

Add-on for Microsoft

Flight Simulator

X

and FS2004!

FlightSim
Commander

9



Manual



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Developed by: Sascha Felix und Volker Heine
Manual: Sascha Felix, Volker Heine, Günter Zehnel
Installation: Andreas Mügge

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Flughafen Paderborn/Lippstadt
D-33142 Büren, Germany

Tel: +49 (0) 29 55 / 76 03-10
Fax: +49 (0) 29 55 / 76 03-33

E-Mail: info@aerosoft.de
Internet: www.aerosoft.de
www.aerosoft.com



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FlightSim Commander 9

Manual

Add-on for

**Microsoft Flight Simulator X
and Flight Simulator 2004**

Content

Introduction	8
Hardware and software requirements	10
Installation	11
Getting started	12
Database Manager	13
Updating airport files	15
Map Window	21
Navigating around the map	23
Mouse position	23
Moving around the map	23
Compass	23
Rubber band selection	24
Information label	24
Aircraft (always) on Map	25
Always on Top	26
Zoom	26
Buttons	28
Display buttons	28
Function buttons	29
Intersections and airspaces	30
Intersections and fixes	30
Airspaces	30
AI traffic and TCAS	31
Tools	32
Select parking & taxiways	32
Runway approach path	33
Measuring distance and course	34
Finding a map object	34
Transferring frequencies to Flight Simulator	35
Airport Information	36



Flight planning.....	37
Basic techniques	38
A simple flight plan: selecting departure and arrival airports.....	38
Adding waypoints to a flight plan.....	40
Selecting waypoints manually	42
AFIL (air filed) and ZZZZ flight plans	44
SIDs, STARs and transitions	47
Inserting SIDs, STARs, and transitions.....	47
A further comment on SIDs and STARs	50
Custom waypoints	51
Selecting custom waypoints.....	51
Custom waypoints with precise location	52
Editing the flight plan table	55
Deleting an old flight plan and creating a new one	57
Printing flight plans	57
Advanced techniques.....	58
A sample flight plan from EDDH to ESSA	58
A mixed airway and VOR-to-VOR flight plan	60
A word of caution	61
Alternate airports.....	62
Creating a flight plan from an airway route.....	63
A closer look at the flight plan table.....	65
Saving and loading flight plans	69
Route segments.....	71
User Waypoints	74
Adding user waypoints	75
Deleting user waypoints	76
Editing user waypoints.....	76
User objects.....	77
Logbook.....	78
Aircraft Window.....	79
Editing aircraft parameters.....	79
Adding new aircraft.....	80

Deleting existing aircraft	80
Aircraft parameters	80
Fuel Window	81
Approach Window	82
GPS and moving map	84
GPS Window	84
The General Page	85
The Waypoint Page	85
Weather Page	86
The Arrival Page	88
The ILS Page	89
The Runway Page	89
Switching waypoints manually	90
Operating modes	91
AutoHeading mode	91
GoTo mode	91
Transmitting frequencies to Flight Simulator	91
Moving Map	91
Distance arc	92
Great Circle navigation	94
Holding Window	95
Blackbox and flight analysis	98
Track and altitude	98
Flight recording and analysis	99
Saving flight recordings for GoogleEarth®	100
VFR flights	102
Checking control zones	102
Violating control zones	103
Sunrise and sunset	104



NATracks and PACOTs	105
Weather	108
IVAO and VATSIM flights	109
Fellow pilots' aircraft	112
A note on VATSIM and IVAO airspaces	112
Information on pilots and controllers.....	114
Connecting to the IVAO Teamspeak Server.....	117
Online friends	118
Options Window	119
Colors	119
Color Themes	120
Display	121
Flight	122
Flight Plan	124
Online.....	126
Hotkeys	127
Downloads.....	128
Appendix	129
Loading databases for FS2004 or FSX.....	129
Directly connecting to Flight Simulator.....	130
Multiplayer mode and online flights.....	131
Appendix Network	132
Establishing a network connection with Peter Dowson's WideFS (WideServer+WideClient).....	132
Step 1: Setting up the server.....	133
Step 2: Setting up the client	136
Checking the result in FlightSim Commander.....	138
Non-standard locations of scenery files	139

Introduction

Welcome to FlightSim Commander 9, a flight planner, navigator, and scenery viewer for both Microsoft Flight Simulator 2004 and Flight Simulator X.

FlightSim Commander allows you to:

create flight plans automatically, manually, or both for any section of your route

- create flight plans along low altitude and high altitude airways
- create a database of your own custom waypoints
- insert Standard Instrument Departures (SIDs) and Standard Arrival Routes (STARs), and transitions
- create and reload route segments for departure, arrival, and enroute
- display, update and choose for flight planning North Atlantic Tracks (NATracks) as well as Pacific Organized Tracks (PACOTs)
- look at airport layouts including runways, taxiways, and aprons
- show a Jeppesen-style vertical and horizontal approach chart for runways of your destination airport
- display available missed approaches at your destination airport
- calculate fuel consumption and alternate airport
- look at a map displaying VORs, NDBs, ILS'es, airports, runways, MSA (minimum safe altitude), 12 types of airspace as well as coastlines and national boundaries
- use a GPS display for easy navigation
- automatically transmit ILS frequencies to Flight Simulator
- set an autopilot for following the filed route or to go directly to a chosen geographic location
- choose fly-by or fly-over for passing waypoints



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- track your flight on a real-time Moving Map display
 - record flight data and inspect them afterwards
 - display a recorded flight in GoogleEarth©
 - define and fly holding patterns
 - display both airborne and ground AI traffic
 - get TCAS warnings for approaching AI aircraft
 - keep a logbook in which major flight data on aircraft, fuel, and route are automatically saved
 - make a world-wide search to easily find any navaid, waypoint, airport, or airway
 - check violations of control zones during VFR flights
 - display a flight analysis including altitude and control zone violation
 - display active controllers and control areas for VATSIM and IVAO online pilots
 - display weather from thousands of world-wide weather stations including sunrise and sunset times

This document offers an exhaustive description of all features and functions of FlightSim Commander. Beginners and first-time users may also want to check the Tutorial which specifies the major features of the program by way of a sample flight and can be downloaded from FlightSim Commander's website (www.fscommander.com).

Hardware and software requirements

FlightSim Commander can be installed on any computer on which Microsoft Flight Simulator 2004 or Flight Simulator X runs successfully. We recommend at least a Pentium 2.0 GHz processor with 512MB memory.

The computer should have Windows XP (SP3), VISTA, Windows 7, or higher installed. You cannot run FlightSim Commander on Windows 98. Make sure that the font size on your system is set to normal: *control panel -> display -> appearance -> font size = normal* and *control panel -> display -> settings -> advanced -> general -> dpi settings = normal size (96dpi)*.

If you have the shareware version of FlightSim Commander, you also need a version of Peter Dowson's latest fsuipc.dll for connecting to FS 2004 and fsuipc4 for connection with FSX. For details check Peter's homepage at www.schiratti.com. If you own the boxed version distributed by Aerosoft, fsuipc is included.

Users who have chosen a 12-hour format for Date and Time will notice that the Sunset/Sunrise feature does not work properly at the dateline region.

This feature must be set to a 24-hour format. Proceed as follows:

1. Control Panel
2. Region and Language
3. Formats
4. Button Additional settings..
5. Time
6. Under *Time formats* make sure that for *Short time* and *Long time* the letters indicating hours are in capital letters, i.e. HH:mm and HH:mm:ss. See also What the notations mean on the same page.



Installation

You have to be logged in with administrator rights before you start the installation. Insert the CD into your CD drive. The installation program will start automatically. Follow the instructions on the screen. After the program has been successfully installed, you can start clicking on appropriate icon.

Important: Before you run FlightSim Commander for the first time, you **MUST** run the Database Manager (FSCDbManager.exe) to create the necessary databases from your version of Flight Simulator. Please read the section on the Database Manager for further details.

Important: We strongly recommend **NOT** to install FlightSim Commander under *C:\Program Files*, because this may lead to a number of very unpleasant problems, especially under Vista and Windows 7. If your computer has more than one drive, we recommend to install FlightSim Commander on a drive other than C:\

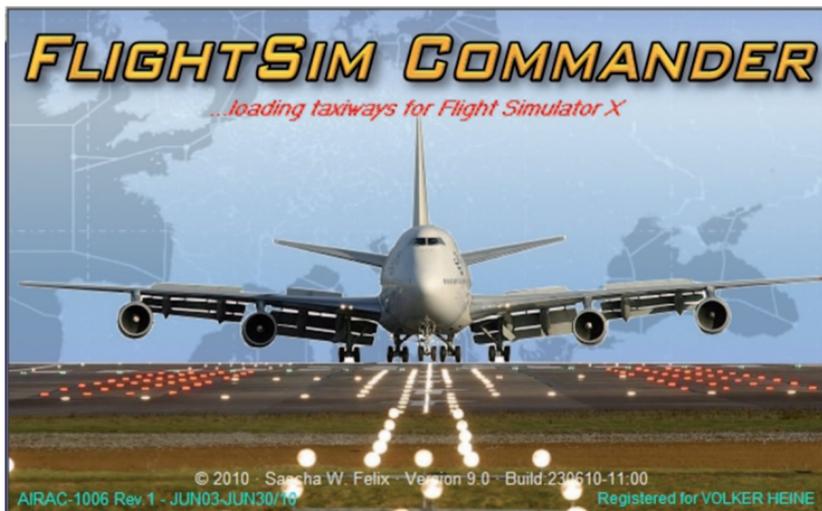
Important: You should bear in mind that FlightSim Commander is a stand-alone program which will run at the same time as Flight Simulator when the two are connected. Therefore you need Windows' multitasking capability for simultaneously running more than one program. As a consequence, you cannot run Flight Simulator in full-screen mode (Alt-Enter) on a single monitor if you want Flight Simulator and FlightSim Commander to be connected to each other.

Important: If you employ a two-computer system with Flight Simulator running on one computer and FlightSim Commander on the other, you must use Peter Dowson's WideFS module (see Peter's homepage at www.schiratti.com for details). You must furthermore make sure that your network is set up properly. That is, your FlightSim Commander computer must have access to the Flight Simulator computer, in particular to the drive and directory where Flight Simulator is installed and also to the drive and directory where Flight Simulator saves its flight plans (standardly embedded under *c:\.my documents\Flight Simulator Files*). Note furthermore that FlightSim Commander must be able to both read and write on those drives and directories. Please also read the chapter on updating the databases on a two-computer system in the chapter on the Database Manager. If you are not too familiar with the operation of networks, you might want to check the chapter Appendix Network at the end of this document.

Getting started

Run the Database Manager (FSCDBManager.exe) first to create the necessary databases. For details, you should check the section on the Database Manager and read it carefully.

When you start FlightSim Commander afterwards, the following introductory window will appear:



At the bottom of the picture you will find the version and build number next to the copyright notice. The above screenshot comes from version 9.0. The currently loaded AIRAC cycle is dated FEB12-MAR 2009.

Notice that the data FlightSim Commander is using are stored in databases which will be automatically loaded when the program is started. The database currently being loaded is indicated in red letters at the top of the window.

Once all databases have been loaded, the picture will disappear and a new window will prompt you to select an airport at which you will fly.

Important: If you are using FlightSim Commander for both FS 2004 and FSX alternatively, the corresponding databases will be loaded depending on the option set in the *Options Window*.



If Flight Simulator is already running at the time you start FlightSim Commander, you can also make a direct connection so that the map in FlightSim Commander will show the airport or area where your aircraft is located (for details see *Directly connecting to Flight Simulator*)

Database Manager

The Database Manager is a separate program which allows you to create and update the databases used by FlightSim Commander.

You must run the Database Manager (FSCDbManager.exe), before you use FlightSim Commander for the first time.

When you open the Database Manager the main window will look like in the following screenshot:

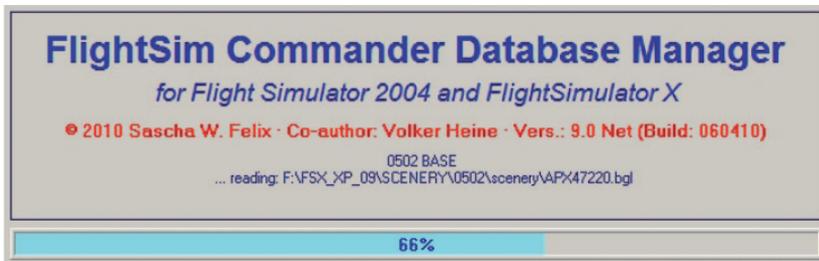


Note that FlightSim Commander uses data which are partly extracted directly from Flight Simulator files and partly from real-world databases. The data read from Flight Simulator directly are airports, runways, ILS'es, markers, taxiways, parking positions, and aprons.

All other data are provided by Navigraph (<http://www2.navigraph.com/www/fmsdata.asp>) and concern VORs, NDBs, intersections, GPS fixes, airways, SIDs and STARs, Transitions, airspaces and minimum safe altitudes. Note that Navigraph provides monthly updates for these databases. The collection of currently valid data is called AIRAC Cycle followed by a date. The AIRAC cycle which you use appears at the right bottom corner of the introduction screen when the program is started.

After installation all databases from Navigraph are already present in the \Database directory, but the databases created from Flight Simulator directly (namely airport.fsc, taxi.fsc, poly.fsc as well as regions.fsc, country.fsc, state.fsc, and city.fsc) are still missing, since they depend on your specific configuration of Flight Simulator. Therefore you have to run the Database Manager first to create these files.

In principle, you will run the Database Manager only once to create the necessary databases; however, *if you have made any modifications to your airports with programs such as AFCAD, or if you have installed new airport sceneries, you should update the relevant FlightSim Commander file and run the Database Manager again.*





Updating airport files

Since FlightSim Commander can be used with both Flight Simulator 2004 and Flight Simulator X, first of all you have to decide for which version of Flight Simulator database files are to be updated.

Note that if you use both FS 2004 and FSX, you have to run the Database Manager twice, once for each version. You **cannot** update for both versions simultaneously. The order in which you update the two versions of Flight Simulator is irrelevant.

Running the Database Manager will produce a log file which provides a detailed record and analysis of all major data transfers and events that happen during the installation process. If something goes wrong with the Database Manager and you need help, please send us this log file (*FSCDBM_FS09.log* and/or *FSCDBM_FS10.log* respectively).

In order to create the necessary database files FlightSim Commander needs exactly two types of information:

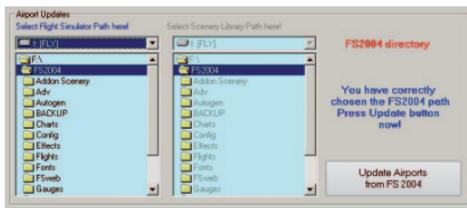
7. drive and directory where your Flight Simulator is installed
8. drive and directory of your Scenery Library file (*scenery.cfg*)

For each of these two paths there is a separate drive/directory selection box in the Database Manager labeled *Select Flight Simulator Path here* and *Select Scenery Library Path here* respectively. In most cases all you need to do is to select the Flight Simulator path. Everything else occurs automatically.

Note, however, that Flight Simulator 2004 and Flight Simulator X behave somewhat differently with respect to the structure of the Scenery Library. Therefore in the following sections we will discuss the various configurations separately.

Updating airports for FS 2004 on a single computer

If you wish to update airports for FS 2004, all you need to do is to select the drive and directory where FS 2004 is installed in the left selection box.



In the screenshot above FS 2004 is located on drive F:\ in the directory FS2004. Notice that the Scenery Library selection boxes on the right are automatically set to the same path and are grayed out, simply because you don't have to select anything in those boxes.

At the same time the button shows Update Airports from FS2004 and can now be pressed to begin the updating process.

Updating airports for FS 2004 in a network

If you run FlightSim Commander and Flight Simulator on two different computers set up in a network and connected with Peter Dowson's WideFS package, updating airports for FS 2004 is just as easy.

Simply select the network drive and directory where FS 2004 is installed in the left selection boxes. Everything else will be exactly as in a one-computer setup.



This screenshot is almost identical to the one in the preceding section except that the FS 2004 folder is discernibly on a network drive.

VERY IMPORTANT: Please remember that the FlightSim Commander computer must have access to the proper Flight Simulator drive and



directory on the computer where Flight Simulator is installed. In other words, your network must be properly set up and the necessary drives and directories must be correctly mounted.

If you are not very much familiar with networks and their internal structure, please read the Appendix at the end of this document.

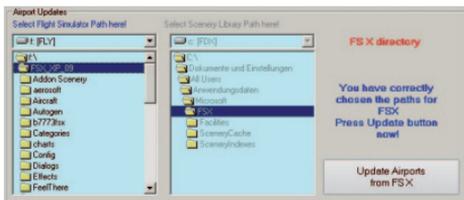
Updating airports for FSX on a single computer

Updating airports for Flight Simulator X is a bit more complex for reasons which unfortunately you need to understand.

In previous versions of Flight Simulator (including Flight Simulator 2004) the Scenery Library file scenery.cfg is located in the same directory in which Flight Simulator itself is installed.

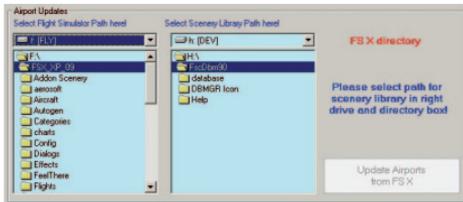
For reasons that even defy reasonable speculation this is no longer the case for FSX. Instead, Microsoft has decided to place the Scenery Library file deep down into the Windows System drive which in most cases will be the C:\ drive. By default the Scenery Library file is placed in C:\Documents and Settings\All Users\Application Data\Microsoft\FSX\.

You will first select the Flight Simulator X path in the left selection box. At this point the Database Manager will automatically set the Scenery Library path in the right selection box.



In the screenshot above you see in the left selection box that FSX has been installed in F:\FSX\. The right selection box has been automatically set to the Scenery Library path. There is nothing else you need to do; just press the Update button to launch the updating process.

If for some reason the default Scenery Library path does not exist (a few such cases have been reported), the two selection boxes will look like this:



As before the left selection box shows the path for FSX. The right selection box has been enabled and you are prompted to select path for scenery library in right drive and directory box. At the same time the Update button is still disabled because the Database Manager doesn't know yet where to find your Scenery Library file scenery.cfg.

Now you need to search manually for the correct Scenery Library path in the right selection box until the Update button becomes enabled.

Actually this latter case should almost never occur. However, some users have reported that in their system the folder Microsoft in the default Scenery Library path had a slightly different name, usually the word Microsoft followed by a series of numbers and/or letters. The possibility of selecting the Scenery Library path manually is thus a kind of last resort measure.



Updating airports for FSX in a network

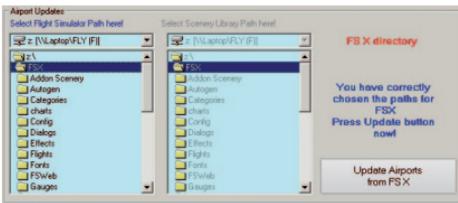
Updating airports for Flight Simulator X in a network is appallingly complex, again for some whimsical decisions made by Microsoft.

As described in the preceding section the Scenery Library file for FSX is not only deeply embedded in the C:\ drive; what is still worse, it is inside a partially hidden folder tree (Application Data) with extremely limited access rights. In plain language this means that there is absolutely no way of accessing the Scenery Library file from outside, i.e. from another computer in a network.

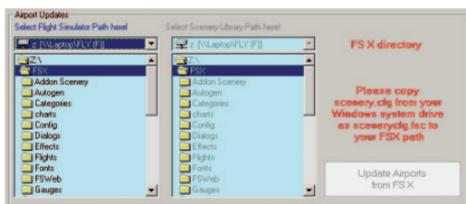
In order to maintain the possibility of using FlightSim Commander in a network with FSX, we decided on the following work-around.

The file scenery.cfg must be copied from the Scenery Library folder C:\...Microsoft\F SX\ into the directory in which FSX has been installed. Since we do not want to overwrite anything in the FSX folder, we copy the file scenery.cfg (the one in the Scenery Library folder) renamed as scenerycfg.fsc into the FSX folder.

In other words, if the Database Manager's left selection box is set to a FSX folder in a network, it searches this folder for the presence of the file scenerycfg.fsc. If that file is present, the button for the updating process is enabled as in the screenshot below.

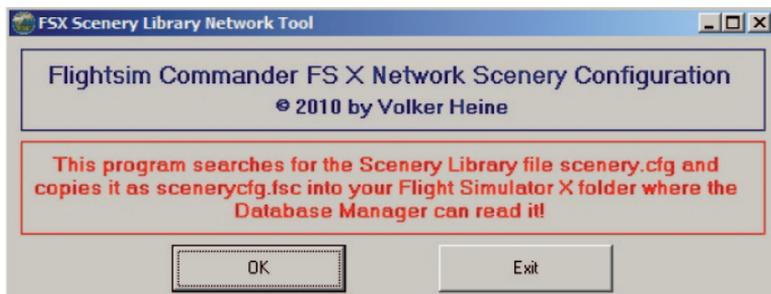


If the file scenerycfg.fsc is not found in the FSX folder, the following configuration will appear prompting you to copy the file as described above.



If you are familiar with copying files, you can copy the file manually as described above. However, we have added a little Scenery Library Network Tool (FSCFSXCFG.exe) which performs the copying process for you.

Note that this program MUST be placed in your FSX folder and must be started from there.



Simply press the OK button. You will be instructed when the copying process has been successfully completed.

VERY IMPORTANT: Please remember that the FlightSim Commander computer must have access to the proper Flight Simulator drive and directory on the computer where Flight Simulator is installed. In other words, your network must be properly set up and the necessary drives and directories must be correctly mounted.

If you are not very much familiar with networks and their internal structure, please read the Appendix at the end of this document.



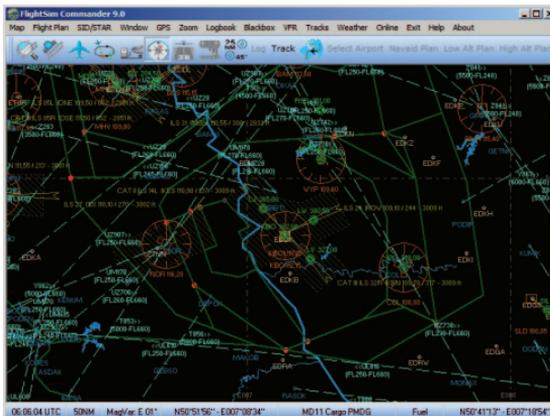
Map Window

The Map Window displays flight-relevant information on a geographic map. Before you reach the Map Window, you will have to select an airport which will then be located in the center of the map. If you have made a flight plan, the departure airport will appear in the center.

The map displays:

VORs	airports	routes
NDBs	taxiways	coastlines
ILS'es	aprons	state boundaries
intersections	gates & parking positions	major rivers & lakes
GPS fixes	markers	airspace
jet airways	control zones	minimum safe altitudes
victor airways	AI traffic	

The colors of the displayed objects can be changed and set up in the Options Window.



Clock | Chart | Magnetic Var | Latitude/Longitude | Aircraft | FuelMouse Position

- Clock:** by clicking on this label you can toggle between UTC and local time.
- Chart:** if you click on this label with the left mouse button, you zoom in, with the right mouse button you zoom out.
- Latitude/Longitude:** by clicking on this label you can toggle between standard and decimal notation.
- Flugzeug:** clicking with the left mouse button on this label opens the Aircraft Window; a right mouse click toggles the Aircraft on Map option (see also Navigating around the map).
- Mausposition:** this label has three functions: standardly the latitude/longitude position of the mouse is displayed. Clicking on it once changes the display to inbound course and distance, clicking again changes the display to outbound course and distance. The two latter displays relate to the position of your own aircraft or to the center of the map depending on whether or not you are connected to Flight Simulator.

Taxiways and airport ramps are also displayed, but are only visible if the chart size is zoomed to 10NM or less. Taxiway designators appear when you zoom down to 2 miles or less.

If you zoom in to 10NM or less taxiway identifiers and runway identifiers are displayed next to the respective runway thresholds.

You can print the map by choosing *Map -> Print Map* on the menu bar.



Navigating around the map

Mouse position

The rightmost label of the status bar shows the mouse position on the map in terms of latitude and longitude. If you click on that label the display changes to distance and course relative to the center of the map or, if you are connected to Flight Simulator, to the position of your own aircraft. This way you can quickly measure distances and headings by simply moving the mouse.

Moving around the map

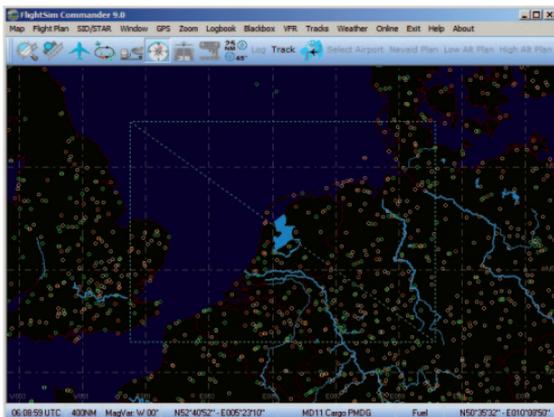
You can move around the map by clicking with the mouse on any geographic point which will then become the center of the map. Alternatively, you can either choose Go to airport from the Window menu or press the button Go to airport, if you wish to move to the location of a specific airport.

Compass

When you press the button with the compass rose, a compass will appear on the map. If you are connected with Flight Simulator, the compass will also indicate the heading of your aircraft.

Rubber band selection

To zoom in on a particular area of the map, you can use the rubber band function. While you hold the left mouse button pressed, use the mouse to draw a rectangle around an area of your choice. As you release the mouse button again, the map will zoom in on the area selected.



Information label

If you wish to obtain more detailed information on a particular navaid, airport, intersection, etc. move the mouse to the corresponding position and let it stay there for a second. A label will open displaying information on the object selected. If more than one object is located at a particular position, all objects will be named.

Airspaces have a fat dot in one of their corners. To identify a particular airspace and to obtain detailed information on it, hold the mouse pointer over this dot.

Always on Top

When you are running FlightSim Commander connected with Flight Simulator, you are running, in fact, two programs at a time. Standardly, only the program that has focus will be visible on the screen, while the other is hidden behind the window with focus.

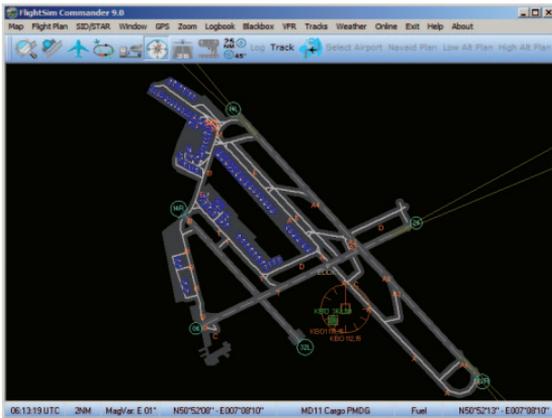
As a consequence, as Flight Simulator receives focus, the FlightSim Commander window will no longer be visible, because it hides behind the Flight Simulator window and can be called back only by pressing its representation on the task bar.

If you want to have the FlightSim Commander window always visible, i.e. on top of the Flight Simulator window, choose *Map -> Always on top* from the menu bar. You will probably use this option, if you are running both programs on the same computer and on one and the same monitor.

Important: You should also uncheck the option *pause on task switch* in Flight Simulator's Option window which by default is checked. If this option is on, Flight Simulator will pause each and every time the focus is on FlightSim Commander. Obviously, this can be very annoying.

Zoom

You can zoom and unzoom the map by pressing Page↓ and Page↑ or + and - on your keyboard. For larger steps choose a value from the *Zoom* menu. As a further possibility you can left-click or right-click on the Chart status label.



Zooming and unzooming by pressing Page↓ and Page↑ or + and - is a general convention in FlightSim Commander and applies to all other graphic displays of the program as well.

Alternatively, you can press the buttons with the magnifying glasses on the button bar on the left-hand side of the map. Using these buttons is preferable when you are connected to Flight Simulator because the focus is immediately returned to FS (for details see section GPS and Moving Map).

The *Autozoom* option in the *Zoom* Menu will automatically zoom down to 3 miles when you are on the ground and back to 50 miles when you are airborne. This may be helpful after departure and landing when you are busy controlling the aircraft. *Autozoom* is automatically canceled when you zoom in or out manually.

Buttons

Display buttons

If you move the mouse to the left side of the map you see a series of buttons which allow you to toggle the display of the map. The buttons will disappear as soon as you move the mouse to any other area.

Green letters on the buttons indicate that the option is on, red letters that the option is off.

AP	toggles the display of Airports
VOR	toggles the display of VORs
NDB	toggles the display of NDBs
ILS	toggles the display of ILS'es
Int	toggles the display of intersections
Fix	toggles the display of GPS fixes
UWP	toggles the display of user waypoints
Jet	toggles the display of high altitude (jet) airways
Vic	toggles the display of low altitude (victor) airways
ICAO	toggles the display of ICAO codes
Name	toggles the display of names
Freq	toggles the display of frequencies
Ctrz	toggles the display of control zones
Air1	toggles the display of CTA airspaces
Air2	toggles the display of FIR airspaces
MSA	toggles the display of minimum safe altitudes
Map	toggles the display of the coastline map
AI	toggles the display of AI aircraft
	zooms the map
	unzooms the map
App	shows the approach path for each runway



Function buttons

Above the map and below the menu bar you find a series of graphic buttons which allow you to either open a window or make a flight plan selection



-  opens the Airport Information Window
-  go to a specific airport
-  opens the Aircraft Window
-  opens the Holding Window
-  opens the Fuel Window
-  displays the Compass
-  opens the Approach Window
-  selects parking position and taxiways
-  activates the measuring tool for distance and course
-  opens the Flight Plan Panel

The remaining buttons with worded labels are largely self-explanatory and will be dealt with in detail in the section on flight planning techniques.

Intersections and airspaces

Intersections and fixes

Intersections can be displayed selectively. If the button *Int* is on, all intersections will be shown. If the button *Int* is off and the button *Vic* is on, then victor airways and only the intersections on these airways are shown. Similarly, if the button *Int* is off and the button *Jet* on, then jet airways and only the intersections on these airways are visible.

If a flight plan involves GPS fixes, these will also be displayed irrespective of whether or not the button *Fix* is on.

Note that we make a terminological distinction between intersections and GPS fixes. Intersections are waypoints on an airway, while GPS fixes are merely geographic locations defined in terms of latitude and longitude without having anything to do with airways.

Airspaces

FlightSim Commander can display 12 different types of airspaces which can be toggled on and off by choosing the corresponding entry in *Map* -> *Airspaces*. The display of control zones can also be toggled by pressing the button *Ctrz* in the vertical button bar. Likewise the buttons *Air1* and *Air2* toggle CTA and FIR airspaces respectively.

The airspaces that can be displayed are:

- Advisory Area (ADA)
- Air Defense Identification Zone (ADIZ)
- Air Route Traffic Control Center (ARTCC)
- Area Control Center (ACC)
- Buffer Zone (BZ)
- Control Area (CTA)
- Control Zone (CTLZ)
- Flight Information Region (FIR)
- Ocean Control Area (OCA)



-
- Radar Area
 - Terminal Control Area (TCA)
 - UpperFlight Information Region (UIR)

AI traffic and TCAS

FlightSim Commander can display both airborne and ground AI traffic while you are connected to Flight Simulator. If you zoom down to 5 NM or less both ground and airborne traffic will be displayed, otherwise only airborne traffic will show.

AI aircraft are represented as little aircraft symbols indicating the aircraft's course and an accompanying label. What this label displays can be set in the *GPS -> AllInfo menu*. For airborne traffic tail number, flight level, ground speed, and/or departure and arrival airport can be shown. For ground traffic the label may show tail number and/or destination airport.

Important: Whether the field ATC ID displays the aircraft's tail number or flight number must be set in the FSUIPC Menu of Flight Simulator and cannot be controlled inside FlightSim Commander. While you run Flight Simulator choose *Modules -> FSUIPC* from the menu bar. Choose the *Technical* card. At the bottom right corner you find *Set TCAS id string from*; make a selection. Also, make sure that the value for *Limit TCAS range* is set to 0.

AI aircraft may appear in four different colors which are by default:

green: aircraft is tuned to the same frequency as you

yellow: aircraft is not tuned to the same frequency as you

orange: with respect to your own position the aircraft is closer than 15 NM at a flight level difference of less than 1500 ft (airborne traffic only)

red: aircraft is less than 3NM from you and flying towards you (airborne traffic only).

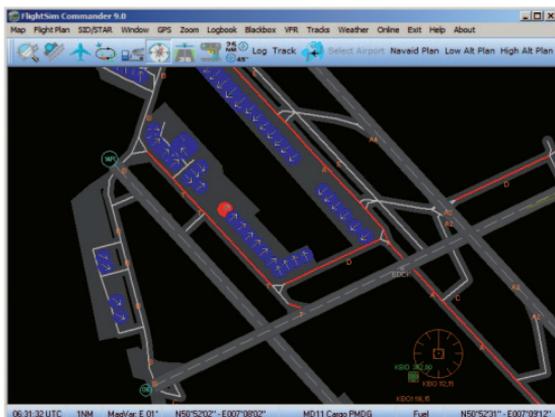
The colors can be changed in the Options Window.

If an airborne AI aircraft approaches your aircraft within less than 3 NM a TCAS warning label appears on the map accompanied by an acoustic beep. The beep can be turned on and off by choosing *GPS -> TCAS Sound*.

Tools

Select parking & taxiways

FlightSim Commander offers you the possibility of highlighting selected parking positions and taxiways in order to facilitate airport taxiing.



Choose *Windows -> Select Parking & Taxiways* or press the button with the parking aircraft. In the opening window choose the departure or destination airport at your discretion.

You can select a parking position in the left-hand list box. This position will be highlighted on the map with the color chosen in the Options Window. Only one parking position can be selected at a time.

In the right-hand list box taxiways are selected for highlighting. This feature may be useful if you are instructed by ATC to use certain



taxiways to reach your gate or the runway. Multiple selection of taxiways is possible.

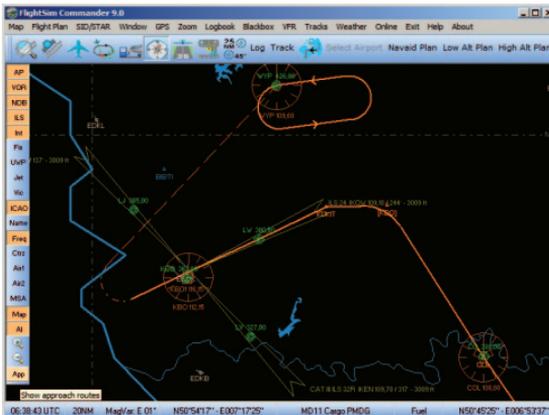
This feature is only available if you are connected to Flight Simulator.



Runway approach path

The button *App* allows you to display an approach path from the last waypoint to each of the runways of the destination airport. The picture below shows the path from VOR Cola to Rwy 24 of Cologne Airport (EDDK).

If a missed approach for that runway is available, it will also be displayed.



For each runway press *App* again. Obviously, this option is only available after you have filed a flight plan.

Note that pressing the App button standardly toggles through all runways. However, if your flight plan contains a transition, only the approach that corresponds to that transition will be displayed.

Measuring distance and course

If you click on the button to the left of the two buttons *Log* and *Track*, you will notice that the button stays pressed and thereby activates the measuring mode.

In this mode you can measure distance and course between two arbitrary points. Use the mouse and the left mouse button to draw a line between any two points. A label becomes visible indicating distance and course between the points selected.

Finding a map object

Do you know where airport UKLN or VOR TOE are located? Or would you like to know where high altitude airway Y20 is running? FlightSim Commander allows you to easily find any object on the map. Choose *Map -> Find Object* on the menu bar. Select the type of object with the option buttons on the right hand side of the window. Then type in the code and press *Enter* (or *Find*). All objects with this code will then appear in the list box. Select the object you wish to find from the list where latitude and longitude values facilitate identification of the proper object. The lower list shows more detailed information, if you click on an entry in the upper list.



If you have checked *Close window after selection*, the window will



automatically close and the object searched for will appear in red on the map. Otherwise you need to press the button *Close*. To undo the selection on the map, press Esc on your keyboard. Note that only those objects can be selected which also appear on the map; the option buttons for the other objects are grayed out.

If *Show item on map directly after selection* is checked, then the map display will jump to the selected item immediately after selection.

The two buttons *Inbounds* and *Aircraft* are special-purpose options for IVAO and VATSIM controllers. If you choose *Inbounds* and type in an airport ICAO code, all inbound flights for that airport will be listed. Similarly if you choose *Aircraft* and type in (part of) a call sign, then all aircraft whose call signs contain the string will be listed.

Transferring frequencies to Flight Simulator

This feature is obviously only available, when you are connected to Flight Simulator.

You can transfer the frequency of any VOR, NDB, or ILS displayed on the map to the corresponding instruments in Flight Simulator by clicking on the navaid with shift-left mouse button.

In the case of VORs and NDBs you should click near the center of the graphic symbol, for ILS click near the spot where the ILS hits the runway. VOR and ILS frequencies will be sent to Nav1, NDB frequencies to ADF1.

Notice that the *Frq* button on the button bar must be on so that frequencies can be seen in the label.

This feature does not work for PMDG and other FMC-equipped aircraft.

Airport Information

The *Airport Information Window* allows you to take a quick look at the layout of airports and their associated runways.



You reach the *Airport Information Window* by clicking on the button with the airport layout icon or by choosing *Window -> Airport Information* on the menu bar.

EDDK Cologne-Bonn
 NS0°51'56" - E007°09'34" Elevation:302ft / 92m - Var E 01°

Based on file: AF2_eddk.bgl

ID	Idg	Length	Width	Surface	ILS	GSlope	NDB	BGLFileName
Run 14R	13°	06101ft / 1859m	00148ft / 45m	Concrete				
Run 2L	217°	06101ft / 1859m	00148ft / 45m	Concrete				
Run 06	004°	00950ft / 2453m	00148ft / 45m	Concrete				
Run 24	244°	00950ft / 2453m	00148ft / 45m	Concrete	109.10 I/DW	03.00	300.50 LW	AF2_eddk.bgl
Run 14L	13°	12499ft / 3906m	00197ft / 60m	Asphalt	110.90 R/ES	03.00	305.00 LW	
Run 25R	217°	12499ft / 3906m	00197ft / 60m	Asphalt	109.70 R/EN	03.00	327.00 LW	AF2_eddk.bgl

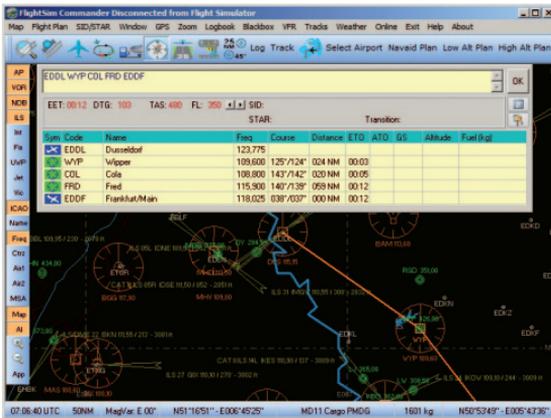
As usual, you can zoom and unzoom this display by pressing Page-↓ and Page-↑ or + and - on your keyboard.



Flight planning

FlightSim Commander offers a very sophisticated and complex flight planning system in which you can combine various types of automatic and manual planning supplemented by SIDs, STARs, transitions, individual waypoints, etc. We will first present basic flight planning methods and then proceed to discuss more advanced techniques.

Flight plans are created and displayed on the flight plan panel which opens when you press the button to the left of Select Airport. You can use this button at any time to show or hide the flight plan panel.



The flight plan panel is a separate, undockable window. Press the button with the key symbols at the right-hand side to undock and re-dock the window. When the window is undocked, you can expand its height with the mouse. This may be useful for longer flight plans, if you want to see all waypoints at the same time.

Whenever you want to discard an old flight plan and create a new one choose *Flight Plan -> New* from the menu bar. If you have already filed a flight plan, but for some reasons find the route inappropriate, you can choose *Flight Plan -> Delete Enroute Waypoints*. This will set the stage for a new flight plan, except that the departure and arrival airports are kept so that you do not have to re-enter them.

Basic techniques

Any flight plan involves the following obligatory specifications:

- **a departure airport**
- **a destination airport**
- **a route;** i.e. how you want to get from the departure to the destination airport

Since the route trivially depends on the departure and destination airports, the first step in creating any flight plan will be to select these two airports.

A simple flight plan: selecting departure and arrival airports

There are two ways of selecting the departure and arrival airports. First, you can choose the airports from the airport list:

1. press the button *Select Airport* in the button bar
2. click on the option button *Departure*
3. select the airport from the list
4. click on the option button *Destination*
5. select the airport from the list

Alternatively, you can select the airports directly on the map. Note that **the first airport selected will be interpreted as being the departure, the second as being the arrival airport.** Furthermore you can only select airports and waypoints from the map, if the flight plan panel is visible.

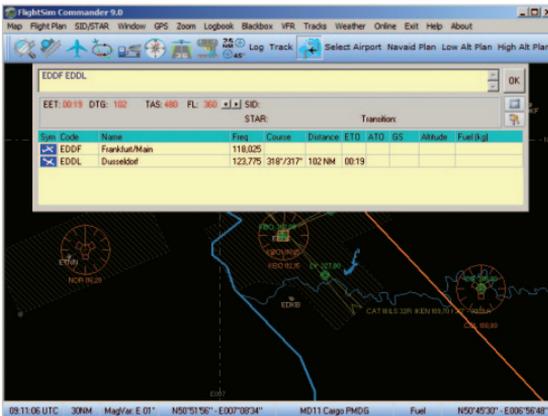
1. click with the right mouse button on the departure airport on the map. A popup menu opens with the ICAO code of the airport.
2. click with the right mouse button on the arrival airport on the map. A popup menu opens with the ICAO code of the airport



Above the airport name you see a little circle; this indicates the ARP (airport reference point) where you should click with the right mouse button.

After you have made these selections, the two airports will appear in the flight plan table. In addition, the runways and parking position of the departure airport are listed in the box on the right-hand side of the table.

Once you have selected the two airports, the flight plan panel will look something like this:



The next step is optional for reasons explained below. Click on the button with the list symbol at the right-hand side of the flight plan panel. The Waypoint Window opens. The list shows all runway and parking position of Frankfurt airport. Choose any position you like. We decided to select Gate V 92. To close the window, press the button with the list symbol again.



Important: The selection of a departure position (runway or parking) has no effect whatsoever within FlightSim Commander. However, Flight Simulator requires a departure position in its flight plan format. Therefore, if you intend to save a flight plan to be loaded again in Flight Simulator, you should use a proper departure position which determines where your aircraft is to be positioned. In all other cases you may ignore this step.

What we have achieved so far is the simplest flight plan possible. The flight starts at EDDF Gate V 92 and goes directly to EDDL without any intervening waypoints. You can save this flight and load it again in Flight Simulator if you like.

Note that a flight plan is always created for the aircraft currently selected. The values for speed and flight level which appear at the bottom of the flight planning panel depend on the aircraft you have selected.

If you wish to use some other aircraft, go to the Aircraft Window and make the proper selection. You open the *Aircraft Window* by pressing the button with the aircraft symbol.

Adding waypoints to a flight plan

In most cases you probably don't want to go directly from airport to airport, but rather choose a route of intermediate waypoints. The most convenient way is to let FlightSim Commander automatically find an appropriate route for you. There are three types of routes you can choose:

- **navaid route** (leads you from VOR/NDB/intersection to VOR/NDB/intersection)



- **low altitude route** (leads you along low altitude (victor) airways)
- **high altitude route** (leads you along high altitude (jet) airways)

After you have selected your departure and arrival airports you simply click on any of the three buttons *Navaid Plan - Low Alt Plan - High Alt Plan* which are located on the button bar above the map. FlightSim Commander will subsequently calculate a complete route leading from your departure to your arrival airports.

EDDF TAU WYP EDDL

EET: 00:18 DTG: 102 TAS: 480 FL: 360 SID: Transition:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
<input checked="" type="checkbox"/>	EDDF	Frankfurt/Main	118,025							
<input checked="" type="checkbox"/>	TAU	Taurus	116,700	310°/309°	020 NM	00:03				
<input checked="" type="checkbox"/>	WYP	Wipper	109,600	325°/325°	058 NM	00:10				
<input checked="" type="checkbox"/>	EDDL	Dusseldorf	123,775	306°/305°	024 NM	00:18				

Navaid plan with VOR waypoints

EDDF SIL WYP EDDL

EET: 00:18 DTG: 105 TAS: 480 FL: 360 SID: Transition:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
<input checked="" type="checkbox"/>	EDDF	Frankfurt/Main	118,025							
<input checked="" type="checkbox"/>	SIL	Siegetland	489,000	337°/336°	042 NM	00:05				
<input checked="" type="checkbox"/>	WYP	Wipper	426,000	305°/304°	039 NM	00:10				
<input checked="" type="checkbox"/>	EDDL	Dusseldorf	123,775	306°/305°	024 NM	00:18				

Navaid plan with NDB waypoints

The two pictures above show a navaid-to-navaid route from EDDF (Frankfurt/Main, Germany) to EDDL (Düsseldorf, Germany). Note that the routes differ with respect to the types of nav aids that appear as waypoints. In the first plan all waypoints are VORs while in the second they are NDBs.

Which type of nav aids FlightSim Commander considers depends on which are visible on the map and visibility is toggled by the display buttons (see also Buttons) on the left side of the map. If you want only

VORs in your flight plan, then the VOR button should be on, while the NDB button and intersection button should be off. Similarly, if you want only NDBs, only the NDB button should be on. If more than one of the three buttons is on, then FlightSim Commander will consider all visible nav aids (those with the button on) giving priority to VORs over NDBs over intersections.

The following flight plan shows a low altitude route from EDDF to EDDS. Note that after the waypoint the name of the airway as well as altitude restrictions appear in parentheses.



The screenshot shows the FlightSim Commander flight plan window. At the top, the flight plan is displayed as "EDDF UBENO N850 RINEX W718 TAGIK EDDS". Below this, flight parameters are shown: EET: 00:17, DTG: 90, TAS: 480, FL: 310, and SID: (empty). The STAR and Transition fields are also empty. The main part of the window is a table with the following columns: Sym, Code, Name, Freq, Course, Distance, ETD, ATO, GS, Altitude, and Fuel (kg). The table contains five rows of waypoints:

Sym	Code	Name	Freq	Course	Distance	ETD	ATO	GS	Altitude	Fuel (kg)
✕	EDDF	Frankfurt/Main		118,025						
△	UBENO	Ubeno		165°/164°	018 NM	00:02				
△	RINEX	Rinex (N850 50-240)		185°/184°	025 NM	00:05				
△	UBEGA	Ubeqa (W718 50-240)		123°/122°	008 NM	00:06				
△	TAGIK	Tagik (W718 50-120)		123°/122°	007 NM	00:07				

Low altitude flight plan with intersection waypoints

Of course, you can press the three buttons one after the other to see which flight plan you like best.

Selecting waypoints manually

In the preceding sections we had FlightSim Commander select the waypoints of a route. While this is the most convenient way of generating a flight plan, you can also select waypoints one after the other manually.

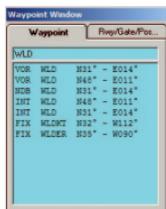
As in the case of airports there are two ways of adding a waypoint to the flight plan: selecting it from a list or on the map.

- On the map you can click with the right mouse button on the waypoint (VOR, NDB, Intersection, GPS fix, or user waypoint) to be selected. This waypoint will subsequently appear in the flight plan table with all the relevant information.



- You can type the code of the waypoint to be selected into the waypoint text box and press Enter on your keyboard. All waypoints with this code will appear in the waypoint list. Choose the appropriate waypoint by clicking on it.

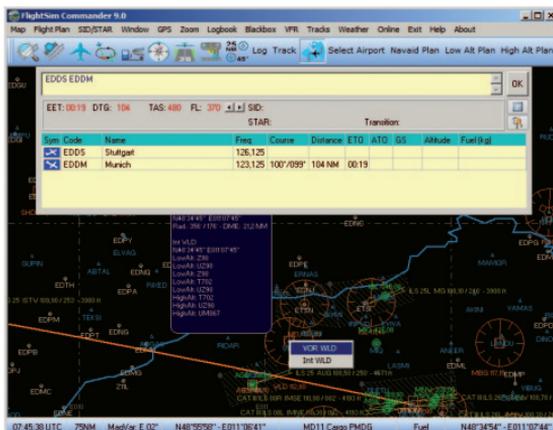
To select a waypoint from a list, click on the button with the table symbol on the right-hand side of the flight plan panel. Choose the Waypoint tab of the window. Type <WLD> into the text box.



The list box now displays all waypoints whose first three letters begin with <WLD>. The latitude/longitude values are for easier identification. Note that WLD is fivefold ambiguous. There are three waypoints (VOR, NDB, intersection) at N31° - E014° and two waypoints (VOR and intersection) at N48° - E011°. Since we are filing a flight plan for a route inside Germany, only the latter two are relevant. We decide to choose the VOR and thus click on the second line of the list. The resulting flight plan looks like this:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude
EDDS WLD EDDM									
EET: 00:19 DTG: 105 TAS: 480 FL: 370 SID:									
STAR:					Transition:				
	EDDS	Stuttgart	126,125						
	WLD	Walda	112,800	094°/092°	076 NM	00:09			
	EDDM	Munich	123,125	117°/115°	029 NM	00:19			

If you want to select the VOR WLD directly on the map, you click with the **right** mouse button on the center of the VOR symbol. A popup menu appears showing that at this location there are both a VOR and intersection WLD. We choose the VOR.



Note that as a basic technique **you must enter the waypoints in the correct order**, i.e. in the order from departure to arrival. If you have mistakenly selected a wrong waypoint, you can delete it again. How you delete a waypoint will be discussed later.

Of course, FlightSim Commander also allows you to insert a waypoint or sets of waypoints in any arbitrary order, but we will discuss these more advanced techniques of flight planning in a later section.

AFIL (air filed) and ZZZZ flight plans

Standardly flight plans lead from a specific departure airport to a specific destination airport. Apart from these standard flight plans there are also the so-called AFIL- and ZZZZ- flight plans.

An AFIL flight plan is filed while you are airborne and leads from your current position to the destination airport. A ZZZZ flight plan is created prior to the actual flight with departure and destination being not only an airport, but also a geographical position.

AFIL and ZZZZ flight plans can be combined with each other; for example, if a VFR pilot decides to continue his flight under IFR (e.g. due to specific weather conditions) and therefore has to file a flight plan. In this case he will file an AFIL flight plan which will lead from his current position to either a destination airport or to some other

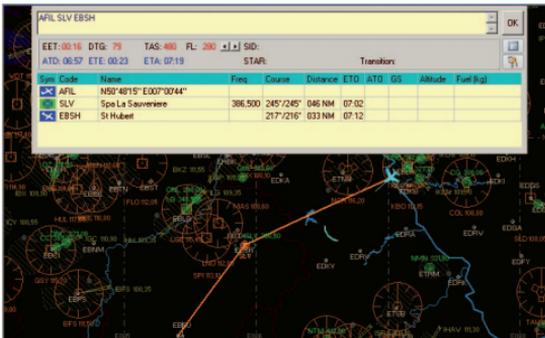


geographical position (ZZZZ).

To file an AFIL flight plan, proceed as follows:

3. Open the flight plan panel (if this is still closed)
4. Press the button *Select Airport*
5. Enter *AFIL* into the ICAO text box and press Enter or press the button *Search by ICAO code*. The airport list shows *from current location*.
6. Press the button *Select*.
7. Enter the destination airport as usual
8. Select waypoints as usual

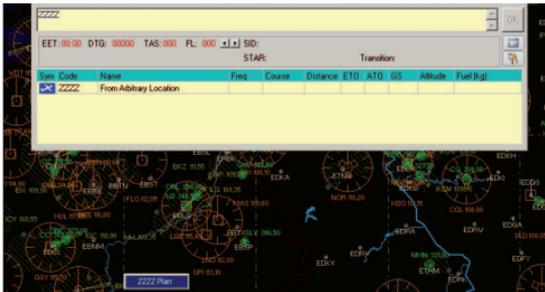
The following screenshot shows an AFIL flight plan which leads from the current position to the airport St. Hubert (EBSH) passing NDB SLV.



AFIL to EBSH

To create a ZZZZ flight plan proceed as follows:

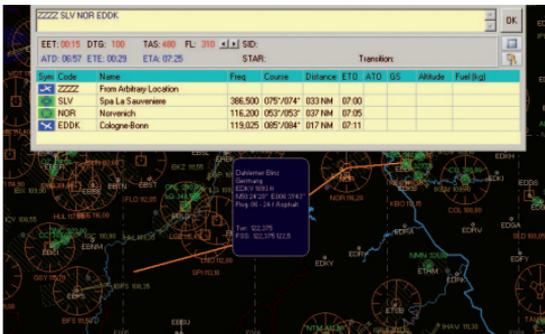
9. Open the flight plan panel (if this is still closed)
10. The geographical position is selected on the map by clicking with the **right** mouse button on some point of the map.



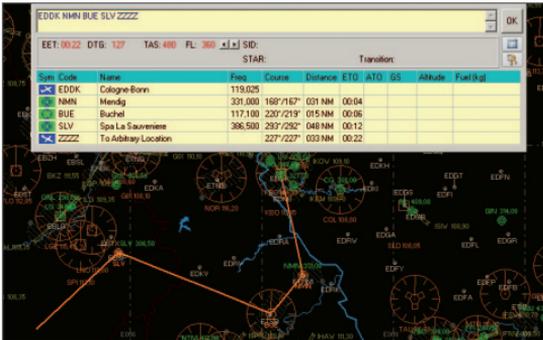
If a geographical position is selected for a new, as yet empty flight plan, then this mouse click will be interpreted as *departure*. A popup menu opens with only one entry <ZZZZ Plan>. If some departure has already been chosen, then the mouse click will be interpreted as *destination*. There are thus three possibilities for a ZZZZ flight plan.

11. from a geographical position to a destination airport
12. from a departure airport to a geographical position
13. from a geographical position to some other geographical position

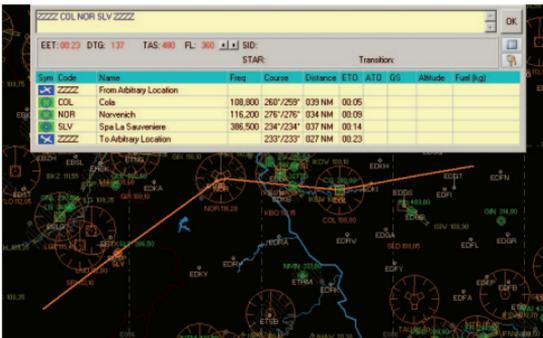
The following screenshots illustrate these three possibilities



ZZZZ to EDDK



EDDK to ZZZZ



ZZZZ to ZZZZ

SIDs, STARs and transitions

Inserting SIDs, STARs, and transitions

In many cases you might want to use Standard Instrument Departures (SIDs) and/or Standard Arrival Routes (STARs) for your flight plan. This is extremely simple.

Choose *SID/STAR* -> *SID* -> *Select* from the menu bar to open a SID. For a STAR choose analogously *SID/STAR* -> *STAR* -> *Select*. For a transition choose *SID/STAR* -> *Transition* -> *Select*. If no SID, STAR or

transition for a given airport is available the corresponding menu entry will be deactivated and thus be gray.

The following window opens in which you can select any number of SIDs/STARs/transitions from the list box.



The SIDs/STARs/transitions selected will immediately be displayed on the map so that you can easily decide which one will be the most appropriate one for your flight.

For example, the following screenshot displays all SIDs for runway 33 of Hamburg airport (EDDH):



To undo the display of SIDs/STARs/transitions uncheck the menu item *SID/STAR -> SID -> Display* or *SID/STAR -> STAR -> Display* or *SID/STAR -> transition -> Display*.



If only a single item in the list box has been selected, the button *Add to plan* becomes active. Pressing this button will insert the waypoints of the SID/STAR/transition into your flight plan.

After you have selected a SID, a sample flight plan from Frankfurt (EDDF) to Stuttgart (EDDS) may look like this:

Sym	Code	Name	Freq	Course	Distance	ETD	ATO	GS	Altitude	Fuel (kg)
X	EDDF	Frankfurt/Main	112.025							
▲	RID	Ried	112.200	184°/183°	015 NM	00:02				
▲	ANEKI	Aneki		185°/184°	028 NM	00:05				
X	EDDS	Stuttgart	126.125	142°/141°	048 NM	00:17				

You can tell by the symbols in the left column of the table that RID and ANEKI are not ordinary enroute waypoints, but rather belong to a SID. The background color for the SID, STAR, and transition symbols is bluish while it is green for enroute waypoints. More specifically, the following symbols occur in the flight plan table (from left to right):

Enroute:	VOR, NDB, intersection, GPS fix, user waypoint	
SID/STAR/Trans	VOR, NDB, intersection, GPS fix, user waypoint	

Note that you can choose SIDs and/or STARs at any time during the flight planning process. That is, you can insert a SID and/or a STAR either before or after the remaining route has been generated. However, we recommend that you select the SID and/or STAR before deciding on the remaining flight plan, because the result will be different for an airport with or without a SID (STAR or transition analogously).

If no SID has been selected, then the route will be created starting with the airport reference point as point of departure; however, if a SID has been selected, then the last waypoint of the SID will be the point of departure for the enroute route. Consequently, if you select the SID or STAR after generating the route, we suggest that you press the relevant flight plan button again in order to get a reasonable result.

The following screenshot shows the flight plan and route after a transition has been added:



A further comment on SIDs and STARs

There are a number of common misunderstandings about SIDs and STARs which are quite frequent among flight simmers and which need to be clarified.

Some users have asked in the past whether or not it is possible in FlightSim Commander to define your own SIDs and STARs or whether the user can modify a given SID or STAR according to his needs or likings.

The answer is a very strict no! SIDs and STARs are specific route segments which have been defined and published by official aviation authorities and thus they exist only in exactly the way they have been published. If you modify a SID by adding or deleting waypoints, then this is no longer a SID. It may be a reasonable departure route, but not a SID because you're not the relevant aviation authority. Similarly, you simply cannot define your own SID or STAR for precisely the same reason. You can define a departure or arrival route, but not a SID or STAR. Any ideas about modifying or defining SIDs and/or STARs are „as unreal as it gets“.



This has a number of consequences for the flight planning process. While you can delete any enroute waypoint, you cannot delete a waypoint inside a SID or STAR. You can delete the entire SID or STAR by choosing *SID/STAR -> SID -> Delete* or *STAR -> Delete* from the menu bar, but not individual waypoints. Similarly, you cannot insert a waypoint into a SID or STAR. SIDs and STARs are unitary entities which can only be manipulated as a whole. The same holds for transitions analogously.

However, if your departure or arrival airport does not have a SID or STAR listed in the database, you can nevertheless define (and save for later use) your own departure and/or arrival route. How this is done is explained in details in the section on route segments.

Custom waypoints

Selecting custom waypoints

Standardly, your flight plan will be made up of „official“ waypoints such as VORs, NDBs, intersections and GPS fixes.

VORs and NDBs are radio stations which emit a certain frequency. Intersections and GPS fixes have no frequency, but are simply geographic points with a name defined in terms of latitude and longitude. In our terminology intersections are waypoints which are located on an airway, while GPS fixes are geographic points which have nothing to do with airways and are usually located near airports for GPS-controlled departures and landings.

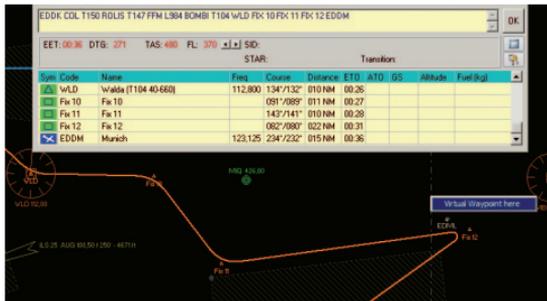
Apart from these „official“ waypoints, you can also create within your flight plan custom waypoints which again are defined in terms of latitude and longitude and which will automatically be assigned a name consisting of „Fix“ plus a number indicating their position within the route; e.g. Fix01, Fix02, Fix03, etc. Note that these custom waypoints exist only in your flight plan.

Do not confuse these custom waypoints with the user waypoints which are permanently stored in a separate database and which are treated in much the same way as any other waypoint.

To create a custom waypoint, move the mouse to the desired geographic location and then click with the **right** mouse button. A popup menu appears with the entry <Virtual Waypoint here>. If you click on the menu, the waypoint will then appear in the flight plan table as in the picture below:



Of course, you can insert any number of custom waypoints, as illustrated in the screenshot below. Note that all virtual waypoints are called Fix with a number afterwards which refers to its position within the flight plan.



Custom waypoints with precise location

If you work with official charts such as Jeppesen's Airway Manual or country-specific AIPs you might need to add a custom waypoint to your flight plan which has a very precise location frequently defined in terms of radial and heading with respect to some other waypoint.



Let's look at such a case by way of example. The AIP Germany has a departure route for runway 14L of EDDK (Cologne/Bonn) which reads like this:

On track 139° to 5 DME KBO or 1500, whichever is later, LT, on R278 COL to COL

In plain language this instruction says the following: after takeoff from 14L fly runway heading which is 139° until you reach a point which is 5 NM away from VOR KBO (Köln/Bonn) and is located on radial 278 of VOR COL (Cola). When you reach exactly this point, turn left and fly to VOR Cola.

In terms of flight planning the first official waypoint after EDDK is VOR COL (Cola). But between EDDK and COL there is this virtual waypoint up to which you fly runway heading and at which you turn left toward COL. One way to fly the exact route would be to simply set your Nav1 and Nav2 properly and turn left when your instruments indicate that you have reached that point.

But you could also insert a custom waypoint which is precisely located as defined in the AIP instructions.

This is how you proceed.

First you file a flight plan from EDDK to your destination (e.g. EDDH) with an initial waypoint COL. At this point your flight plan table will look like this:

The screenshot shows a flight planning window titled "EDDK FIX 01 COL EDDH". It includes fields for EET: 00:33, DTG: 211, TAS: 480, FL: 370, and SID. Below these is a table of waypoints:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
<input checked="" type="checkbox"/>	EDDK	Cologne-Bonn	119,025							
<input type="checkbox"/>	Fix 01	Fix 01		136°/135°	006 NM	00:01				
<input checked="" type="checkbox"/>	COL	Cola	108,800	092°/092°	013 NM	00:03				
<input checked="" type="checkbox"/>	EDDH	Hamburg	123,125	026°/026°	192 NM	00:33				

Now you want to insert a custom waypoint between EDDK and COL. First, you highlight the first row of the table (EDDK) by clicking on it. This indicates that the custom waypoint will be inserted directly after

EDDK (see also the general insertion rule in the following section A sample flight from EDDH to ESSA).

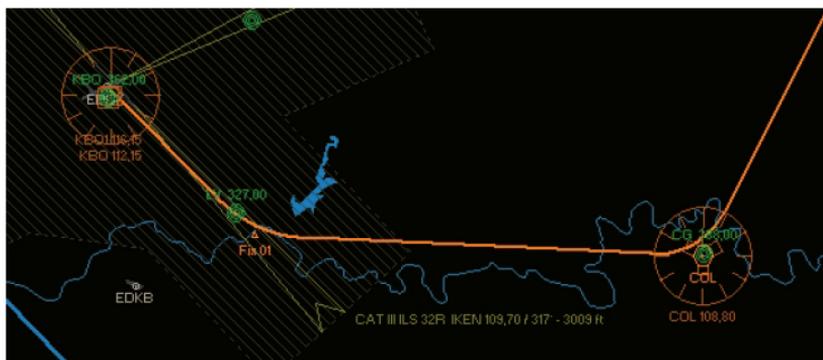
Now you must find the exact location with the mouse. Note that below the waypoint box a line appears with information on distance, heading, and radial of your current mouse position.

EET: 00:33	DTG: 211	TAS: 480	FL: 370	SID:	5,4 NM / HDG: 131° / RDL: 339°
				STAR:	Transition:

EET: 00:33 DTG: 211 TAS: 480 FL: 370 SID: 5,4NM/HDG: 131°/RDL: 339°

Move the mouse until the value for heading is 139 and the value for radial is 278. At exactly this location you are 5NM away from EDDK with a heading of 139° and on radial 278 of VOR Cola.

If now you click with the right mouse button on this location, a custom waypoint will be inserted which corresponds exactly to the AIP instructions. Note that distance and heading refer to the previous waypoint (here: EDDK), while radial refers to the next waypoint (COL). On the map you get something like the following picture:





Editing the flight plan table

There are essentially three options to edit the waypoints of a flight plan. These are illustrated in the following screenshot:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
▲	DDMEG	Domeg (UM170 250-660)		034°/033°	021 NM	00:07				
▲	OSN	Osendorf (UM170 250-660)	114.300	061°/060°	038 NM					
▲	BASUM	Basum (UM170 250-660)		028°/027°	039 NM					
▲	STADE	Stade (UM170 250-660)		028°/027°	049 NM					
✕	EDDH	Hamburg	123,125	067°/066°	021 NM					

A context menu is open over the OSN row, showing three options: "Delete Int OSN", "Insert waypoint BEFORE Int OSN", and "Delete all WPs between EDDK and OSN".

You select a waypoint by clicking with the **left** mouse button on the corresponding row. In the above screenshot the intersection OSN has been selected. When you now click with the **right** mouse button on the same row, a popup menu with three options opens.

Obviously you want to be able to delete a waypoint. You would choose the top menu entry to delete intersection OSN.

The second entry reads <Insert waypoint BEFORE Int OSN>. What does this mean?

As a general rule a new waypoint will always be inserted **after** the waypoint in the selected table row. If you wish to insert the new waypoint **before** the one in the selected table row, then you choose this option.

Why this option? In the majority of cases it does not make much of a difference whether you insert a new waypoint before or after the one selected in the table, since both procedures are logically equivalent.

However, there are some cases in which the default insertion-after rule is difficult to handle. Suppose you are planning a long distance flight from EDDF (Frankfurt/Germany) to KORD (Chicago O'Hare/USA). We assume that you have already selected the two airports. Suppose furthermore that you want to select the first waypoint after departure (say TAU, northwest of the airport) and the last waypoint before arrival (e.g. OBK, north of Chicago) manually.

There is no problem selecting TAU with the default insertion rule. But selecting OBK is cumbersome. By the default rule you would have to first select TAU in the table for OBK to be inserted after it. But

selecting TAU in the flight plan table moves this waypoint to the center of the map and there is no way of seeing the area around Chicago unless you zoom out to about 4000 NM in which case selecting the new waypoint is virtually impossible.

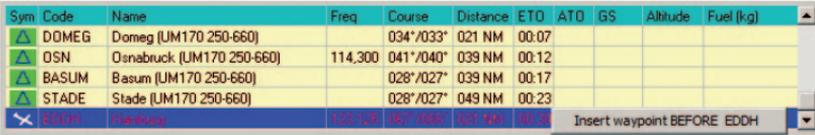
Actually what you want is to select KORD in the flight plan table so that this airport will be in the center of the map. Subsequently, you want to select the desired waypoint as usual. But this is tantamount to inserting OBK before TAU so that in this specific case you would press the Alt key when selecting KORD in the table.

Furthermore, most FMCs use the insertion-before rule so that users with a strong FMC background might want to prefer the same procedure in FlightSim Commander.

Note also that the insertion-before option applies only to the next waypoint to be selected. After you have selected the next waypoint, the program switches back to the insertion-after rule.

The final option allows you to delete all waypoints between the departure airport and the selected waypoint. Suppose you have left your departure airport heading for the first waypoint when ATC instructs you to go directly to OSN; i.e to skip all waypoints before OSN. Without this option you would have to individually delete all waypoints before OSN. If you have a flight plan with several dozen waypoints, this would consume a long time during which you can't focus on your job as a pilot. To comply with ATC's instruction quickly, you use this third option.

Note that not all options are available for all waypoints. In the following screenshot the destination airport EDDH has been selected. First of all, you cannot delete an airport. Secondly, it does not make sense to delete all waypoints between departure and destination. If this is what you want you might, in fact, choose the menu *Flight plan* -> *Delete Enroute Waypoint*



Sym	Code	Name	Freq	Course	Distance	ETD	ATD	GS	Altitude	Fuel (kg)
▲	DOMEG	Domeg (UM170 250-660)		034°/033°	021 NM	00:07				
▲	OSN	Osnabruck (UM170 250-660)	114,300	041°/040°	039 NM	00:12				
▲	BASUM	Basum (UM170 250-660)		028°/027°	039 NM	00:17				
▲	STADE	Stade (UM170 250-660)		028°/027°	049 NM	00:23				
✕	EDDH	Destination	113,125	061°/060°	001 NM	00:00				



The following screenshot shows that you cannot delete an individual waypoint of a SID, but only the entire SID. Therefore popup menu looks slightly different, when you select a waypoint of a SID (or STAR or transition). See also the section on SIDs, STARs, and transitions.

The screenshot shows the flight plan editor for EDDK KUM16B EDDK. The table below represents the data shown in the screenshot:

Sym. Code	Name	Freq.	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
EDDK	Cologne-Bonn	119,025							
DK034	Dk034		327°/326°	001 NM	00:00				
DK035	Dk035		036°/035°	002 NM	00:00				
DK035	Dk035		036°/035°	002 NM	00:00				
DK038	Dk038		063°/063°	012 NM	00:01				

A context menu is open over the selected DK035 row, with the option "Delete SID KUM16B" highlighted.

Deleting an old flight plan and creating a new one

If you want to delete the current flight plan in order to create a new one, choose *Flight Plan -> New* on the menu bar. This option empties all tables, labels and boxes and makes FlightSim Commander ready for a new flight plan.

If you have already filed a flight plan, but for some reasons find the route inappropriate, you can choose *Flight Plan -> Delete Enroute Waypoints*. This will set the stage for a new flight plan, except that the departure and arrival airports are kept so that you do not have to re-enter them.

Printing flight plans

You can print any flight plan previously filed. Choose the menu *Flight Plan -> Print Plan*.

Note that the printed version of a flight plan is much more detailed than what you see in the flight plan table on the screen.

The printed flight plan consists of three different parts which can be chosen selectively:

- General Flight Information
this part contains information on fuel, departures and arrival routes, frequencies, etc.

- Waypoint List
this list shows all the waypoints in much the same way as in the flight plan table on the screen.
- Control Zone Information
this information is primarily for VFR pilots as it lists all control zones which the filed route may potentially cross.

Advanced techniques

With the basic techniques discussed in the preceding sections we have always created a unitary route, i.e. the set of waypoints leading from the departure to the arrival airport were either generated by FlightSim Commander itself or were manually added to the flight plan one after the other.

But we can also freely combine these methods which we will now describe by way of examples.

A sample flight plan from EDDH to ESSA

Suppose you are planning a flight from EDDH (Hamburg, Germany) to ESSA (Stockholm, Sweden) and you want the route to be low altitude. If you press the button *Low Alt Plan* after having selected departure and arrival, the resulting flight plan will look like this:

Sym	Code	Name	Freq	Course	Distance	ETD	ATD	GS	Altitude	Fuel (kg)
✕	EDDH	Hamburg	123.125							
△	LUB	Lubeck	110.600	052°/050°	030 NM	00:04				
△	TOSPA	Tospa (P605 40-240)		047°/045°	015 NM	00:06				
△	AMICH	Amich (P605 40-240)		047°/045°	008 NM	00:07				
△	MEGAR	Megar (P605 40-240)		047°/046°	023 NM	00:10				

After leaving Hamburg the first waypoint is the intersection LUB located northeast of Hamburg and where you enter airway P605.

But this is actually not what you want. For noise abatement reasons you don't want to go directly to LUB and enter the airway system there; rather you want to first go to VOR LBE (Elbe) which is located west of Hamburg and that is where you want to enter an airway.



Let's make things even more complicated. FlightSim Commander has generated intersection ELTOK on airway Y36 to be your last waypoint before Stockholm. But ELTOK is located northwest of Stockholm; a more convenient waypoint to leave the airway system would be VOR ARS.

So, basically, what you want is this: FlightSim Commander should automatically generate a low altitude route, but the first waypoint must be LBE and the last waypoint must be ARS.

To achieve this result, this is how you proceed:

First you select the two airports as usual and subsequently choose the two waypoints LBE and ARS manually. At this point, your flight plan looks like this:

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	Fuel (kg)
	EDDH	Hamburg	123.125							
	LBE	LBE	112.800	030°/026°	033 NM	00:03				
	ARS	Aros	112.800	030°/026°	425 NM	00:55				
	ESSA	Arlanda	121.625	084°/080°	039 NM	01:06				

We now want FlightSim Commander to automatically generate a low altitude plan for the route between LBE and ARS. This is why we highlighted the second row in the table where waypoint LBE is entered. This way we tell FlightSim Commander to insert the low altitude route between LBE and ARS.

Important Rule

Any waypoint or set of waypoints will be inserted after the waypoint highlighted in the flight plan table. If no row is highlighted, the insertion will take place after the last waypoint in the flight plan table. SIDs and STARs form indivisible units with the departure and arrival airport respectively, i.e. nothing can be inserted between an airport and a SID and a STAR and an airport.

You can also choose to insert the new waypoint before the waypoint highlighted. How you do this has been explained in the preceding section on Editing the flight plan table.

After we have pressed the *Low Alt Plan* button, our flight plan will be like in the following picture:

EDDH UM170 LBE P615 EKERN M852 ALASA P615 ALS Z731 GÖTEX N873 LABAN Y430 TINKA ARS ESSA										
EET: 01:08		DTG: 497	TAS: 480	FL: 370	SID:		STAR:		Transition:	
Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude	
X	EDDH	Hamburg	123,125							
▲	LBE	Elbe (UM170 250-660)	115,100	276°/275°	014 NM	00:02				
▲	RENSU	Rensu (P615 40-240)		010°/009°	036 NM	00:06				
▲	EKERN	Ekern (P615 40-240)		011°/009°	016 NM	00:08				
▲	ALASA	Alasa (M852 40-240)		011°/009°	018 NM	00:10				
▲	ALS	Alsie (P615 40-240)	114,700	011°/009°	006 NM	00:11				
▲	GÖTEX	Gotex (Z731 195-245)		017°/015°	144 NM	00:29				
▲	LOBBI	Lobbi (N873 35-245)		047°/045°	010 NM	00:30				
▲	BAK	Backa (N873 95-285)	112,700	047°/045°	021 NM	00:33				
▲	DEGAV	Degav (N873 95-285)		048°/046°	016 NM	00:35				
▲	LABAN	Laban (N873 100-285)		049°/046°	040 NM	00:40				
▲	TINKA	Tinka (Y430 95-285)		055°/051°	112 NM	00:54				
▲	ARS	Aros	112,800	025°/021°	025 NM	00:57				
X	ESSA	Arlanda	121,625	084°/080°	039 NM	01:08				

Note that the above screenshot shows the undocked mode of the flight plan panel. To undock the flight plan panel click on the button with the key symbol on the right-hand side of the window. You can now expand the height of the window in order to see all waypoint simultaneously. To re-dock the window, press the button with the key symbol again.

A mixed airway and VOR-to-VOR flight plan

Let us expand on the possibility of combining various ways of inserting waypoints.

Again we choose a flight plan from EDDH to ESSA starting with LBE as the first waypoint and ARS as the last waypoint. The automatically generated route leads us from Hamburg to the north of Denmark, from there we cross the Kattegat and fly into Sweden somewhere along the coast until we reach Stockholm.

Suppose we want a different route, namely one that leads us from VOR LBE to the Swedish island of Gotland located in the Baltic Sea



between the Swedish mainland and Latvia. More specifically, there is the VOR VSB at Visby airport so that we want to fly from LBE to VSB on a low altitude airway, but from VSB to ARS on a VOR-to-VOR route.

As in the previous case we need to select the VORs manually so that at one point our flight plan will look like this:

Sym	Code	Name	Freq	Course	Distance	ETD	ATD	GS	Altitude
	EDDH	Hamburg	123,125						
	LBE	Elbe	115,100	276°/275°	014 NM	00:02			
	VSB	Visby	115,100	047°/043°	381 NM	00:50			
	ARS	Aros	112,800	336°/332°	127 NM	01:06			
	ESSA	Arlanda	121,625	084°/080°	039 NM	01:17			

Now we highlight the second row with VOR LBE to indicate that the next insertion is to take place between LBE and VSB. Subsequently, we press the button Low Alt Plan. FlightSim Commander will now generate a low altitude route between LBE and VSB.

Next we highlight the row with VOR VSB and then press the button Navaid Plan. Now FlightSim Commander will add a navaid-to-navaid route between VSB and ARS.

It is, of course, easy to imagine even more complex cases of flight planning, especially for long distance flights. You might want to choose high altitude airways for the main section of your flight, but low altitude routes for the initial and final section. Similarly, you can have VOR-to-VOR or NDB-to-NDB sections and many more.

A word of caution

There is a minor problem with the type of flight plan we discussed in the preceding two sections. A mixed flight plan consisting of e.g. a low altitude route followed by a navaid-to-navaid route is conceptually not provided for in Flight Simulator.

Flight Simulator knows four types of routings:

- Direct - GPS
- Low altitude airways
- High altitude airways
- VOR-to-VOR

When you open the flight planning section in Flight Simulator you will find an option button for each of these four types and the type you select will be stored in the flight plan once you save it.

However, a routing along low altitude airways means low altitude airways all the way from departure to destination. Mixed routings simply escape the conceptual framework of Flight Simulator.

So, what are we going to tell Flight Simulator when we have filed a flight plan with mixed routings. As a general rule, all flight plans with mixed routings are classified as VOR-to-VOR flights. While Flight Simulator does need the information on the routing type, this is only used for switching on the correct option button. So the routing classification is basically a fairly innocent matter.

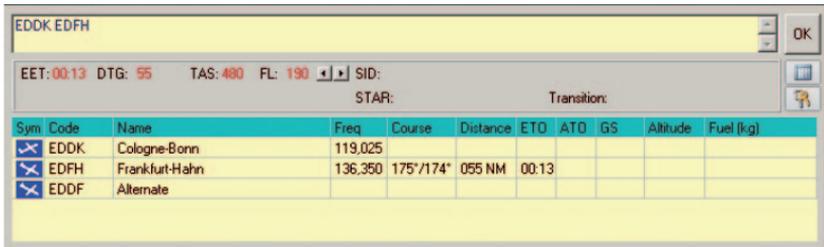
Nevertheless, many of the flight plans generated in FlightSim Commander and subsequently loaded into Flight Simulator will be VOR-to-VOR, even though they may have large sections of airway routes.

Alternate airports

In addition to selecting a departure and destination airport you can also choose an alternate airport.

Note that an alternate can only be selected in the Select Airport Window which appears after you press the Select Airport button. You cannot choose an alternate directly from the map.

After you choose the alternate airport, the flight plan table may look like this:



The screenshot shows a flight plan window with a yellow background. At the top, it displays 'EDDK EDFH'. Below that, it shows flight parameters: 'EET: 00:13 DTG: 55 TAS: 490 FL: 190'. There are also fields for 'SID:' and 'STAR:' with a 'Transition:' field. A table below lists the airports in the flight plan:

Sym	Code	Name	Freq	Course	Distance	ETO	ATD	GS	Altitude	Fuel (k-g)
<input checked="" type="checkbox"/>	EDDK	Cologne-Bonn		119.025						
<input checked="" type="checkbox"/>	EDFH	Frankfurt-Hahn	136.350	175°/174°	055 NM	00:13				
<input checked="" type="checkbox"/>	EDDF	Alternate								



EDDF is the alternate airport in case you cannot land in Cologne-Bonn for some reason.

If you wish to replace the destination airport EDDK by the alternate airport EDDF, you click with the mouse on the row with EDDF Alternate. You will be prompted to confirm that the alternate should replace the original destination. If you confirm, the flight plan will subsequently change to:

The screenshot shows the FlightSim Commander 9.0 interface. At the top, the flight plan is set to EDDK EDHF. Below this, flight parameters are displayed: EET: 00:13, DTG: 55, TAS: 480, FL: 190, and SID: [empty]. The STAR and Transition fields are also empty. A table lists the airports in the flight plan:

Sym	Code	Name	Freq	Course	Dist
<input checked="" type="checkbox"/>	EDDK	Cologne-Bonn	119.025		
<input checked="" type="checkbox"/>	EDFH	Frankfurt-Hahn	136.350	175°/174°	055
<input checked="" type="checkbox"/>	EDDF	Alternate			

A dialog box titled "FlightSim Commander 9.0" is open, asking "Do you wish to replace arrival by alternate airport?" with "Ja" and "Nein" buttons.

Below the dialog, another table shows the updated flight plan:

Sym	Code	Name	Freq	Course	Distance	ETD	ATO	GS	Altitude	Fuel (kg)
<input checked="" type="checkbox"/>	EDDK	Cologne-Bonn	119.025							
<input checked="" type="checkbox"/>	EDDF	Frankfurt/Main	118.025	132°/131°	074 NM	00:15				

Creating a flight plan from an airway route

Logically, a flight plan is nothing but a sequence of waypoints leading from one airport to another. However, for flight plans involving waypoints located on an airway (intersections in our terminology) it is customary to use an abbreviated notation in which the airway name is given instead of all the waypoints located on it. A typical example might look like this:

EDDH AMLUH M852 POVEL Z16 GALMA T703 LEKMI T105
VAMAS EDDM

This route leads from Hamburg (EDDH) to Munich (EDDM). From EDDH we fly to intersection AMLUH where we enter airway M852. We

stay on this airway until we reach intersection POVEL where we enter airway Z16. Again, we reach intersection GALMA on this airway changing then to airway T703. At LEKMI we enter airway T105 which we leave at VAMAS to begin our approach to Munich airport. The logical structure of such a route notation is thus:

AIRPORT WAYPOINT AIRWAY WAYPOINT AIRWAYWAYPOINT AIRPORT

Open the Flight Plan Panel as usual (press the button with the aircraft and continent icon) and enter a text string into the text box as shown below:

EDDH AMLUH M852 POVEL Z16 GALMA T703 LEKMI T105 VAMAS EDDM

EET: 00:00 DTG: 00000 TAS: 000 FL: 000 SID: STAR: Transition:

Sym	Code	Name	Freq	Course	Distance	ETD	ATO	GS	Altitude	Fuel (kg)

Instead of typing in the string yourself, you can also copy and paste it from some other source, e.g. the program Routefinder.

You now press the button *OK* located at the right margin of the text box. Note that this button is enabled as soon as the string is longer than 8 characters. Otherwise it is disabled.

Part of the result may look like in the screenshot below. Note that the flight plan table is essentially identical to flight plans created automatically or manually as described above:

EDDH L619 AMLUH M852 POVEL Z16 GALMA T703 LEKMI T105 VAMAS EDDM

EET: 00:50 DTG: 358 TAS: 480 FL: 370 SID: STAR: Transition:

Sym	Code	Name	Freq	Course	Distance	ETD	ATO	GS	Altitude	Fuel (kg)
▲	POVEL	Povel (M852 120-240)		175°/174°	014 NM	00:12				
▲	ABGUS	Abgus (Z16 50-240)		152°/150°	018 NM	00:14				
▲	KENIG	Kenig (Z16 50-240)		152°/150°	017 NM	00:16				
▲	GALMA	Galma (Z16 50-240)		152°/150°	015 NM	00:18				
▲	NAMUB	Namub (T703 50-660)		152°/151°	019 NM	00:20				



Important: note that the route string must have the ICAO codes of the departure and destination airports as first and last segments. Other strings will be rejected.

Important: note also that the airways in the string are not specified for high or low altitude airways. FlightSim Commander checks both possibilities, but gives priority to high altitude airways in case an airway name can refer to both a high and low altitude airway.

A word of caution: there is a certain risk in using route string from written publications or programs such as RouteFinder. You will obtain the desired result if and only if the FlightSim Commander database is absolutely identical with the one on which the source is based on. If the databases are different, it might happen that FlightSim Commander produces a result which is not the one you expect. In many cases you don't have access to the underlying database of the source, but trivially FlightSim Commander can only work with the data it has.

A closer look at the flight plan table

Let us look at a sample flight plan in more detail. The picture below shows (part of) a flight plan from EDDK (Cologne-Bonn) to EDDH (Hamburg).

EET: 00:36 DTG: 222 TAS: 480 FL: 230 SID:									
STAR:					Transition:				
Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude
✈	EDDK	Cologne-Bonn	119,025						
▲	BAMSU	Bamsu		018°/017°	020 NM	00:03			
▲	PADBA	Padba (R15 50-240)		062°/061°	016 NM	00:05			
▲	REDSU	Redsu (R15 50-240)		037°/036°	006 NM	00:06			
▲	BARAG	Barag (R15 50-240)		037°/037°	002 NM	00:06			

The EET (estimated time enroute) is 36 min, the distance is 222NM. The aircraft (we have chosen an MD11) will fly at flight level 230 at a cruising speed of 480 knots. There are no SIDs or STARs in the flight plan.

Each line of the flight plan table indicates the waypoint's code and name, its frequency (if any - ATIS for airports), the course leading to that waypoint (true track/magnetic heading) and the estimated time of over (ETO). For airway routes the name of the airway as well as the minimal and maximal altitude appear after the waypoint name in parentheses; e.g. intersection PADBA is on airway R15 and the permissible altitudes range from FL50 to FL240.

For some users especially those working with an FMC it has turned out to be desirable that the latitude and longitude values of waypoints be displayed. This can be done by choosing the menu item *Flight Plan* -> *Show Coordinates*. The flight plan table will then look like this

Sym	Code	Name	Freq	Course	Distance	ETO	ATO	GS	Altitude
△	ADEMI	N51°28'57" E007°53'18"		038°/037°	005 NM	00:07			
△	HMM	N51°51'24" E007°42'29"	115,650	343°/343°	023 NM	00:10			
△	OSN	N52°12'00" E008°17'07"	114,300	046°/045°	030 NM	00:14			
△	BASUM	N52°46'19" E008°47'18"		028°/027°	039 NM	00:19			
△	WSR	N53°20'51" E008°52'31"	112,900	005°/004°	035 NM	00:23			

Two aspects of the flight plan table are noteworthy. First, when you create a flight plan, the departure time will always be set to midnight, i.e. 00:00 hours. Therefore the estimated arrival time at intersection OSN (Osnabruck) will be 14 min after midnight. As we will explain below, these values will be changed once you connect to Flight Simulator and start flying.

Flight plan specialists may be surprised at the frequencies listed in the table. For example, the third waypoint OSN on airway R15 is identified by the triangle symbol as an intersection. But intersections are merely abstract virtual waypoints defined in terms of latitude and longitude and they definitely don't have a frequency. So where does the frequency of 114.300 come from?

The answer is fairly simple. Apart from the intersection OSN there is also a VOR OSN located at exactly the same geographic position and this VOR has the frequency of 114.300. In fact, it happens quite frequently that an intersection and a VOR both with the same code

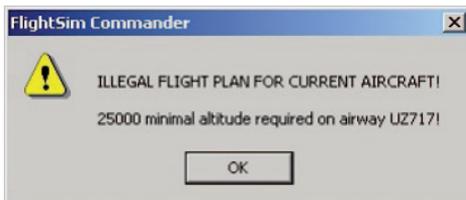


and name share an identical geographic position.

Of course, you might wonder why the flight plan doesn't list the VOR OSN instead of the intersection. In this case we strictly follow the definition of the Airac Cycle. AIRAC defines an airway as a sequence of abstract waypoints specified in terms of latitude and longitude. So by definition a VOR (or NDB) is never a waypoint of an airway. However, if there is a VOR with identical Code and identical geographic coordinates, the flight plan table will list its frequency for reasons of convenience.

Especially when you are planning long distance flights with partly manual waypoints you have to go to different locations on the map depending on which route section you are planning. **Clicking on a waypoint in the flight plan table will move the map display to that waypoint.**

Note that in most cases airways have flight level restrictions which need to be observed. For example, trying to make a high altitude route for a Cessna does not make sense because a Cessna cannot reach the flight level required for many jet airways. If you are attempting to generate a flight plan which would lead to flight level violations for the aircraft chosen, the following message will appear:



This message is simply a warning; i.e. FlightSim Commander does not literally prevent you from creating an illegal flight plan. But at least you should know that you are filing a flight plan that might cost your pilot license.

Once you have taken off from the departure airport, the flight plan table will change its appearance and will look like the picture below:

EET: 00:36 DTG: 184 TAS: 480 FL: 230 SID:		Transition:								
ATD: 10:03 ETE: 00:25 ETA: 10:36		STAR:								
Sym	Code	Name	Freq	Course	Distance	ETD	ATD	GS	Altitude	Fuel (kg)
✕	EDDK	Cologne-Bonn	119.025							
△	BAMSU	Bamsu		018°/017°	020 NM	10:05	10:07	386 kt	12631 ft	31866 / 05%
△	PADBA	Padba (R15 50-240)		062°/061°	016 NM	10:07	10:10	432 kt	15171 ft	31364 / 07%
△	REDSU	Redsu (R15 50-240)		037°/036°	006 NM	10:00				
△	BARAG	Barag (R15 50-240)		037°/037°	002 NM	10:08				

First, your exact takeoff time and the estimated arrival time at your destination are displayed above the table. In the above example the aircraft left Cologne-Bonn at 10:03 hrs (ATD) and is expected to arrive in Hamburg at 10:36 hrs (ETA). The ETA value is continually updated.

Note that all the time values in the flight plan table are based on your current Flight Simulator time (the one you set up in the Time and Season window). Note furthermore that this time may be different from, and independent of the system time of your computer.

Since the exact takeoff time is known, the ETO values in the table have been recalculated. Thus you are expected to pass BAMSU at 10:05 hrs, PADBA at 10:07 hrs, etc.

The four rightmost columns are filled as you pass the individual waypoints. The actual time over (ATO) at BAMSU was 10:07, so we were roughly two minutes behind schedule. We passed PADBA at 10:10, three minute later than expected.

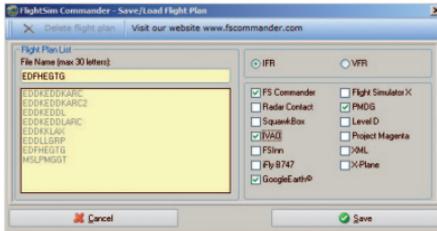
The average ground speed (GS) between Cologne-Bonn and BAMSU was 386 kt and PADBA was passed at an altitude of 15171 ft. At this point the aircraft had consumed 7 % of its fuel, so that the remaining fuel amounts to 31364 kg.

Note also that the arrival time at the destination airport is updated at each waypoint depending on whether or not you are on schedule.



Saving and loading flight plans

You can save and load a flight plan by choosing *Flight Plan -> Save As* or *Flight Plan -> Open respectively*. Note that flight plans can be saved in different formats and accordingly have to be placed in different directories.



Any flight plan you save will always be saved in FlightSim Commander's own flight plan format. Therefore you cannot uncheck the check box in the top left column. These flight plans will always be saved in the directory `FSC\Flightplan\FSC` and it is only these flight plans that can be reloaded into FlightSim Commander. You cannot load (= import) any other format into FlightSim Commander for the simple reason that FlightSim Commander requires information that these other formats do not provide.

All other formats can be checked or unchecked. Note also that all flight plans

If you intend to load a flight plan into Flight Simulator, you check the check box <Flight Simulator ..>. In the above screenshot it reads <Flight Simulator X>, but if you are using FS 2004 and load the FS 2004 database the same check box will read <Flight Simulator 2004>

Some flight plan formats such as Flight Simulator or aircraft such as PMDG or Level D have variable directories; i.e. those directories depend on where you have installed Flight Simulator. Other formats are free in the sense that you can save them anywhere on your computer you like.

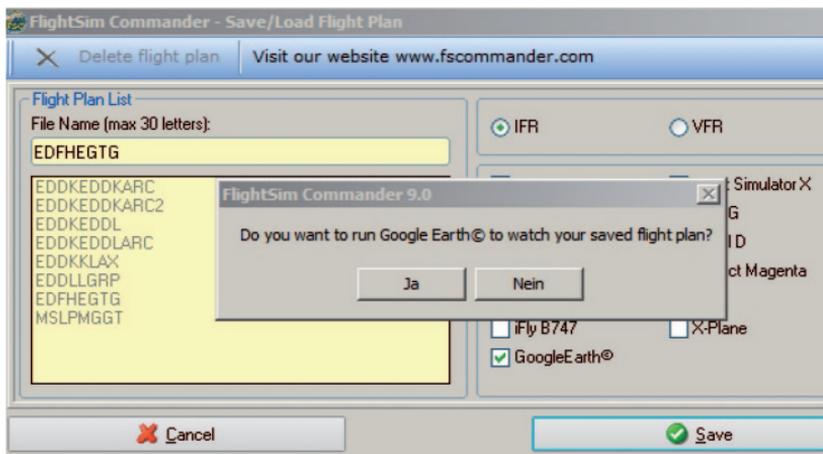
Important:

We strongly suggest that before you save any flight plans you go to the Options Window and there on the Flight Plan tab and set the paths where you want the different formats to be saved. In particular, you should specify the path where your Flight Simulator is installed and also the path for Flight Simulator's own flight plans.

The list box on the left-hand side displays all flight plans in FlightSim Commander format currently available. The list box is inactive when you save a flight plan, but active when you load a flight plan.

Note that the option of saving a flight plan in XML format allows you to create custom printouts. The XML file contains all flight plan parameters that are being used inside the program so that it is the richest and most complete flight plan file. FlightSim Commander comes with a very simple style sheet that can be used; however, you can create your own style sheet and thus obtain a printed flight plan that corresponds exactly to your needs. Flight plans in XML format are also saved in *FSCFlightplan\FSC*.

If you check the GoogleEarth© box, you will be asked whether or not you want to look at your flight plan in GoogleEarth©.





A saved flight plan may look like this in GoogleEarth©:



Route segments

Instead of saving a complete flight plan, you can also save different types of route segments. A route segment is any sequence of waypoints inside a full-fledged flight plan. Of course, you can also reload these segments and insert them into an existing flight plan. FlightSim Commander is shipped with a collection of several hundred route segments.

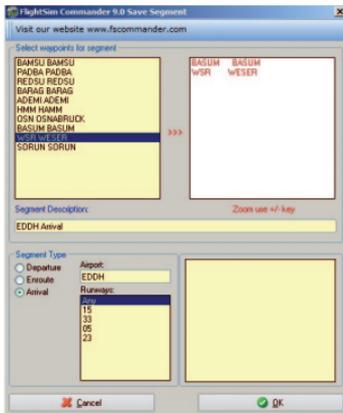
There are basically three types of segments:

- departure segments
- arrival segments
- enroute segments

A departure segments is any sequence of waypoints immediately following the departure airport, while an arrival segment is any sequence of waypoints immediately preceding the arrival airport. In contrast, an enroute segment is any sequence of waypoints leading from anywhere to anywhere without any relation to airports. These three types are also saved in different directories, namely `\departures`, `\arrivals`, and `\enroute`.

Saving a segment is basically a trivial matter. Choose the menu item Flight Plan -> Save Route Segment.

In the opening window you select the waypoints for the segment to be saved in the top two list boxes. The left-hand box lists all waypoints of your flight plan. The right-hand box contains the waypoints of the segment to be saved. A click on any item in the left-hand box will „move“ the waypoint into the right-hand box. To delete a waypoint in the right-hand box, mark it and then press Del on your keyboard. Enter a description of the segment in the text box below the two list boxes.

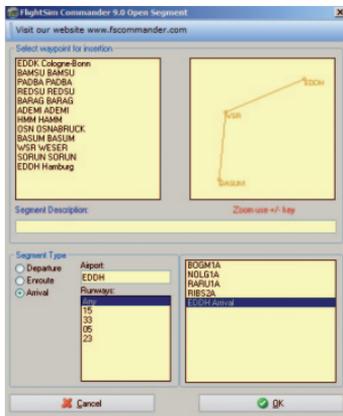


In the lower part of the window you specify the segment type, i.e. departure, arrival, or enroute. If you choose departure or arrival, then the ICAO code of your departure or arrival airport will appear in the airport text box and its runways will be listed in the runway box. That is, for departure and arrival segments you can specify a runway that is valid for that segment. Choose Any, if a segment is not specified for a particular runway.

Finally, you need to specify a file name for the route segment if and only if it is an enroute segment. For departure and arrival segments the file name is automatically determined. We suggest that you choose a somewhat meaningful name, but, of course, you are free to follow any convention.



Loading a segment into an existing flight plan is just as easy. Choose *Flight Plan -> Open Route Segment*. Again you need to specify first, if you want to load a departure, arrival or enroute segment. Departure segments are inserted immediately after the departure airport with the first waypoint following the airport. Arrival segments are inserted before the arrival airport with the last waypoint immediately preceding the airport. For enroute segments you have to specify the insertion point AFTER which the insertion is to take place. Make the selection in the upper left-hand list box.



The list box in the lower part of the window will list all route segments available for your current selection. If e.g. you have selected *departure*, then all route segments for your current departure airport will be listed. If you have also specified a runway, then only segments for that runway will be listed. For enroute segments selecting a segment in the bottom file list box, will make the waypoints of that segment appear in the upper right hand box. For departure and arrival segments a graphic display of the route segment will appear.

Note that departure and arrival segments are useful for those airports which do not have SIDs and/or STARs in the Navigraph database. If you have the proper documentation, you can define segments which imitate SIDs and STARs. However, segments are not indivisible units as are SIDs and STARs; that is, you are free to insert additional waypoints into a segment or delete waypoints from a segment

User Waypoints

FlightSim Commander allows you to define customized waypoints which will be stored in a separate database and consequently are reloaded every time you start the program.

Note that these user waypoints are conceptually different from the temporary custom waypoints which you may insert into a flight plan by way of clicking on some geographic location with the **right** mouse button. Customized waypoints added to a specific flight plan are temporary in the sense that they exist only inside that flight plan and thus you can only see them when this flight plan is being displayed on the map. In contrast, user waypoints are permanent and are thus treated on a par with other types of waypoints, such as VORs, NDBs, intersections etc.

Consequently, there is a special display button labeled *Uwp* on the button bar with which you can toggle them on and off. Furthermore, user waypoints can be inserted into a flight plan in the same way as e.g. nav aids; i.e. by clicking on them with the right mouse button or by searching and selecting them in the list box on the flight plan panel.

We suspect that user waypoints will be more important to VFR pilots than for IFR flights. Thus they may typically be visual reporting points, specific landmarks or other locations which you will frequently use for your flights. With a few exceptions to which we will return there are no restrictions on the selection of user waypoints. Any geographic location can be made a user waypoint; thus if you would like to add your own home or grandma's seaside cottage to the database, you are free to do so.

FlightSim Commander ships with a small database of a little less than 1000 visual reporting points in Europe. If you wish to make any changes to the waypoint database, you choose *Window -> User Waypoints* from the menu bar. Subsequently, the following window will open:



As you can see from the buttons at the bottom of the window you can add or delete waypoints or you can edit them by changing their code, name, latitude or longitude.

Adding user waypoints

Each user waypoint needs to be specified for four parameters:

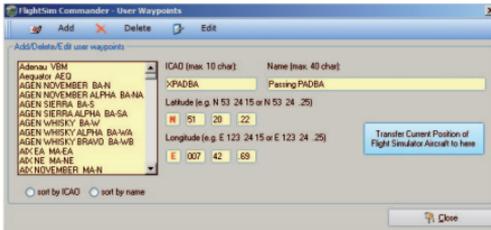
- ICAO code
- Name
- Latitude
- Longitude

Strictly speaking, the code you must assign to your customized waypoint will in many cases not be a real ICAO code. ICAO codes can only be assigned by aviation authorities and certainly there is no real ICAO code for, say, grandma's seaside cottage. But in FlightSim Commander the code of a user waypoint is treated in exactly the same manner as ICAO codes of VORs, NDBs, and the like. That is why we decided to also call it "ICAO" code.

In order to add a waypoint to the database, you need to enter its code, name, latitude, and longitude into the corresponding text boxes.

For latitude and longitude you may use two different formats: either seconds or decimal minutes. If you prefer to use the notation with decimal minutes, you enter the corresponding decimal value into the seconds text box preceded by a dot.

Instead of entering latitude and longitude directly, you can also use an indirect method of setting the corresponding values. If (and only if) you are connected to Flight Simulator, you can press the button labeled *Transfer current position of Flight Simulator aircraft to here*. This will automatically enter the current geographic coordinates of your aircraft in Flight Simulator into the text boxes. Furthermore you can click with the right mouse button on any location on the map. This will transfer the coordinates of that location into the text boxes.



Press the *Add* button to add the waypoint to the database.

Deleting user waypoints

The list box on the left-hand side of the window lists all user waypoints in the database. If you wish to delete a waypoint from the database, you simply click on the corresponding entry in the list. The values of that waypoint again appear in the corresponding text boxes.

Press the *Delete* button and – after a confirmation window – the waypoint will be **permanently** deleted from the database.

Editing user waypoints

To edit a waypoint, you first select it in the list box. Then you change any of the four parameters in the corresponding text boxes.

As in the case of adding a waypoint, you can also transfer the coordinates of your current position in Flight Simulator by pressing the button *Transfer current position of Flight Simulator aircraft to here*. Or you click with the **right** mouse button on the map to transfer that position into the text boxes. Subsequently, you press the *Edit* button to transfer the changes to the database.



User objects

This feature has been implemented as a response to a few user requests. The geographic map is obviously not complete in terms of rivers, lakes, etc. Especially for VFR pilots it may happen that this little lake, river, or road that you use as a landmark for flying is missing on the map.

You have the possibility of defining your own lakes, rivers etc. and store them in a database that will be read when the program starts. The method of defining your own map objects is admittedly fairly rudimentary (basically you have to specify latitude and longitude) and we are not sure that we will expand or refine this method in future versions. But for the time being it may be useful for individual cases.

Open the file `UserObj.txt` with a text editor. There is a detailed description on how to define your own map objects followed by some examples.

Logbook

FlightSim Commander keeps an automatic logbook for all flight-plan-controlled flights. You don't have to make any entries into the logbook; rather the relevant data are recorded while you are flying.

The only thing you need to do is tell FlightSim Commander to save the data in the logbook (logbook.fsc in the \User subdirectory). You do this by either choosing the menu item *Logbook -> Autolog* or by pressing the button with *Log* in the center of the button bar above the map. The *Log* will be red when the *Autolog* function is on.

Note that data recording automatically begins at takeoff and ends at landing. So you can activate the *Autolog* function at any time between takeoff and landing.

If you wish to inspect your logbook, choose the menu item *Logbook -> Show Logbook*. The following window will open:



The Logbook Window consists of a table listing the recorded flights with date, departure, destination, takeoff time, and landing time. Clicking on any flight in the table will provide additional information in the four boxes on the right side.

In the above example we have a flight from EDFH (Frankfurt-Hahn, Germany) to ENBR (Bergen, Norway). Most of the information is self-explanatory. The box in the top right side lists the waypoints we have passed; that is we passed ELNAT at 18:50 and NORTA at 18:56.

Note that the entries in the logbook are independent of the flight plan; that is, the logbook shows what actually happened and not what was planned to happen. So if your flight plan lists a waypoint which, however, you decided to skip, then that waypoint will not appear in the logbook.



Aircraft Window

FlightSim Commander allows you to specify the aircraft you want to use for your flight. This information is stored in a database called `aircraft.fsc` located in the `/User` subdirectory.



You reach the *Aircraft Window* by choosing *Window -> Aircraft* or by pressing the button with the aircraft symbol.

You will see the aircraft currently stored in the database in the combo box under <Name>. Each aircraft has associated with it a set of parameters such as climb speed, cruise speed, weights and the like.



If you wish to select the currently displayed aircraft for your flight(s), you press the button **Select**.

The aircraft you select will determine the calculation of various aspects of your flight plan, such as fuel consumption, flight level, turn width, etc.

You can manipulate the database by either editing current entries, adding new aircraft or deleting existing aircraft.

Editing aircraft parameters

To add a new aircraft press the button **Add**. The text boxes will display some default values which you can subsequently edit. Since these values are used for fuel calculations, it is absolutely crucial that you

enter the correct values. In case you are unsure what the correct values are for a given aircraft, we suggest that you choose the values of a similar aircraft. In case you get unreasonable fuel information, this is presumably because the values of the aircraft are incorrect.

Adding new aircraft

To add a new aircraft press the button *Add*. The text boxes will display some default values which you can subsequently edit. Since these values are used for fuel calculations, it is absolutely crucial that you enter the correct values. In case you are unsure what the correct values are for a given aircraft, we suggest that you choose the values of a similar aircraft. In case you get unreasonable fuel information, this is presumably because the values of the aircraft are incorrect.

Deleting existing aircraft

To delete the currently displayed aircraft, press the button *Delete*. A small message box appears which asks you to confirm your intention to delete that particular aircraft. If you press *OK*, the aircraft will be **permanently** deleted from the database of FlightSim Commander. Of course, this deletion does nothing to your aircraft installed in Flight Simulator

Aircraft parameters

The parameters in the Aircraft Window are for the most part self-explanatory. If you add new aircraft, you will find some of these parameters specified in the corresponding aircraft.cfg. Other parameters will be indicated in the accompanying documentation. However, in the worst case you will have to find out the correct values by test-flying the aircraft.



Fuel Window

The Fuel Window informs you about fuel consumption and alternate airport location.



You reach the *Fuel Window* by choosing *Window -> Fuel*. Alternatively, you may press the button with the fuel pump icon.

Note that for obvious reasons the *Fuel Window* is only accessible after you have filed a flight plan.

The top section displays (estimated) fuel consumption for the various phases of your flight under both VFR and IFR conditions. The difference is that if you fly under IFR condition you need contingency fuel, holding fuel, and fuel for the alternate airport in addition to the trip fuel:



Below the fuel values you also find the number of fuel stops necessary, if any.

You leave the *Fuel Window* by pressing the button *Close*.

Approach Window

The *Approach Window* allows you to inspect approaches of your destination airport, provided official approaches are available. The *Approach Window* is only accessible after you have made a flight plan.



To open the *Approach Window*, press the button with the landing aircraft symbol.

The *Approach Window* has two graphic and three textual parts. In addition, two list boxes at the bottom allow you to select a runway and an approach for that runway. If no official approach is available for a given runway, a standard approach route will be displayed.



The top graphic display shows the horizontal route of the transition, approach, and missed approach (if available), while the bottom display shows the vertical route beginning at the final approach fix.

The three labels at the right-hand side provide textual information on the transition, final approach, and missed approach respectively. In particular, these include altitude and speed restrictions as well as course and holding information.



Note that while transitions are part of your flight plan, approaches and missed approaches are NOT. You might want to use the *Approach Window* during the final phase of your flight for your reference.

The buttons at the top of the window are largely self-explanatory. They allow you to toggle on and off specific waypoint types in the top display and to zoom and unzoom the display.

GPS and moving map

FlightSim Commander provides a GPS and Moving Map feature which allows you to track your flight in real time. You activate GPS from the Map Window by choosing from the menu bar *GPS -> Connect to FS*. Before you activate GPS, make sure that Flight Simulator is running. We also suggest that you uncheck the box *Pause on task switch* in Flight Simulator's menu *Options -> Settings -> General*, if you are running Flight Simulator and FlightSim Commander on the same computer.

As soon as the connection is established, a little *GPS Window* will appear which places itself onto the top left corner of the Flight Simulator window. This *GPS Window* can be dragged and dropped to any location. Secondly, a little aircraft symbol will appear in the center of the *Map Window* indicating your aircraft's current position.

GPS Window

The GPS Window displays real-time information on the current position and status of your aircraft and flight and retrieves this information directly from Flight Simulator. The GPS Window has six alternative pages which can be accessed by the six buttons on the right-hand side. The button of the page currently displayed has bluish letters.

The GPS Window can optionally be made invisible by choosing the menu item *GPS -> GPS Window*. To make it visible again, choose this menu item again.



The General Page



This is the default page which appears when the *GPS Window* opens without a flight plan having been filed. At the bottom line it displays the aircraft's position in latitude and longitude. Furthermore the altitude (in feet), AGL (in feet), true airspeed and ground speed (both in knots) are indicated. Similarly, heading and track are shown in the third line, true track and wind correction angle are displayed in line 4 and magnetic variation are displayed in line 5

The Waypoint Page



The Waypoint Page displays information relating to waypoints and flight plan routes. Consequently, this page is only available if a flight plan has been filed.

The two top lines show the code and name of the next waypoint as well as its frequency (if any). Line three and four indicate heading and bearing, estimated time enroute (ETE) and distance respectively. Finally, we find altitude, AGL, true airspeed and ground speed. If your indicated airspeed (IAS) exceeds 250 kt at an altitude below 10000ft, the line with true airspeed and ground speed will appear in red as a general warning.

The track error indicator shows both graphically and digitally how much your aircraft deviates from the track of the filed route. If the moving red needle is exactly in the middle of the display, then you are right on track. In the screenshot above the needle is slightly to the left of the center. Therefore you have to steer left in order to return to the exact track. The two numbers to the left and to the right of the graphic display indicate the track angle error (TKE) and cross track error (XTD) respectively. The TKE is the angle by which your bearing differs from the course line between two waypoints; whereas the XTD is the distance between your current location and the correct course line. The maximum deviation that is indicated is 30°.

The Waypoint Page (in conjunction with Autoheading) also provides a so-called Fly-Over feature. Standardly, the aircraft will initiate its turn prior to actually reaching the waypoint in order to reach the route after the waypoint at its best angle. If, however, you want to have the aircraft fly over the waypoint, i.e. start the turn no earlier than after having passed the waypoint, you press the **right** mouse button on WP. Subsequently, both the WP button's lettering and the name of the waypoint will turn yellow. After the waypoint has been passed, the fly-over variable is set back. You can cancel the Fly-Over also by clicking with the right mouse button on WP. The same effects holds when you press either of the two arrow keys or the *GoTo* button.

Weather Page

This page provides a weather report for both surface and ambient weather. Ambient is in relation to your aircraft, while surface refers to the ground.





Weather information is given in a format approximating very closely the METAR code. This acronym stands for Meteorological Aviation Routine Weather Report, a standardized weather report format used world-wide for aviation purposes.

The first line of the weather page shows wind and visibility. Wind direction is followed by wind speed i.e. 23005KT is to be interpreted as winds from 230 degrees at

5 knots. Separated by spaces and following European standards visibility is indicated in meters. That is, 4800 means 4800 meters or 4.8 km. Visibility above 10km is not specified; instead a general four-digit „9999“ appears.

Precipitation follows the visibility value (not in the screenshot) with the following abbreviations:

T	=	thunderstorm
RA	=	rain
SN	=	snow
SH	=	shower; e.g. SHRA for rain shower
+	=	heavy

Thus **TSHRA+** has to be read as thunderstorm with heavy rain showers.

The second line indicates the cloud structure with the following abbreviations:

SKC	=	sky clear
FEW	=	few: 1/8 to 2/8 of coverage
SCT	=	scattered: 3/8 to 4/8 of coverage
BKN	=	broken: 5/8 bis 7/8 coverage
OVC	=	overcast: 8/8 coverage

BHN010M in the above screenshot thus means „broken at 1000ft“. The final M stands for measured ceiling. This refers to the lowest layer that is at least broken. There may, of course, be more than one cloud layer.

In case visibility is more than 10km, no clouds below 5000ft and no thunderstorm and/or precipitation the second line will show CAVOK which stands for clouds and visibility OK.

The third line shows temperature (=25) and dew point (=25) and QNH (1013) in that order.

The ambient weather report follows the same format.

The Weather Page has four subpages labeled 1/4 though 4/4. You move to the subpages by clicking on the page indicator. Subpages 2/4, 3/4, and 4/4 show lower wind, middle wind, and upper wind respectively.

The Arrival Page



The Arrival Page provides information on the destination airport and is therefore only available if a flight plan has been filed. In the screenshot the flight leads to EDDH Hamburg/Germany. The elevation of the airport is 52ft, ATIS frequency is 123.125, and there are 36 parking positions available. At the time of the screenshot the distance to Hamburg was 180 miles and the estimated time enroute 00:23.

If you click on the word <State> at the right-hand bottom corner, a list of the five nearest airports will appear.



The ILS Page



The ILS page is actually a supplement to the arrival page. It shows all ILS runways of the destination airport with their frequencies. In our sample screenshot the arrival airport is EDDH Hamburg which has four ILS runways: 15, 23, 05, and 33.

The *1/1* next to the name indicates that this is page 1 of a total of one page. If there is more than one page, you click on the page indicator to go through all the pages.

For each ILS runway both the frequency and the exact heading are indicated.

The symbol “=” on the right side may be clicked on in order to transmit the corresponding frequency directly to Nav1 of Flight Simulator. This feature does not work for PMDG and other FMC-equipped aircraft.

The Runway Page



The Runway page provides a crosshair landing aid for runways which do not have an ILS and actually consists of two different displays.

When you press the button Rwy, a list of available runways at your destination airport will appear. The general structure of the page is similar to that of the ILS page. The screenshot shows four runways of EDDH. As the 1/2 indicates, there are more runways at EDDH. You reach the remaining runways by clicking on 1/2.

Select a runway of your choice by clicking on the = at the right margin of the line. Subsequently the selected runway will then be marked as <Sel>. At the same time a line Show Crosshair will appear.



If you click on the = next to this line, the page will switch to the crosshair display. Note that the crosshair does not become active until approximately 25nm before the runway threshold. As you approach the runway, the necessary descent rate will also be displayed next to the runway identifier.

Switching waypoints manually

By default the GPS will switch to the next waypoint if the aircraft's distance from that waypoint is less than 1.5NM. The two buttons with the arrows at the bottom left which are only enabled on the Waypoint Page may be used to manually switch to the previous or to the next waypoint. This option may be necessary if you wish to skip a waypoint or if Flight Simulator's ATC takes you off the flight plan route too early (which it standardly does).



Operating modes

AutoHeading mode

Pressing the button *AutoHdg* will engage Flight Simulator's autopilot and FlightSim Commander will then send appropriate data to make the aircraft follow the flight plan route. Note that the *AutoHeading Mode* does not control the aircraft directly, but only uses Flight Simulator's autopilot to control heading.

If an aircraft such as the PMDG Boeing does not use Flight Simulator's internal autopilot, but rather employs its own system, the *AutoHeading Mode* will not work.

GoTo mode

The GoTo mode is a specific version of the AutoHeading Mode. If you click with the right mouse button on any map location and subsequently press the *GoTo* button, the aircraft will be navigated directly to the location chosen.

Transmitting frequencies to Flight Simulator

Pressing the button *Frq* will send the frequency of the current way-point to Flight Simulator. In the case of airports it is the ATIS frequency that is transmitted to Comm1 in Flight Simulator. This feature does not work for PMDG and other FMC-equipped aircraft.

Moving Map

As soon as you connect to Flight Simulator, the *Map Window* turns into a Moving Map. The current position of your aircraft is indicated by a little aircraft symbol showing your heading. In addition, a label attached to the symbol displays your current flight level and ground speed.

You can also have the AI traffic displayed by pressing the button labeled AI on the button bar on the left-hand side of the Map. For details on the display of AI traffic see the corresponding section.

You can also have the path of the aircraft displayed by choosing *Blackbox* -> *Show Track*. To delete the displayed path and to reset the tracing function, choose *Blackbox* -> *Reset/Save*.

The default Moving Map feature is actually a „moving aircraft“ feature in that the aircraft rather than the map is moving. If you prefer to have the map move rather than the aircraft you can set this option in the *Options Window* on the *Display* card.

Distance arc

Every time the aircraft climbs or descends to an altitude set in the autopilot, a red distance arc will appear to indicate where and when the aircraft will have reached the desired altitude. You can suppress the distance arc by choosing the appropriate option in the *Options Window*.

By default the distance arc feature does not work for aircraft such as PMDG or Level-D which are FMC-equipped, because these aircraft do not permit access to values of their own autopilot. However, if you set the target altitude in the flight plan panel yourself, the distance arc feature will operate also with those aircraft.

This is how you proceed:

The flight plan panel has a black label <FL> (flight level) after which the flight level chosen appears in red numbers. Two spin buttons after the label can be used to change these values which determine the general flight level for your flight.

Once you are connected to Flight Simulator and airborne, the red color of the flight level values changes to blue. If you set the target altitude with the spin buttons, then the distance arc will also appear in the case of FMC-equipped aircraft.



Sym	Code	Name	Freq	Course	Distance	ETD	ATD	GS	Altitude	Fuel (kg)
<input checked="" type="checkbox"/>	EDDK	Cologne-Bonn	119,025							
<input type="checkbox"/>	DK034	Dk034		327°/326°	001 NM	07:44	07:44	181 kt	318 ft	33668 / 00%
<input type="checkbox"/>	DK039	Dk039		344°/343°	002 NM	07:44				
<input type="checkbox"/>	DK035	Dk035		036°/035°	002 NM	07:44				
<input type="checkbox"/>	DK036	Dk036		063°/063°	004 NM	07:45				

Once you have landed, the original function of the spin buttons as well as the general flight level value will be restored.

Great Circle navigation

A great circle is a circular arc connecting two points A and B at the shortest distance following the earth's surface. It is constructed by slicing the earth in half with an imaginary plane going through the points A and B.

All long-distance routes typically follow great circle navigation. For example, the North Atlantic route connecting Europe with the West Coast of the US is a great circle route passing through Iceland and the southern part of Greenland and then going south again through the northern part of Canada.

The opposite of a Great Circle route is a Rhumbline route which can be constructed by drawing a straight line between A and B on a map. From a practical (though not mathematical) perspective Great Circle and Rhumbline navigation are virtually identical for distances of less than 600 NM.

The most important property of Great Circle navigation is a constantly changing true course which is simply the result of flying along an arc. In contrast, Rhumbline navigation would follow an unvarying true course between A and B.

FlightSim Commander always uses great circle navigation by default. That is, all routes will automatically follow the shortest path. Since below approximately 600 NM there is virtually no difference between Great Circle and Rhumbline navigation, it is only for long-distance flights that the question of which type of navigation to use arises.

If for some reason you wish to use Rhumbline navigation, you can change the default setting in the Options Window. Simply uncheck Great Circle.

Important: If you choose to uncheck the option for Great Circle navigation, we strongly advise to reset this option to *Great Circle* again, after you have finished your flight. If you fail to do so, you might later get bizarre flight plans for long distance flights.

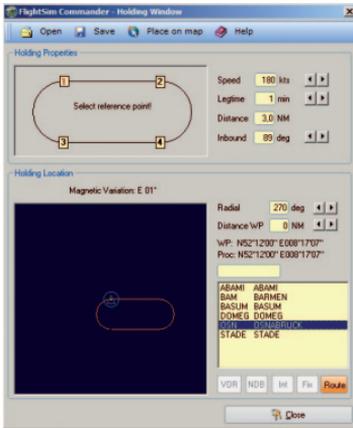


Holding Window

FlightSim Commander allows you to create and define holding patterns and procedures which you may either add to an existing flight plan or simply place upon the map for manual flying.



You open the *Holding Window* by choosing *Window -> Holding* or by pressing the button with the holding symbol.



Holdings can be created, saved, and reloaded for later use. Creating a procedure or holding pattern involves a series of steps which all need to be carried out in the *Holding Window*.

First, you need to set the **reference point** of the holding itself. Each holding has four reference points labeled 1 through 4 in the graphic display in the left upper quarter of the window. The number of the reference point currently chosen is given in red. Click on the reference point of your choice.

Secondly, you need to determine **the size of the holding**. Obviously, the size of the holding depends on the aircraft that is supposed to fly the holding. Consequently, it has to be larger for larger aircraft and smaller for smaller aircraft. The basic size parameter is the aircraft's speed. When you open the Holding Window, the value for speed is

the approach speed of the aircraft currently chosen. If you want to fly the holding with different speed, change the speed value by means of the spin buttons.

The next parameter is **the time** that you need for flying the entire pattern. By default, the value is four minutes, one minute for each leg and turn. If you want to fly the pattern more leisurely, increase this value by means of the spin button. The total distance covered by the pattern is indicated in the next line. Obviously, this value is calculated, so you cannot change it directly.

Next, you need to determine **the heading** of the pattern, i.e. its horizontal position. The heading can be any value between 0° and 359°.

After you have made these decisions, you need to set the **geographic location** of the holding:

The geographic position of a pattern is always set with reference to some VOR, NDB, intersection, or GPS fix. Therefore, you have to first select a reference waypoint from the list box in the lower part of the window. Press the button *VOR*, *NDB*, *INT* or *Fix* depending on your choice. Note that these buttons may be disabled, if you have filed a flight plan; instead the button *Route* is pressed. In this case the box lists all the waypoints of your flight plan and you will determine for which waypoint you define a holding. It is important to bear in mind that if you wish to add a holding pattern to your flight plan, the reference point can only be a waypoint of your flight plan.

Next, you will have to determine the position of the holding with respect to the reference waypoint. There are two parameters - *distance* and *radial*:

The distance parameter obviously modifies the distance between the reference waypoint and the reference point of the pattern in terms of nautical miles. Note, however, that the distance selected is not displayed to scale in the picture box. In this representation the distance is always displayed in the same length.

Finally, you will choose on which radial of the navaid the reference point of the holding will be positioned.



You add the holding to the map by pressing the button *Place on map*. You can save the holding, record your flight, and later look at how well you have done. See also the section Blackbox. If you want to look at your flight at some later time, you will also need to reload the holding previously saved.

Blackbox and flight analysis

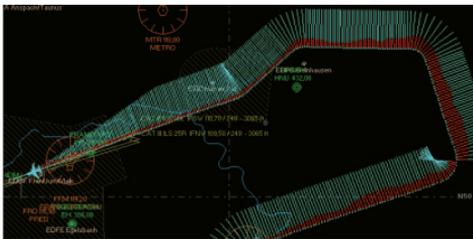
While in GPS mode FlightSim Commander automatically records the following flight variables and stores them in memory:

latitude	heading	AGL
TAS	UTC	longitude
altitude	pitch	bank

There are basically two ways to look at these recorded data. While you are actually flying, you can simultaneously display the flown track of the aircraft as well as the altitude. The complete set of parameters can be saved in a file for later analysis.

Track and altitude

To show the past track of the aircraft choose *Blackbox -> Show Track* or press the button labeled *Track* in the center of the button bar. For the display of the flown altitude choose *Blackbox -> Show Altitude*.



The track is depicted as a sequence of dots where each dot represents a latitude and longitude value. The perpendicular line at each dot represents the relative altitude of the aircraft at that position.

Display of the relative altitude is primarily intended for analyzing how smoothly you have flown an approach so that ideally the perpendicular lines should become shorter as you approach the runway.



In most cases you probably won't want to see the relative altitude for the entire flight, but rather only for the approach and possibly for the takeoff phase. Therefore there is an upper limit beyond which the relative altitude will no longer be displayed. By default this limit is 10000ft. But you can change this value in the *Option Window*.

If you wish to erase the currently recorded data in order to start a new recording choose *Blackbox -> Reset/Save*.

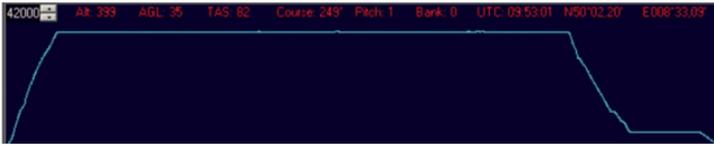
Flight recording and analysis

For a more thorough post-flight analysis you have the option of saving the recorded data in a file. Choose *Blackbox -> Reset/Save* at the end of the flight. The recorded data will be written to your hard disk and simultaneously the corresponding memory space will be emptied.

Choose *Blackbox -> Flight Analysis* to look at the parameters of a saved flight. Select a file from the list box.



The path of your flight is plotted on the map in much the same way as in the screenshot on the preceding page. Again, you can choose *Blackbox -> Show Altitude* to have the relative altitude of the aircraft at each position displayed. Initially the aircraft symbol is located on the first "dot" (= position) and can then be moved (back and forth) by means of the up-and-down arrows on your keyboard.



The big red dot represents the position of the aircraft and is synchronized with the aircraft symbol displayed on the main map.

Note that you can also use the *Control Zone Violation* feature of the program for such recorded flights.

Saving flight recordings for GoogleEarth©

When you decide to save a flight recording, you have the option of also saving it in a format which can be read and processed by GoogleEarth©.



Check <Save also as GoogleEarth© file>. The file has the extension *.kml and will be saved in the \User\Blackbox\ directory together with files in FlightSim Commander's own format.

The following two screenshots show flights recorded in FlightSim Commander as they appear in GoogleEarth©.



At the same time all legs in the flight plan table that cross a control zone are printed in red delete with the warning **CTRZ!!** in the name field.

Leg	Name	Time	Course	Distance	ETO	ATO	GS	Altitude	Fuel leg
PSA	Speersart		106°/105'	012 NM	00:15				
GBL	Gabelhaag [CTRZ!!]	429.000	117°/116'	029 NM	00:18				
LM	Heilbronn [CTRZ!!]	488.000	122°/122'	019 NM	00:20				
ANS	Arselsbach [CTRZ!!]	452.000	136°/135'	014 NM	00:22				
EDDM	Munich [CTRZ!!]	123.125	141°/140'	073 NM	00:37				

Note that both the highlighted control zones and the warning in the name field of the flight plan table are, in fact, little more than warnings. They simply indicate that a control zone may occur. It is up to the pilot to either request permission from ATC, to fly over or underneath the control zone, or to use a different route.

If you print out the flight plan, you have the option of an additional page which provides further detailed information on the control zones that potentially may be violated.

Violating control zones

When you are connected to Flight Simulator, you can choose *VFR -> Control Zone Violation*. FlightSim Commander will now check in real time whether or not you are violating a control zone. This function is totally independent of a flight plan.

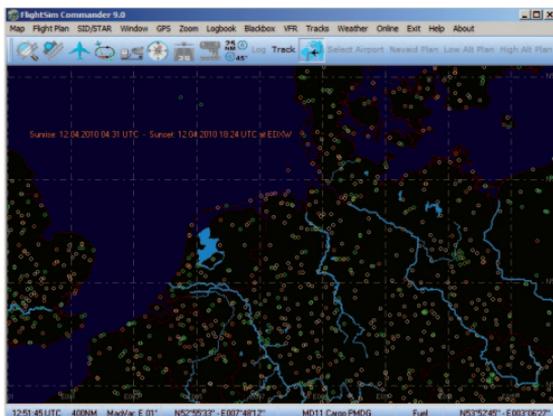
If you approach a control zone at an illegal altitude, the border of the control zone will first be displayed in the same color as the aircraft symbol. This change of color is in some sense a cautionary warning.

Once you are actually inside the control zone, its border will turn red indicating a violation without proper authorization by ATC.

This feature can also be used in the *Blackbox -> Flight Analysis* function. This way you can find out beyond any doubt whether or not you have, in fact, violated a control zone during a recorded flight.

Sunrise and sunset

If you wish to know the times of sunrise and sunset at a given airport, choose *VFR -> Sunrise & Sunset*. As you move with the mouse over some airport, a label will appear with the relevant information. Again, this label can be dragged and dropped.

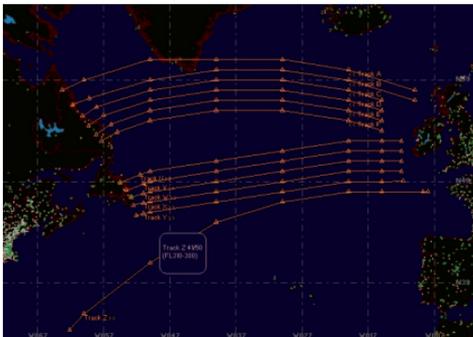




NATracks and PACOTs

NATracks (North Atlantic Tracks) are route segments leading across the Atlantic Ocean from the European to the Canadian/US coast. These tracks change daily in relation to the jetstream and are generally issued by Shanwick Center (EGGX), Gander Center (CZQX), Boston Center (KZBW), and New York Center (KZNY). Eastbound tracks are planned near the jetstream to give an additional “push” of the high-speed winds aloft. Westbound tracks are usually planned north or south of the jetstream to avoid headwinds of high velocity.

NATracks are standardly distinguished by a single letter A-J, where early letters in the alphabet (A-G) denote westbound tracks and late letters in the alphabet (Z-K) refer to eastbound tracks.



NATracks are subject to a number of restrictions, most importantly they are restricted to an altitude range of FL 290 up to and including FL 400. There are furthermore time restrictions; that is, certain tracks are in effect only at specific times.

FlightSim Commander allows you to download and display NATracks and to insert them into a flight plan.

To download the currently valid NATrack file, choose *Tracks -> NATrack -> Download NATrack*. Of course, an internet connection must be available, if you wish to download the relevant file. Note furthermore that currently the only available website for downloading the NATrack file is a secure website which you have to explicitly choose. Therefore

downloading the NATrack file cannot occur completely in the background; rather, when you choose the relevant menu item, a website will appear prompting you to press a button to gain access to the relevant page. As soon as the NATrack page appears on the screen, you have to save it under the name suggested by default (don't change it) to your FSC\ Database directory.

The currently valid NATrack URL is saved in fsc.ini, so you can manually edit this file in case there are any address changes in the future. Check the *Downloads* card of the *Options Window* for further detail.

To display NATrack routes, choose *Tracks -> NATrack -> Show Routes*. The routes will be shown as in the above screenshot. Each track line has its name shown as well as little arrows to show the track's direction.

The procedure to insert a NATrack into a flight plan is the same as for any other waypoint (or sequence of waypoints). First you have to choose the insertion point in the flight plan table. Click on the waypoint row after which you wish to have the track inserted. Then click with the **right mouse button** roughly in the vicinity of the word "Track" of the track you wish to add to your flight plan.

Note that FlightSim Commander does not check your selection for correctness or even plausibility. So if you decide to use Track A for going to Europe or if you have chosen a "crazy" waypoint for entering or leaving the chosen track, this is your own responsibility.

If you are planning a transatlantic flight, the most reasonable way would be to first choose the proper NATrack and then complete the route from your departure to the point of entry and from the exit point to your destination either manually or automatically. But, of course, you are free to do it the other way around.

Note furthermore that NATrack waypoints are treated in the same way as all other waypoints (and are thus different from SID and STAR waypoints). Therefore you can freely delete individual waypoints and you can also insert further waypoints into a NATrack.

PACOTs (Pacific Organized Tracks) are the Pacific counterpart to the North Atlantic Tracks. Both types of tracks are treated in an analogous fashion. To download the current PACOT file choose *Tracks -> Pacot ->*



Download Pacot. To display them on the map choose *Tracks* -> *Pacot*
-> *Show Routes*.

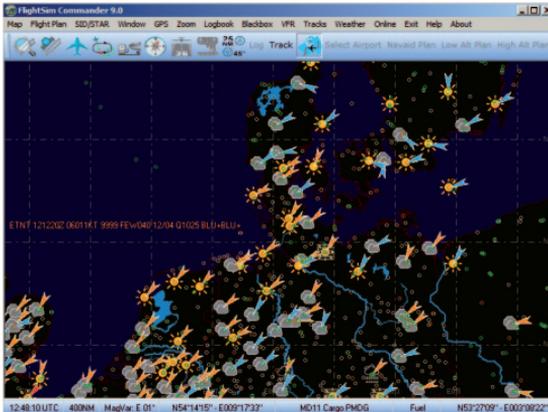
To insert a PACOT into a flight plan you proceed in exactly the same way as with NATracks.

Weather

FlightSim Commander allows you to download the current METAR weather from several thousand worldwide weather stations and to display the weather on the map. Self-explanatory graphic symbols are used to indicate rain, snow, clouds, sunshine, winds, etc.

To download the current weather file choose *Weather -> Download Weather*. Of course, an Internet connection must be available for this download.

To display the weather symbols, choose *Weather -> Show Weather*.



You can selectively turn on and off the wind arrows and the other weather symbols by choosing *Weather -> Show Wind Arrows* and *Weather -> Show Symbols* respectively.

The direction of the arrow indicates the wind direction. Green arrows are light winds, orange arrows medium winds, and red arrows strong winds.

A more precise weather description is given in the information label which appears when you move the mouse over the weather station (in most cases an airport) which is located at the tip of the wind arrow. The original METAR message appears in a label at the left bottom of the map. This label can be dragged and dropped.



IVAO and VATSIM flights

FlightSim Commander offers two specific features for pilots flying under the virtual control of VATSIM (Virtual Air Traffic Simulation Network) and IVAO (International Virtual Aviation Organization).

VATSIM and IVAO provide world-wide ATC communication, i.e. in principle all (major) airports and all control areas are being managed by real people communicating with pilots through the network. In reality, however, not all airports and control areas are permanently being served for the simple reason that VATSIM and IVAO controllers are just flightsim enthusiasts who mostly have a job, a family, and many other duties to perform. As a consequence, there are more active controllers over the weekend than on workdays and some areas may be better served at certain times than others, because e.g. Europeans are awake while Americans sleep and vice versa.

Whenever you plan an online flight with VATSIM and/or IVAO, a major problem is to find out whether or not there are active controllers at your departure and destination airports as well as in the control areas you will be passing enroute.

FlightSim Commander can display this type of information on the map. For IVAO choose *Online -> IVAO -> Show Active Controllers*, similarly for VATSIM you choose *Online -> VATSIM -> Show Active Controllers*.



In the above screenshot there are active controllers for Frankfurt airport Tower and Ground.

If you move with the mouse over the center of the circle or over the fat dot associated with airspaces, a window will open with relevant information on that particular control area.

Note that in the case of non-airport-dependent airspaces (basically FIRs with IVAO and VATSIM) it may happen that more than one airspace is served from the same location. In this case more than one text line will appear.



In the screenshot above you can see that moving the mouse over the spot associated with EBBU opens a label with both EBBU Brussels Control 131.1 and EBUR Brussels UIR. But only EBBU has a frequency, while EBUR does not. This indicates that EBBU is being served, but EBUR is not.

Therefore active control areas always have a frequency indicated in the label, while currently inactive areas show their name, but no frequency.

The information on active controllers is stored in a file which you can download from the IVAO and VATSIM website respectively. For VATSIM choose *Online -> VATSIM -> Download current VATSIM data*, for IVAO you choose *Online -> IVAO -> Download current IVAO data*. Obviously, an internet connection must be available, when you choose one of these options.

Note that if you are connected to Flight Simulator and an internet connection is available the display will be automatically updated approximately every five minutes. This is to make sure that you will be properly informed if the controller of your destination airport was active when you started, but decided to go to bed by the time you actually arrive. See the *Options Window* for further details.

Fellow pilots' aircraft

The aircraft of fellow pilots can also be displayed on the map. Note that aircraft in the vicinity of your own position join the multiplayer session and are thus fed into the AI aircraft pipeline. Therefore they will be displayed when the AI button in the vertical button bar is on. These aircraft are therefore shown in the same manner as ordinary AI aircraft when you are not connected to IVAO or VATSIM.

However, aircraft further away from you are not fed into the AI pipeline for the simple reason that this would be an extra burden on the IVAO/VATSIM servers.

Nevertheless, these aircraft can also be displayed on the map, although they will not „move“ in real time; rather their position will be updated whenever a new file is downloaded. Since during download intervals these aircraft do not move, we call them static aircraft. To make these static aircraft visible, choose *Online -> IVAO -> Show Static Aircraft* and *Online -> VATSIM -> Show Static Aircraft*, respectively.

A note on VATSIM and IVAO airspaces

As noted before, VATSIM and IVAO services are based on slightly different airspace structures which you have to be aware of if you are using FlightSim Commander for VATSIM or IVAO controlled flights.

IVAO uses a world-wide uniform set of airspaces which correspond roughly to Flight Information Regions (FIR). Each of these airspaces, i.e.



FIR, is identified by an ICAO code and controllers consistently use this ICAO code as a call sign to identify them. As a consequence, whenever an airspace appears as a polygon with diagonal lines, you know that currently this airspace is actively being served by a controller.

VATSIM also uses these airspaces, but there are notable exceptions in the US, the UK, Australia and occasionally a few other area. Let's take the UK for an example.



Roughly the southern half of the UK belongs to a Flight Information Region (FIR) which has the ICAO code EGTT. Around London there is a total of 18 Terminal Control Areas which are above all responsible for handling the traffic to and from any of the London airports. VATSIM has decided to reduce these 18 areas to 4 larger areas which are identified by the call signs LON_SW, LON_SE, LON_NW, and LON_NE.

As a consequence of the heavy traffic going to and coming from London these four Terminal Control Areas are favorite choices for the controllers of the UK Division of VATSIM so that they are regularly being served during standard flightsim hours. However, since these areas are neither FIRs nor conform to the Naigraph data, they will not be displayed – if active – as polygons with diagonal lines, but rather as larger circles in the same color as the remaining Flight Information Regions.

In the screenshot above the large magenta circle indicates that currently the Terminal Control Area LON_NW with the frequency 119.77 is being served together with the Approach EGLL, frequency 119.72, indicated by the smaller orange circle.

In other words, an airspace which is not identified by its ICAO code will be shown as a circle rather than a polygon.

Note that these remarks are valid only at the time of writing this manual. Both with VATSIM and IVAO airspace structure regularly changes or is updated. As a consequence things may turn out to be different in the future. Check our website at www.fscommander.com for updated files

Information on pilots and controllers

If you wish to obtain more details on pilots and controllers, you can open an additional window.

In the case of pilots move the mouse to the dot of the static aircraft or the tip of the aircraft symbol for real-time aircraft and then click Crtl-Left Mouse Button. For airspaces move the mouse to the (green) identifier dot, for airports move the mouse into the center of the circles and again press Crtl-Left Mouse Button.

The information you will find in the additional window trivially depends on the type of online activity selected. For airspace controllers the window merely shows the controller's name and rank as well as his position and frequency. Occasionally, additional information which the controller wishes to distribute appears underneath.





The window for pilots is divided up into various sections; most of the information will be self-explanatory.

Flight AAL83 (FS 2004) Server: EU9

Pilot in Command
Private Pilot
EHGR Gilze-Rijen - Netherlands

Flight Plan Information (IFR)
Dep: EDDF Frankfurt/Main - Frankfurt/Main - Germany
Dest: KORD Chicago-O'Hare Intl - Chicago - United States
Departure time: 12:40 Endurance: 9:40 hrs
BIBT11F BIBT1 UZ28 SUPUR UL602 GOW UN580 BRUCE UN580 TIR
UN572 GOMUP 5900N 02000W 6000N 03000W 6000N 04000W
6000N 05000W 5900N 06000W LAKES MCKEE MEMSO GRAMP
LORNE SSM WYNDE2

Current Status
N51°48'56" E006°16'29" **Climbing**
Altitude: 32441ft (filed: F380) Speed: 388kt (filed: M082)
Distance from departure: 137 nm
Distance to destination: 3630 nm
EET: 8:40 hrs

Aircraft
Callsign: AAL83 (American) Squawk: 5003
Company: American Airlines Wake Turb: Heavy
Type: Boeing 767-300 2-engine jet (heavy)
Equipment: Standard DME ADF GPS INS Data Link Doppler RNAV
RVSM CMNPS

Add to Friends Close

The Flight Plan Information section displays the filed flight plan as well as departure and destination airport. By left-clicking into the flight plan string, the flight plan can be copied and subsequently be pasted into the Route String text box (see Airway Routes for details). This way you can create an online pilot's flight plan.

Note that departure time and endurance are values entered by the pilot. In particular, departure time does not need to be the actual time when the flight started.

The same holds for ETE (estimated time en route) in the Current Status section. Since, as far as we know, the ETE value has no bearing on anything crucial of an online flight, it is a totally virtual value. Experience shows that pilots frequently enter a completely unrealistic value for ETE which will then also show up in FlightSim Commander's information window. Please, do not send us any mails complaining about „wrong ETE“ values.

The Aircraft section displays additional information about the aircraft type, the company, and above all the equipment which the aircraft carries. This information may be useful to controllers who need to check the filed flight plan prior to giving clearance.

If you choose an airport controller (center of a colored circle) the information window will simultaneously display all controllers for that airport. The screenshot below shows that airport Paris Charles-De Gaulles (LFPG) is currently served by two controllers, namely Tower and Approach. For each controller his name, rank, and ATIS are given as well as the position and frequency.



Note in particular that the ATIS identifier may be different for controllers at the same airport. Thus Approach has information CHARLIE, while



Tower has information GOLF. Furthermore there may be some discrepancies between controllers concerning take-off and landing runways which you may want to inquire about.

The ATIS also gives the full METAR weather report so that you do not need to request ATIS or weather separately.

Press the button *Add to friends* to add the currently selected controller or aircraft to the database of friends. In the case of multiple airport controllers the option button on the right hand side determines which controller is being selected.

Connecting to the IVAO Teamspeak Server

Users of the IVAO Network can connect to the Teamspeak server on a desired frequency, if either an airspace or airport controller has been selected.

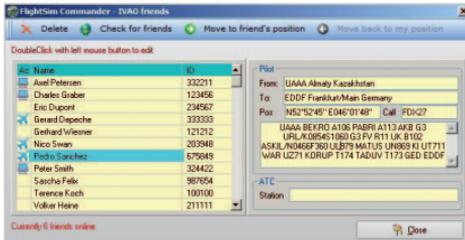
In the window for airspace controllers you find a button labeled Join with <position>, in the preceding screenshot Join with EDWW_W_CTR which is Bremen Radar West. If you press this button, TeamSpeak will be started and you are connected to the frequency of this controller.

In the case of airport controllers you may have several options depending on how many controllers for this airport are currently online. Choose the controller you want to connect to by pressing the corresponding option button in the upper right corner.

Very, very important: You can only connect to the IVAO Teamspeak server, if you have made the proper settings in the Options Window on the Online card. On this card you need to enter your VID and IVAN password and furthermore tell FlightSim Commander where your TeamSpeak program is located.

Online friends

FlightSim Commander allows you to keep a list of friends whose online presence can be checked. Open the Online friends window by choosing *Online -> IVAO -> Friends* or *Online -> VATSIM -> Friends* depending on which list of friends you want to select.



The screenshot above is largely self-explanatory. To edit or add a friend, doubleclick on the corresponding cell of the table. Note that the ID number is crucial; i.e. the name by itself is insufficient to identify a friend. For reasons of privacy the identifier numbers in the above screenshot are fictitious.

To check who is online press *Check for friends*. Clicking on a row will provide additional information on the friend who is online. In the case of pilots the flight plan is also displayed. If you like, you could copy and paste this flight plan into the Route text box of the flight plan panel to obtain the same flight plan as your friend.

If you want to see where your friend is currently located, press *Move to friend's position*. If you are connected with Flight Simulator and want to move back to the position of your own aircraft, press *Move back to my position*.

Note that the two buttons *Move to friend's position* and *Move back to my position* essentially do nothing more than toggle the menu *Map -> Aircraft on Map*. Standardly your own aircraft will always be visible on the map. If you want to move to a geographical position that is beyond the range of your own aircraft, you to uncheck *Aircraft on Map*. If you want to automatically move back to your own aircraft, check the menu *Aircraft on Map* or click with the **right** mouse button on the status label (beneath the map) displaying the currently selected aircraft.

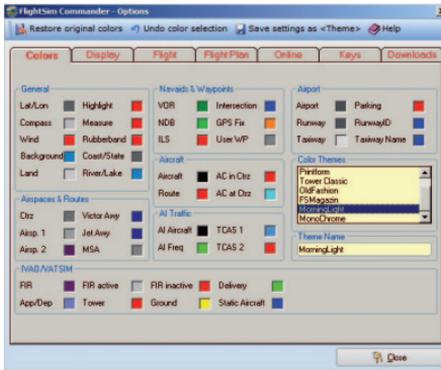


Options Window

The *Options Window* allows you to change certain parameters of FlightSim Commander. These changes will be automatically saved when you exit the program. You open the Options Window by choosing *Window -> Options* in the *Map Window*.

Colors

On this file card you can change most of the colors used, although certain different objects may use identical colors. Instead of selecting individual colors, you can also choose a color theme which is basically a ready-made collection of colors.



The currently valid color is indicated in the little square next to the name of the object. To change the color, click on the square and, subsequently, choose the appropriate color from the palette displayed.

Most of the object names are self-explanatory, but some might need some comments. In the General section Wind refers to the wind arrow which appears in the left top corner your connection with Flight Simulator is established. Measure denotes the (color of the) label that is associated with the measuring tool. Highlight is the color that is used whenever something on the map is selected or marked.

In the *Aircraft* section *AC in Ctrz* means aircraft inside control zone. This color is chosen for the control zone whenever your aircraft is inside of it. In contrast, *AC at Ctrz* means aircraft at control zone, i.e. the aircraft is approaching the control zone, but is not yet inside of it. It is therefore a kind of pre-warning.

In the *AI Traffic* section *TCAS 1* refers to the situation where an AI aircraft is approaching your aircraft, while *TCAS 2* indicates immediate risk of collision.

Note that in some cases changing the color of one object makes it necessary to simultaneously change the color of some other objects. For example, if you choose white for the chart, then you will also have to change e.g. the color of the coastlines and airports because a white line on a white chart is invisible.

If you ever notice that some objects remain unexpectedly invisible, check first their colors in the *Options Window*.

Note also that you can undo the last ten color selections. Press the button *Undo color selection* to return to the previous selection. Similarly, you can restore the complete set of color values that was valid when you entered the *Options Window*. Press the button *Restore original colors*.

Color Themes

In addition to choosing individual colors you can also select an entire color theme. A color theme is a fixed combination of colors for all map objects. You choose a color theme from the list box on the right-hand side of the window. After you have chosen a color theme, you can still change individual colors.

The color themes are saved in the file *fsccolor.ini* which is located in the main program directory. If you wish to save a given color setting to this file, press the button *Save settings as >Theme<*.

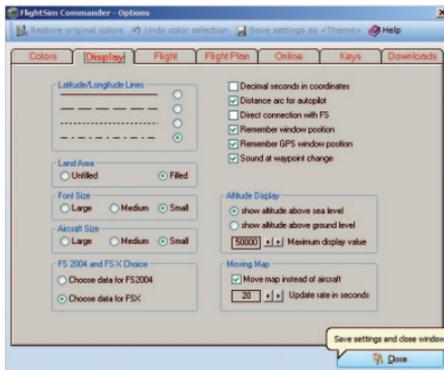


The following screenshots show some sample settings.



Display

On this card you may change the type of line by which latitude and longitude are represented. There are four types to choose from.



Furthermore you can decide whether or not latitude and longitude are displayed with decimal seconds, as e.g. Jeppesen publications do. For example, a standard latitude value of N52° 54' 30" would be N52° 54.50' with decimal seconds.

Furthermore you can choose whether or not you want to have a distance arc displayed when Flight Simulator's autopilot is engaged.

If you standardly start FlightSim Commander when Flight Simulator is already running, you might want to opt for an automatic connection so that the Map Window will directly show the position of your aircraft. In this case you will check the option Direct connection with FS.

Furthermore you can set whether or not the positions of the Map Window and/or the GPS Window should be remembered for the next start of the program.

For any flight both recorded and unrecorded, you can have the relative altitude of your aircraft displayed on the map (for details see Blackbox).

Since in most cases this feature will be used for takeoff, approaches, and/or landings, you can set the maximal value up to which relative altitude will be displayed.

You can furthermore switch the font size of the map from small to medium or to large. On monitors with a very high resolution or also on laptop computers the letters on the map may be too small for comfortable reading. In this case you might want to set the font size to medium or large.

Finally, you can decide whether you want to have land areas displayed as filled or unfilled polygons. If label letters appear to be too small for you, you can choose a larger font for more easy reading.

At the bottom of the card you can set the choice between loading the databases for FS 2004 or for FSX. Note that you have to start the program again if you have made a new choice in this section.

Furthermore, you can set the size of the aircraft symbol and choose between large, medium, and small.

Flight

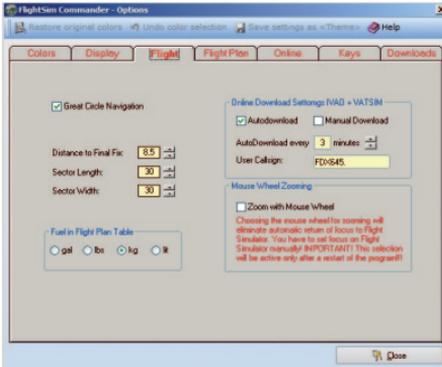
Changes on this card should be made only with extreme care, since in most cases they will affect very sensitive parameters of the flight plan generator. We suggest that you write down the original values before you make any changes. In case the flight plans generated after you have made changes in this section display unreasonable values, restore the original values.

By default FlightSim Commander uses Great Circle navigation for all routes and calculations. If for some reason you prefer Rhumbline navigation for a specific flight, you can uncheck the Great Circle



option. We strongly suggest that you reset this option to Great Circle again, once you have finished your flight. See also Operating modes.

Distance to Final Fix refers to the distance of the final fix from the runway threshold. The default value is 11NM. This may be too much for small airplanes like the Cessna, but too little for a huge aircraft like a Boeing 747. Obviously, the appropriate final fix distance may also depend on your skill as a pilot.



Sector Length and Sector Width have something to do with how FlightSim Commander computes the waypoints of a route. FlightSim Commander first determines the direct course from your departure to destination. Next, it defines a sector of ± 35 degrees deviating from the direct course. This is the sector width. At first, this sector extends over a distance of 30 miles. This is the sector length. FlightSim Commander now collects all nav aids within this sector and uses an optimization procedure to choose the best waypoint. If there are no nav aids in the sector, the sector length is extended by 50 NM. This procedure is repeated until the flight plan is completed.

The values for Sector Length and Sector Width have been tested for areas both in Europe and USA/Canada and should, in general, give satisfactory results. However, if you frequently fly in areas where VORs and NDBs are much sparser than in Europe or North America, you may notice that distances between waypoints may be unduly long because FlightSim Commander does not find any nav aids within a sector of 35

degrees. In this case you will change values. Presumably, you will have to experiment a little to find an optimal value.

Finally, you can select if you want to have fuel values displayed in the flight plan as gallons, pounds, kilograms or liters. Note that in the *Fuel Window* you can make a different decision independent of the option chosen here. Furthermore fuel in the *Aircraft Window* must always be entered in kg because fuel is related to weight.

The section on the right-hand side is for online pilots flying with VATSIM or IVAO. The display of active vs. non-active control areas is based on a file which needs to be downloaded from the VATSIM or IVAO website. You can choose whether you want to download this file once (e.g. at the beginning of your flight) or whether you prefer an automatic download at fixed intervals.

Since your own aircraft will also appear as a static aircraft in the file downloaded from IVAO and VATSIM, it will ordinarily appear twice on the map. To prevent this, you can enter the call sign into the text box so that display of your own aircraft as a static aircraft will be suppressed.

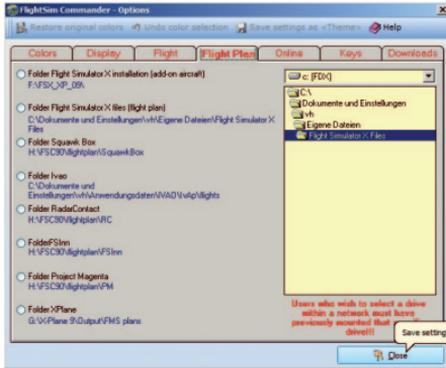
If you prefer to use the mouse wheel for zooming, you can check the corresponding check box on this page. Note, however, that there is a disadvantage to this choice. Standardly, the focus is returned to Flight Simulator whenever you do something in FlightSim Commander. This, however, is not possible when you use the mouse wheel for zooming for the simple reason that the number of wheel moves is undetermined. Therefore you have to return focus to Flight Simulator manually, i.e. click on the Flight Simulator window after you have finished zooming. It is obviously a matter of taste what is more important to you, the mouse wheel or automatic focus return.

Flight Plan

This card is extremely important, because here you decide into which directory your flight plans for various applications should be saved. Click on the corresponding option button and choose the desired directory in the drive and directory box. Your choices will be saved in



the ini-file.

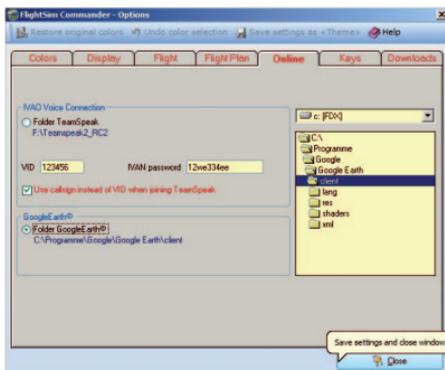


With the top option button you set the path where your Flight Simulator is installed. This folder is used by add-on aircraft such as PMDG or Level-D. The above screenshot was taken with a database for Flight Simulator X. If you are using Flight Simulator 2004, the label will, of course, name this version of FS.

With the second option button you set the path for the folder where Flight Simulator saves its own flight plans. Note that Flight Simulator flight plan files are NOT saved under the directory where Flight Simulator itself is installed, but rather in a directory somewhere deep in your C:\ drive. Depending on your language as well as your personal setup, this path may be very different. Usually the folder is called <Flight Simulator Files> (for FS 2004) or <Flight Simulator X Files> (for FSX). If you have problems finding the correct path, search for the directory named above or for *.pln which is the extension for Flight Simulator flight plan files.

With the other option buttons you are free to make any choice you like.

Online



Users flying with IVAO can connect to the TeamSpeak server on a selected frequency (see also Teamspeak). On this card you enter the necessary settings for that option. Again, your choices will be saved in the ini-file.

First, you have to tell FlightSim Commander the location of your TeamSpeak program. Click on the option button *Folder TeamSpeak* and then select the corresponding folder in the drive and directory box on the left.

Next, you will have to enter your VID and IVAN password. Note that when you type in the password, this will appear in the text box in its real, non-cryptic form so that you can quickly identify any typing errors. However, it is saved in the ini-file in an encrypted form.

You can log into the TeamSpeak server either with your VID or with the call sign specified on the Flight card. You can choose your preferred login sign by checking or unchecking *Use call sign instead of VID when joining Teamspeak*. Note that a call sign **MUST** be specified on the

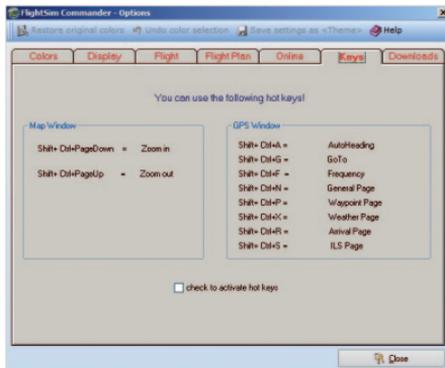


Flight card, if you wish to log in with your call sign. If no call sign is specified, you will always be logged in with your VID.

On this card you also set the path for GoogleEarth®, if this program is installed on your computer. See also the section on *Flight Analysis*.

Hotkeys

Responding to numerous user requests we have finally implemented the option of using hotkeys for zooming the Map Window and activating buttons in the GPS Window when the focus is on Flight Simulator.



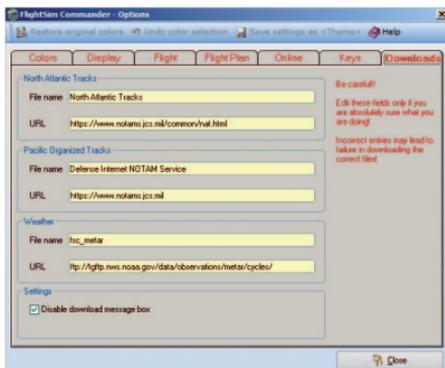
The Keys card provides an overview of which key presses can be used for which functions. Note that all combinations begin with Shift+Ctrl followed by either a letter or – in the case of zooming – by PageUp or PageDown.

You can activate these hotkeys by checking check to activate hotkeys.

Note that these key presses are also sent to Flight Simulator when Flight Simulator has focus. Therefore you should make sure that the above key combinations are not being used by Flight Simulator. Go to the Options menu in Flight Simulator and check the corresponding assignments.

Downloads

The Downloads card specifies the file names and download paths for North Atlantic Tracks (NATracks), Pacific Organized Tracks (PACOTs) and METAR weather.



What is most important in the case of NATracks and PACOTs is that you download the corresponding files with exactly the name that is specified on this card. Note that different browsers suggest different default names for these files. If you don't use the name specified on this card the file will not be processed by FlightSim Commander.



Appendix

Loading databases for FS2004 or FSX

Since FlightSim Commander can be used both for Flight Simulator X and FS 2004 and both versions may have different sceneries and thus require different databases, you need to decide at program start whether the databases for FSX or FS 2004 are to be loaded.

By default this choice needs to be made in the Options Window on the Display card. A change in value, however, requires that the program be terminated and restarted so that the proper databases can be loaded.

In particular, if you frequently switch between the two versions of Flight Simulator, this procedure may turn out to be relatively cumbersome. Therefore you also have the option to decide between versions by a parameter call.

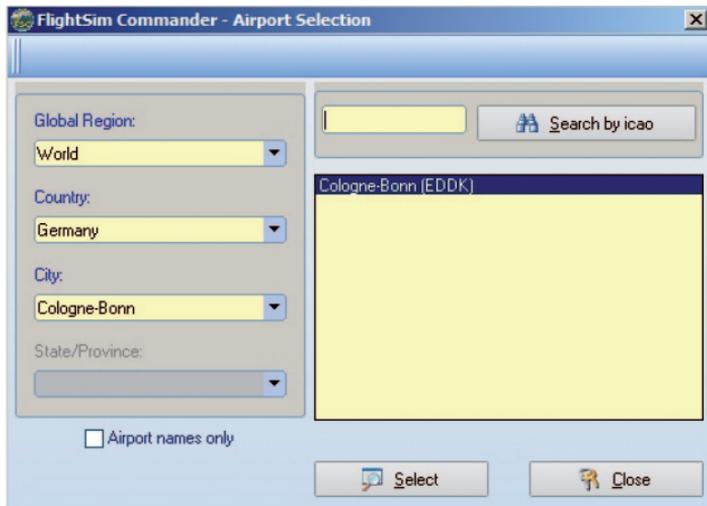
If you start the program with `fsc.exe 0`, the databases for FS 2004 will be loaded. If you start the program with `fsc.exe 1`, the databases for FSX will be loaded. These parameters override whatever has been chosen in the Options Window.

If you start the program without any parameter, i.e. simply `fsc.exe`, the value set in the Option Window will determine which databases are loaded.

Users who frequently switch between FS 2004 and FSX may want to place two icons on their desktop, each with a different parameter. If the icons are properly labeled, then each icon may easily be used to load the desired databases.

Directly connecting to Flight Simulator

When you start FlightSim Commander, you will standardly be prompted in the Airport Selection Window to select the airport that will then appear in the center of the map).



After the *Map Window* has appeared, you can then manually connect to Flight Simulator by choosing the menu *GPS -> Connect to FS*.

Provided Flight Simulator is already running when you start FlightSim Commander, you can directly and automatically connect to Flight Simulator right after all databases have been loaded. Consequently, the map will immediately show the position where your aircraft is located.

To choose this option, go to the *Options Window* and select the *Display* card. Check the box with the label *Direct connection with FS*.

Note that this choice becomes effective only at the next program start. FlightSim Commander will then automatically connect to Flight Simulator. In case Flight Simulator is not running, you will be so informed and the standard *Airport Selection Window* will appear as usual.



Peter Dowson's `fsuipc.dll` provides the option of automatically starting further programs once Flight Simulator has been started. Please read the documentation that comes with `fsuipc.dll` for detailed information on how this option is set.

With both these options you can have FlightSim Commander start and connect automatically every time you start Flight Simulator.

Note that Flight Simulator must be running prior to starting FlightSim Commander, otherwise an error message will appear.

Multiplayer mode and online flights

FlightSim Commander does not by itself support Flight Simulator's multiplayer mode; i.e. the aircraft of other players during online flights or in some other type of network are not automatically displayed on the map.

However, online aircraft can be made visible in the same way as AI aircraft (see also AI traffic) by means of a program called *AIBridge* whose author, José Oliveira, distributes this program free of charge can be downloaded from FlightSim Commander's website at www.fscommander.com.

AIBridge actually does nothing else but feed network aircraft into Flight Simulator's memory space for AI aircraft. As a consequence, from the perspective of FlightSim Commander these aircraft are handled just like „ordinary“ AI aircraft. Press the AI button on the vertical button bar to make these aircraft visible.

For IVAO and VATSIM flights you do not need *AIBridge*, because their servers automatically feed multiplayer aircraft into the AI traffic pipeline. For other servers you have to try out for yourself. If a server automatically feeds online aircraft into the AI traffic pipeline which are then visible on the map, you do not need *AIBridge*.

If you want to use *AIBridge*, please read the instructions attached to the download file carefully.

Appendix Network

Establishing a network connection with Peter Dowson's WideFS (WideServer+WideClient)

Several users have reported problems in setting up a multi-computer network to run Flight Simulator and FlightSim Commander on different computers. Although, strictly speaking, these problems have nothing to do with FlightSim Commander itself, we will describe – in what follows – the basic steps necessary to allow FlightSim Commander access to the computer on which Flight Simulator is installed. Nevertheless, we suggest that you get some basic understanding of how a network operates in general.

Since this document is **not** a general introduction to network setups, we will deal only with those aspects which are specific to FlightSim Commander. As a consequence, we will make a number of assumptions:

14. The hardware (network card, cable, etc.) of your network should be properly installed
15. The network software (drivers, etc.) should be properly installed
16. Peter Dowson's WideFS should be properly installed according to the instructions in his manual.

So, in essence, your system must be successfully set up as network and WideFS must be installed.

In what follows the computer on which Flight Simulator is installed will be called the **primary computer** or **server**, while the computer on which FlightSim Commander is running is called the **secondary computer** or **client**.

FlightSim Commander needs access to the server (where Flight Simulator is installed) in any of the following tasks:



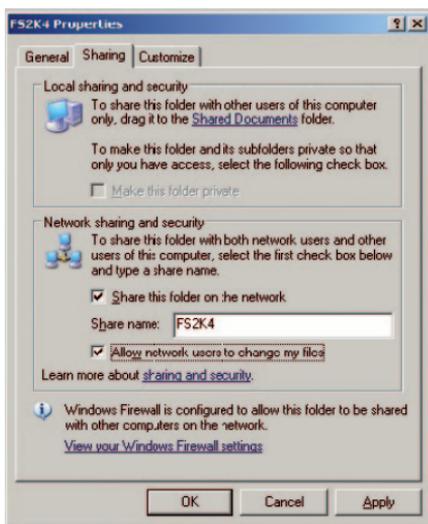
17. When updating the airport database with the Database Manager, FlightSim Commander needs access to the drive and directory in which Flight Simulator is installed. During the updating process Flight Simulator's scenery files (*.bgl) are read for information on airports, runways, etc. During this process nothing is written to the primary computer.
18. When saving a flight plan in PMDG format, FlightSim Commander again needs access to the drive and directory of Flight Simulator, but this time something is written on the primary computer (namely the flight plan). Consequently, FlightSim Commander must be allowed to both **read and write** on the drive and directory of Flight Simulator.
19. When saving a flight plan to Flight Simulator's flight plan directory, FlightSim Commander must be able to **write** to that directory. Note that Flight Simulator's flight plan directory is not in the main Flight Simulator folder; rather flight plans are saved in a directory called Flight Simulator Files which in turn is deeply embedded on your C:\ drive (assuming that's where Windows is installed). Typically, it will be something like C:\Documents and Settings\\My Documents\Flight Simulator Files\.

Note that for reasons of security you cannot set up the entire drive C:\ as a shared drive. As far as we can tell the highest level which can be shared is the folder My Documents. Therefore in what follows we will set up this folder as shared.

Step 1: Setting up the server

The first step is to set up the server. This is your primary computer on which Flight Simulator is installed.

Conceptually, the server has to decide which parts of its drive, directory, and file structure may be visible to the outside world, where the outside world in our case is the secondary computer on which FlightSim Commander is running. More specifically, we have to share both the folder of Flight Simulator and the folder in which Flight Simulator saves its flight plans:



First, we want to share Flight Simulator's folder:

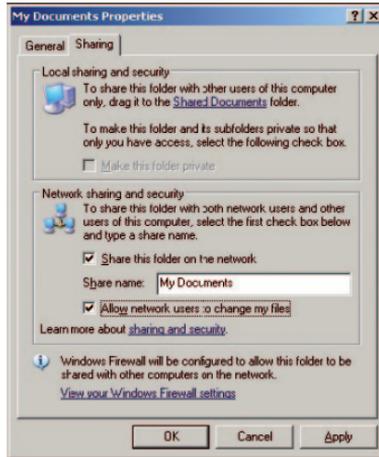
20. Open the desktop icon *My Computer*
21. Open the drive on which Flight Simulator is installed
22. Click with the right mouse button on the folder containing Flight Simulator (e.g. FS2K4 by way of example)
23. Choose *Properties*
24. Choose the card *Sharing*
25. Select *Share this folder on the network* in *Network sharing and security*
26. Select *Allow network user to change my files* in *Network sharing and security*. This selection is crucial, because it also allows FlightSim Commander to write on the primary computer
27. Press *Apply* and then *OK*

Instead of just sharing the folder, you could also share the entire drive, e.g. if you have a specific drive reserved for Flight Simulator and all related programs. To share the entire drive, click with the right mouse button on the drive symbol and proceed in the same way as described above.



Next we will share the drive and directory where Flight Simulator saves its flight plans. We will choose the level of My Documents.

The procedure is essentially the same as in the previous case:



28. Open the desktop icon *My Computer*
29. Open folder *Documents and Settings*
30. Open folder *<your name>* (this is your user name on your server)
31. Click with the **right** mouse button on *My Documents*
32. Choose *Properties*
33. Choose the card *Sharing*
34. Select *Share this folder on the network* in *Network sharing and security*
35. Select *Allow network user to change my files* in *Network sharing and security* This selection is crucial in order to also allow FlightSim Commander to write on the primary computer
36. Press *Apply* and then *OK*

Note that the item *Allow network users to change my files* is crucial in both cases. This is basically permission to write to this directory. If this box remains unchecked, you won't be able to write either PMDG or FS flight plans into the proper folder.

Step 2: Setting up the client

In Step 1 the server decided which of its drives and directories should be visible to the outside world. But, conceptually, this was just a permission. The outside world, i.e. your secondary computer on which FlightSim Commander is running, still does not “see” those directories. So in Step 2 we will make the client actually “see” the shared folders. This process is called mounting or mapping. In this mapping process the client will assign two virtual drives to the two shared folders (FS2K4 and My Documents). Therefore Step 2 will be carried out on your secondary computer where FlightSim Commander is installed.

This is how you proceed:

First you need to establish connection from your client to the server:

37. Click on the desktop icon My Network (or choose it from the Start Menu)
38. Choose Complete Network
39. Choose Microsoft Windows Network
40. Choose the work group (you gave this work group a name when you set up the network)
41. Open the server (when you set up the network, you gave a name to the server)

The two folders set up as shared in Step 1 should now appear in this window. These two folders need to be “mounted”.

First, we will mount the FS2K4 folder:

42. Click with the right mouse button on the shared folder of Flight Simulator
43. Choose *Map network drive*
44. Accept the drive letter as suggested
45. Check *Reconnect at logon*
46. Press *Finish*



Next, we will mount the My Documents folder:

47. Click with the right mouse button on the shared folder
48. Choose *Map network drive*
49. Accept the drive letter as suggested
50. Check *Reconnect at logon*
51. Press *Finish*



(Note that in both cases the folder text box may be deactivated in your case with the name and folder of your server in grayed letters. Furthermore the *Finish* button will be active.)

If you click on My Computer on your client computer (the one on which FlightSim Commander is installed), you should have listed there two new network drives with the drive letters Y: and Z:. (You can tell the network drives by the little vertical bar underneath the drive symbol).

Name ^	Typ
3½-Diskette (A:)	3½-Diskette
AMD (C:)	Lokaler Datenträger
OFF (D:)	Lokaler Datenträger
SAV (E:)	Lokaler Datenträger
CD-RW-Laufwerk (F:)	CD-Laufwerk
Virtual CloneDrive (G:)	CD-Laufwerk
Systemsteuerung	Systemordner
Fs2k4 auf "victorhotel (Amd2400)" (Z:)	Netzlaufwerk
Eigene Dateien auf "victorhotel (Amd2400)" (Y:)	Netzlaufwerk





Non-standard locations of scenery files

Some users running FlightSim Commander in a network recently reported that the Database Manager did not find certain add-on sceneries which are properly installed on their computer.

In most cases this problem may arise when add-on sceneries are widely distributed all over the computer in all kinds of different drives and directories or if the user has manually edited the scenery.cfg from which the Database Manager reads the location(s) of *.bgl files.

In what follows we will call the computer on which Flight Simulator is running the Primary Computer and the computer on which FlightSim Commander and the Database Manager are installed the Secondary Computer.

Let us assume that the scenery.cfg contains - among other things - the following entries:

```
Title=EDFH Hahn Airport
Local=D:\EDFH Hahn Airport
Remote=
Active=TRUE
Required=FALSE
Layer=51
```

```
Title=EDDK Cologne Airport
Local=E:\EDDK Cologne Airport
Remote=
Active=TRUE
Required=FALSE
Layer=52
```

That is, the *.bgl files for EDFH Hahn Airport are located on drive D:\ of the Primary Computer, while those for EDDK Cologne Airport are on drive E:\ of the Primary Computer.

Let us furthermore assume that Flight Simulator itself is located on drive C:\ of the Primary Computer which has been mounted as Z:[\PrimaryComputer[C]].

If drives D:\ and E:\ of the Primary Computer have not been mounted, the Database Manager obviously cannot find the corresponding files on these drives, simply because D:\ and E:\ can only be interpreted as being drives of the Secondary Computer.

As a consequence all three drives need to be properly mounted, e.g.

- Drive C:\ of the Primary Computer as Z:[\PrimaryComputer[C]]
- Drive D:\ of the Primary Computer as Y:[\PrimaryComputer[D]]
- Drive E:\ of the Primary Computer as X:[\PrimaryComputer[E]]

With this setup the Database Manager can also find the files on D: = [Y:] and E: = [X:].

Note that when you run the Database Manager you only need to select Z:[\PrimaryComputer[C]].

To avoid this and similar problems we recommend that you place your add-on scenery files into the FS directory, preferably into the Add-on Scenery directory which is there precisely for this purpose.



