey 5
shift + 6	Softkey 6
shift + 7	Softkey 7

Upper softkey row from left to right:

Strg + 1	Softkey 1
Strg + 2	Softkey 2
Strg + 3	Softkey 3
Strg + 4	Softkey 4
Strg + 5	Softkey 5
Strg + 6	Softkey 6
Strg + 7	Softkey 7

The keyboard mapping will be stored in theFreeAirMap.ini file and can be changed if necessary. To change the mapping the key code on the right side must be substituted by another key e.g. if the key 1 which will trigger the Softkey 1 should be substituted by the key "a" the corresponding entry must be changed to: 1 = a

The default mapping is as follows:

[Keyboard Mapping]

1=1

2=2

3=3

4=4

5=5

6=6

7=7

Antivirus programs and Firewalls

FreeAirMap uses data from the internet. Therefore http/https requests will be sent into the internet at runtime. Some Antivirus programs and/or firewalls block http requests. If you use an Antivirus program and or firewall you probably must reconfigure your Antivirus software and/or firewall so that http requests of the program FreeAirMap.exe will not be blocked. In the following an incomplete list of Antivirus programs has been listed which have been tested for compatibility with FreeAirMap.exe. No incompatibilities have been found (2018).

AVG

Avast

Avira

BitDefender

G Data

Kaspersky

Norton Internet Security

Trend Micro

Zone Alarm

Note

Information on new maps, updates, new documentation, downloads, and news on GEMINI FreeAirMap can be found at the GEMINI website:

<http://geminisoftware.de>

OSM-Data: Open Database License / "© OpenStreetMap contributors".

www.openstreetmap.org/copyright

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FW1Fontwrapper by Erik Rufelt

Rainviewer (Lucky Apps)

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