

Microsoft Flightsimulator X – FSX.CFG Hacking Project

Management Summary:

Let's get this of my chest first...

The official end-user and developer SDK documentation that comes with Microsoft Flightsimulator product is not complete. That is my opinion from being a very experienced IT-professional and flightsim enthusiast for over more the 30 years!. (since Bruce Artwick's first flightsim!) It has not been written with the FSX-end-user in mind at all.

That is why I have started my “FSX.CFG Hacking Project”, to create a place for all yet publicly known FSX.CFG _CONFIGURATION_SETTINGS that can be found inside and outside the Microsoft Flight Simulator X product.

I have used my own professional ict-skills and freely downloadable tools from the Internet to hack, discover and document them, along with the many – already documented – FSX.CFG settings I have found online on various forums, websites, FSX-how-to-guides, blogs done by other flightsim enthusiast like myself.

What is in here?

The collected knowledge inside this document allows you:

- fully understand! (in plain English),

- control,

- tweak,

all (yet publicly known!) settings of Microsoft Flightsimulator X, in such a way that you do not become dependable of (expensive) “tools” that other people have developed (for you). This document enables the FSX-end-user (yes you) her/himself to complete configure this wonderful flight-simulator yourself, raw, uncut.

Microsoft Flightsimulator X – FSX.CFG Hacking Project

NOTE:

I have used my **own (low-end!) system** that runs on Windows 7-Professional 64 bit version to document this.

HARDWARE:

- *Motherboard* : MSI, Model G41M-P33-Combo(Ms-7592), 2GB Kingston DDR2 memory
- *Processor* : Intel Core 2 Duo E6400 @ 2.13 Ghz
- *Video Card* : Nvidia GeForce GT640 – PCI Express, 2 Gb Video memory, DDR3 memory
- *Monitor* : Philips 247E1 LED Monitor / 23,6" / resolution 1920x1080 pixels
- *Controller* : Logitech Extreme 3D Pro Joystick
- *Mouse* : Trust, GXT 31, 3600 Dpi optical gaming mouse

OPERATING SYSTEM:

- Windows 7 Professional, 64 bits

FLIGHTSIMULATOR VERSION:

- FSX Edition (FSX + Acceleration Pack)

Keep in mind that the parameter-values can be (very) different on your own computer system!!!

I sincerely hope that my shared knowledge enables you to squeeze every drop of flightsim_fun out of FSX and to fully understand it and tweak to your own needs

Keep the blue side up!

Ronald Vermeij

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Appendices:

I have added a number of FSX.CFG file contents so you can see, what happens after a certain stage of FSX installation and/or configuration.

A – Contents of FSX.CFG - after a full FSX installation. (aka “clean install” of the basic FSX).

B – Contents of FSX.CFG - after a full FSX + full Acceleration Pack installation.

C – Contents of FSX.CFG - after a full FSX + full Acceleration Pack installation + 10 min. testflight over Seattle.

D - Contents of FSX.CFG – after being regenerated by FSX itself after deletion of the current FSX.CFG.

E – Contents of FSX.CFG – “Minimized”:

→ *All sliders [|]-----] minimized,*

→ *All checkboxes [.] turned off.*

→ *Every first dropdown-box [-----|V] choice selected.*

F – Contents of FSX.CFG – “Reset to Defaults”

→ *Every [Reset to Default] button pressed.*

G – Contents of FSX.CFG – “Maxed Out”:

→ *All sliders [-----|] sliders,*

→ *All checkboxes [X] turned on,*

→ *Every last dropdown-box [-----|V] choice selected.*

H – Contents of “Saved Settings” File.

Here you can see which fsx.cfg parameters are saved to a “settings” file.

1. How is the FSX.CFG file created?

During installation of FSX, the setup program *creates* the default FSX.CFG file.

During installation of FSX Acceleration Pack, the setup program *adds parameters* to the existing FSX.CFG file.

1.1 - Which parameters are in the FSX.CFG file, after FSX installation?

See the appendix document for the default FSX.CFG description.

1.2 - Which parameters are in the FSX.CFG file, after FSX Acceleration Pack installation?

See the appendix document for the fsx+acceleration pack FSX.CFG description.

1.3 – Which parameters are in the FSX.CFG file, by making a little test-flight (after FSX + Acc Pack)

See the appendix document for the fsx+acceleration pack + test-flight FSX.CFG description.

1.4 – Which settings (from FSX.CFG) are saved to an external settings-file?

See the appendix document for an overview of the parameter=value pairs that are contained in an FSX setting file. You will discover that not all FSX.CFG parameters are “saved” to an external file.

2 - Where can I find the FSX.CFG file on my computer?

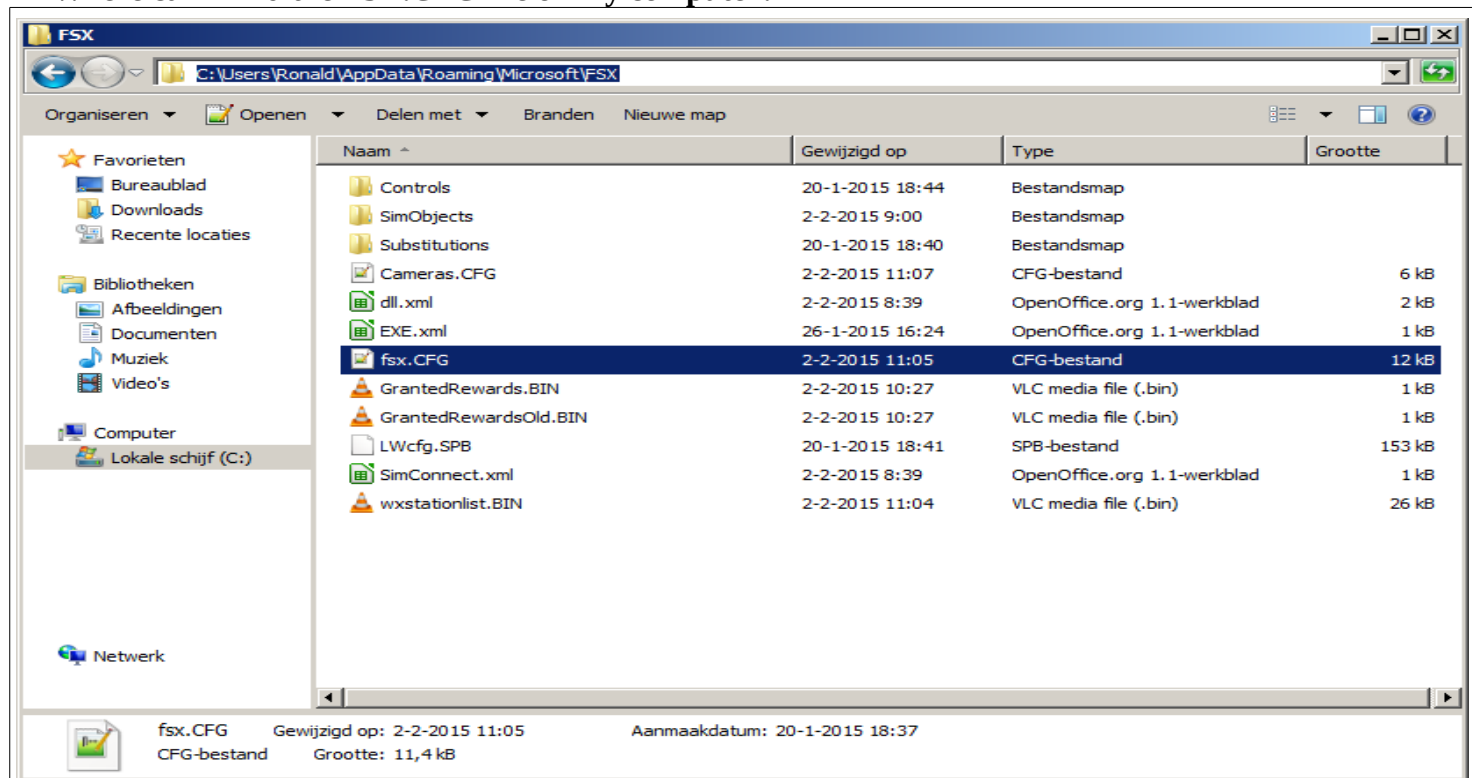


Fig. 1 – The location of the FSX.CFG file on your computer

The FSX.CFG file is physically located on your own computer at this location:

[Installation_drive]:\\Users\[login_name]\AppData\Roaming\Microsoft\FSX

- [Installation_drive] - The computer's Hard/SSD drive on which you have chosen to install FSX.
- [Login_name] - The Username you selected to login into the Windows Operating system.

2.1 - What must I do if I can not see the FSX.CFG file on my computer?

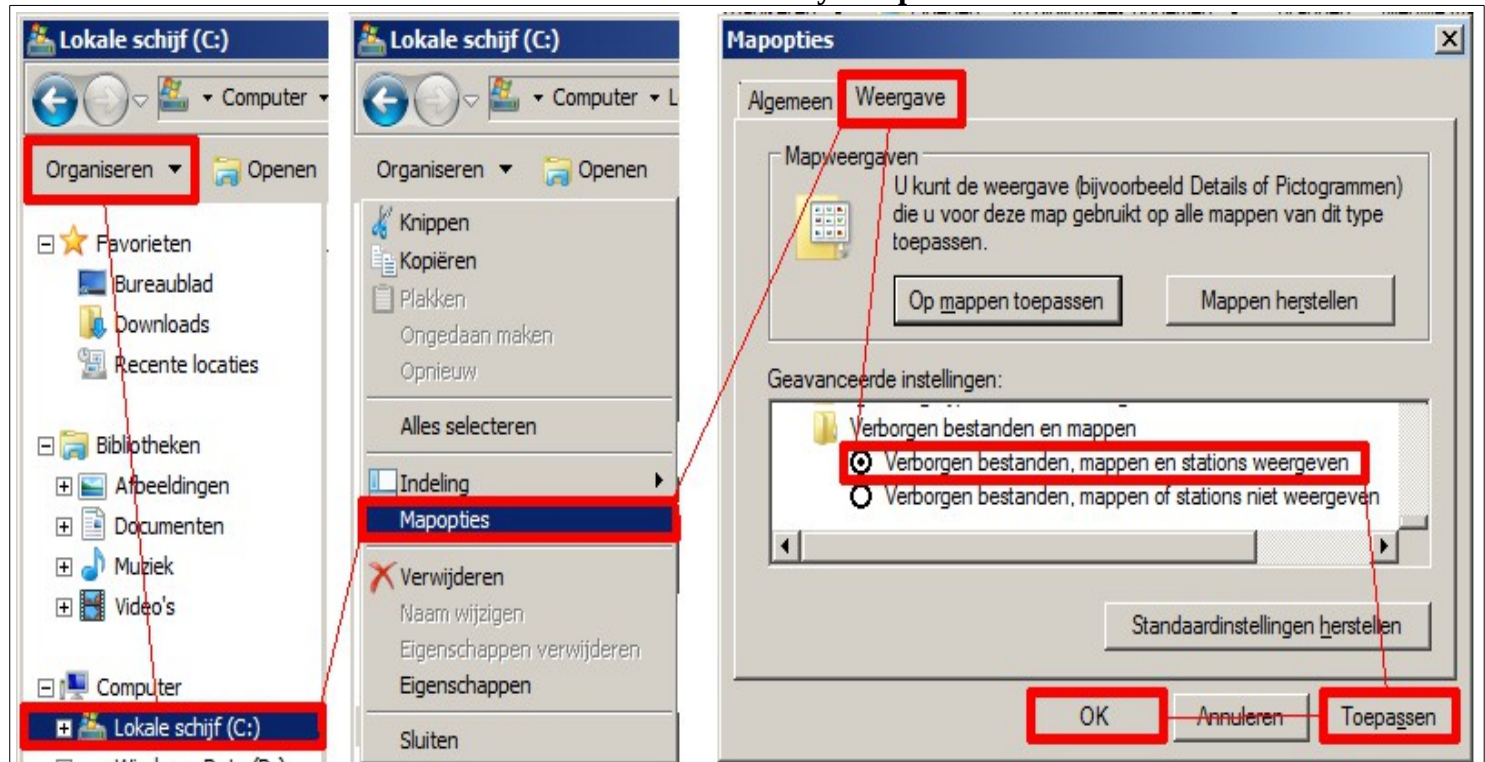


Fig. 2 - How to show Hidden Files, Folders and Stations inside the Windows Explorer

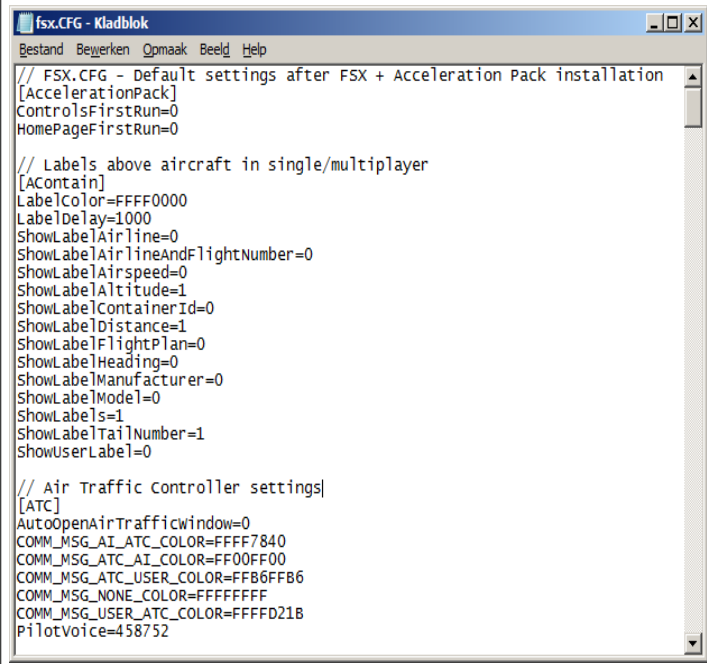
- Select the [Installation_drive] – (in this case the C: drive),
- Choose [Organize] from the Windows Explorer menu,
- Choose [Folder Options],
- Choose [Display Tab],
- Check the “Show Hidden Files, Folders and Drives” option,
- Click [Apply],
- Click [Ok].

By now, you should be able to find FSX.CFG, since the Windows Explorer was hiding it by default from you.

Default physical location to look for FSX.CFG is:

- `C:\Users\[login_name]\AppData\Roaming\Microsoft\FSX`

3 - How is FSX.CFG file organized internally?



The FSX.CFG file is a *plain ascii / .txt file* that can be opened, edited and saved by means of a simple Windows editor like “NotePad”.

Fig. 3 – FSX.CFG file contents

When you open FSX.CFG with NotePad, you will see its contents like in Fig.3

The FSX.CFG file is organized in the following way:

- // Comment line (for example: // FSX.CFG clean installation configuration file).
- [Headers] of an FSX.CFG section (for example: [Acontain], [ATC],[Display], [Weather]).
- Parameter = Value Pairs (for example: LabelDelay=1000, UsePilotVoice=1).

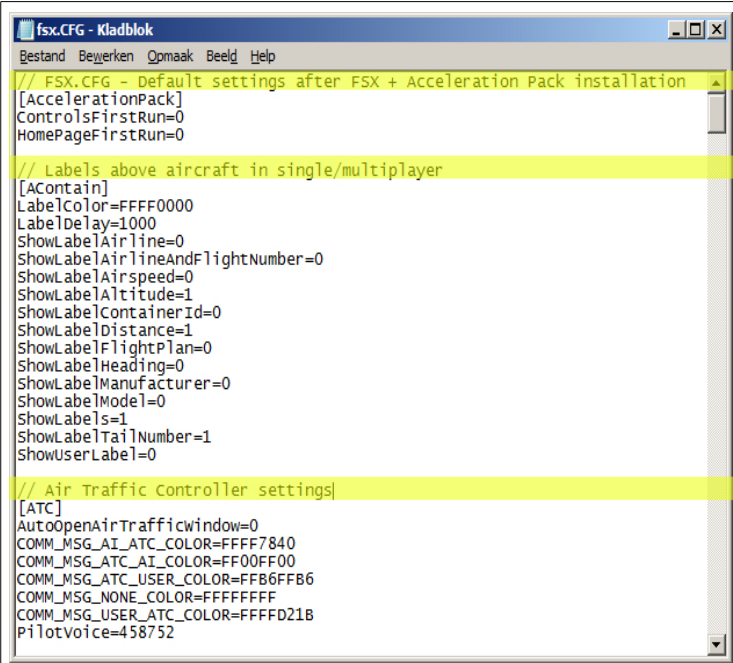


Fig. 4 – FSX.CFG's // Comment lines

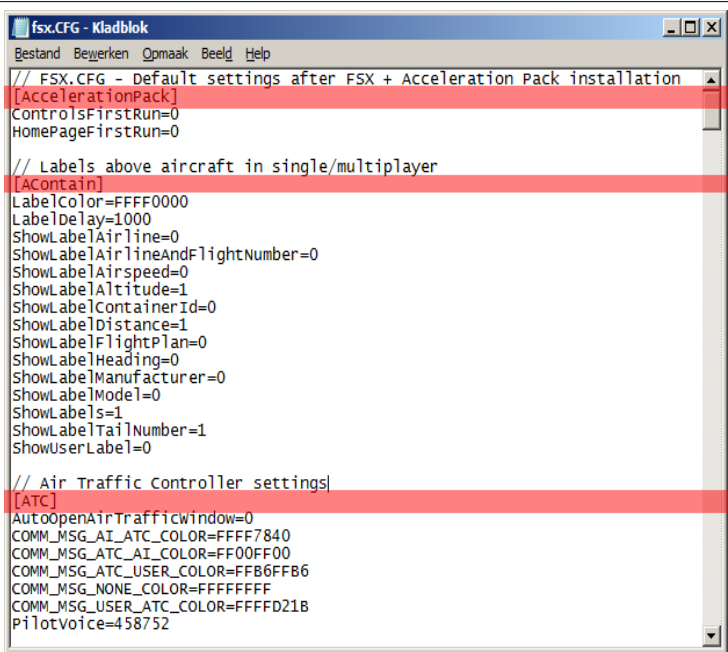


Fig. 5 – FSX.CFG's [Section Headers] lines

Comment-lines are only intended as reminders for computer users, when reading the FSX.CFG file. Section Headers tell FSX where to look for which specific parameter and group parameters together.

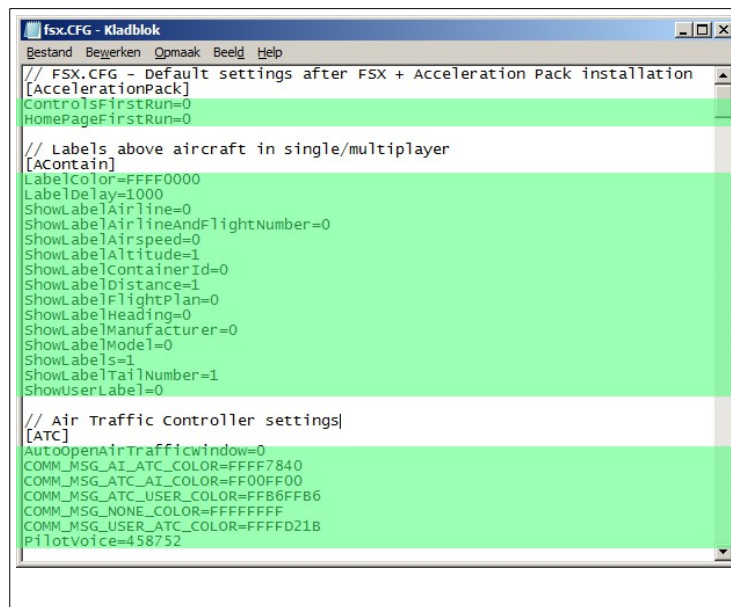


Fig. 6 – FSX.CFG's Parameter – Value pairs

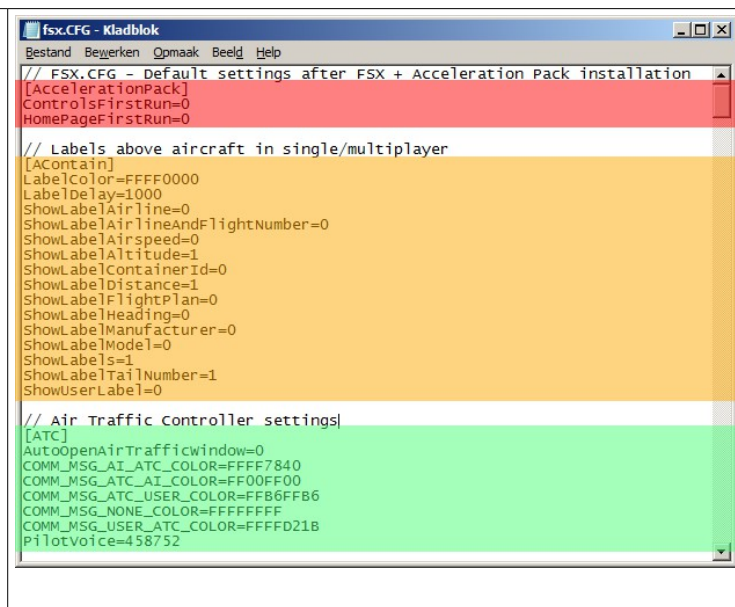


Fig. 7 – FSX.CFG's [Header] + Parameter blocks

“Parameter=Value pairs” tell FSX which internal settings have which specific values:

Examples of values are:

- Text(strings) : Certain text to be displayed on screen like [Brakes], [Slew], [Stall],[Overspeed].
- Numeric : 0,1,2,3,4,5,6,7,8,9.
- Boolean : 0 or 1.
- Boolean : True or False.
- Textstrings : <path to a trusted DLL>...

C:\Program Files (x86)\Microsoft Games\Microsoft Flight Simulator X\GAUGES\737-400.DLL.whrbznakezcncawurtoniubelweauqezburuzuec=2

All Parameter=Value pairs belong to the [Section Header] above it (see Fig. 7).

For example:

- The Red lines belong together to the [AccelerationPack] section of the FSX.CFG file.
- The Orange lines belong together to the [Acontain] section of the FSX.CFG file.
- The Green lines belong together to the [ATC] section of the FSX.CFG file.

NOTE!

Each and every unique Parameter-Value pair belong to their own [Section Header].

If you place them under another/ different [Header], they will not work inside FSX.

4. An overview of all (yet discovered) FSX.CFG Header Sections and their intention inside FSX

1	[AccelerationPack]	FSX Accelleration Pack installation parameters
2	[AContain]	(single/multiplayer) Aircraft Label parameters
3	[ATC]	Air Traffic Controller parameters
4	[BufferPools]	CPU to GPU Memory Management parameters
5	[CONTROLS]	Controls (keyboard, joystick, throttle, yoke) parameters
6	[DISPLAY.Device.NVIDIA GeForce GT 640 .0]	VideoCard, GPU parameters
7	[Display]	OnScreen display parameters
8	[DynamicHeadMovement]	Head movement, Viewpoint parameters
9	[FACILITIES]	Facilities parameters
10	[FlightPlanMap]	Flightplan map display parameters
11	[GRAPHICS]	On Screen Graphics parameters
12	[INTERNATIONAL]	International Location parameters
13	[Main]	General Flightsim parameters
14	[MAPVIEW_MAP]	Map View parameters
15	[Misc]	*.* parameters
16	[MULTIPLAYER]	Multiplayer parameters
17	[PANELS]	Cockpit Panel parameters
18	[PointOfInterestSystem]	??
19	[REALISM]	Realism parameters
20	[RWW_WEATHER_MAP]	Real Time Weather map parameters
21	[SCENERY]	Scenery parameters
22	[SIM]	Simulation Clock parameters
23	[SlewTextInfo.1]	Text_on_screen_while_slewing parameters
24	[SlewTextInfo.2]	Text_on_screen_while_slewing parameters
25	[SlewTextInfo.3]	Text_on_screen_while_slewing parameters
26	[SOUND]	Sound parameters
27	[STARTUP]	FSX Startup parameters
28	[TERRAIN]	TerrainMesh parameters
29	[TextInfo.1]	Text_on_screen_while_flying parameters
30	[TextInfo.2]	Text_on_screen_while_flying parameters
31	[TextInfo.3]	Text_on_screen_while_flying parameters
32	[TrafficManager]	Artificial Intelligent Traffic parameters
33	[Trusted]	Modules_that_are_Trusted_by_FSX parameters
34	[USERINTERFACE]	User Interface (on_screen_menu's) parameters
35	[VirtualCopilot]	Virtual CoPilot parameters
36	[Weather]	Weather Engine parameters
37	[WeatherMap]	Weather Map parameters

Fig. 8 – FSX.CFG [Header] overview.

Note: So far I have discovered and collected from the Internet:

- 37 Unique [Header Sections],
- 394 Unique Parameters,
- Numerous Values.

And I still keep encountering a new one, once in a while :-)

5. Which FSX.CFG parameters can be set how?

The parameters inside FSX.CFG can be added and adjusted in various ways:

- A - By performing the default FSX Installation,
- B - By performing the default FSX and the FSX Acceleration Pack Installation,
- C - By using the FSX menu-screens with check boxes, sliders, drop-down menus, Load and Save dialog boxes,
- D - By Adding them **manually**, via directly editing the FSX.CFG file (via e.g NotePad).

NOTE:

Most parameter-value pairs have been discovered and documented over the years by the global flight-simulator community, since FSX came out. But.. occasionally an(other) undocumented parameter-value pair surfaces online..... why?? Why has Microsoft(tm) , Aces Studio's(tm) not everything plainly documented out-in-the-open? inside the FSX SDK? This makes it an interesting quest:

- to dig deeper and find out what more parameters can be put into FSX.CFG file,
- to find out what their effect is on the way FSX operates internally.

The fact that Aces Studio does NOT provide FSX.CFG parameter documentation in its Software Development Kit, makes me wonder why??? So I decides for myself to hack the FSX program and the FSX.CFG file and find out the how and why behind it.

In the following section of this document I am going to show you:

- Which FSX.CFG file parameters can be set/alterd via which FSX onscreen menu-options.

I am going to walk through the entire FSX menu screen tree and show you:

- Which FSX.CFG Parameter-Value pairs are behind every menu screen,
- Which FSX.CFG parameters are connected to which:
 - Check-box, [X], (o)
 - Slider, [--||-----]
 - Drop-down selection box [V]
 - Load or Save Dialog Box. [Load], [Save]

To my opinion, this is how the initial FSX documentation should be delivered to all FSX End-Users:

- Totally Open,
- Totally Clear,
- Totally Transparent,
- Totally and Fully Documented

So that everyone is able to use/ tweak this flight-simulator to their own needs after they purchased it.


5.1 How do I document the already discovered FSX.CFG entries inside my document?

<i>[Main]</i> <i>HideInfoText=0</i> <i>HideMenuFullscreen=0</i> <i>HideMenuNormal=0</i>	[Header],Parameter name=(possible value format) <i>[Main],HideMenuFullscreen=(0,1)</i> <i>[Main],HideMenuFullscreen=(0,1)</i> <i>[Main],HideMenuNormal=(0,1)</i>
Fsx.cfg contents	Document syntax

So you can get an idea of:

- What TYPE of parameter-values are possible in that specific FSX.CFG entry.
- What VALUES can be filled in for that specific parameter value.

6. Which FSX.CFG parameters hide behind which FSX Main Menu screen?

	<p>This is the 1st Main Menu / “Opening screen” of FSX.</p> <p>From here you can:</p> <ul style="list-style-type: none">- turn the intro-music on/off,- read the latest FSX / Steam news,- go to the other parts of FSX menu structure,- exit FSX.
<p>Fig. 9 - FSX “Opening screen” / Main menu</p>	

FSX.CFG related parameters:

[SOUND],AmbientUI=(0,1) – Loudspeaker icon in upper border of this screen

- Determines if you can hear FSX's intro music theme (or not).

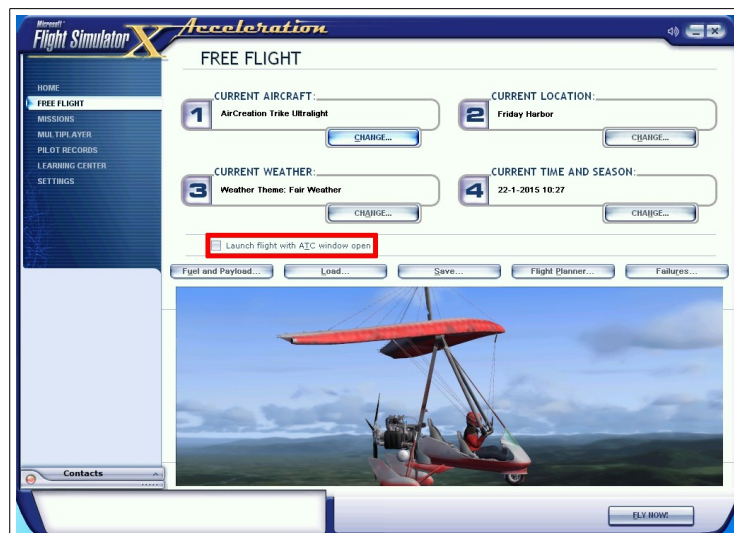


Fig. 10 - Free Flight menu

This is the 2nd main menu screen from FSX.

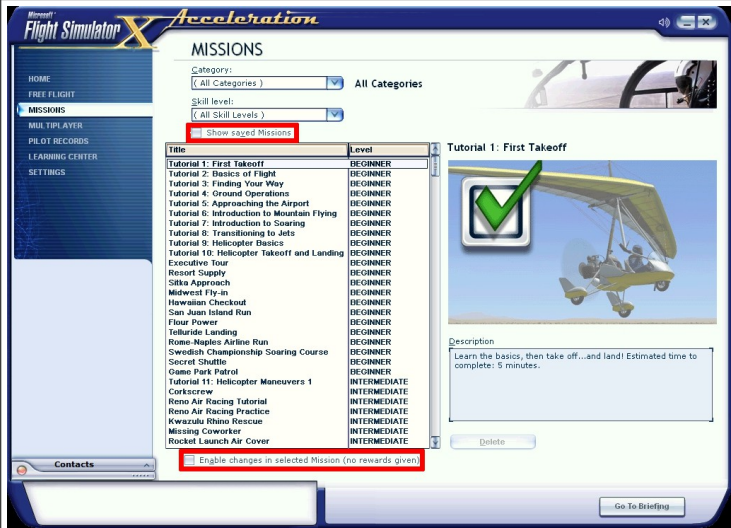
From here you can:

- select the Aircraft,
- select the Airport,
- select the Type of Weather,
- select the Time of Day and Season,
- >>
- load and save Free Flight situations,
- set the current aircraft Fuel and Payload,
- use the build-in Flight-planner to create a flightplan,
- set the inflight aircraft systems Failure options,
- >>
- Start your Free Flight.

FSX.CFG related parameters:

[ATC],AutoOpenAirTrafficWindow = (0,1) -- [] "Launch Flight with ATC window open"?

- Determines if the ATC communications window is visible when you start your Free Flight.



This is the 3rd Main Menu screen.

From here you can:

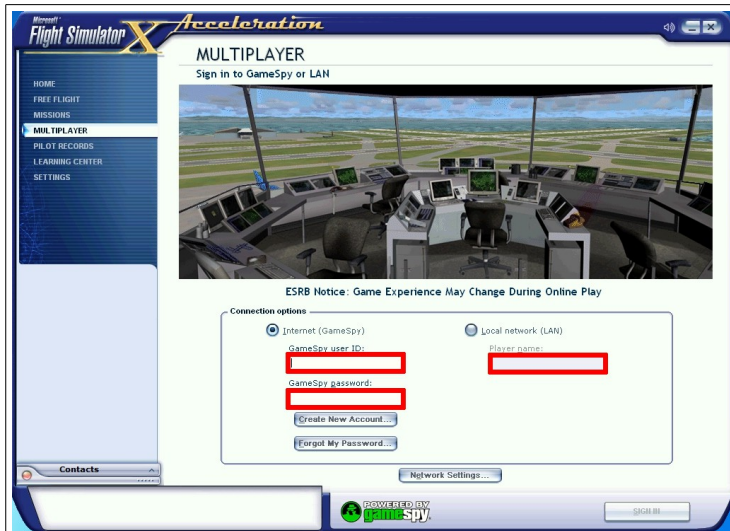
- filter on various mission Categories and Skill levels, >>
- select a predefined Mission that you want to fly,
- look at the Briefing of the selected mission,
- enable Changes during the selected mission.

Fig. 11 - Mission menu

FSX.CFG related parameters:

[Missions],SHOW_MISSION_CAPTIONS = (0,1)

- Determines if you see screen captures of your saved missions in this menu.



This is the 4th Main Menu menu screen.

From here you can:

- sign on to a GameSpy Multiplayer game,
- create a new GameSpy account,
- retrieve your GameSpy account password,
- >>
- sign on to a LAN Multiplayer game.

Fig. 12 - Multiplayer menu

FSX.CFG related parameters:

[MULTIPLAYER],AccoutUsername=""

- GameSpy Account – user name string

[MULTIPLAYER],AccoutPassword="(null)"

- Stores the LAN multiplayer password for login into a FSX LAN game

>>

[MULTIPLAYER],LanUsername="Player"

- Stores the LAN multiplayer account name for login into a FSX Local Area Network (LAN) game session.



This is the 5th Main Menu screen.

From here you can:

- see you achieved Pilot Rewards,
- view your Flight Logbook,
- see and manage your inflight Photos (printscreens).

Fig. 13 - Pilot Records menu

FSX.CFG related parameters:

- none -



This is the 6th Main Menu screen.

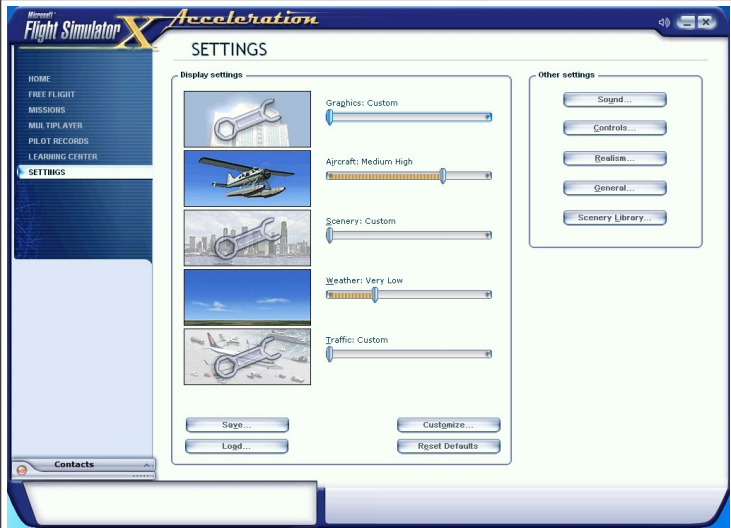
From here you can:

- learn from a variety of Aviation topics,
- view the internal website's Site Map,
- browse through the Topic Index,
- take the build-in Flight Lessons.

Fig. 14 - Learning Center menu

FSX.CFG related parameters:

- none -



This is the 7th Main Menu screen.

From here you can:

- Load/Save FSX's internal Settings From/To a file.
- Customize the current FSX's Settings.
- Reset all FSX's Settings (back to installation Default).


>>

- Adjust Settings about:

- Sound (in-game sounds, music, voices),
- Controls (flight, keyboard, joystick, throttle, others),
- Realism-level of the simulator,
- General simulation settings,
- Add/remove add-on scenery libraries.

Fig. 15 – Settings menu

FSX.CFG related parameters:
- none -

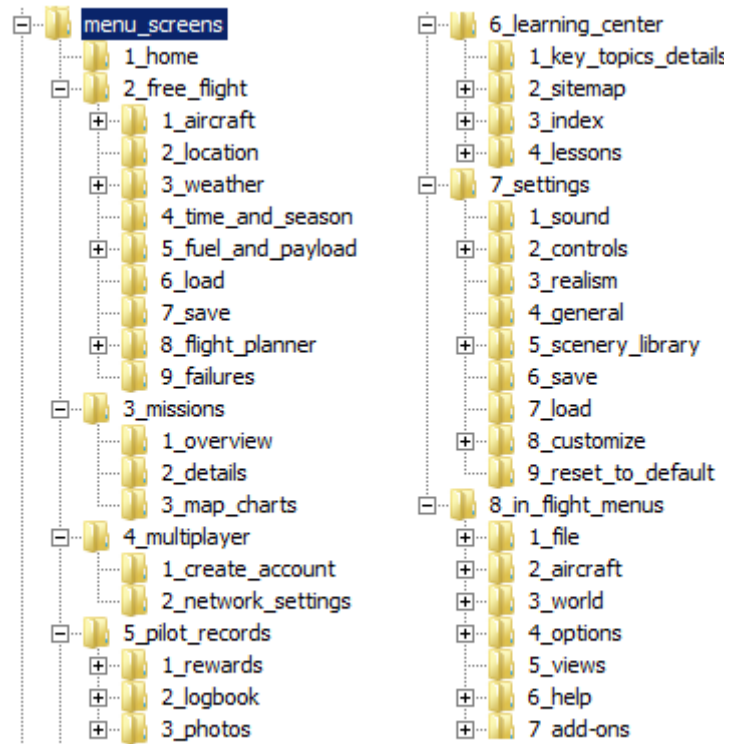
	FSX Exit confirmation dialog-box.
Fig. 16 – FSX Exit confirmation dialog box	

FSX.CFG related parameters:

[Userinterface], Prompt_on_exit = (0,1)

- Determines if FSX shows this dialog-box to confirm you are leaving FSX.

This is the end of FSX's Main Menu Screen. Now I continue our journey to dig deeper into the rest of the FSX Menu Screen structure. I start with the Free Flight (secondary) menus and walk the entire menu-tree down to the last screen.



FSX Menu Screen Structure

Fig. 17 - FSX Menu Screen structure – First and Second level



This is the Select Aircraft Menu.

Here you can, through the use of 3 filter drop-down boxes, quickly select the aircraft of your choice on:

- aircraft Manufacturer,
- publisher,
- aircraft Type.

You can also select to show all possible installed liveries/ repaints of every aircraft.

Fig. 18 - Free Flight, Select Aircraft

FSX.CFG related parameters:

[Userinterface],SelectAircraftManufacturer = (All / Manufacturer Name)

- Filters out a certain Aircraft manufacturer from all installed aircraft

[Userinterface],SelectAircraftPublisher = (All / Publisher Name)

- Filters out a certain Aircraft Publisher from all installed aircraft

[Userinterface],SelectAircraftType = (All / Aircraft Type)

- Filters out a certain Aircraft Type from all installed aircraft

[Userinterface],ShowAllACPainSchemes (0,1)

- Determines if you see all repaints of the installed aircraft or just one/installed aircraft



The Aircraft Details menu shows the specific details of the selected aircraft like:

- General information about this aircraft, >>
- tail number,
- aircraft (ATC) call-sign,
- flight number.

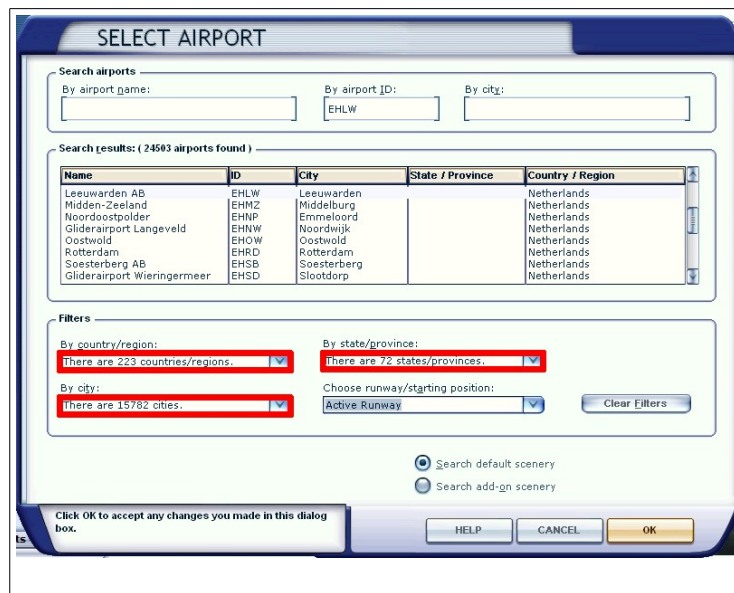
This menu also enables you to:

- append “heavy” to your ATC call-sign
- visualize your tail-number on the 3d aircraft model

Fig. 19 - Free Flight, Select Aircraft, Details

FSX.CFG related parameters:

- none -



The Select Airport menu enables you to select the location from where you begin your Free Flight.

You can search on:

- icao code of the airport,
- the airport's Name,
- city near the airport.

You can filter on:

- country/Region,
- state/Province,
- cities.

You can choose *where* you start on the selected airport:

- The active runway in use at that moment,
- Any Parking location on the airport.

Fig. 20 - Free Flight, Select Airport

FSX.CFG related parameters:

[Facilities],[CITY] -- Filter, by City:

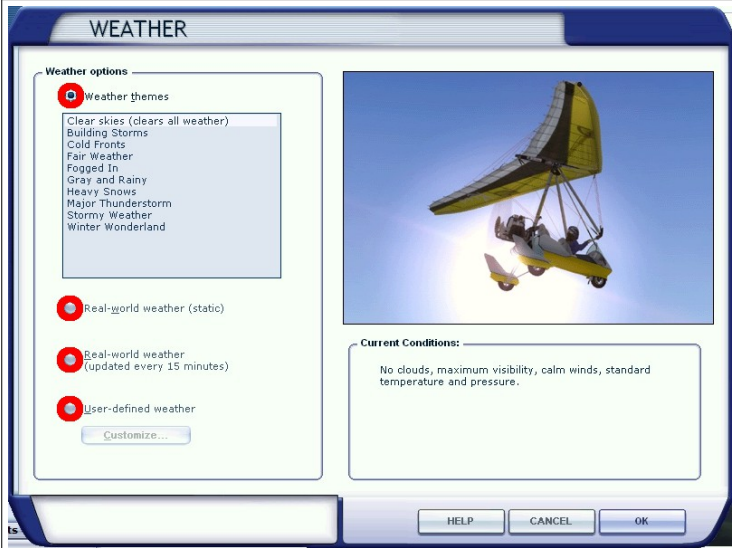
- Determine on which City you filter all airport locations

[Facilities],[COUNTRY] -- Filter, by Country/Region:

- Determine on which country you filter all airport locations

[Facilities],[STATE] -- Filter, by State/Province:

- Determine on which State you filter all airport locations



The Weather menu helps you to select the type of Weather and update frequency that want to fly in.

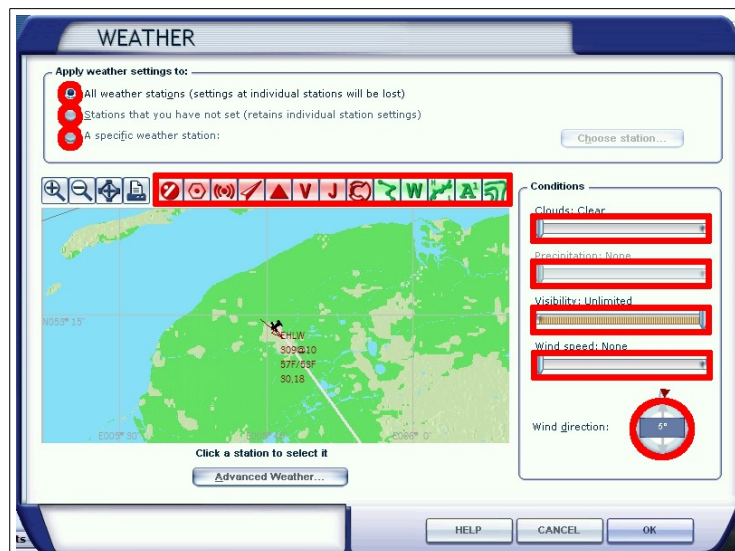
You can select weather from:

- 10 pre-selected weather types,
- Real-time, real-life downloaded weather from internet.

Fig. 21 - Free Flight, Select Weather

FSX.CFG related parameters:

- none -



This Weather Station menu enables you to:

- Determine how the weather settings are applied, >>
- Quickly set “simple weather parameters” like:
 - Cloud coverage(clear,few,scattered,broken,overcast),
 - Precipitation type (low, moderate, high, very high),
 - Visibility(0.1 km – unlimited),
 - Wind Speed (none, light, moderate, heavy, severe),
 - Wind Direction(0-359).

On this map you can:

- Zoom in/out,
- Turn on/off the various elements,

You can also print the contents of this map.

Fig. 22 - Free Flight, Select Weather, User Defined

FSX.CFG related parameters:

[StationMap],SHOW_AIRPORTS=(0,1)

- Switch Airports on/off in the weather station selection map

[StationMap],SHOW_AIRSPACE=(0,1)

- Switch Airspace boundaries on/off in this weather station selection map

[StationMap],SHOW_APPROACHES=(0,1)

- Switch ILS approach funnels on/off in this weather station selection map

[StationMap],SHOW_DATATAGS=(0,1)

- Switch Data-tags on/off in this weather station selection map

[StationMap],SHOW_FLIGHTPLAN=(0,1)

- Switch flightplan-routeline on/off in this weather map

[StationMap],SHOW_INTERSECTIONS=(0,1)

- Switch Airway intersections on/off in this weather station selection map

[StationMap],SHOW_JET=(0,1)

- Switch Jet-Airways on/off in this weather station selection map

[StationMap],SHOW_NDBS=(0,1)

- Switch NDB-Radionavigation beacons on/off in this weather station selection map

[StationMap],SHOW_TERRAIN=(0,1)

- Switch Groundmap/Terrain on/off in this weather station selection map

[StationMap],SHOW_VICTOR=(0,1)

- Switch Victor-Airways on/off in this weather station selection map

[StationMap],SHOW_VORS=(0,1)

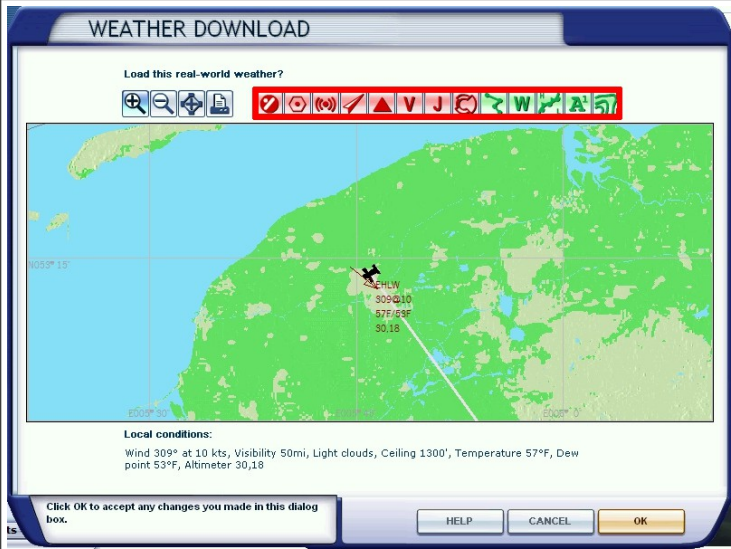
- Switch VOR-Radionavigation beacons on/off in this weather station selection map

[StationMap],SHOW_WEATHERSTATIONS=(0,1)

- Switch Weather Download Stations on/off in this weather station selection map

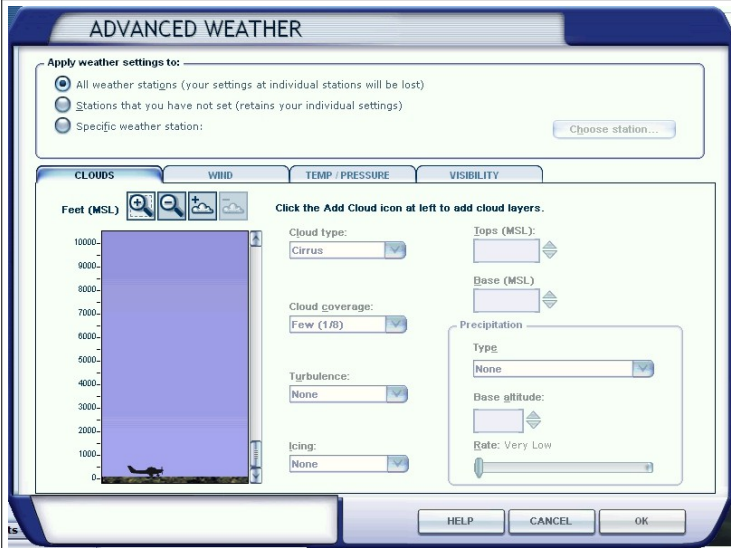
[StationMap],SHOW_WEATHERSYSTEMS=(0,1)

- Switch Weather Systems / fronts on/off in this weather station selection map

	<p>In the Weather Download menu you can select a real-world location, from which FSX downloads the up-to-date real-time weather information. (METAR,TAF)</p> <p>On the map you can:</p> <ul style="list-style-type: none"> - Zoom in/out, - Turn on/off the various elements, <p>You can also print the contents of this map.</p>
<p>Fig. 23 – Free Flight, Weather Download</p>	

FSX.CFG related parameters:

- [RWW_WEATHER_MAP],SHOW_AIRPORTS = (0,1)**
- Switch Airports on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_AIRSPACE = (0,1)**
- Switch Airspace boundaries on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_APPROACHES = (0,1)**
- Switch ILS approach funnels on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_DATATAGS = (0,1)**
- Switch Data-tags on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_FLIGHTPLAN = (0,1)**
- Switch flightplan-routeline on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_INTERSECTIONS = (0,1)**
- Switch Airway intersections on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_JET = (0,1)**
- Switch Jet-Airways on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_NDBS = (0,1)**
- Switch NDB-Beacons on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_TERRAIN = (0,1)**
- Switch Groundmap/Terrain on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_VICTOR = (0,1)**
- Switch Victor-Airways on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_VORS = (0,1)**
- Switch VOR-Radiobeacons on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_WEATHERSTATIONS = (0,1)**
- Switch Weather Download Stations display on/off in this weather download map
- [RWW_WEATHER_MAP],SHOW_WEATHERSYSTEMS = (0,1)**
- Switch Weather System display on/off in this weather download map

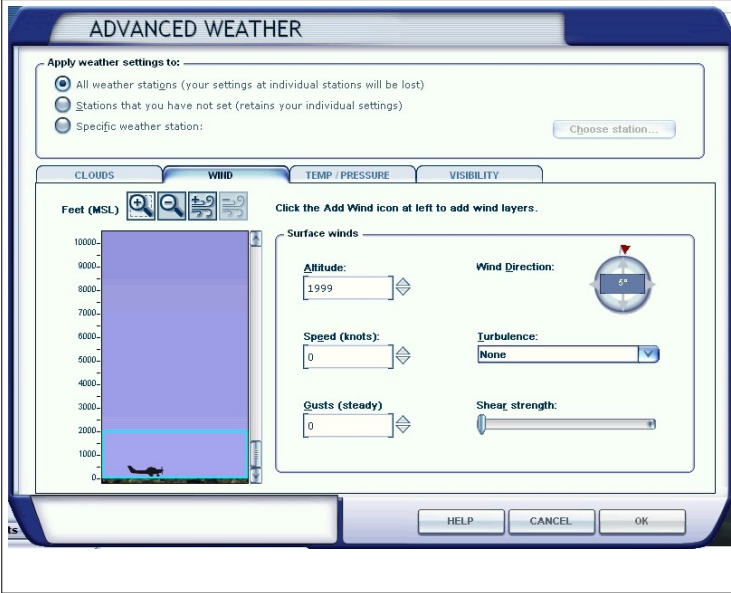


The Advanced Weather menu allows you to set more and complex weather parameters:

- (multiple) Cloud layers (Base, Tops)
- Cloud Types (cirrus,cumulus,stratus,thunderstorm)
- Cloud coverage (none,1/8,2/8,3/8,4/8,5/8,6/8,7/8,8/8)
- Turbulence (none,light,moderate,heavy,severe)
- Icing conditions (none,trace,light,moderate, severe)
- >>
- Precipitation Type (None,Rain,Snow)
- Precipitation Base Altitude (0-)
- Precipitation Rate(none,low,moderate,high,very high)

Fig. 24 - Free Flight, Advanced Weather, Clouds

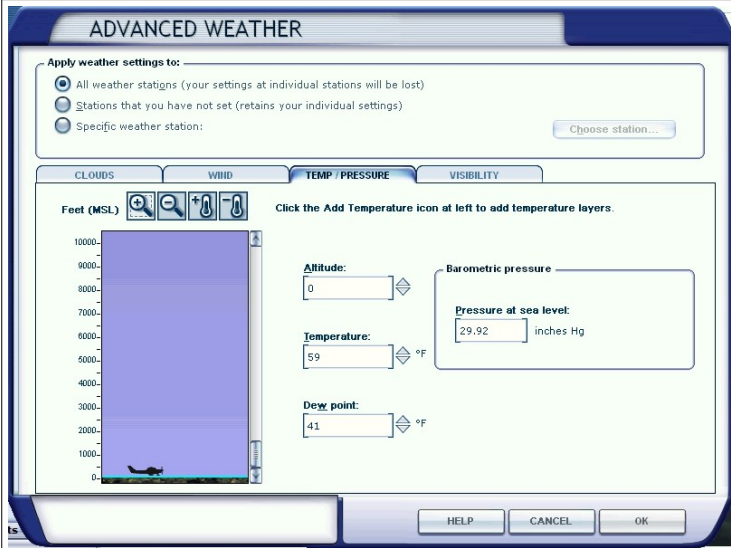
FSX.CFG related parameters:
- none -



- Here you can set advanced Wind (layer) parameters:
- Surface Winds (0-)
 - Layer Altitude (0-359)
 - Wind Direction (0-)
 - Wind Speed (0-)
 - Wind Gusts (steady) (0-)
 - Wind Shear strength (0,1,2,3)
 - Turbulence (none, light, moderate, heavy, severe)

Fig. 25 – Free Flight, Advanced Weather, Winds

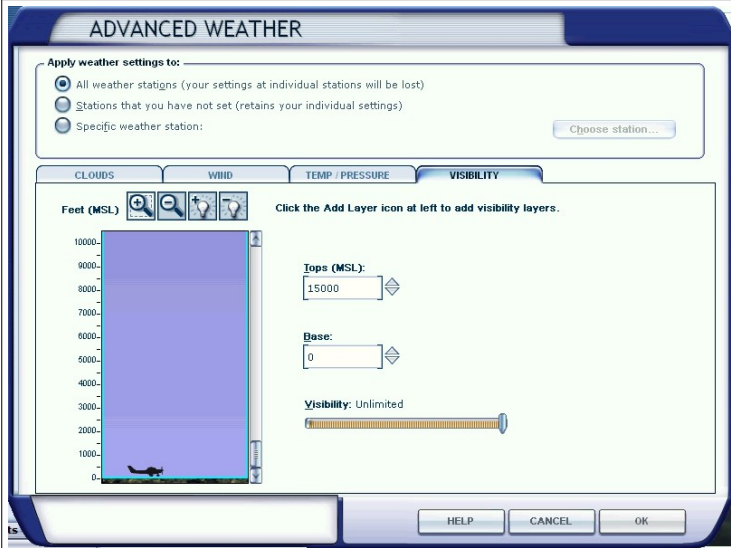
FSX.CFG related parameters:
- none -



- Here you can set advanced Temperature parameters:
- Barometric pressure at Sea-level (0-)
 - >
 - Temperature layer Altitude (0-)
 - Temperature layer Temperature (0-)
 - Dew Point temperature (0-)

Fig. 26 – Free Flight, Adv. Weather, Temperature

FSX.CFG related parameters:
- none -

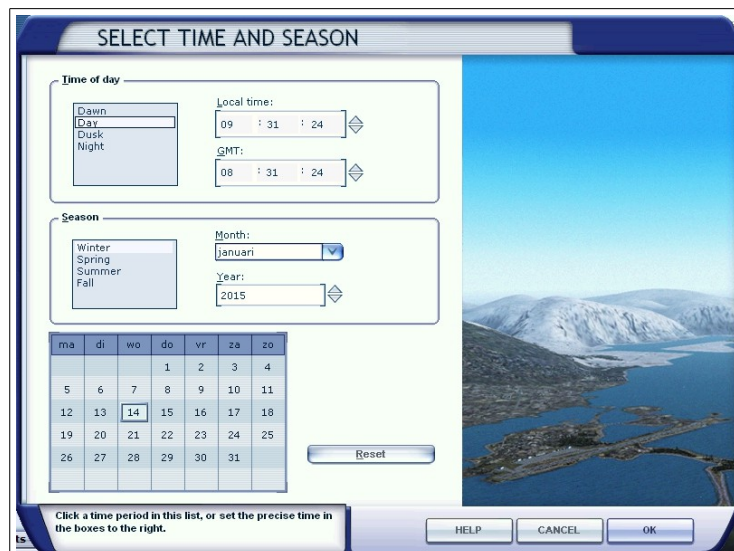


Here you can set advanced Visibility parameters:

- Visibility layer (Top)
- Visibility range (0-unlimited)

Fig. 27 – Free Flight, Advanced Weather, Visibility

FSX.CFG related parameters:
- none -



The Select Time and Season menu allows you to set:

- time of day (dawn, day, dusk, night)
- season (winter, spring, summer, fall)
- date (1 January – 31 December)

on which your Free Flight will take place.

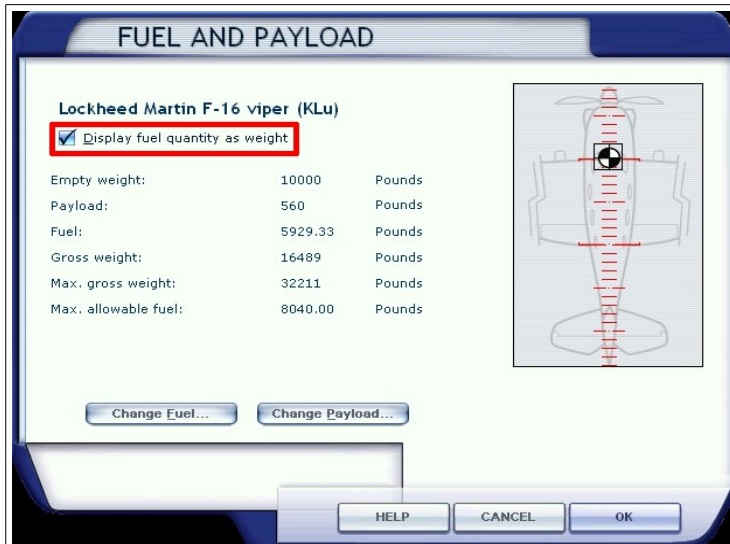
>>

- reset these settings back to default values.

Fig. 28 – Free Flight, Time and Season

FSX.CFG related parameters:

- none -



In the Fuel and Payload you can set:

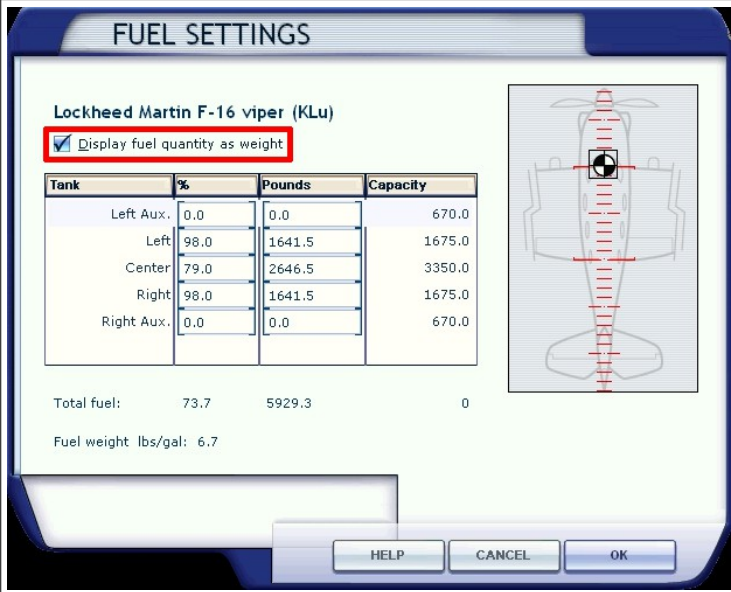
- payload weight,
- fuel weight,

Fig. 29 – Aircraft, Fuel & Payload

FSX.CFG related parameters:

[UserInterface], DisplayFuelAsWeight=(0,1) -- “Display fuel quantity as weight”

- Determines whether the fuel-on-board quantity is displayed as weight on screen



In the Fuel Settings menu you can set the:

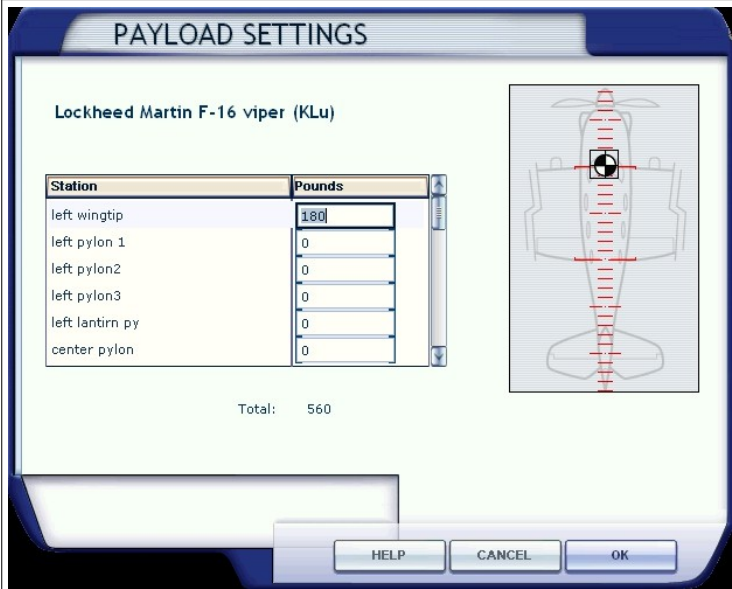
- capacity per on-board fuel tank,
- amount of fuel / fuel tank.

Fig. 30 – Aircraft, Fuel & Payload, Fuel Settings

FSX.CFG related parameters:

[UserInterface], DisplayFuelAsWeight=(0,1) -- “Display fuel quantity as weight”

- Determines whether the fuel-on-board quantity is displayed as weight on screen

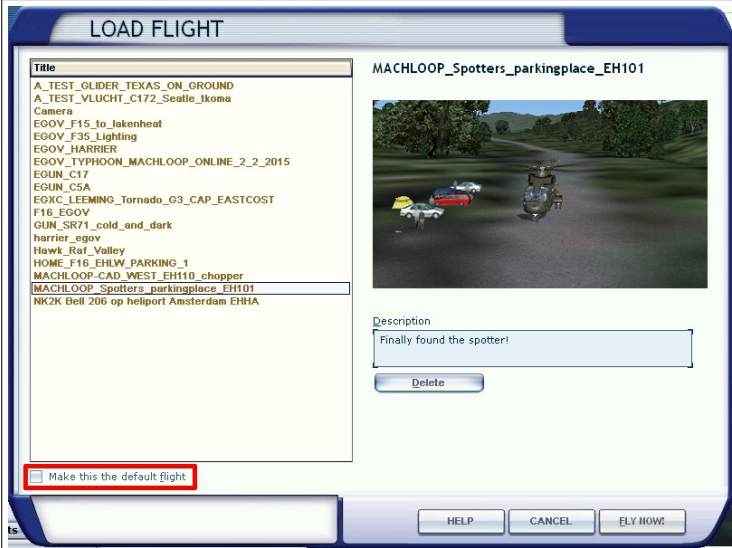


In the Payload Settings menu you can set:

- capacity of the fuel tanks / location on the aircraft.
- weight of cargo / passengers on board.

Fig. 31 – Aircraft, Fuel & Payload, Payload Settings

FSX.CFG related parameters:
- none -

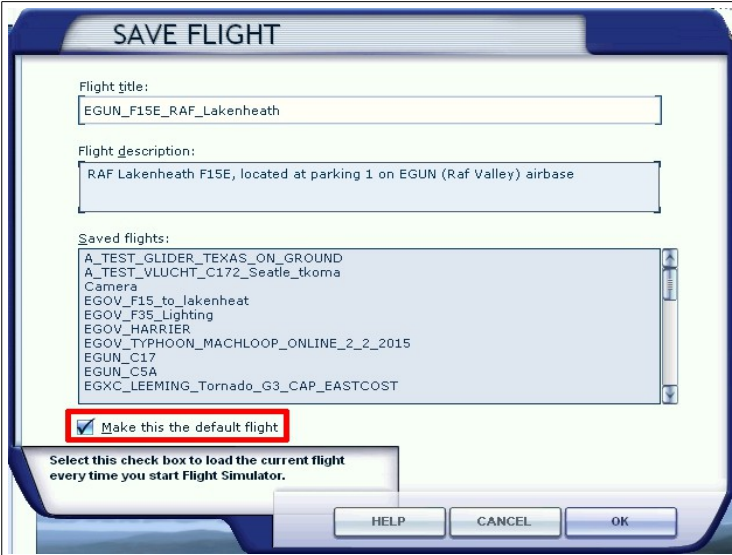


In the Load Flight menu you can:

- load a previous saved flight.
- delete a previous saved flight
- >>
- make any saved flight your default start-up flight.

Fig. 32 - Free Flight, Load Flight

FSX.CFG related parameters:
[USERINTERFACE],SITUATION= Directory Path to .FLT file -- **[] Make this the default flight**
- This parameter contains the full path to a previous saved .flt file that has been marked as “the default flight”

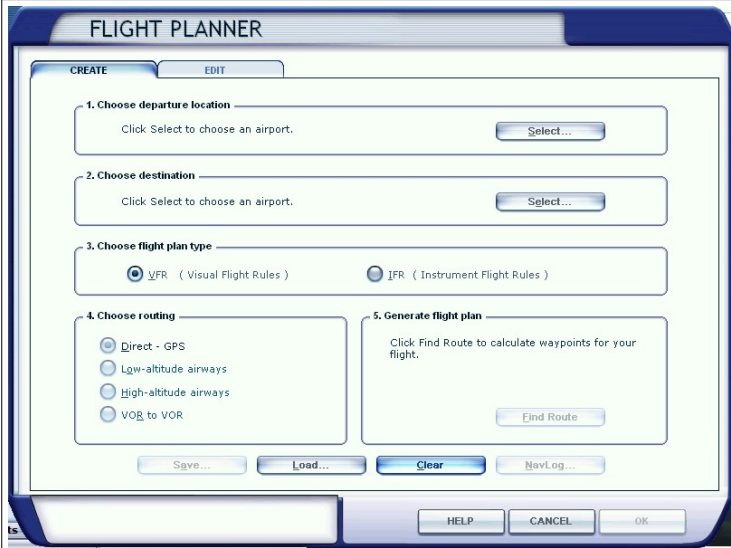


In the Saved Flight menu you can:

- save a Free Flight situation
- enter a Saved Flight Title
- enter a brief description to that saved flight
- >>
- select whether this is your default (start-up) Flight.

Fig. 33 - Free Flight, Save Flight

FSX.CFG related parameters:
[USERINTERFACE], SITUATION= Directory Path to .FLT file -- **[] Make this the default flight**
- Example "C:\Users\Ronald\Documents\Flight Simulator X Files\EGUN_F15E_RAF_Lakenheat.flt"



This is the main screen of the build-in flight-planner

Here you can create a new flightplan by selecting:

- departure airport
- destination airport
- flightplan type (Vfr, Ifr)
- routing method (Direct-Gps, Jet/ Victor / Vor-to-Vor)
- generate a new flightplan

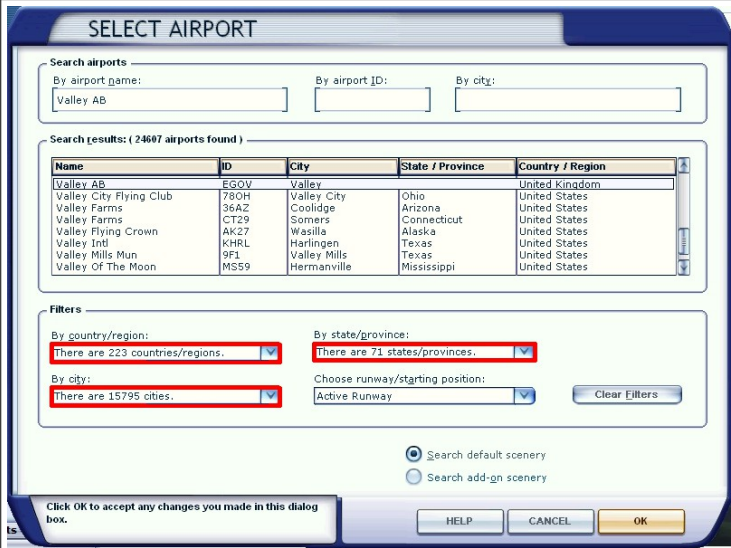
>>

- clear the flight-planner from current planned flight
- load a previous created flightplan from file
- save a created flightplan to file
- view your Navigation Logbook [NavLog]

Fig. 34 – Free Flight, Flight Planner

FSX.CFG related parameters:

- none -



The menus for selecting Departure and Destination airport are one and the same! That is why I only show one of them here.

Here you can select an airport on its:

→ icao code

→ name

→ city

>>

- You can filter all airport by means of:

→ country/region

→ state/province

→ city

Fig. 35 - Flight planner, Select Dep. / Dest. airport

FSX.CFG related parameters:

[FACILITIES],CITY = (name)

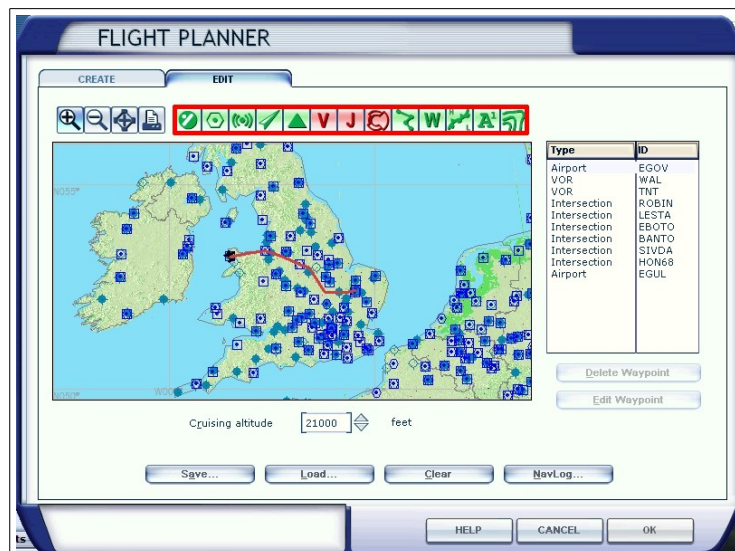
- Value to filter airports on Cities

[FACILITIES],COUNTRY = (name)

- Value to filter airports on Country, Region

[FACILITIES],STATE = (name)

- Value to filter airports on State/ Provence



This is the Edit menu of the Flight Planner:

Here you can:

- Modify the newly generated flightpath,
- Add new waypoint to flightplan,
- Delete existing waypoint from flightplan,
- Modify the suggested Cruise altitude of the flightplan,
- Clear the current flightplan,

>>

- Look at your Navigation Logbook.

>>

On the map you can:

- Zoom in/out,
- Turn on/off the various elements (Vor, Ndb, Airways).

You can also print out this map.

Fig. 36 – FF, Flight Planner, Edit Flightplan

FSX.CFG related parameters:

[FlightPlanMap],LineWidth=(0,1,2,3,x)

- Determines flightplan line width (in pixels)

[FlightPlanMap],show_ac_twr=(0,1)

- Determines if atc towers are visible on the map

[FlightPlanMap],SHOW_AIRPORTS=(0,1)

- Determines if airports are visible on the map

[FlightPlanMap],SHOW_AIRSPACE=(0,1)

- Determines if Airspace boundaries are visible on the map

[FlightPlanMap],SHOW_APPROACHES=(0,1)

- Determines if you can see the green ILS funnels pointing towards ILS equipped runways

[FlightPlanMap],SHOW_DATATAGS=(0,1)

- Determines if you can see Datatags

[FlightPlanMap],SHOW_FLIGHTPLAN=(0,1)

- Determines if you can see the flightplan line on the map

[FlightPlanMap],SHOW_INTERSECTIONS=(0,1)

- Determines if you can see intersections on the map

[FlightPlanMap],SHOW_JET=(0,1)

- Determines if you can see JET (above fl180) airways on the map

[FlightPlanMap],SHOW_NDBS=(0,1)

- Determines if you can see NDB beacons on the map

[FlightPlanMap],SHOW_TERRAIN=(0,1)

- Determines if you can see the ground terrain on the map

[FlightPlanMap],SHOW_VICTOR=(0,1)

- Determines if you can see VICTOR (below fl180) airways on the map

[FlightPlanMap],show_volume_boundaries=(0,1)

- Determines if you can see Airspace boundaries on the map

[FlightPlanMap],SHOW_VORS=(0,1)

- Determines if you can see VOR beacons on the map

[FlightPlanMap],show_waypoints=(0,1)

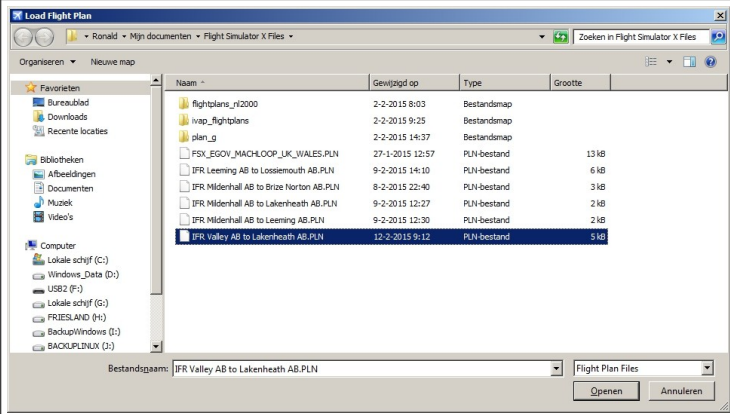
- Determines if you can see the flightplan waypoints on the map

[FlightPlanMap],SHOW_WEATHERSTATIONS=(0,1)

- Determines if you can see weather-information-stations on the map

[FlightPlanMap],SHOW_WEATHERSYSTEMS=(0,1)

- Determines if you can see weather-front/system on the map

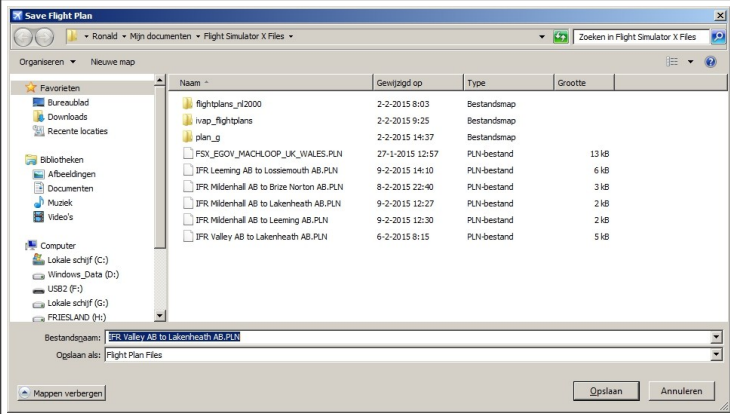


Here you can Load an already saved flightplan from file into the Flight Planner.

Default Flightplan Load Directory:
C:\Users\[login_name]\Documents\Flight Simulator X Files

Fig. 37 – FF, Flight Planner, Load Flightplan

FSX.CFG related parameters:
- none -

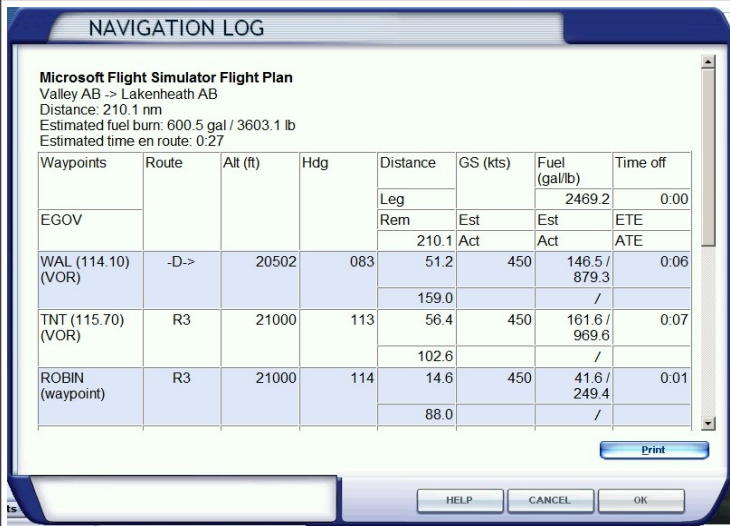


Here you can Save a newly created Flightplan to a file.

Default Save to Flightplan Directory:
C:\Users\[login_name]\Documents\Flight Simulator X Files

Fig. 38 – FF, Flight Planner, Save Flightplan

FSX.CFG related parameters:
- none -



In the Navigation Log menu, you can see the *details* of the created flightplan:

- Departure and Destination airport,
- Distance of the entire flight,
- Estimated Fuel consumption,
- Estimated Flight time to destination airport,

>>

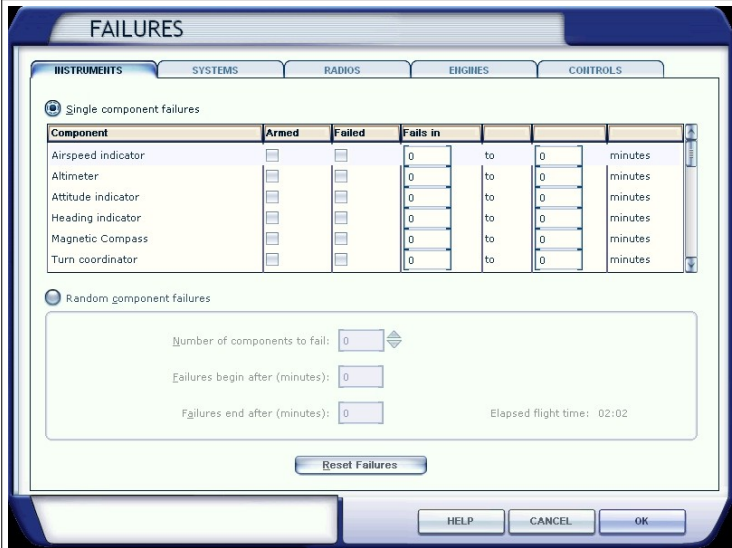
- Individual Way-points of the flightplan,
- Route to the next waypoint,
- Altitudes of the waypoint,
- Heading to the next waypoint,
- Ground-speed at the waypoint,
- Flight time to the waypoint.

>>

You can also print the flightplan out on paper.

Fig. 39 – FF, Flight Planner, Navigation Log

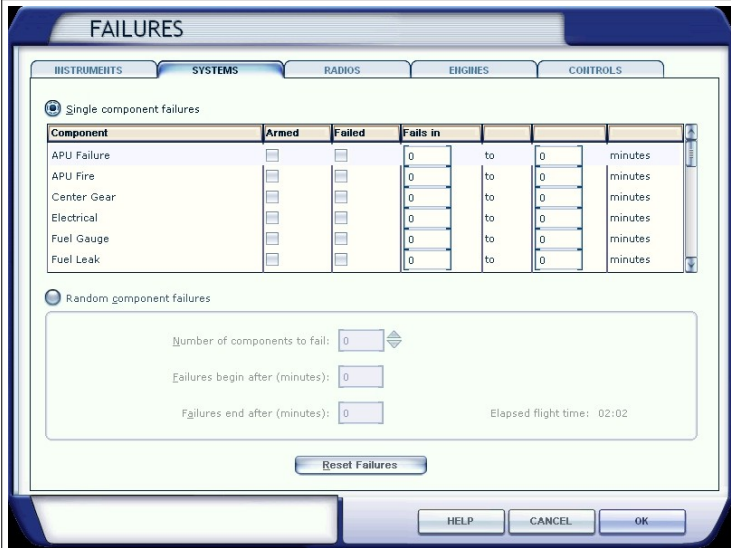
FSX.CFG related parameters:
- none -



In the Failures Menu you can set pre-programmed failures inside the Instruments you see in the cockpit:

Fig. 40 – Free Flight, Failures, Instruments

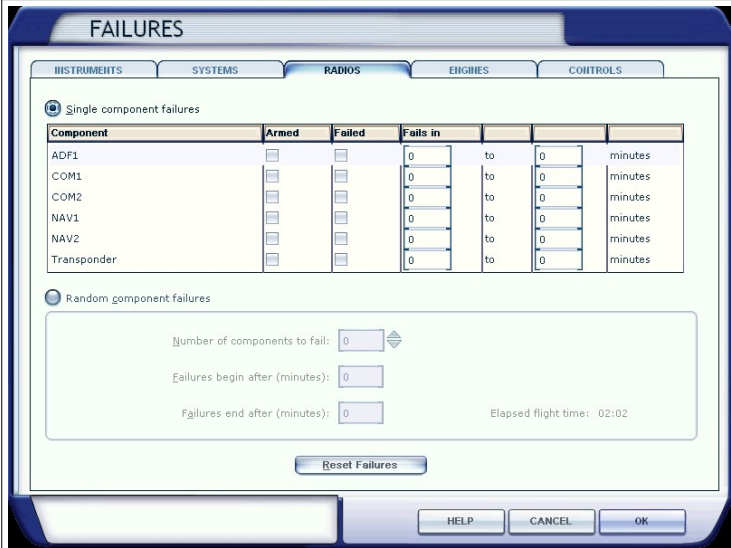
FSX.CFG related parameters:
- none -



In the Failures – System menu you can set pre-programmed failures inside the aircraft's internal systems.

Fig. 41 - Free Flight, Failures, Systems

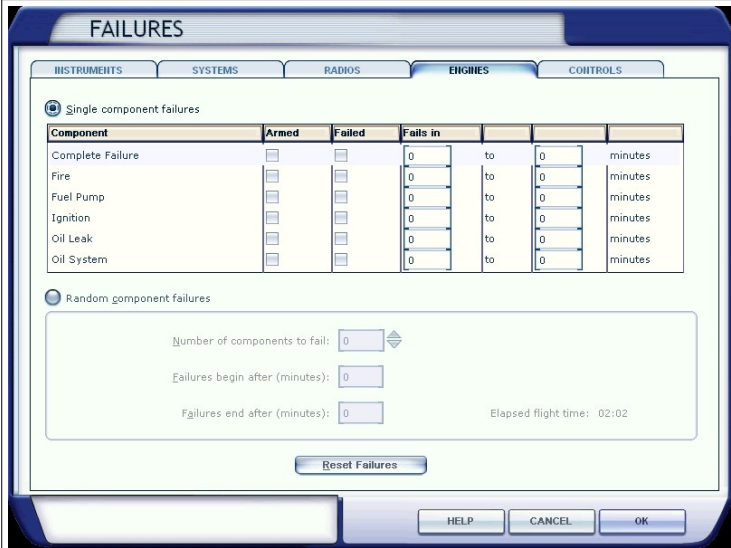
FSX.CFG related parameters:
- none -



In the Failures – Radios menu you can set pre-programmed failures inside the Radio communication section of the flight-simulator.

Fig. 42 - Free Flight, Failures, Radios

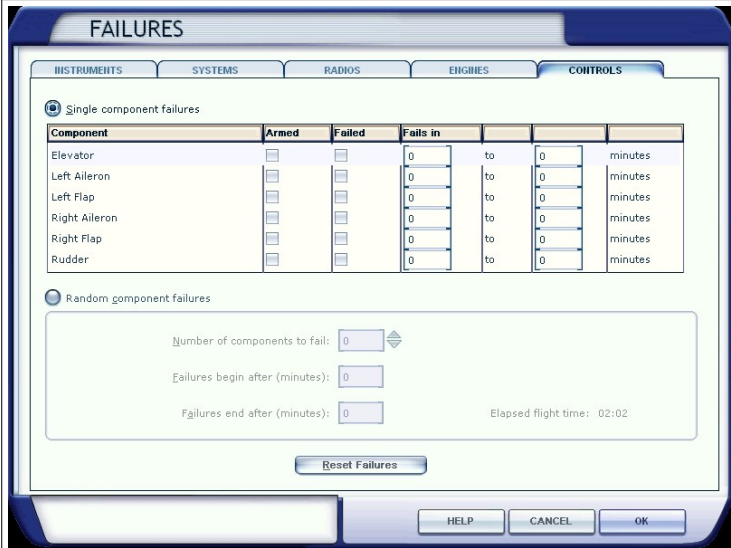
FSX.CFG related parameters:
- none -



In the Failures – Engines menu you can set pre-programmed failures inside the Engine part of the flight-simulator:

Fig. 43 - Free Flight, Failures, Engines

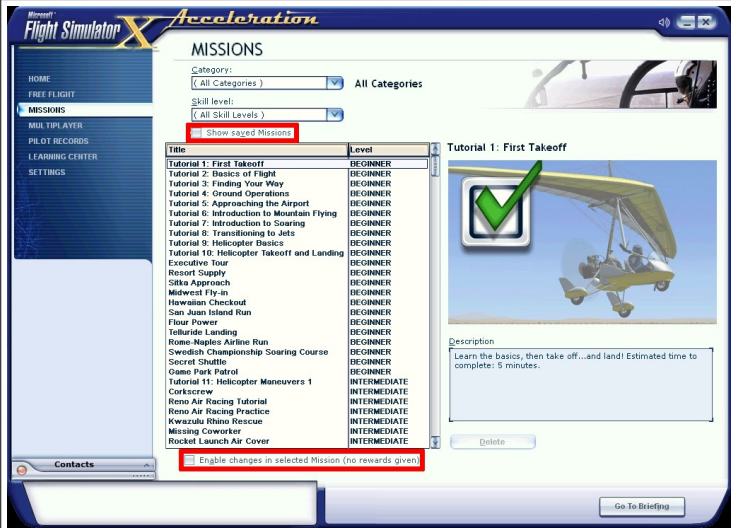
FSX.CFG related parameters:
- none -



In the Failures – Controls menu you can set pre-programmed failures inside the (flight) Controls part of the flight-simulator:

Fig. 44 - Free Flight, Failures, Controls

FSX.CFG related parameters:
- none -



This is the 1st Missions selection screen.

Here you can select one of the many pre-programmed missions to fly.

Fig. 45 – Missions



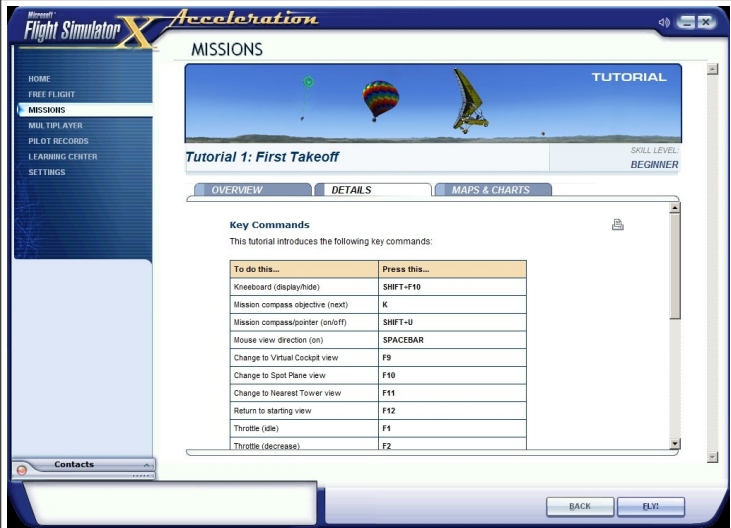
This is the 1st Mission Briefing screen.

It shows the contents of the chosen mission, and the goals you need to achieve in during this mission.

Fig. 46 – Missions, Briefing, Overview

FSX.CFG related parameters:

- none -



This is the 2nd Mission Briefing screen.


This gives you more specific information about the selected mission:

- (keyboard) keys used during the mission
- suggested real-life reading material

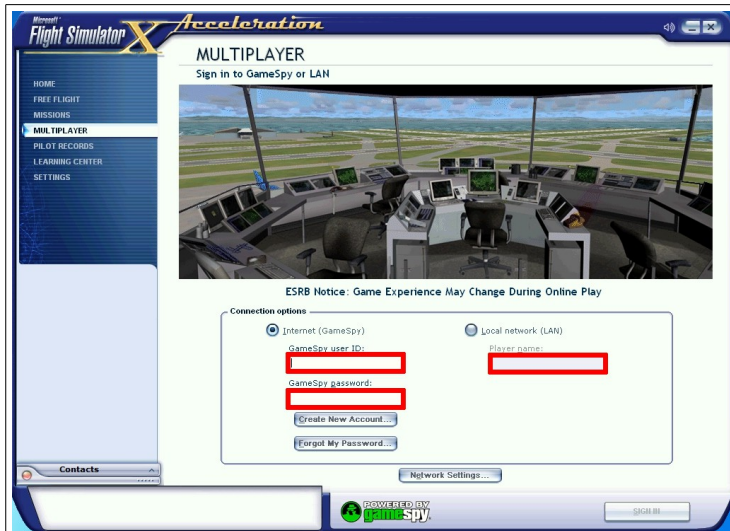
Fig. 47 – Missions, Briefing, Details

FSX.CFG related parameters:

- none -

	<p>This is the 3rd Mission Briefing screen.</p> <p>Here you can find all the navigation material necessary to complete the selected mission.</p> <p>It also shows some graphics to explain the missions goals to you visually.</p>
<p>Fig. 48 – Missions, Briefing, Maps and Charts</p>	

FSX.CFG related parameters:
- none -



This is the 1st Multiplayer screen.

Here you can:

- Create a new GameSpy online network account
- Enter your GameSpy Userid and Password
- >
- Connect to a Local Area Network (LAN) FSX-multiplayer host program.

Fig. 49 - Multiplayer

FSX.CFG related parameters:

[MULTIPLAYER]

AccountUsername=""

- GameSpy Account – user name string

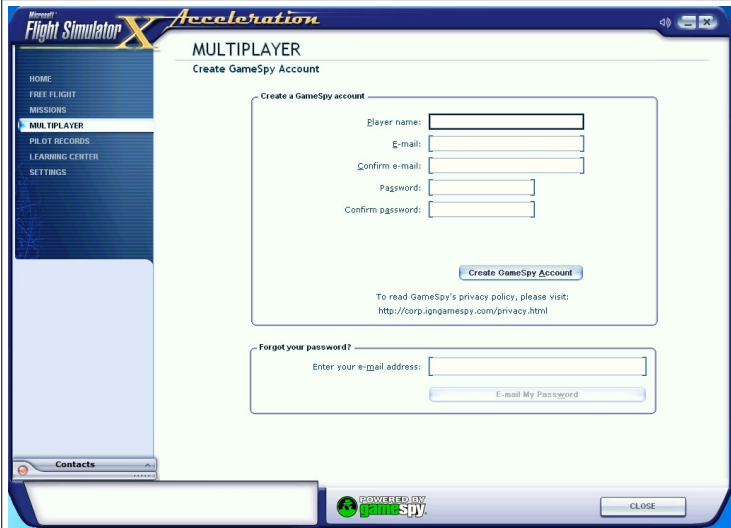
AccountPassword="(null)"

- GameSpy Account – password string

>>

LanUsername=""

- Local Area Network – Username



This is the 2nd Multiplayer screen

Here you can:

- enter data to create a new GameSpy network account,
- retrieve your forgotten GameSpy account password.

Fig. 50 – Multiplayer, Create GameSpy Account

FSX.CFG related parameters:

- none -

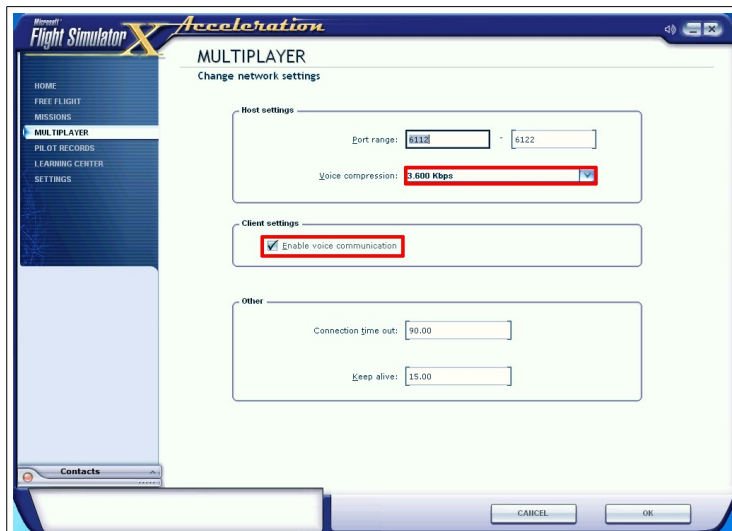


Fig. 51 – Multiplayer, Network Settings

This is the 3rd Multiplayer screen:

Here you can enter

- The TCP-IP Port range through which your FSX computer is able to communicate with other FSX computers online,
- The compression ratio, with which your voice is compressed and transported to other FSX computers over a network / the internet,
- >
- Determine if you use voice-communication,
- >
- TCP-IP connection time out interval,
- TCP-IP- keep alive packet send interval.

FSX.CFG related parameters:

[MULTIPLAYER],VoiceCompressionBitRate=(1200,2400,3600,128000)

- Determines the Voicechannel compression ratio

[MULTIPLAYER],ClientEnableVoice=(0,1)

- Determines if you are using voice-communication (or not)



This is the 1st Pilot Records – Rewards screen:

Here you can look at your:

- already achieved pilot rewards,
- own flight hours logbook,
- in-game photos / printscreens.

Fig. 52 - Pilot Records

FSX.CFG related parameters:

- none -



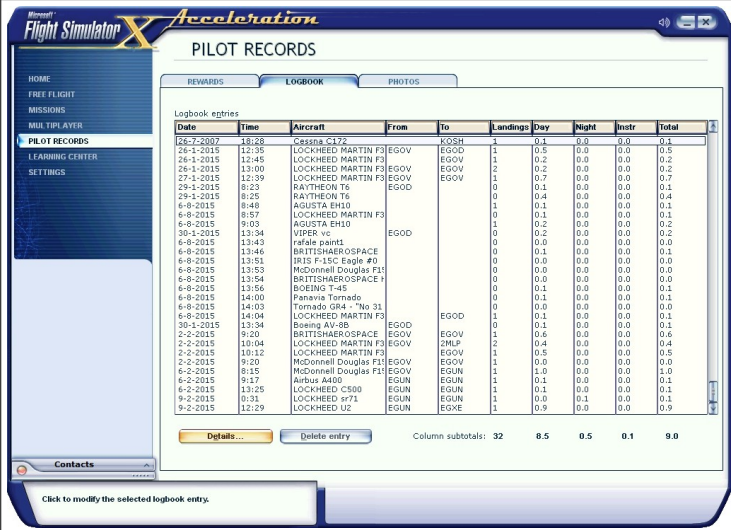
This is the Pilot Record – Rewards Details screen

Here you can see the details of an achieved Pilot Award.

Fig. 53 - Pilot Awards, Award Details

FSX.CFG related parameters:

- none -



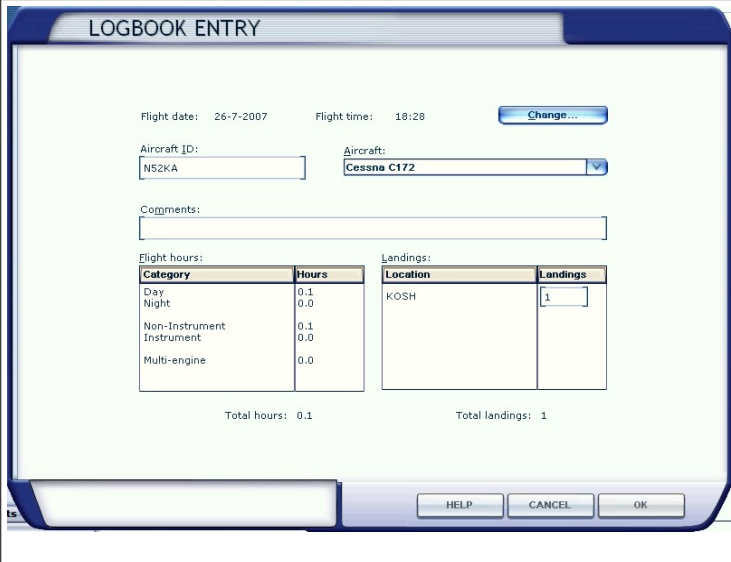
This is the 2nd Pilot Records screen.

Here you can see an overview of all the flights that you have already made in FSX, from the moment of fresh installation.

It shows very detailed information about each flight you have every made in this copy of FSX.

Fig. 54 - Pilot Records, Logbook

FSX.CFG related parameters:
- none -



This is the Logbook Entry – Details screen.

This shows the details of every flight you have made.

You can edit logbook entries here.

Fig. 55 - Pilot Records, Logbook, Logbook Entry

FSX.CFG related parameters:
- none -

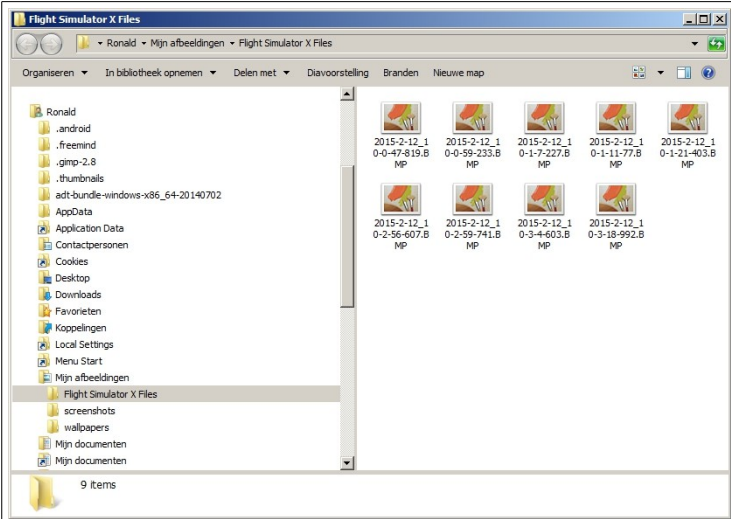


This is the Pilot Record – Photos screen

This gives you can overview (in thumbnails) of all in-game photos (aka “print-screens”) you have taken during your Free Flights.

Fig. 56 - Pilot Records, Photos

FSX.CFG related parameters:
- none -



This is the physical location, where all your FSX in-game photos are stored on your local hard disk.

The in-game-photos are stored in .bmp format.

Default Directory path to that location is:
C:\<[login_name]>My Pictures\Flight Simulator X files

Fig. 57 - Pilot Records, Photos, Manage

FSX.CFG related parameters:
- none -

	<p>This is the Pilot Record – Photos View screen</p> <p>This shows an in-game photo/ printscreen.</p>
<p>Fig. 58 - Pilot Records, Photos, View Photo</p>	

FSX.CFG related parameters:
- none -



This is the 1st Learning Center screen:

This is the place to be, if you want to learn new things about real-life flying and the FSX flight-simulator

Fig. 59 - Learning Center, Key Topics

FSX.CFG related parameters:
- none -



This is the Key-Topics Detail screen.

It shows more information about the select key-topic from the Learning Center.

Fig. 60 - Learning Center, Key Topics, Details

FSX.CFG related parameters:
- none -



This is the Learning Center – Site map screen:

The Learning Center is – in fact – a build-in website, and this page is the site-map of that website. It shows the Learning Centers contents, sorted on topic.

Fig. 61 - Learning Center, Site Map

FSX.CFG related parameters:
- none -

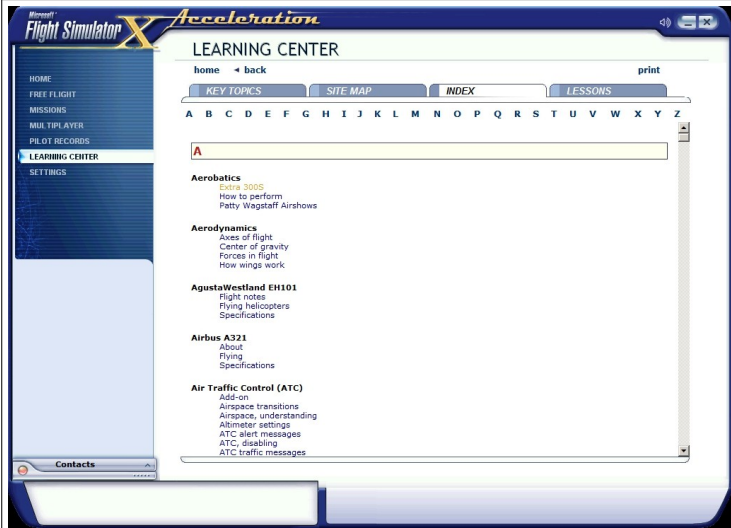


This is the Site map – Details screen:

This shows more details of the selected item.

Fig. 62 - Learning Center, Site Map, Details

FSX.CFG related parameters:
- none -

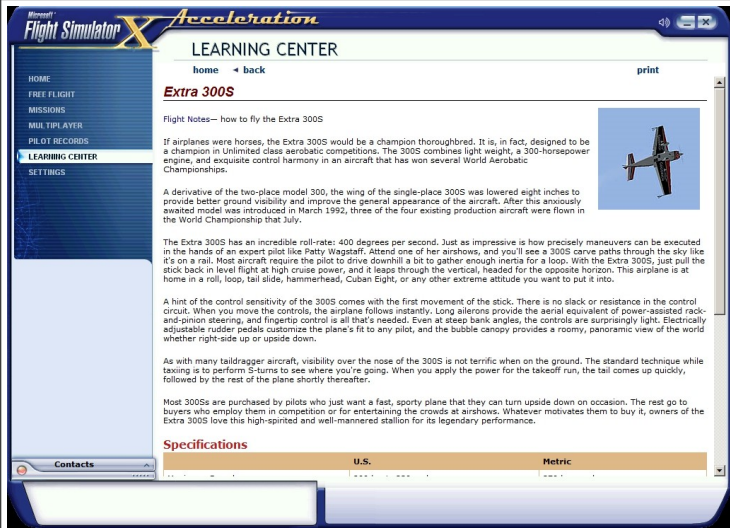


This is the Learning Center – Index screen:

This is, just like the Site Map, an alphabetically sorted topic index about all things inside the Learning Center

Fig. 63 - Learning Center, Index

FSX.CFG related parameters:
- none -



This is Details screen from the Learning Center – Index.

Fig. 64 - Learning Center, Index, Details

FSX.CFG related parameters:
- none -



This is the Learning Center – Lessons screen:

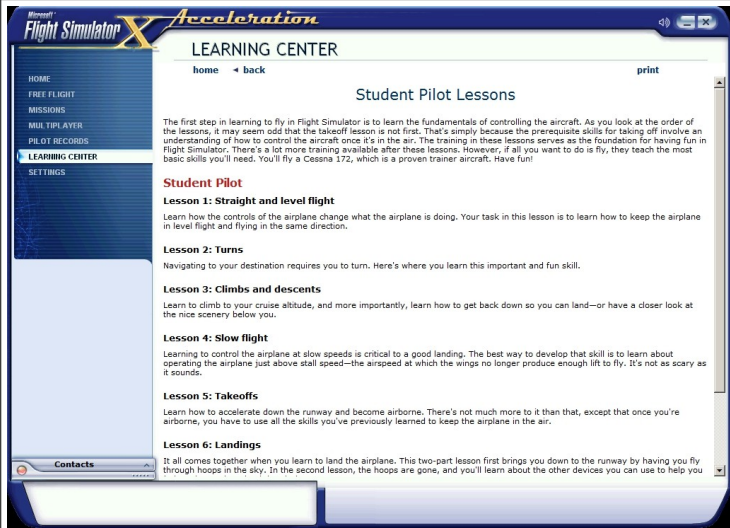
Its shows all build-in lessons for:

- Student Pilots,
- Private Pilots,
- Instrument Pilot,
- Commercial Pilot,
- Airline Transport Pilots.

Fig. 65 - Learning Center, Lessons

FSX.CFG related parameters:

- none -

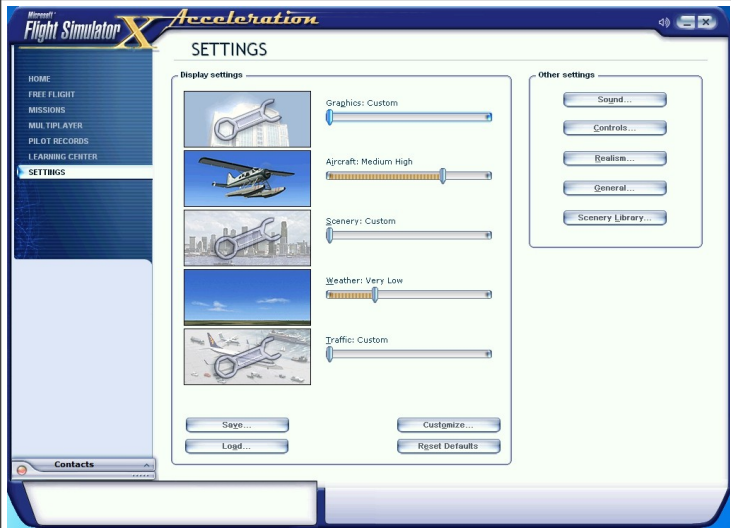


This is the Lessons – Details screen:

It shows the specific details on the selected lesson.

Fig. 66 - Learning Center, Lessons, Details

FSX.CFG related parameters:
- none -



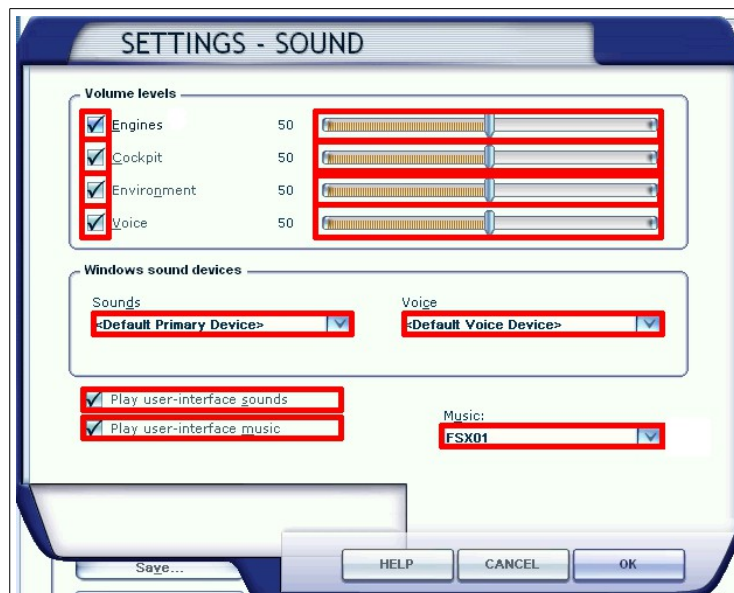
This is the 1st Setting menu screen.
From here you can adjust FSX to your own needs:

Here you can:

- load and Save previous saved settings,
- adjust Sound settings,
- adjust (flight) Control settings,
- adjust (simulation) Realism settings,
- adjust Overall (simulation) settings,
- add/Remove sceneries,
- reset Settings to Default (created during installation).

Fig. 67 - Settings

FSX.CFG related parameters:
- none -



This is the Sound Settings screen.

Here you can adjust all sound related settings like:

- The volume-level of specific sounds
- Which devices are used to play and record sounds
- Which background music you hear inside FSX

Fig. 68 - Settings, Sounds

FSX.CFG related parameters:

[SOUND],AmbientUIMusic=(FSX01,FSX02,FSX03,FSX04,FSX05,FSX06,FSX07,FSX08)

- Determines which of the 8 intro-themes / soundsamples you can hear in the background during Free Flight.

[SOUND],PrimaryDevice={Windows internal object code}

- Internal Windows Operating system GUID code for primary sound playback-device used by FSX

[SOUND],SOUND=(0,1)

- Determines if you can hear (any) Sounds at all (or not)

[SOUND],SOUND_FADER1=(0-100)

- Volume level of the Engine sounds

[SOUND],SOUND_FADER2=(0-100)

- Volume level of the Cockpit sounds

[SOUND],SOUND_FADER3=(0-100)

- Volume level of the Environment sounds

[SOUND],SOUND_FADER4=(0-100)

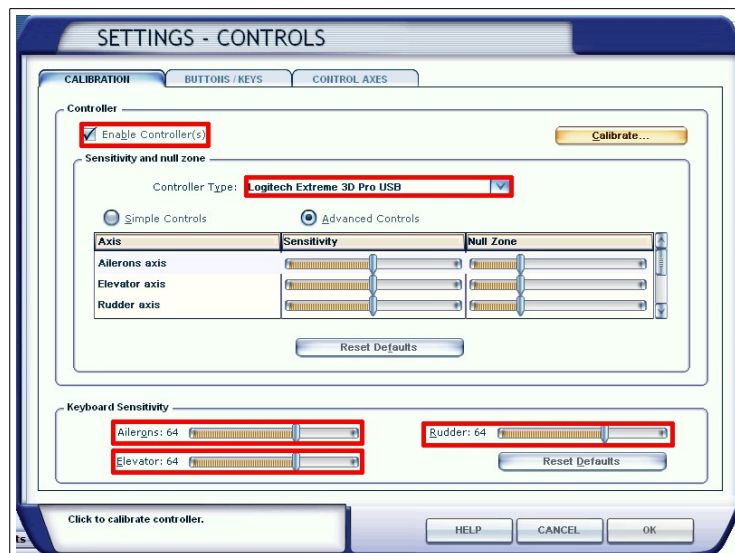
- Volume level of the Voice sounds

[SOUND],UISound=(0,1)

- Determines if you can hear the user-interface-sounds (or not)

[SOUND],VoiceDevice={Windows internal object code}

- Internal Windows Operating system GUID code for primary voicerecording-device used by FSX



This is the 1st (flight) Controls Setting screen.

Here you can adjust all (flight) control settings:

- Calibrate you joystick, flight yoke, throttle
- Enable (flight) controls
- Select simple or advanced controls
- Sensitivity-level of your control axis (x,y,z,)

Fig. 69 – Settings, Controls, Calibration

FSX.CFG related parameters:

[CONTROLS],KBDAIL=(0-100)

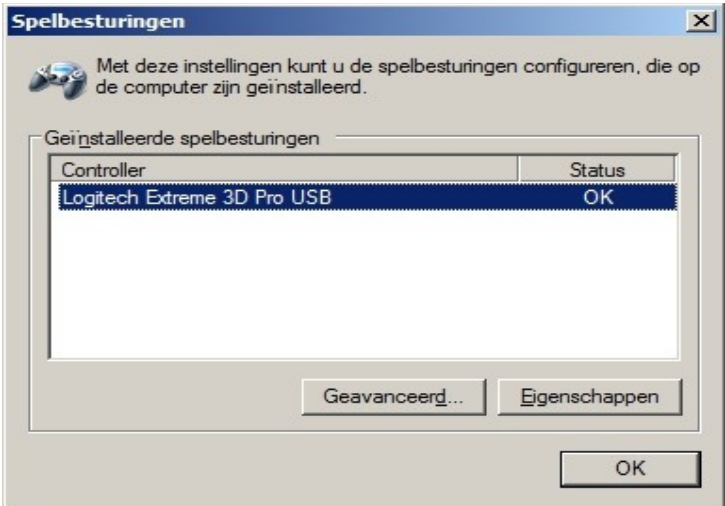
- Keyboard sensitivity – Aileron slider value

[CONTROLS],KBDELEV=(0-100)

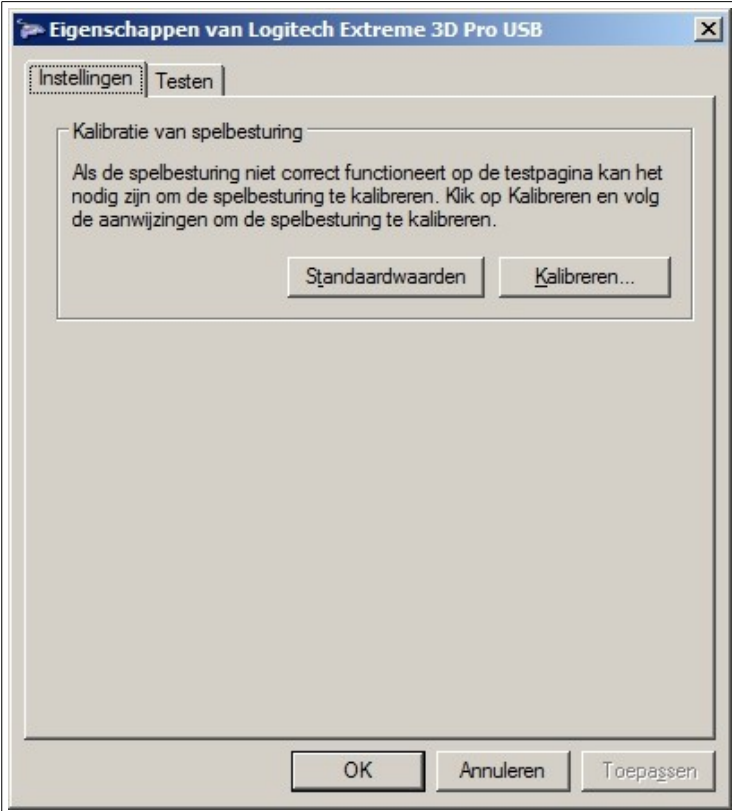
- Keyboard sensitivity – Elevator slider value

[CONTROLS],KBDRUD=(0-100)

- Keyboard sensitivity – Rudder slider value

	<p>This is the Windows Controls – Calibration screen</p> <p>Here you can select which control you want to calibrate.</p>
<p>Fig. 70 – Settings, Controls, Calibration, Calibrate</p>	

FSX.CFG related parameters:
- none -

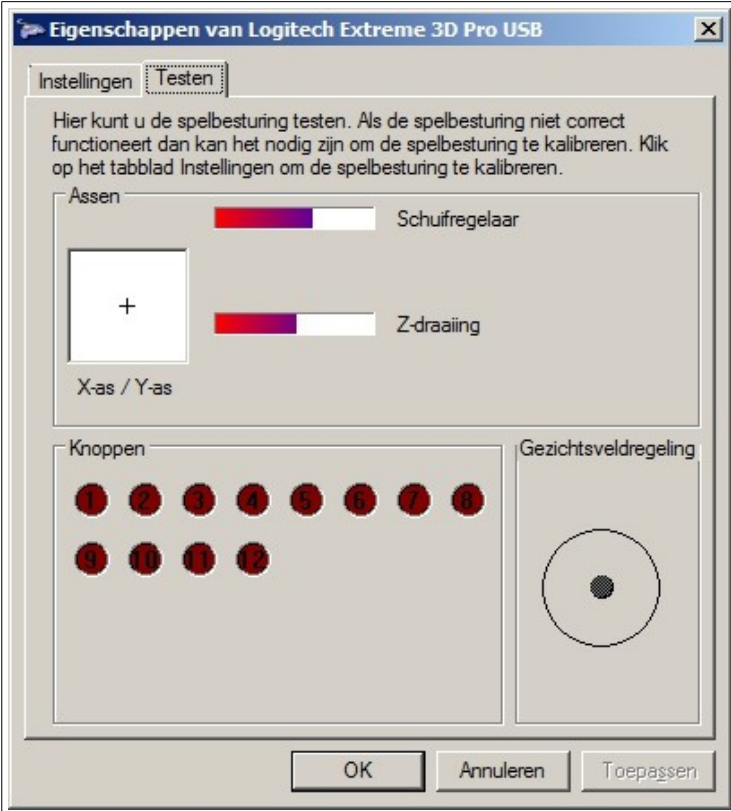


This is the 1st Windows Calibration - Details screen:

Here you can calibrate your selected controls, through build-in Windows Operating System functions. (not FSX internal calibration routines)

Fig. 71 – Controls, Calibration, Calibrate, Settings

FSX.CFG related parameters:
- none -




This is the 2nd Windows Calibration - Details screen:

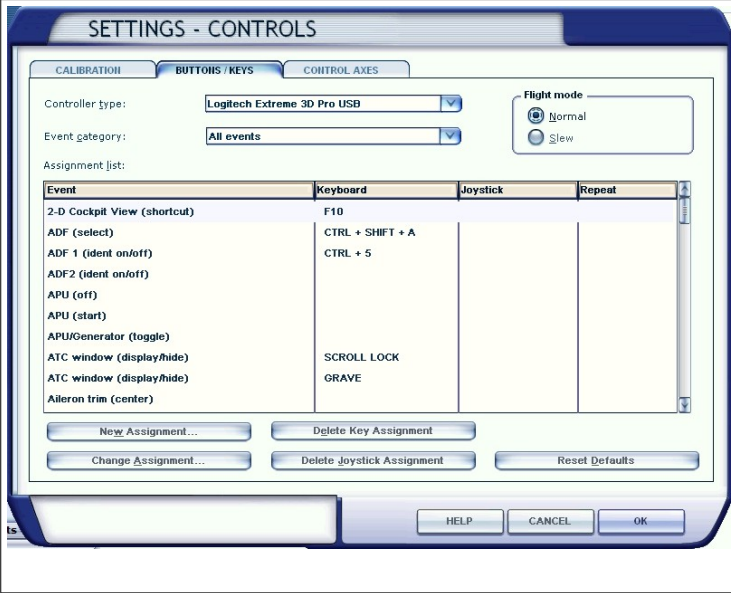
Here you can calibrate and check the calibration details of your selected controller.

Fig. 72 – Controls, Calibration, Calibrate, Testing

FSX.CFG related parameters:
- none -

	<p>This is the 3rd Windows Calibration – Advanced Details screen:</p> <p>This enables you to go deeper into calibration settings of your peripherals (joystick, yokes, pedals, throttle).</p>
<p>Fig. 73 - Calibration, Calibrate, Advanced Settings</p>	

FSX.CFG related parameters:
- none -

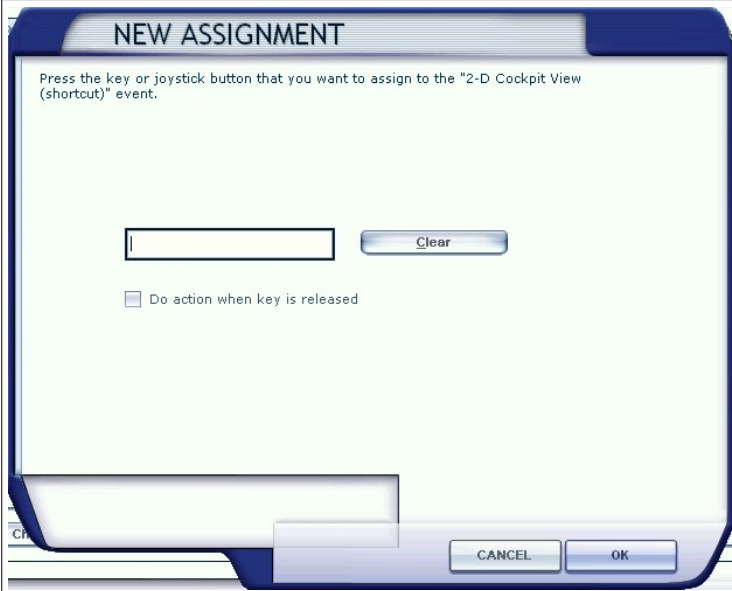


This is the ^{2nd} (flight) Controls Setting screen.

- Here you can:
- bind key-presses to specific internal FSX actions,
 - >
 - change existing Keyboard Key bindings,
 - delete existing Keyboard Key bindings,
 - >
 - change existing Joystick button bindings,
 - delete existing Joystick button bindings,
 - >
 - reset all Key-bindings to installation default.

Fig. 74 – Settings, Calibrate, Buttons/Keys

FSX.CFG related parameters:
- none -

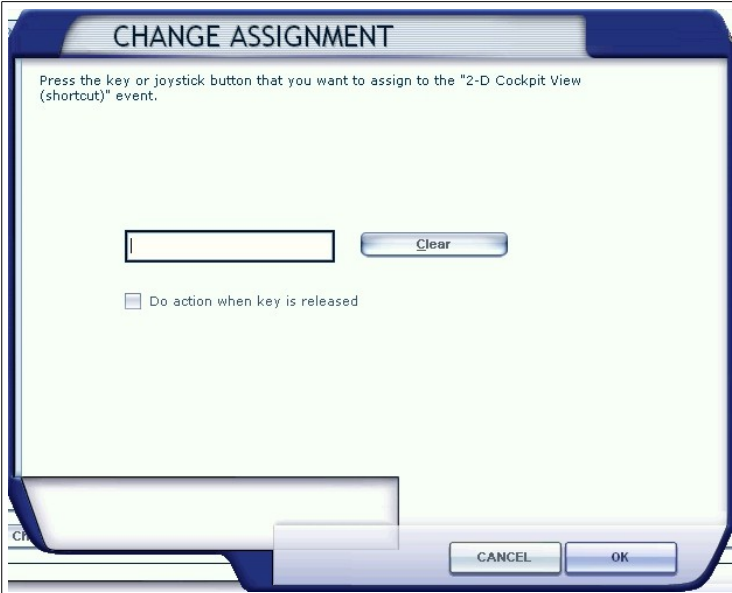


This is the Control – New assignment screen

Here you can assign a (new) keyboard key or (new) Joystick button to a certain FSX internal action.

Fig. 75 – Calibrate, Buttons/Keys, New Assignment

FSX.CFG related parameters:
- none -

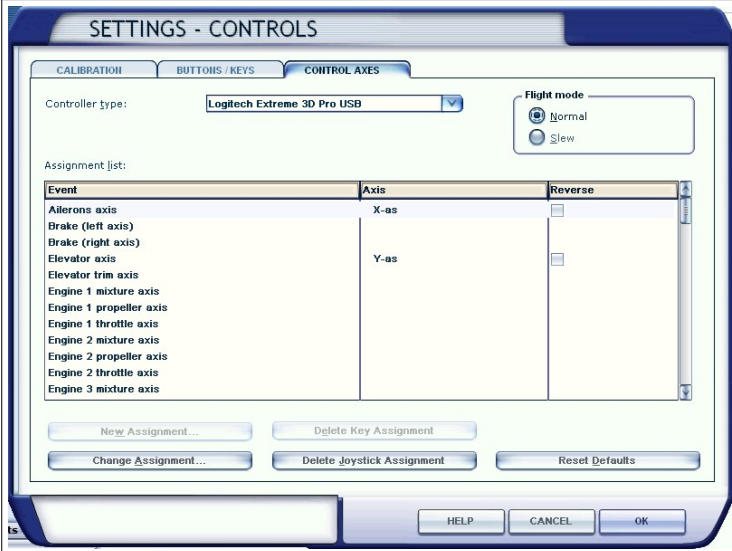


This is the Control – Change Assignment screen

Here you can assign a keyboard key or Joystick button to a certain FSX internal action.

Fig. 76 – Cal, Buttons/Keys, Change Key Assignment

FSX.CFG related parameters:
- none -

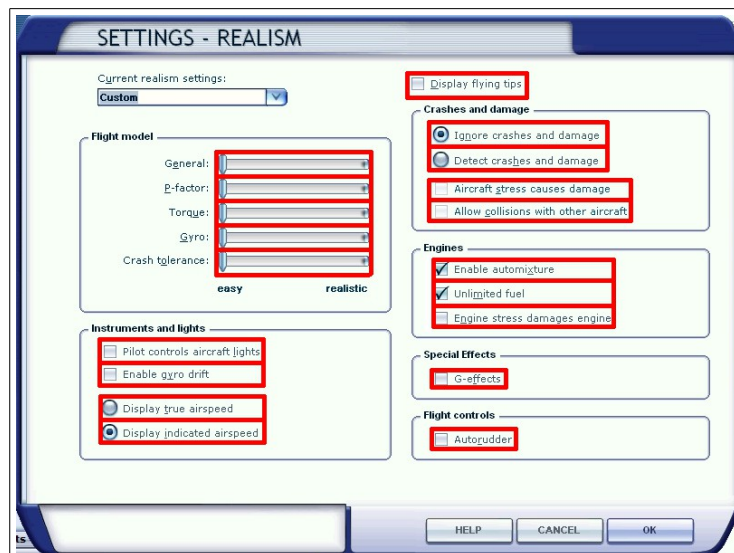


This is the 3rd Controls screen:

Here you can “connect” a mouse axis / joystick axis / throttle axis movement to an internal FSX event of function.

Fig. 77 – Settings, Controls, Control Axis

FSX.CFG related parameters:
- none -



This is the Settings – Realism screen:
Here you can adjust how “real (life)” FSX simulates the behavior of the Aircraft's (and her internal systems).

You adjust FSX internal settings items like:

- the flight model (easy, medium,hard,custom)
- cockpit instruments and lights
- aircraft crashes and damages
- aircraft collision with other objects
- aircraft engines
- fuel mixture
- g-forces effect on pilots vision
- special effects
- flight controls (auto-rudder)

Fig. 78 – Settings, Realism

FSX.CFG related parameters:

[REALISM],General=(0-1.000000)

- General slider value

[REALISM],PFactor=(0-1.000000)

- P-factor slider value

[REALISM],GyroEffect=(0-1.000000)

- Gyro Effect slider value

[REALISM],Torque=(0-1.000000)

- Torque slider value

[REALISM],CrashTolerance=(0-1.000000)

- Crash Tolerance slider value

[REALISM],ManualLights=(True/False)

- Determines if the pilot can manually control the aircraft's lights (or not)

[REALISM],GyroDrift=(True/False)

- Determines if your aircraft's gyroscope drifts (or not)

[REALISM],TrueAirspeed=(True/False)

- Determines which airspeed is displayed on screen (true/indicated)

>>

[REALISM],CrashDetection=(True/False)

- Determines if FSX checks if your aircraft crashes into other STATIC objects (e.g. scenery, buildings)

[REALISM],StressDamage=(True/False)

- Determines if load-stress damages the aircraft (or not)

[REALISM],CrashWithDyn=(True/False)

- Determines if FSX checks if your aircraft crashes into other MOVING objects (e.g. boats, other aircraft, ground vehicles)

>>

[REALISM],RealMixture=(True/False)

- Determines if the engine fuel mixture is done automatically/manually or manually

[REALISM],UnlimitedFuel=(True/False)

- Determines if the aircraft has an unlimited fuel quantity (or not)

[REALISM],AllowEngineDamage=(True/False)

- Determines if engine-overload damages the engines

[REALISM],Geffect=(True/False)

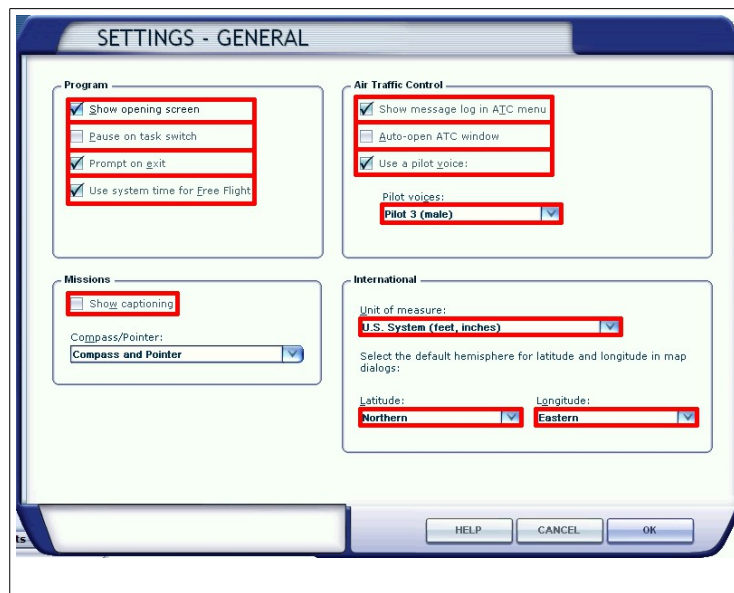
- Determine if the pilot suffers from G-forces effects (tunnel-vision, blackout)

[REALISM],AutoCoord=(True/False)

- Is Autorudder on/off?

[REALISM],AutoTrim=(True/False)

- Is Autorudder On or Off?



This is the Settings – General screen:
Here you adjust settings about:

- program start-up, pause and shutdown,
- system time usage during Free flight,
- mission captions visibility,
- >
- Air Traffic Controller:
 - message logs,
 - pilot voices,
 - >
- International measurements:
 - latitude,
 - longitude,
 - units of measure.

Fig. 79 – Settings, General

FSX.CFG related parameters:

[STARTUP],SHOW_OPENING_SCREEN=(0,1)

- Determines if you see the FSX startup menu ()

[USERINTERFACE],PAUSE_ON_LOST_FOCUS=(0,1)

- Determines if the FSX simulator continues in the background, when you switch to another Windows application(yes/no).

[USERINTERFACE],PROMPT_ON_EXIT=(0,1)

- Determines if FSX asks you to confirm you leaving the program (yes/no).

[SIM],SYSCLOCK=(0,1)

- Use systems clock for simulator time and date (yes/no)

>

[USERINTERFACE],SHOW_MISSION_CAPTIONS=(0,1)

- Determines if you can see Mission Captions ()

>>

[ATC],ShowATCText=(0,1)

- Determines if the ATC window shows a logfile of all communications (yes/no)

[USERINTERFACE],OpenATCOnCreate=(0,1)

- Determines if your Free Flight opens with the ATC window (yes/no)

[ATC],UsePilotVoice =(0,1)

- Determines if you can to use a pilot voicesample or only text chat to communicate with the build-in ATC

>

[ATC],PilotVoice=(0,1,2,3,4,5,6,7,8,9)

- Determines the voicesample used to simulate the pilots voice during communication with the build-in ATC

>

[INTERNATIONAL],MEASURE=(0,1)

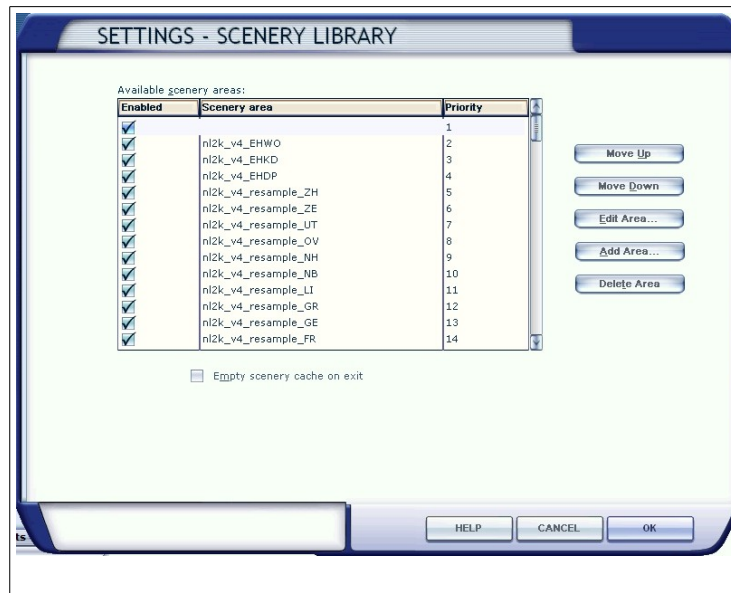
- Determines the Units of Measure used inside FSX (U.S. System / Metrics)

[INTERNATIONAL],ASLAT=(2)

- Determines the Longitude area of the part of the world in which you are right now

[INTERNATIONAL],ASLON=(0)

- Determines the Latitude area of the part of the world in which you are right now



This is the Settings – Scenery screen:

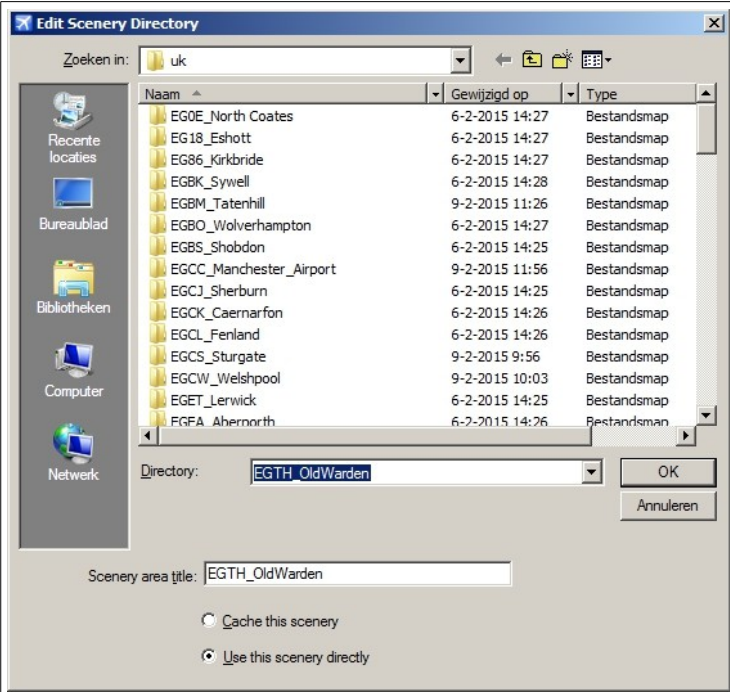
Here you can:

- add new sceneries to FSX,
- edit an existing scenery,
- delete existing sceneries from the scenery library,
- switch a scenery-area on/off,
- adjust the order in which sceneries are loaded,
- >
- empty the scenery cache on exiting FSX.

Fig. 90 – Settings, Scenery Library

FSX.CFG related parameters:

- none -



This is the Scenery – Edit screen:

Here you can modify an existing scenery, by:

- altering the scenery contents directory,
- altering the descriptive name on screen.

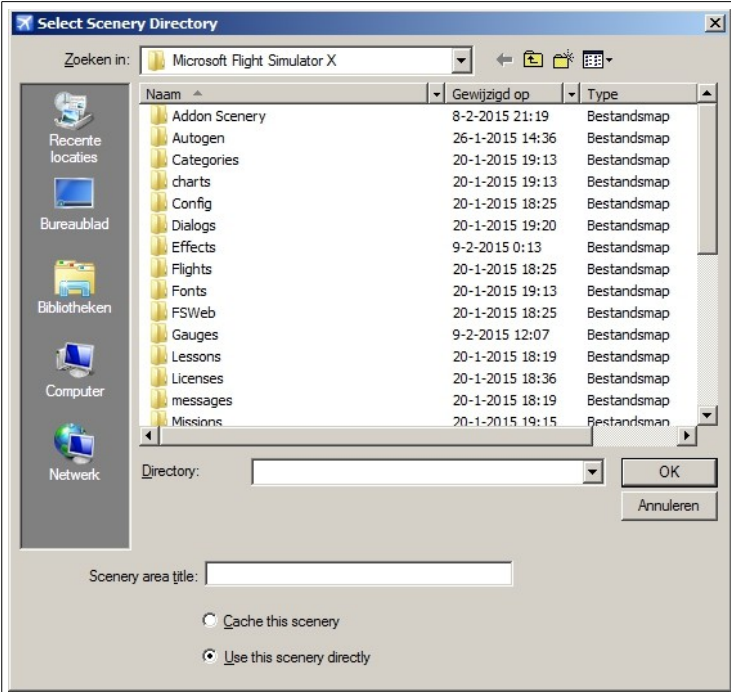
You can also decide if you want to

- use the scenery stored in the scenery cache,
- use the scenery directly.

Fig. 91 – Settings, Scenery Library, Edit Area

FSX.CFG related parameters:

- none -

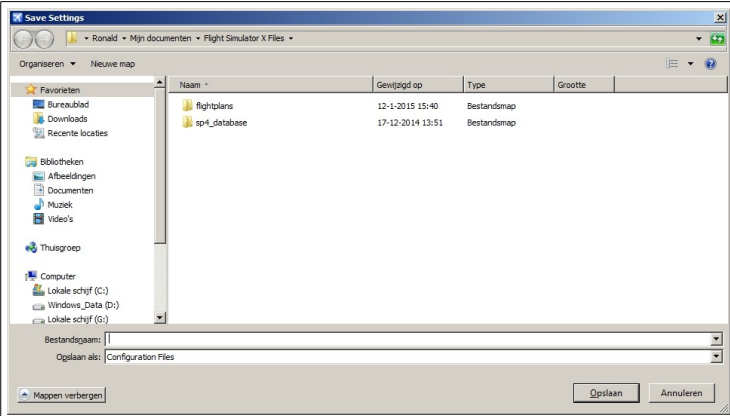


This is the Scenery – Add screen:

Here you can select a directory / folder from which FSX will load a new scenery at start-up.

Fig. 92 – Settings, Scenery Library, Add Area

FSX.CFG related parameters:
- none -



This is the Settings – Save Setting screen.

Here you can choose a directory and filename in which you want to save your current FSX settings,

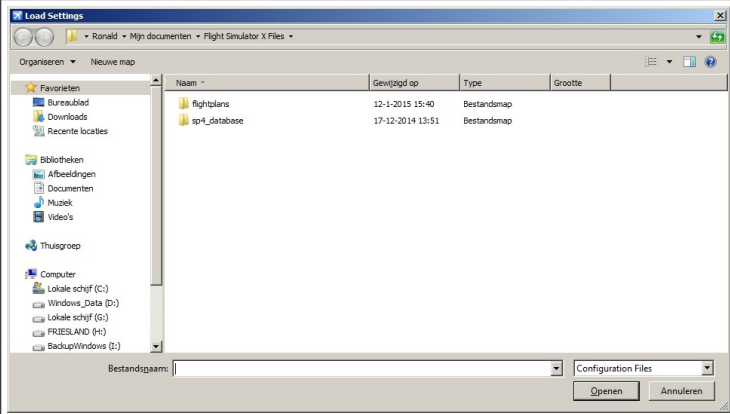
- for later use
- as a way of backing up your current setup

Default folder:
C:\Users\<name>\Documents\Flight Simulator X Files

Fig. 93 – Settings, Save Settings

FSX.CFG related parameters:

- none -



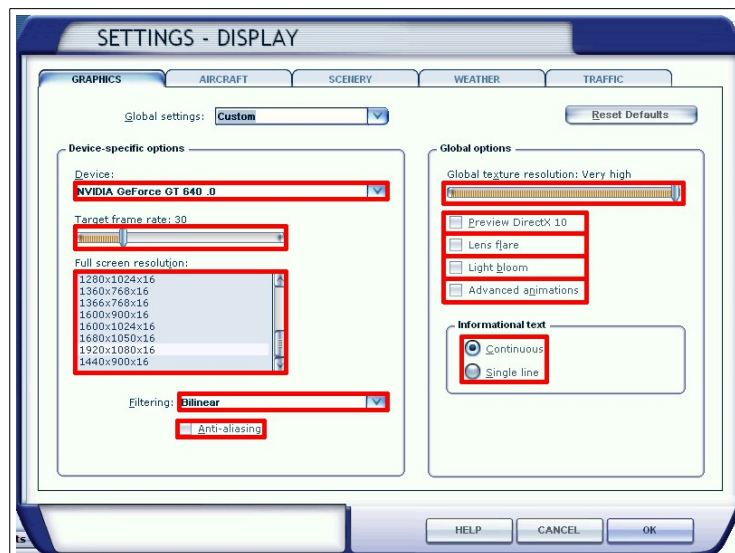
This is the Settings – Load Setting screen.

Here you can choose a directory and filename from which you want to load your previous saves settings.

Default folder:
C:\Users\<name>\Documents\Flight Simulator X Files

Fig. 94 – Settings, Load Settings

FSX.CFG related parameters:
- none -



This is the 1st Settings – Display screen
Here you can adjust most graphic items like:

- graphic card (GPU),
- resolution (x, y number of pixels on screen),
- colordepth (in bits 8, 16, 24, 32),
- framerate (images / second),
- image filtering(none,bilineair,trilineair,anisotropic)
- anti-aliasing

>>

global texture option:

- text. resolution(very low,low,medium,high,very high),
- directX10 preview,
- lens flare,
- light bloom camera effects,
- >
- informational text on screen (atis, atc).

Fig. 95 – Settings, Display, Graphics_Tab

FSX.CFG related parameters:

[Display],UPPER_FRAMERATE_LIMIT=(0-xxx)

- Determines the number of frames/second generated by FSX, 0=unlimited

[DISPLAY.Device.NVIDIA GeForce GT 640 .0],Mode=(HorizontalxVerticalxColordepth)

- Determines the mode of the Graphic Adapter, in Horizontal - , Vertical number of Pixels, colordepth in bits

[DISPLAY.Device.NVIDIA GeForce GT 640 .0],Anisotropic=(0,1)

- Turns Anisotropic filtering on/off

[DISPLAY.Device.NVIDIA GeForce GT 640 .0],Bilinear=(0,1)

- Turns Bilinear filtering on/off

[DISPLAY.Device.NVIDIA GeForce GT 640 .0],TriLinear=(0,1)

- Turns Trilinear filtering on/off

[DISPLAY.Device.NVIDIA GeForce GT 640 .0],AntiAlias=(0,1)

- Determines if the graphics card uses anti-aliasing .

>>

[GRAPHICS],D3D10=(0,1)

- Determines if you can see DirextX10 preview (or not)

[SCENERY],LENSFLARE=(0,1)

- Determines if you can see advanced Camera Lens effects (or not)

[Display],BLOOM_EFFECTS=(0,1)

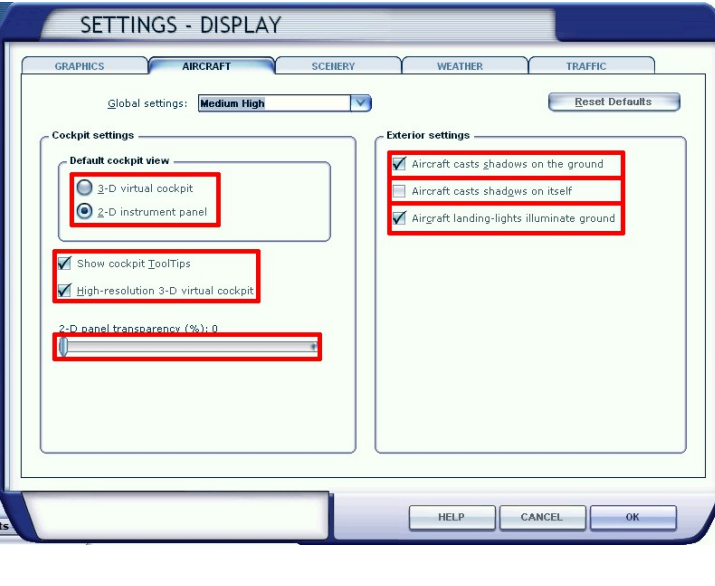
- Determines if you can see LightBoom effects on screen (or not)

[Display],SKINNED_ANIMATIONS=(0,1)

- Determines if you can see Advanced (aircraft) animations, like flexing wings in external views (or not)

[GRAPHICS],Text_Scroll=(0,1)

- Determines if you see 1 static – or a continues moving text line in the upper area of the screen (or not)

	<p>This is the 2nd Settings – Display screen.</p> <p>Here you can adjust:</p> <ul style="list-style-type: none"> - cockpit settings: <ul style="list-style-type: none"> → default cockpit start-up view, (2d,3d) → cockpit tooltips for instruments, (on/off) → cockpit resolution, (low/high) > - amount of panel transparency in 2D cockpits. > - aircraft exterior settings: <ul style="list-style-type: none"> → shadows on the ground, (on/off) → shadows on the ground on itself, (on/off) → landing light effects on the ground. (on/off)
<p>Fig. 96 – Settings, Display, Aircraft_Tab</p>	

FSX.CFG related parameters:

[PANELS],DEFAULT_VIEW=(0,1) 0=3D VC, 1=2D view

- Determines what kind of cockpit you see when starting a Free Flight.

>

[PANELS],QUICKTIPS=(0,1)

- Determines if you can see Cursor Tooltips inside the cockpit, when you point the cursor at a gauge, switch or throttle.

[GRAPHICS],COCKPIT_HIGH_LOD=(0,1)

- Determines if you can see the 3d virtual cockpit in high detail.

>

[PANELS],PANEL_OPACITY=(0-100)

- Determines how much % transparent your 2d (flat) panels become in the cockpit.

>>

[GRAPHICS],AIRCRAFT_SHADOWS=(0,1)

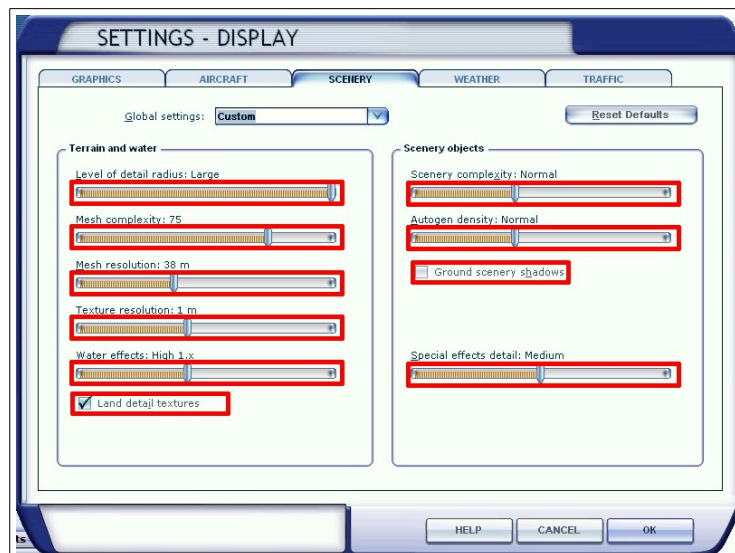
- Determines if the aircraft casts its own shadow on the ground beneath it.

[GRAPHICS],AC_SELF_SHADOW=(0,1)

- Determines if the aircraft's model can cast its own shadows onto its own aircraft model.

[GRAPHICS],LANDING_LIGHTS=(0,1)

- Determines if the aircraft's landings lights can illuminate the ground/scenery underneath the aircraft.



This is the 3rd Settings – Display screen.

Here you can adjust:

terrain and water settings:

- level of detail, (small,medium,large)
- scenery mesh complexity, (0-100)
- scenery mesh resolution (1m – 305m)
- texture resolution (7cm - 10m)
- water effects, (0- Max 2.x)

>>

scenery object settings:

- complexity(very sparse, sparse, normal, dense, very dense, extermly dense),
- autogen density(sparse, normal, dense, very dense, extermly dense),
- special effects(low, medium, high).

Fig. 97 – Settings, Display, Scenery_Tab

FSX.CFG related parameters:

[TERRAIN],LOD_RADIUS=(2.500000, 3.500000, 4.500000, 6.500000)

- Determines the minimum scenery object size (Level Of Detail) that can be seen on screen

[TERRAIN],MESH_COMPLEXITY=(1-100)

- Determines what level of scenery mesh complexity is seen on screen

[TERRAIN],MESH_RESOLUTION=(17,18,19,20,21,22,22,23,24)

- Determines what level of scenery mesh resolution is seen on screen

[TERRAIN],TEXTURE_RESOLUTION=(22,23,24,25,26,27,28,29)

- Determines what level of scenery texture resolution is seen on screen

[TERRAIN],WATER_EFFECTS=(0,1,2,3,4,5,6,7)

- Determines the level of water effects that can be seen on screen

>>

[SCENERY],IMAGE_COMPLEXITY=(0,1,2,3,4,5)

- Determines the complexity of the overall global scenery

[TERRAIN],AUTOGEN_DENSITY=(0,1,2,3,4,5)

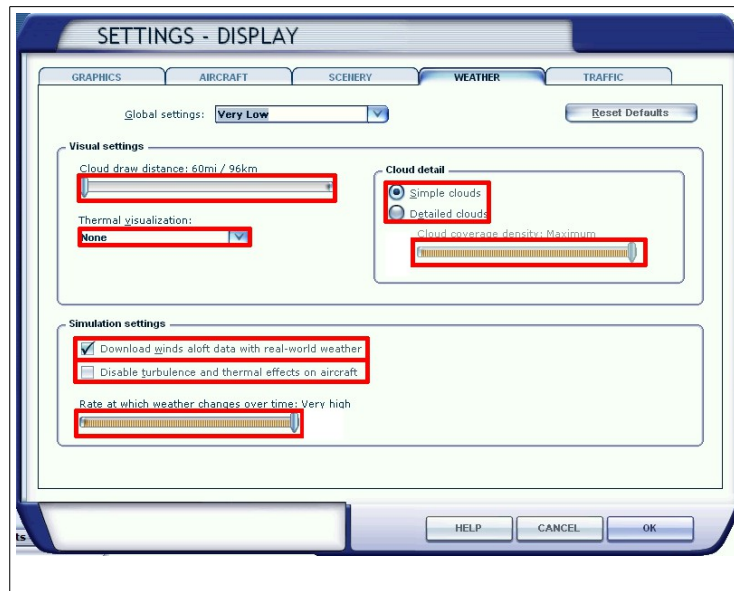
- Determines how much automatic generated scenery is visible on the ground

[GRAPHICS],GROUND_SHADOWS=(0,1)

- Determines if the ground scenery casts its own shadows on the ground below herself

[GRAPHICS],EFFECTS_QUALITY=(0,1,2)

- Determines the detail level of the in Free Flight outside visible special effects (such as fireworks, smoke)



This is the 4th Settings – Display screen

Here you can adjust:

- cloud draw settings (96km-176km)
- thermal visualization (none, natural, schematic)
- >
- weather system simulation settings:
 - winds aloft information (on/off)
 - turbulence effects on aircraft (on/off)
 - changing rate (none,low,medium,high,very high)
- >>
- cloud detail settings (simple,detailed)
- cloud coverage (low,medium,high,maximum)

Fig. 98 – Settings, Display, Weather_Tab

FSX.CFG related parameters:

[Weather],CLOUD_DRAW_DISTANCE=(3,4,5,6,7,8)

- Determines until which distance (away from the aircraft location) clouds are drawn in the skies.

[Weather],THERMAL_VISUALS=(0,1,2)

- Determines how FSX displays the presence of thermal airstreams in a scenery on screen.

>

[Weather],DownloadWindsAloft=(0,1)

- Determines if wind-at-high-altitude information is also downloaded from the internet.

[Weather],DisableTurbulence=(0,1)

- Determines if the aircraft's flight behavior is influenced by turbulence and thermal effects.

[Weather],DynamicWeather=(0,1,2,3,4)

- Determines if and how fast the weather can change inside FSX.

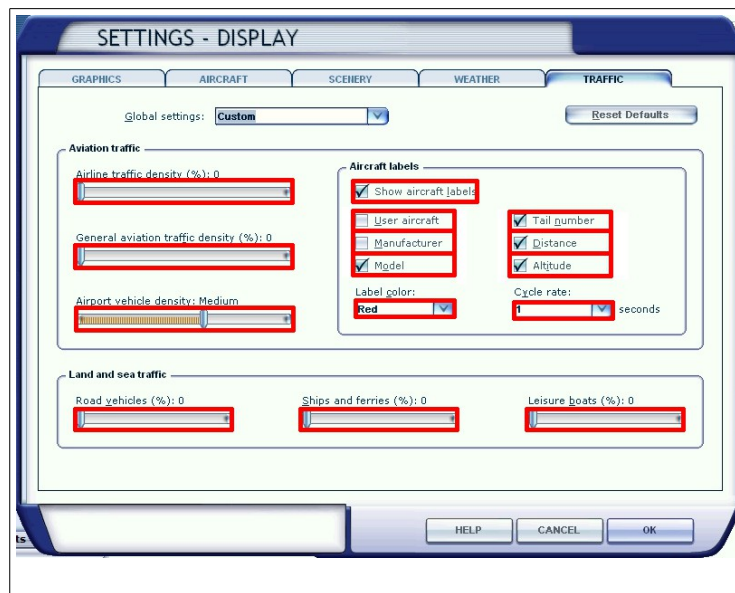
>>

[Weather],DETAILED_CLOUDS=(0,1)

- Determines if FSX draws simple (flat,2D) or (volumetric,3D) clouds on screen.

[Weather],CLOUD_COVERAGE_DENSITY=(5,6,7,8)

- Determines how many clouds FSX draws on screen.



This is the 5th Settings – Display screen

Here you can adjust the Artificial Intelligent Traffic:

- number of AI *big* airliners (0-100)
- number of AI GA *smaller* airliners (0-100)
- airport vehicle density (none, minimum, low, medium, high, maximum)
- >>
- label-information above aircraft (including your own)
- label-color and cycle-rate
- >
- land road vehicle traffic (0-100)
- ships and ferries (0-100)
- leisure boat traffic (0-100)

Fig. 99 – Settings, Display, Traffic_Tab

FSX.CFG related parameters:

[TrafficManager],AirlineDensity=(0-100)

- Determines the amount of AI airline aircraft in the skies

[TrafficManager],GADensity=(0-100)

- Determines the amount of AI general aviation traffic in the skies

[TrafficManager],AIRPORT_SCENERY_DENSITY=(0,1,2,3,4,5)

- Determines the amount of airport ground vehicle traffic

>>

[AContain],LabelColor = (FFFF0000 / any hexadecimal color code)

- Determines the color of the Aircraft_Label shown above the aircraft in external viewpoints.

[AContain],LabelDelay= (1000,2000,3000,4000,5000)

- Determines the amount of time between each label show phase.

[AContain],ShowLabelAirline = (0,1)

- Display the current Airline name in the Aircraft Label

[AContain],ShowLabelAirlineAndFlightNumber=(0,1)

- Display Airline and Flightnumber in the Aircraft Label

[AContain],ShowLabelAirspeed=(0,1)

- Display current Airspeed in the Aircraft Label

[AContain],ShowLabelAltitude=(0,1)

- Display current Altitude in the Aircraft Label

[AContain],ShowLabelDistance=(0,1)

- Display current Distance to Aircraft in Aircraft Label

[AContain],ShowLabelHeading=(0,1)

- Display current Heading in Aircraft Label

[AContain],ShowLabelManufacturer=(0,1)

- Display Aircraft Manufacturer in Aircraft Label

[AContain],ShowLabelModel=(0,1)

- Display Aircraft Model in Aircraft Label

[AContain],ShowLabels=(0,1)

- Turn Aircraft_Labels (on/off)

[AContain],ShowLabelTailNumber=(0,1)

- Display current Aircraft_TailNum in Aircraft Label

>>

[TrafficManager],FreewayDensity=(0-100)

- Determines the amount of AI road vehicle traffic on the highways

[TrafficManager],LeisureBoatsDensity=(0-100)

- Determines the amount of AI LeisureBoats on the rivers, lakes and seas

[TrafficManager],ShipsAndFerriesDensity=(0-100)

- Determines the amount of AI FerrieBoats on the rivers, lakes and seas

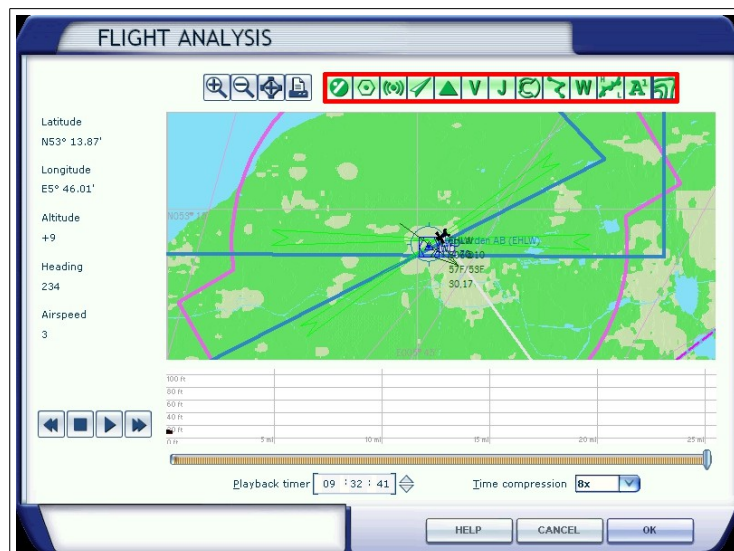
7. Which FSX.CFG parameters are behind the FSX in-game Free Flight menu screens?

	<p>File menu, End Flight.</p> <p>From here you can:</p> <ul style="list-style-type: none">- end your current Free Flight,- go back to your current Free Flight,- do flight analysis from the recent Free Flight.
<p>Fig. 100 – File, End Flight</p>	

FSX.CFG related parameters:
- none -

This was the last FSX menu screen, I will now continue to explore the FreeFlight ingame menu options.

<p>Fig.101 – Ingame FreeFlight menu screen tree</p>	



File Menu, End Flight, Flight Analysis.

Here you can analyze your last Free Flight performance

Through the [

Fig. 102 – File, Flight Analysis

FSX.CFG related parameters:

[MAPVIEW_MAP],SHOW_AIRPORTS=(0,1)

- Determines if you can see airports on the map

[MAPVIEW_MAP],SHOW_AIRSPACE=(0,1)

- Determines if you can see airspace boundaries on the map

[MAPVIEW_MAP],SHOW_APPROACHES=(0,1)

- Determines if you can see green ILS approach funnels on the map

[MAPVIEW_MAP],SHOW_DATATAGS=(0,1)

- Determines if you can see DataTags on the map

[MAPVIEW_MAP],show_flight_history=(0,1)

- Determines if you can see your flightpath on the map

[MAPVIEW_MAP],SHOW_FLIGHTPLAN=(0,1)

- Determines if you can see your loaded flightplan on the map

[MAPVIEW_MAP],SHOW_INTERSECTIONS=(0,1)

- Determines if you can see Intersection on the map

[MAPVIEW_MAP],SHOW_JET=(0,1)

- Determines if you can see Jet Airways on the map (above FL180)

[MAPVIEW_MAP],SHOW_NDBS=(0,1)

- Determines if you can see NDB radio navigation beacons on the map

[MAPVIEW_MAP],SHOW_TERRAIN=(0,1)

- Determines if you can see the 3D terrain on the map

[MAPVIEW_MAP],SHOW_VICTOR=(0,1)

- Determines if you can see Victor Airways on the map (below FL180)

[MAPVIEW_MAP],SHOW_VORS=(0,1)

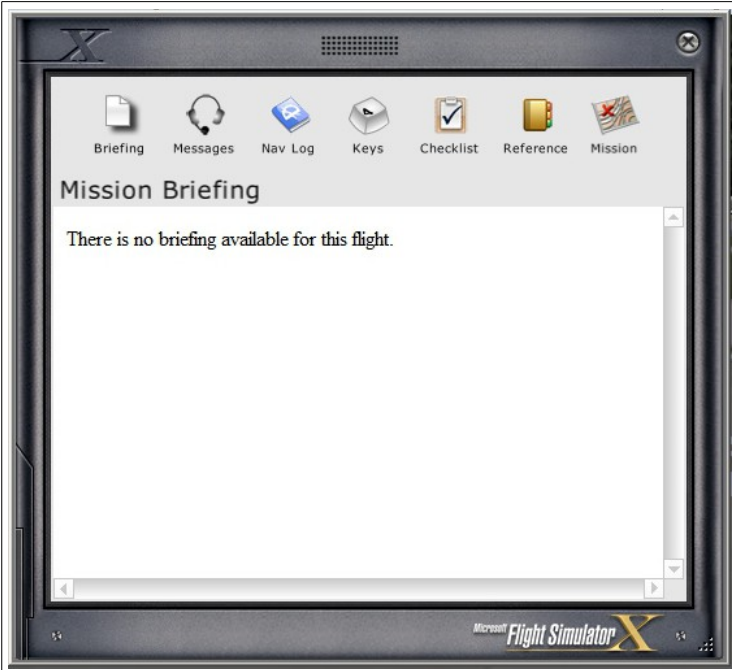
- Determines if you can see VOR radio navigation beacons on the map

[MAPVIEW_MAP],SHOW_WEATHERSTATIONS=(0,1)

- Determines if you can see Weather Stations on the map

[MAPVIEW_MAP],SHOW_WEATHERSYSTEMS=(0,1)

- Determines if you can see Weather Fronts on the map

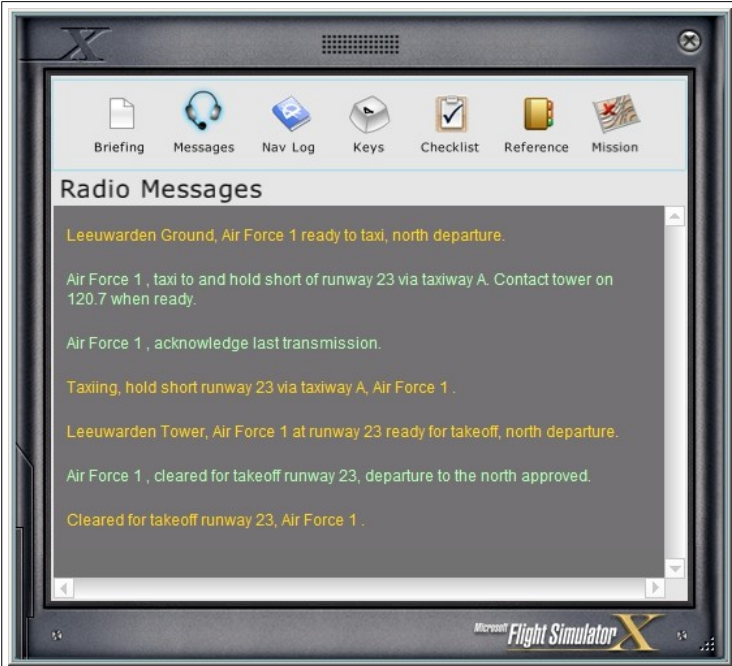


Aircraft Menu, KneeBoard, Mission Briefing.

This menu shows you the briefing information of the selected mission.

Fig. 103 – Aircraft, Knee-board, Mission Briefing

FSX.CFG related parameters:
- none -

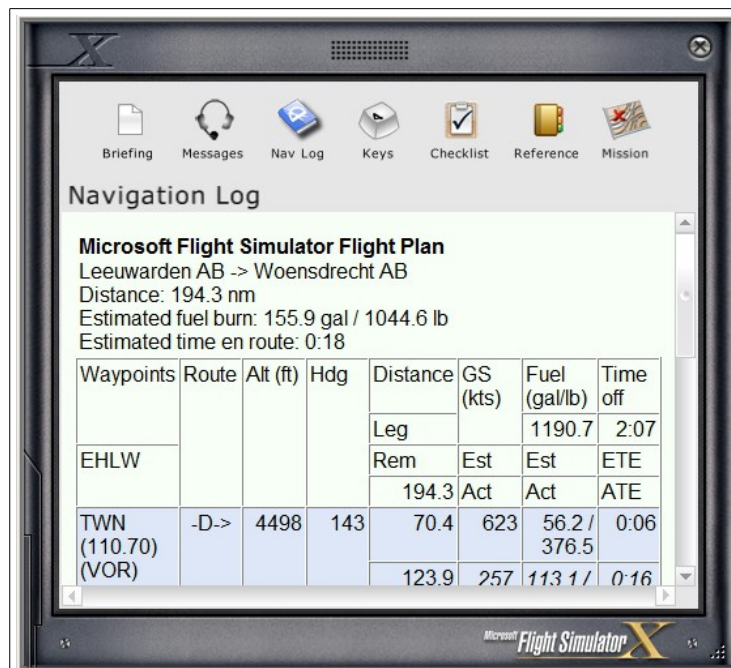


Aircraft Menu, KneeBoard, Radio Messages.

This menu show a log-file of all messages between you as a pilot and the build-in FSX Air Traffic Controller.

Fig. 104 – Aircraft, Kneeboard, Radio Messages

FSX.CFG related parameters:
- none -



Aircraft Menu, KneeBoard, Navigation Log.

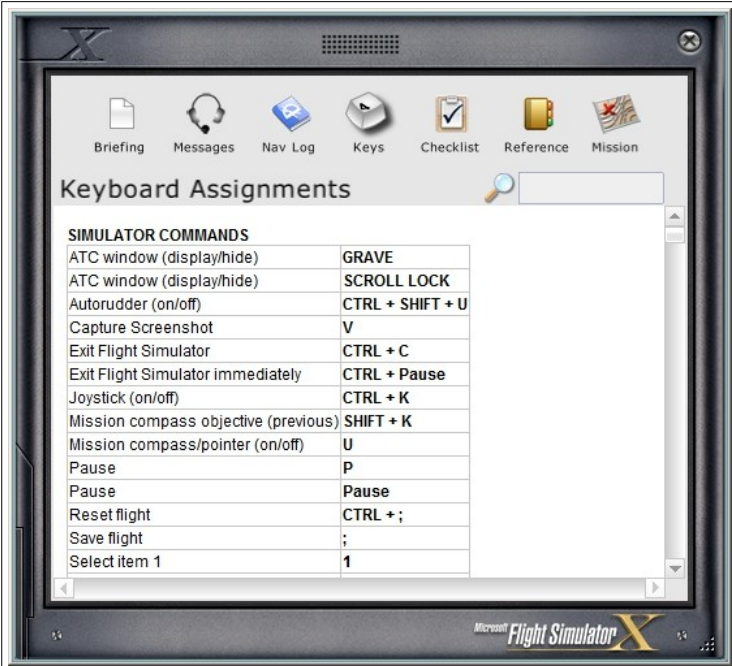
This menu show your currently loaded flightplan with:

- waypoints (names, navigation aids, frequencies),
- route,
- altitude,
- heading,
- distance to next waypoint,
- ground speed,
- fuel,
- time to destination.

Fig. 105 – Aircraft, Kneeboard, Navigation Logbook

FSX.CFG related parameters:

- none -

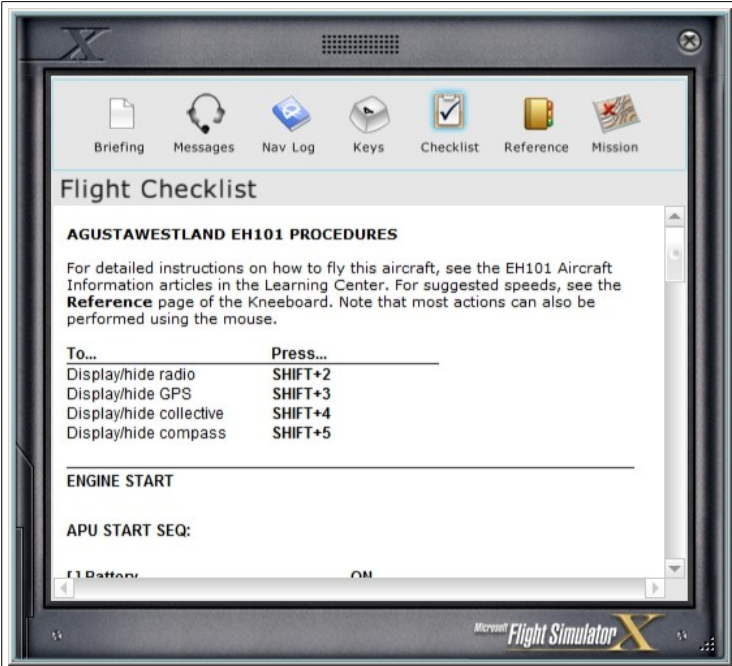


Aircraft Menu, KneeBoard, Keys.

This menu shows which keyboard-keypresses are connected to which internal FSX actions.

Fig. 106 – Aircr., Kneeboard, Keyboard Assignments

FSX.CFG related parameters:
- none -




Aircraft Menu, KneeBoard, Checklist.

These are the selected aircraft's Flight Checklists.

Fig. 107 – Aircraft. Kneeboard, Flight Checklists

FSX.CFG related parameters:
- none -



Aircraft Menu, KneeBoard, Aircraft Reference.

This is the Reference list of the selected aircraft.

Fig. 108 – Aircraft, Kneeboard, Aircraft Reference

FSX.CFG related parameters:

- none -

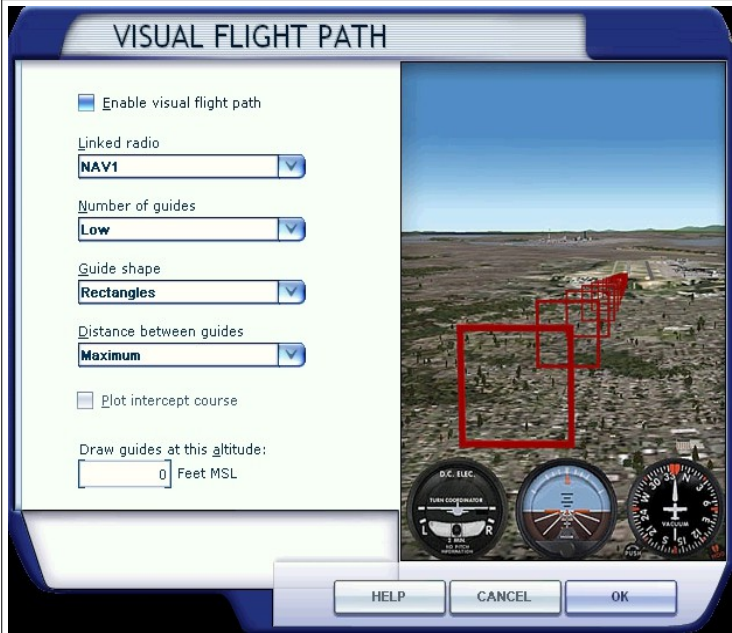


Aircraft Menu, KneeBoard, Mission Objectives.

This menu shows the Mission objectives (when you have chosen to fly a Mission instead of a Free Flight)

Fig. 109 – Aircraft. Kneeboard, Mission Briefing

FSX.CFG related parameters:
- none -



Aircraft Menu, Visual Flight Path.

This menu allows you to turn on/off the “visual flight path markers” on screen.

You can select:

- to which navigation radio they are linked,
- the amount of markers in the skies,
- the type of markers,
- the shape of the markers,
- the distance between the individual markers,
- intercept course to a path of flight-path markers,

>>

- if you want FSX to plot an intercept course to a given flightpath,
- mean sea level (MSL) altitude at which you want the guides to be seen on screen.

Fig. 110 – Aircraft, Visual Flight Path

FSX.CFG related parameters:
- none -

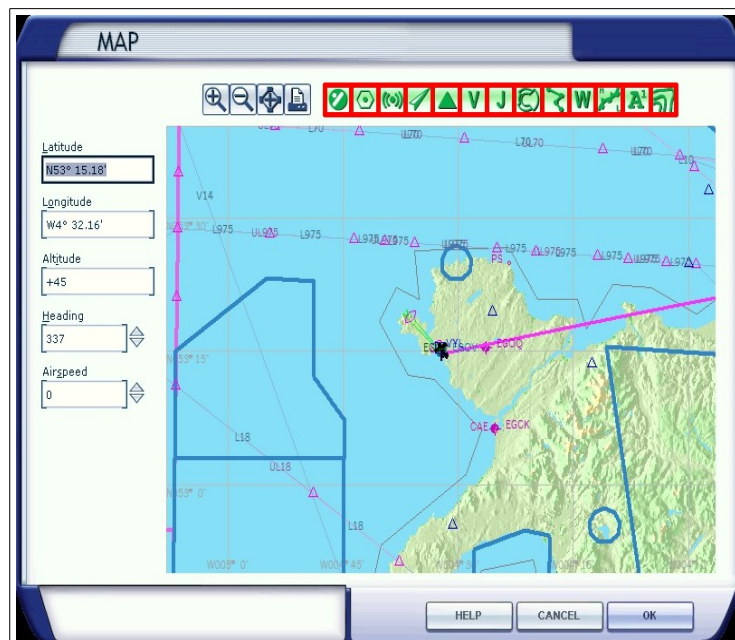


Fig. 111 – World, Map

World Menu, Map.

This shows the current location of your aircraft on the build-in global (terrain) map. You can turn off/on various elements of the map, to add more detail or to clear up the display like

- airports,
- ils funnels,
- airspace boundaries,
- vor beacons,
- ndb beacons,
- victor airways, (below 18000 feet),
- jet airways, (above 18000 feet),
- weather information,
- flightplan path,
- gps waypoints,
- markers.

You can also print out this map on paper.

FSX.CFG related parameters:

[MAPVIEW_MAP],SHOW_AIRPORTS=(0,1)

- Determines if you can see airports on the map

[MAPVIEW_MAP],SHOW_AIRSPACE=(0,1)

- Determines if you can see airspace boundaries on the map

[MAPVIEW_MAP],SHOW_APPROACHES=(0,1)

- Determines if you can see green ILS approach funnels on the map

[MAPVIEW_MAP],SHOW_DATATAGS=(0,1)

- Determines if you can see DataTags on the map

[MAPVIEW_MAP],show_flight_history=(0,1)

- Determines if you can see your flightpath on the map

[MAPVIEW_MAP],SHOW_FLIGHTPLAN=(0,1)

- Determines if you can see your loaded flightplan on the map

[MAPVIEW_MAP],SHOW_INTERSECTIONS=(0,1)

- Determines if you can see Intersection on the map

[MAPVIEW_MAP],SHOW_JET=(0,1)

- Determines if you can see Jet Airways on the map (above FL180)

[MAPVIEW_MAP],SHOW_NDBS=(0,1)

- Determines if you can see NDB radio navigation beacons on the map

[MAPVIEW_MAP],SHOW_TERRAIN=(0,1)

- Determines if you can see the 3D terrain on the map

[MAPVIEW_MAP],SHOW_VICTOR=(0,1)

- Determines if you can see Victor Airways on the map (below FL180)

[MAPVIEW_MAP],SHOW_VORS=(0,1)

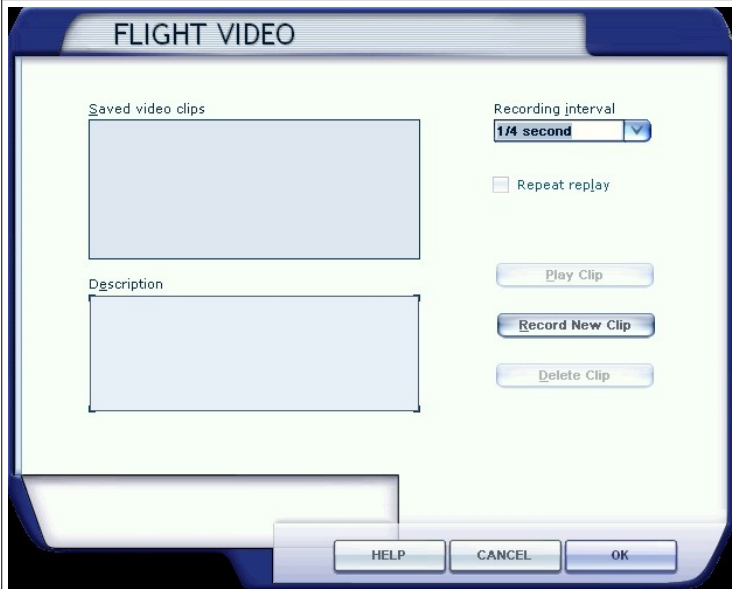
- Determines if you can see VOR radio navigation beacons on the map

[MAPVIEW_MAP],SHOW_WEATHERSTATIONS=(0,1)

- Determines if you can see Weather Stations on the map

[MAPVIEW_MAP],SHOW_WEATHERSYSTEMS=(0,1)

- Determines if you can see Weather Fronts on the map



Options Menu, Flight Video.

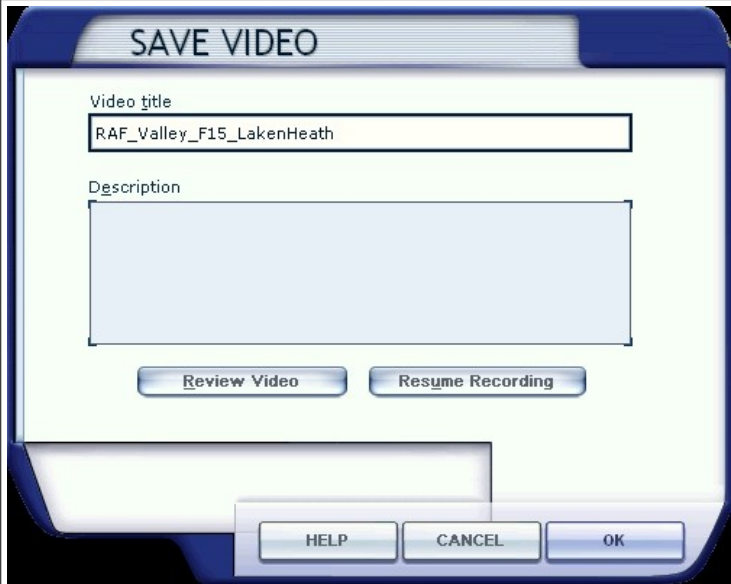
Via this menu you can record a FSX flight into a video-clip file.

Here you can:

- set the recording interval, (¼, ½, 1 , 5 seconds)
- select to repeat a selected clip continuously,
- play back a recorded clip,
- delete a recorded video clip,
- >
- see your already saved video clips,
- give a description to a recorded video clip.

Fig. 112 – Options, Flight Video

FSX.CFG related parameters:
- none -



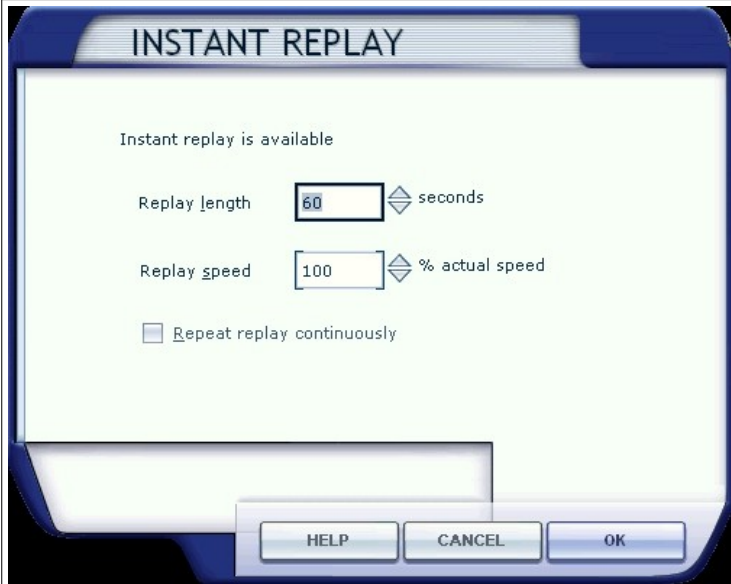
Options Menu, Flight Video, Save Video.

Here you can add a:

- title to your videoclip file,
- short description to your videoclip,
- >
- review your videoclip,
- resume recording the current videoclip.

Fig. 113 – Options, Save Video

FSX.CFG related parameters:
- none -



Options Menu, Instant Replay.

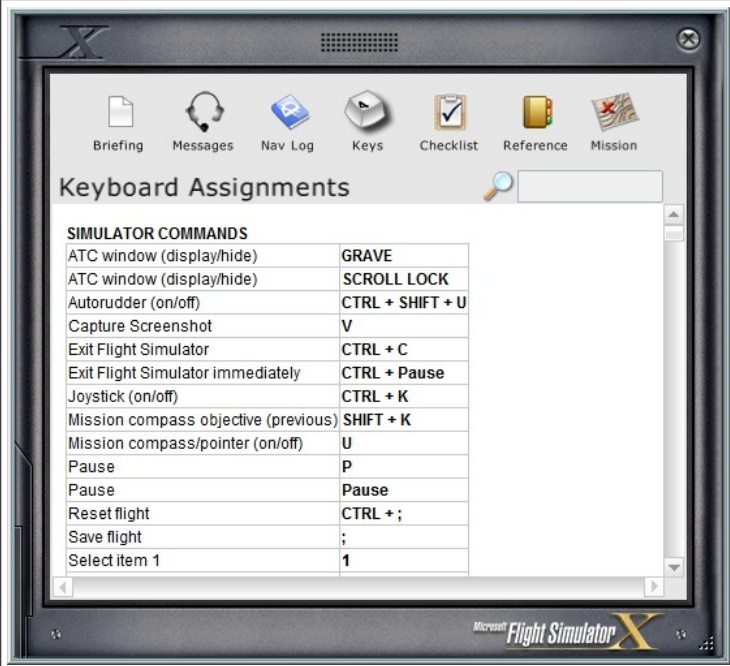
Here you can set the instant replay:

- length (in seconds)
- speed (% of actual recording speed)

You can set if this clip plays continuously. (looped).

Fig. 114 – Options, Instant Reply

FSX.CFG related parameters:
- none -

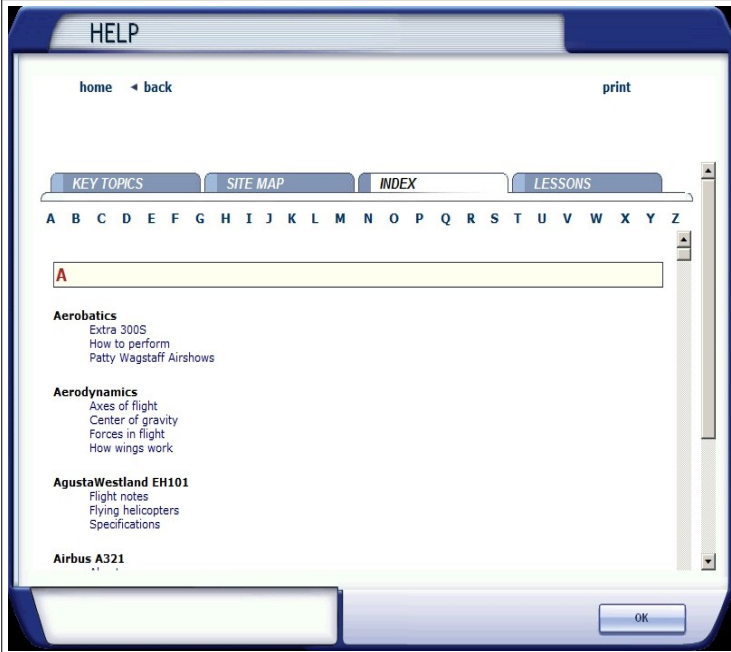


Help Menu, Keyboard Assignments.

This is an overview of which keys are related to / bound to which internal FSX actions.

Fig. 115 – Help, Keyboard Assignments

FSX.CFG related parameters:
- none -

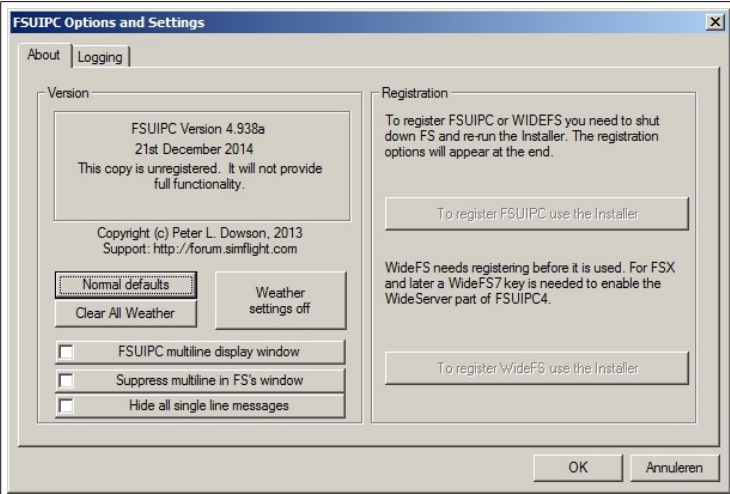


Help Menu, Learning Center.

This is the Topic index of the FSX Learning Center

Fig. 116 – Help, Learning Center

FSX.CFG related parameters:
- none -



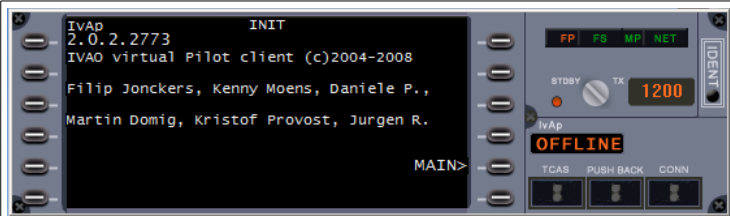
Add-ons, FSUIPC

This is an example of the most famous Add-on in Flightsim History.. Peter Dawson's FSUIPC.DLL

This is 1 of the 2 screens of FSUIPC.DLL

Fig. 117 – Add-Ons, FSUIPC

FSX.CFG related parameters:
- none -



Add-Ons, IvAp

This is the main userinterface of the IVAO pilot client for online flying.

Fig. 118 – Add-Ons, IvAp

7.1 The Story so far:

This is the end of all possible Free Flight in-game menu screens overview. I will now continue to show you the rest of the FSX.CFG parameter-value pairs that are **not configurable** via the builtin FSX Menu screens and/or in FreeFlight Mode menu screens.

If you want to edit FSX.CFG manually, you need a simple Windows editor program like “Notepad.exe”

NOTE:
Always make a copy of the FSX.CFG file BEFORE you start opening and editing it!!!

This way - when things go wrong while editing - you always have a FSX.CFG copy that still works in the way that is used to do ;-) and you can continue to enjoy FSX like before.

8 - Which FSX.CFG parameter-value pairs are not adjustable via the build-in and in-game menu's?

In this section of the FSX.CFG Hacking document, I will show you:

- Which other (hidden? internal?) FSX.CFG parameter- value pairs I have found so far.
- What these parameter-value pairs influence inside FSX

NOTE:

This part of the FSX.CFG overview is not complete please keep that in mind when reading this section!
It only reflects my own and the collected knowledge I have come up with so far.. so it can contain some errors.

When I have not discovered (yet) the true purpose, I have marked the FSX.CFG parameter value with an ??

[CONTROLS],Controls_Current=Standard
??

Fig. 119 - Example of a yet undocument parameter-value pair.

Where I do have discovered the purpose, I have documented as many parameter-value-pairs as I could find:

[Userinterface], PageId = (1,2,3,4,5,6,7)
- Determines which menu page is shown first at FSX startup:
1 – Home
2 – Free Flight
3 – Missions
4 – Multiplayer
5 – Pilot Records
6 – Learning Center
7 – Settings

Fig. 120 - Example of a well document parameter-value pair.

I have also grouped the undocumented FSX.CFG parameter-value pairs to FSX menu-screens (where possible), so that you can get an idea of where they might belong too, FSX-functionality-wise. This helps you to gain a deeper understanding where – inside FSX – these settings must have their intended effect.


On some occasions I have added an extra – explanatory graphic - to give you a visual overview of the detailed technical background of these FSX settings, so you can “get the under-the-hood- picture” too.



I have also included 3rd party (internet) resources, so you can dig even further yourself.

← These 3rd party resources are highlighted by this icon in the document.

Let go, and dive even deeper into the FSX.CFG undocumented settings jungle :-)

	<p>This is the 1st Main Menu / “Opening screen” of FSX.</p> <p>From here you can:</p> <ul style="list-style-type: none"> - read the latest FSX / Steam news, - go to the other parts of FSX, - exit FSX again.
<p>Fig. 121 - FSX “Opening screen” / Main menu screen</p>	

FSX.CFG related parameters:

[AccelerationPack], ControlsFirstRun = (0,1)

- Set by FSX Acceleration Pack installation.

[AccelerationPack], HomePageFirstRun = (0,1)

- Set by FSX Acceleration Pack installation.
- Determines whether the Standard FSX menu or the FSX Acceleration Pack's menu is shown at first start-up.

[Main],DisablePreload = (0,1)

- Determines whether the “default flight” is pre-loaded in FSX during start-up (or not).

[Main], Location = UpperX, UpperY, LowerX, LowerY \ display-device

Determines the location where on which displaydevice (monitor) the FSX Free Flight screen appears

- UpperX = Upper Lefthand window corner X coordinate on screen
- UpperY = Upper Lefthand window corner Y coordinate on screen
- LowerX = Lower Righthand window corner X coordinate on screen
- LowerY = Lower Righthand window corner Y coordinate on screen
- Displaydevice = The name of the computerdisplay on which the FreeFlight screen become visible.

[Userinterface], PageId = (1,2,3,4,5,6,7)

- Determines which menu page is shown first at FSX start-up:

- 1 – Home
- 2 – Free Flight
- 3 – Missions
- 4 – Multiplayer
- 5 – Pilot Records
- 6 – Learning Center
- 7 – Settings

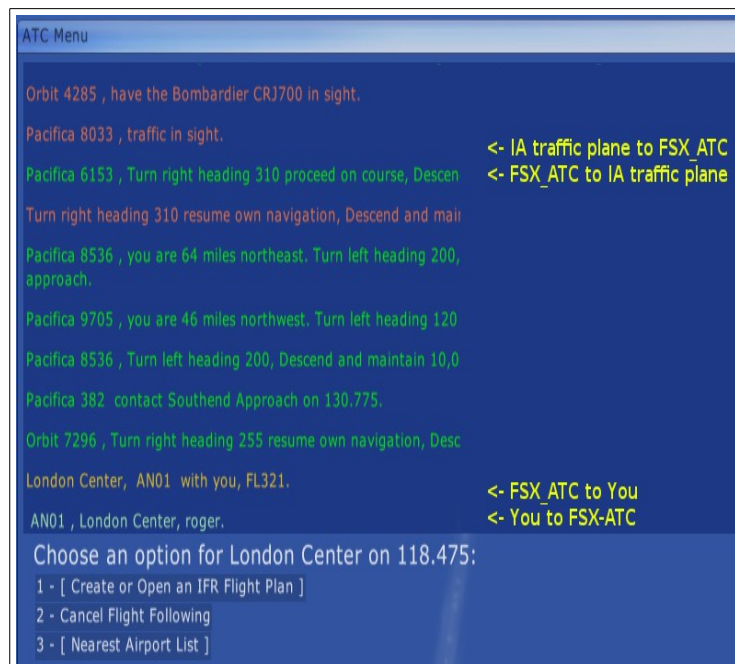


Fig. 122 – ATC Communications Window

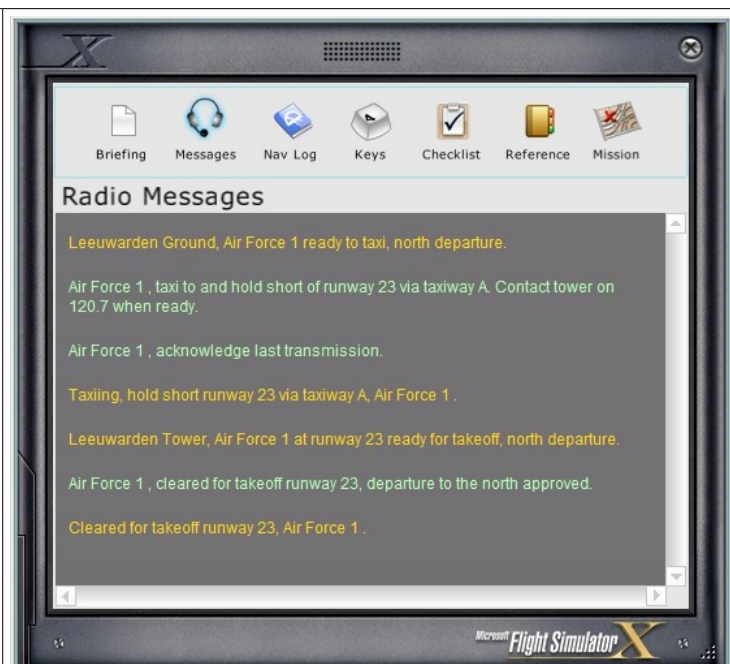


Fig. 123 – Kneeboard, Messages

FSX.CFG related parameters:

[ATC],COMM_MSG_AI_ATC_COLOR=(FFFF7840, RGB color code)

- TextColor of message from AI plane to ATC.

[ATC],COMM_MSG_ATC_AI_COLOR=(FF00FF00, RGB color code)

- TextColor of message from ATC to AI plane.

[ATC],COMM_MSG_ATC_USER_COLOR=(FFB6FFB6, RGB color code)

- TextColor of message from ATC to you.

[ATC],COMM_MSG_USER_ATC_COLOR=(FFFFD21B, RGB color code)

- TextColor of message from you to ATC.

>

[ATC],COMM_MSG_NONE_COLOR=(FFFFFFFF, RGB color code)

- TextColor of ATC message to the dialogue box (for example: “Choose an option for London Center on 118.75”).

These settings determine the TextColor \ Text Background Color of the messages, shown above:

- FSX's ATC window
- the aircraft's Kneeboard.



For more information about Hexadecimal / RGB / HTML color-codes see these websites:

- http://rapidtables.com/web/color/RGB_Color.htm
- <http://www.color-hex.com/>
- <http://www.december.com/html/spec/color1.html>
- <http://html-color-codes.info/>
- http://en.wikipedia.org/wiki/Web_colors

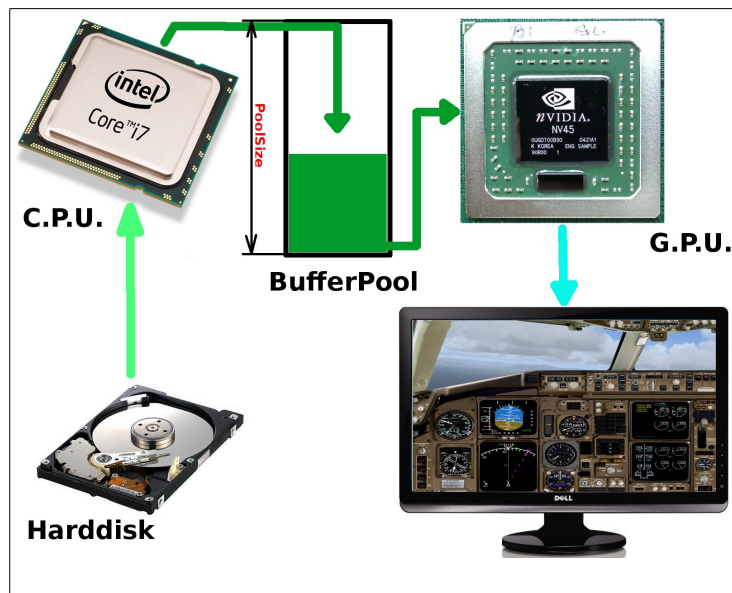


Fig. 124 – BufferPool, PoolSize communication

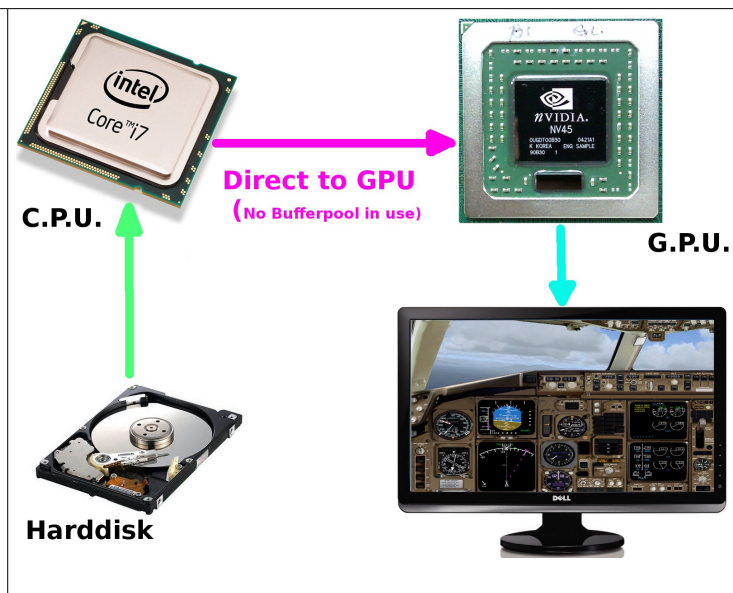


Fig. 125 – Direct CPU => GPU communication

FSX.CFG related parameters:

[BufferPools],UsePools=(0,1)

This setting determines if you:

- want to use an “in computer's main memory buffer(pool)” between the CPU and GPU. (fig. 124)
- allow your CPU to directly send the graphic information to your graphics card's GPU. (fig. 125)

[BufferPools],PoolSize=xxxxxxxx

This setting determine the size of a fixed – in computer main memory - buffer between the:

- Central Processor Unit (C.P.U.)
- Graphical Processor Unit (G.P.U.)

It is used to regulate the flow of 3D information, coming from the CPU, going to the GPU

[BufferPools],RejectThreshold=xxxxxxxx

This setting determines a limit-value, when the CPU decides to:

- stop sending information into the - in main computer memories - BufferPool.
- start sending information directly to your graphics card GPU.



For more information about DirectX Drawing technical background, see these websites

- <https://legalizeadulthood.wordpress.com/the-direct3d-graphics-pipeline/>
- <http://www.pcper.com/reviews/Graphics-Cards/NVIDIA-GeForce-8800-GTX-Review-DX10-and-Unified-Architecture/DirectX-10>
- <http://www.anandtech.com/show/2716>
- <http://www.geforce.com/hardware/technology/dx11/technology>
- <http://3dgep.com/introduction-to-directx-11/>

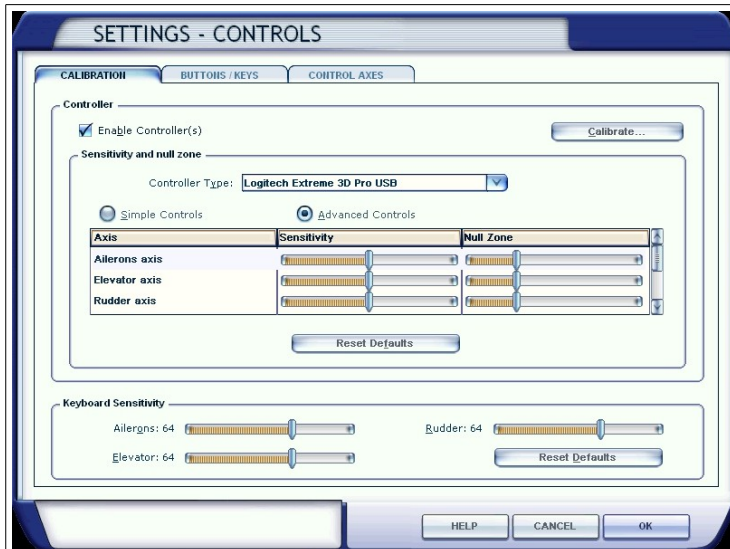


Fig. 125 – Joystick, Force Feedback parameters



Fig. 126 – Joystick Controller

FSX.CFG related parameters:

[CONTROLS],Controls_Current=Standard

??

[CONTROLS],Controls_Default=Standard

??

[CONTROLS],force_crash_enabled=(0,1)

- Determines if FSX generates force-feedback information about aircraft crashes.

[CONTROLS],force_gear_bump_enabled=(0,1)

- Determines if FSX generates force-feedback information on the gears touching the ground.

[CONTROLS],force_ground_bumps_enabled=(0,1)

- Determines if FSX will generate force-feedback information regarding ground-bumps the aircraft encounters.

[CONTROLS],force_master_enabled=(0,1)

- Determines if FSX generates force-feedback information.

[CONTROLS],force_master_gain=(10000)

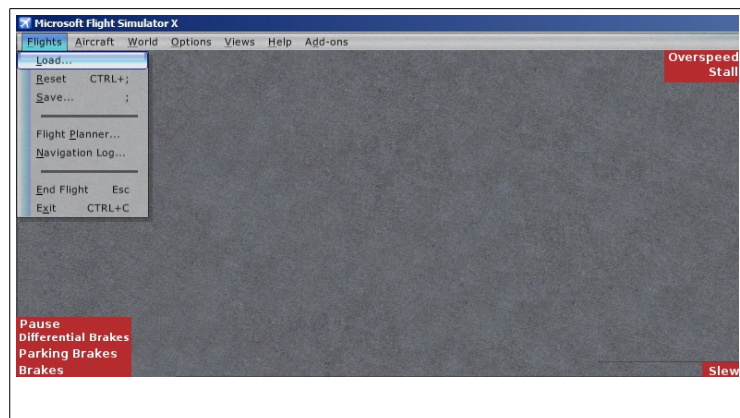
- The factor with which force-feedback information will be amplified.

[CONTROLS],force_stick_force_enabled=(0,1)

- Determines if FSX generates joystick force-feedback information.

[CONTROLS],force_stick_shaker_enabled=(0,1)

- Determines if FSX generates stick-shaker (as stall warning) force-feedback.

	<p>This is an overview of the [InfoMessages] that FSX displays on screen to inform you about actions of:</p> <ul style="list-style-type: none"> - the aircraft itself (OverSpeed, Stall) - what you do (Pause, Brakes, Parking Brakes, Slew) <p>White is the default Text-color. Red is the default TextBackground-color.</p>
<p>Fig. 127 – Display properties on FreeFlight screen</p>	

[Display],ActiveWindowTitleBackColor=(0,28,140,64) = RGB color code(3), Transparency level(1)

- Determines the text-background-color of the active FSX window.

[Display],ActiveWindowTitleTextColor=(255,255,255)

- Determines the text-ground-color of the active FSX window.

[Display],NonActiveWindowTitleBackColor=(24,33,87,64) = RGB code(3), Transparency level(1)

- Determines the Text Background Color of Titlebar of the a non-active window on screen.

[Display],NonActiveWindowTitleTextColor=(255,255,255) = RGB Color code(white)

- Determines the Text Color of Titlebar of the a non-active window on screen.

>

[Display],InfoLowerLeftBackColor=(255,0,0,128) = RGB color code(3), Transparency level(1)

- Determines the text-background-color of the messages in the lower-left corner of the screen.

[Display],InfoLowerLeftTextColor=(255,255,255) RGB Color code(white)

- Determines the text-color of the messages in the lower-left corner of the screen.

[Display],InfoUpperRightBackColor=(0,0,0,0) = RGB color code(1), Transparency level(1)

- Determines the text-background-color of the messages in the upper righthand corner of the screen.

[Display],InfoUpperRightTextColor=(255,0,0) RGB Color code (yellow)

- Determines the text-color of the messages in the upper righthand corner of the screen

[Display],InfoLowerRightBackColor=(255,0,0,128) = RGB color code(3), Transparency level(1)

- Determines the text-background-color of the messages in the lower-right corner of the screen

[Display],InfoLowerRightTextColor=(255,255,255) RGB Color code(white)

- Determines the text-color of the messages in the lower-right corner of the screen

>

[Display],InfoBrakesEnable=(True/False)

- Determine if you can see the **[Brake]** message on screen , when you activate the aircraft's brakes.

[Display],InfoOverspeedEnable=(True/False)

- Determine if you can see the **[OverSpeed]** message on screen, when try you fly beyond the aircraft's limits.

[Display],InfoParkingBrakesEnable=(True/False)

- Determine if you can see the **[Parking Brake]** message, when you activate the aircraft's parking brakes.

[Display],InfoPauseEnable=(True/False)

- Determine if you can see the **[Pause]** message on screen, when you temporarily pause the FSX program.

[Display],InfoSlewEnable=(True/False)

- Determine if you can see the **[Slew]** message on screen, when you slew your aircraft in the simulated world.

[Display],InfoStallEnable=(True/False)

- Determine if you can see the **[Stall]** message on screen, when your aircraft stalls in the air.

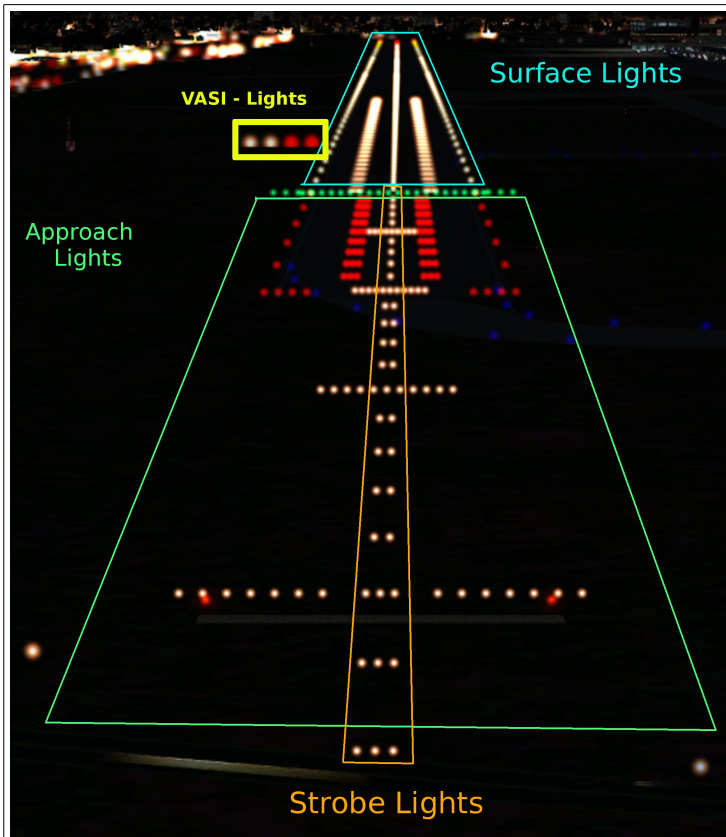


Fig. 128 – Default Runway lighting levels

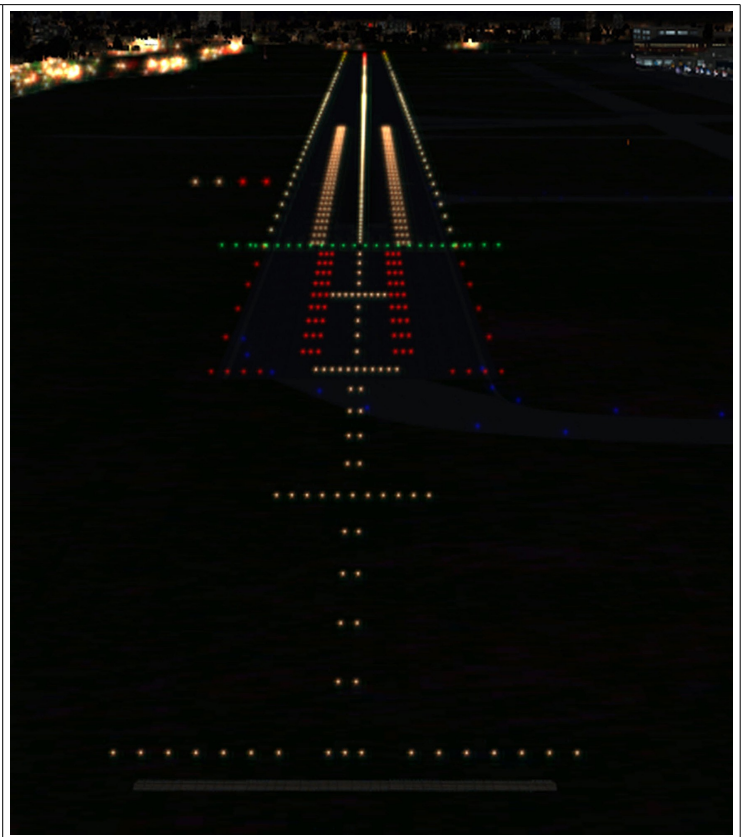


Fig. 129 – Adjusted Runway lighting levels

[Display],RUNWAY_LIGHTS_APPROACH_SCALAR=(0-1)

- Determines the brightness of the Approach lights on a runway.

[Display],RUNWAY_LIGHTS_STROBE_SCALAR=(0-1)

- Determines the brightness of the Strobe lights on a runway.

[Display],RUNWAY_LIGHTS_SURFACE_SCALAR=(0-1)

- Determines the brightness of the light along the runway.

[Display],RUNWAY_LIGHTS_VASI_SCALAR=(0-1)

- Determines the brightness of the VASA lights, left of the runway.

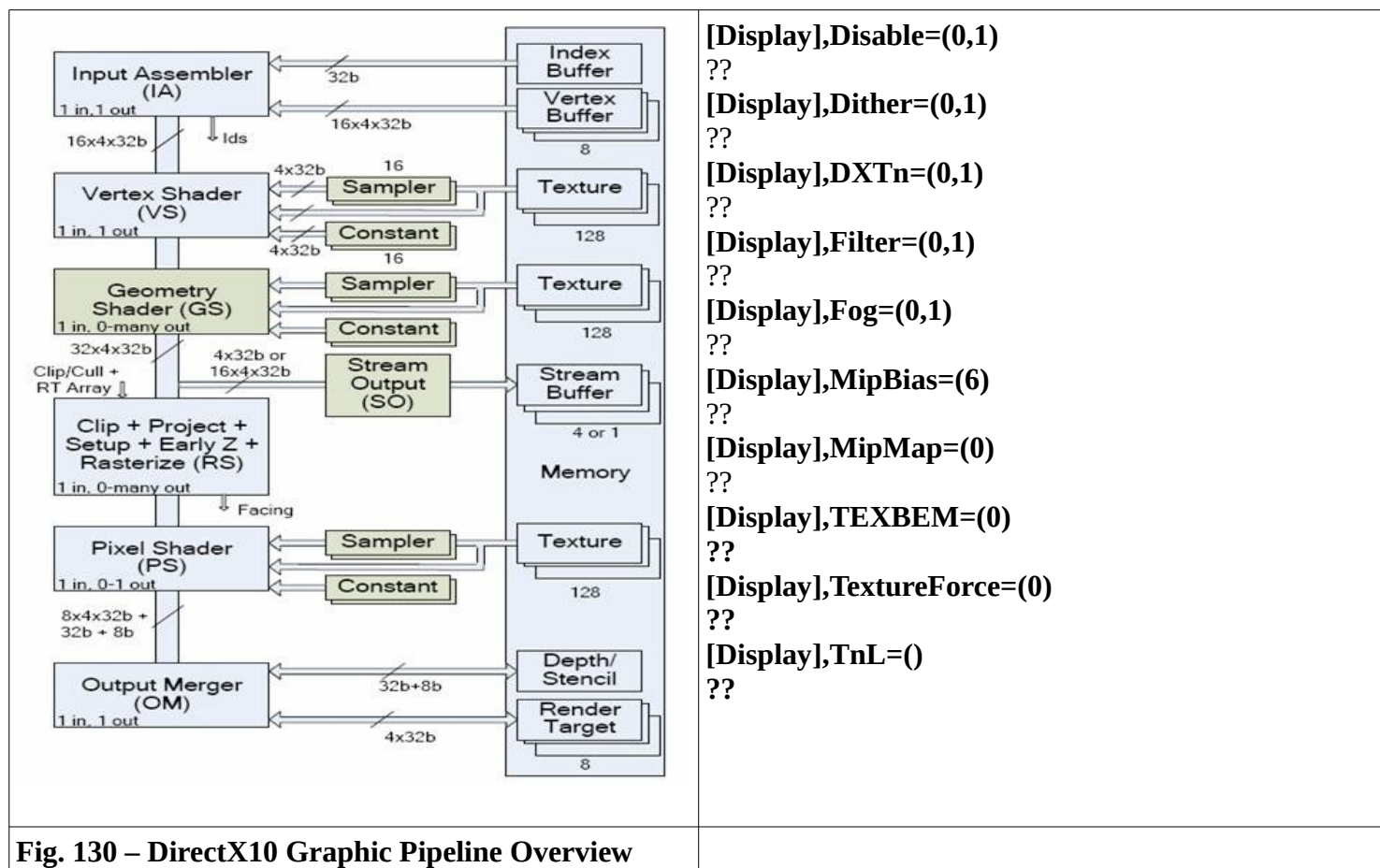


Fig. 130 – DirectX10 Graphic Pipeline Overview

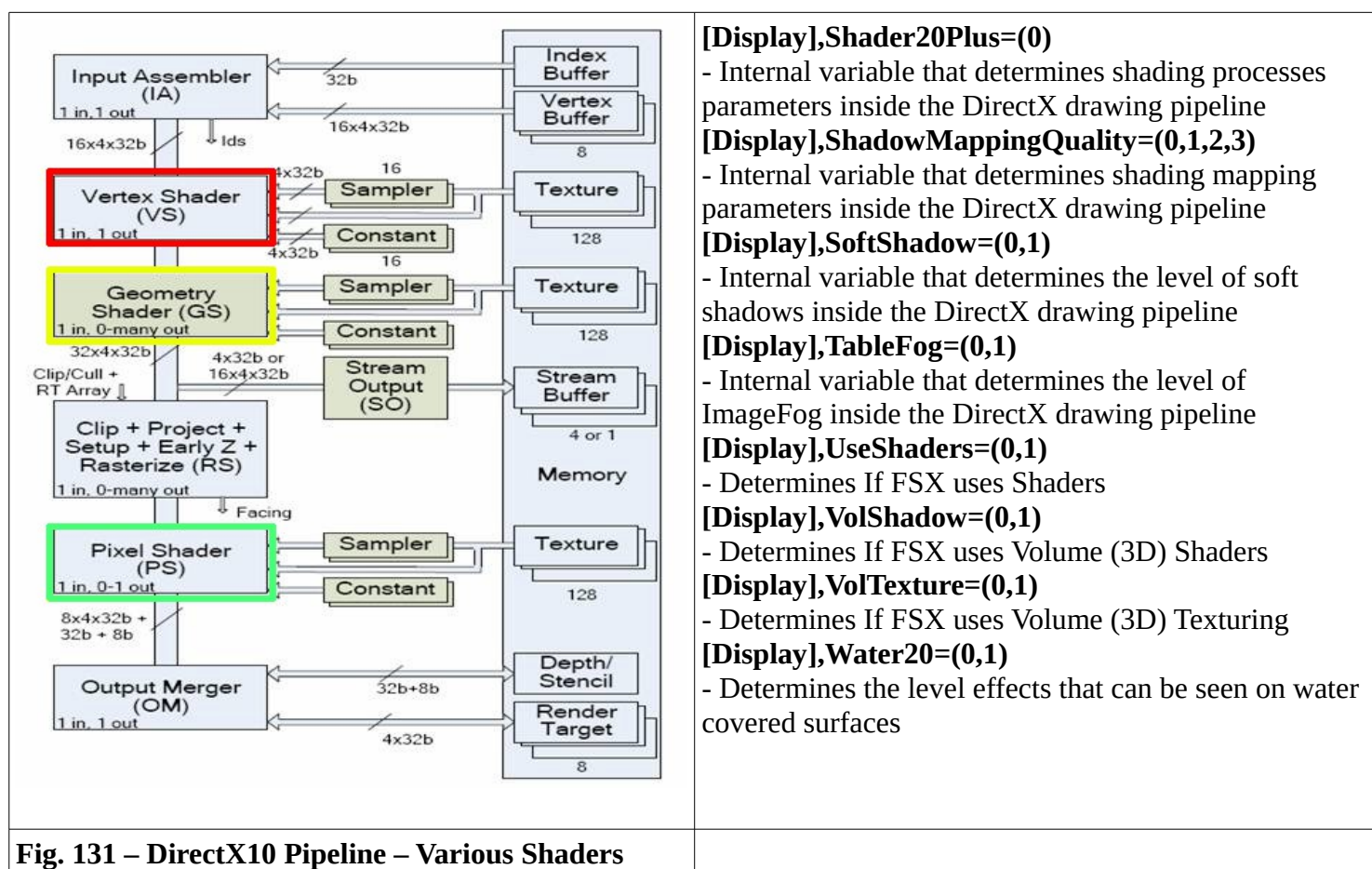


Fig. 131 – DirectX10 Pipeline – Various Shaders

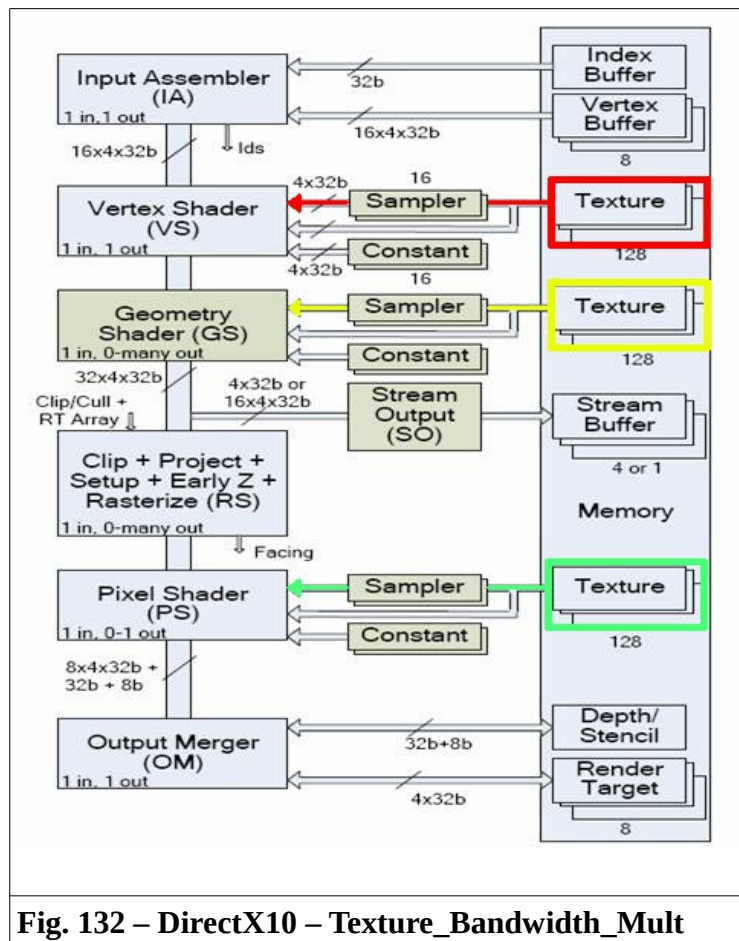


Fig. 132 – DirectX10 – Texture_Bandwidth_Mult

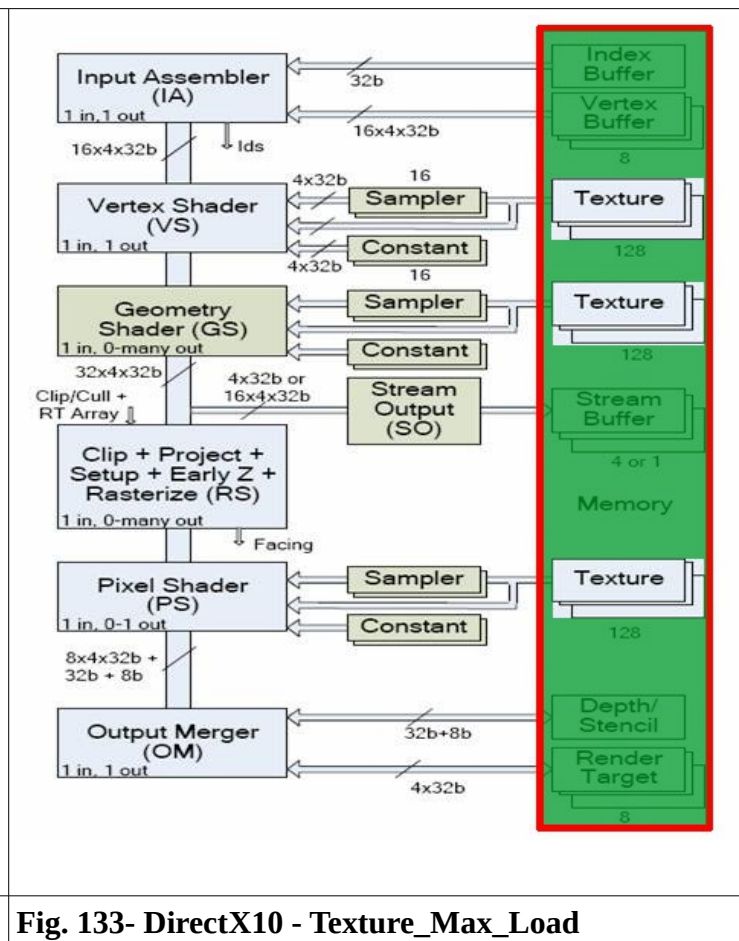


Fig. 133- DirectX10 - Texture_Max_Load

[Display],TEXTURE_BANDWIDTH_MULT=(40-120 (5multiplies))

- Internal variable that controls texture dataflow from CPU to GPU

The TEXTURE_BANDWIDTH_MULT option in the Graphics section is the target frame rate use for calculating texture bandwidth. The higher you set this value the more textures we will allocate and copy per frame to the graphics card. The lower you set this value, the less we will allocate and copy up to a minimum limit. As an example, the default rate in the **high** perf bucket setting is 40. The lowest perf bucket setting is 10.

[Display],TEXTURE_MAX_LOAD=(4096)

- Determines that maximum texture data size (in KBytes) that FSX load into its main computer memory.

[Display],MAX_TEXTURE_DATA =()

??



Fig. 134 – TFT vs Wideview monitor Height/Width ratio

[Display],WideViewAspect=(False/True)

- Determines if FSX generates a “squarish” 4:3 or a “wide-screen” display image format.

[Display],FullScreenFiltering=(0,1)

- Determine if display filtering is applied in FSX's full_screen_mode

[Display],PANRATE=(200)

- Determines how fast you can zoom in/zoom out from a certain viewpoint.

[Display],ChangeTime=(4.000000)

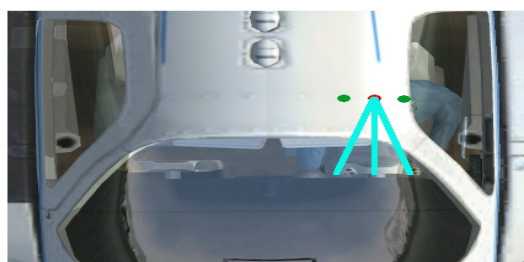
- Determines the amount of time it takes to switch from one View to another View.

[Display],PanelAsTexture=(0,1)

??

[Display],TransitionTime=(4.000000)

??



Head movement parameters:

- RollAccelOnHeadRoll
- LonAccelOnHeadPitch
- YawAccelOnHeadLat
- MaxHeadOffset
- >>
- MaxHeadAngle



Fig. 135 – Dynamic pilot head movement parameters

[DynamicHeadMovement],HeadMoveTimeConstant=(0-1.000000)

- Acceleration multiplier (higher numbers increase responsiveness).

[DynamicHeadMovement],LonAccelOnHeadLon=(0 - -1)

- Computes the camera's longitudinal (fore-to-back) change generated by longitudinal acceleration of the aircraft.

[DynamicHeadMovement],LonAccelOnHeadPitch=(0 - -1)

- Computes the camera's pitch change generated by longitudinal acceleration of the aircraft.

[DynamicHeadMovement],MaxHeadAngle=(0-??)

- Maximum allowed angular change in degrees

[DynamicHeadMovement],MaxHeadOffset=(0-??)

- Maximum allowed lateral change in feet.

[DynamicHeadMovement],RollAccelOnHeadLat=(0-??)

- Computes the camera's lateral (side-to-side) change generated by yawing acceleration of the aircraft.

[DynamicHeadMovement],RollAccelOnHeadRoll=(0-??)

- Computes the camera's rolling motion generated by rolling acceleration of the aircraft.

[DynamicHeadMovement],YawAccelOnHeadLat=(0-??)

- Computes the camera's lateral (side-to-side) change generated by yawing acceleration of the aircraft.



For more information on FSX's dynamic head movement, see the ESP website:

- <https://msdn.microsoft.com/en-us/library/cc526984.aspx#DynamicHeadMovement>

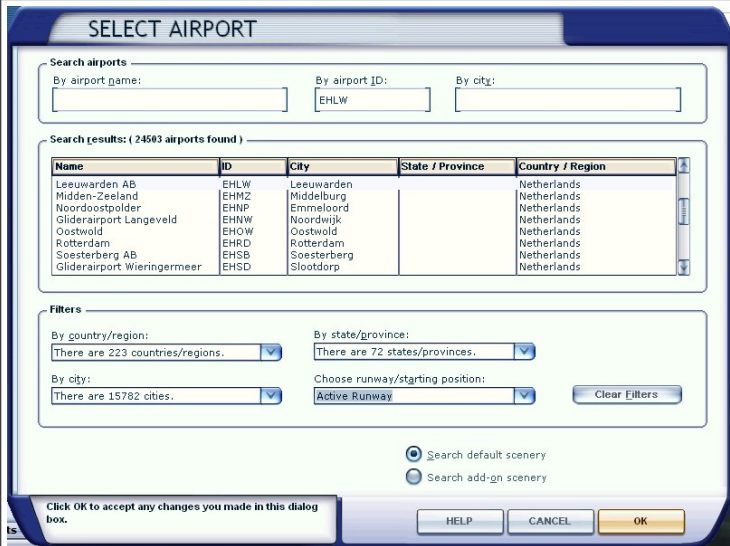
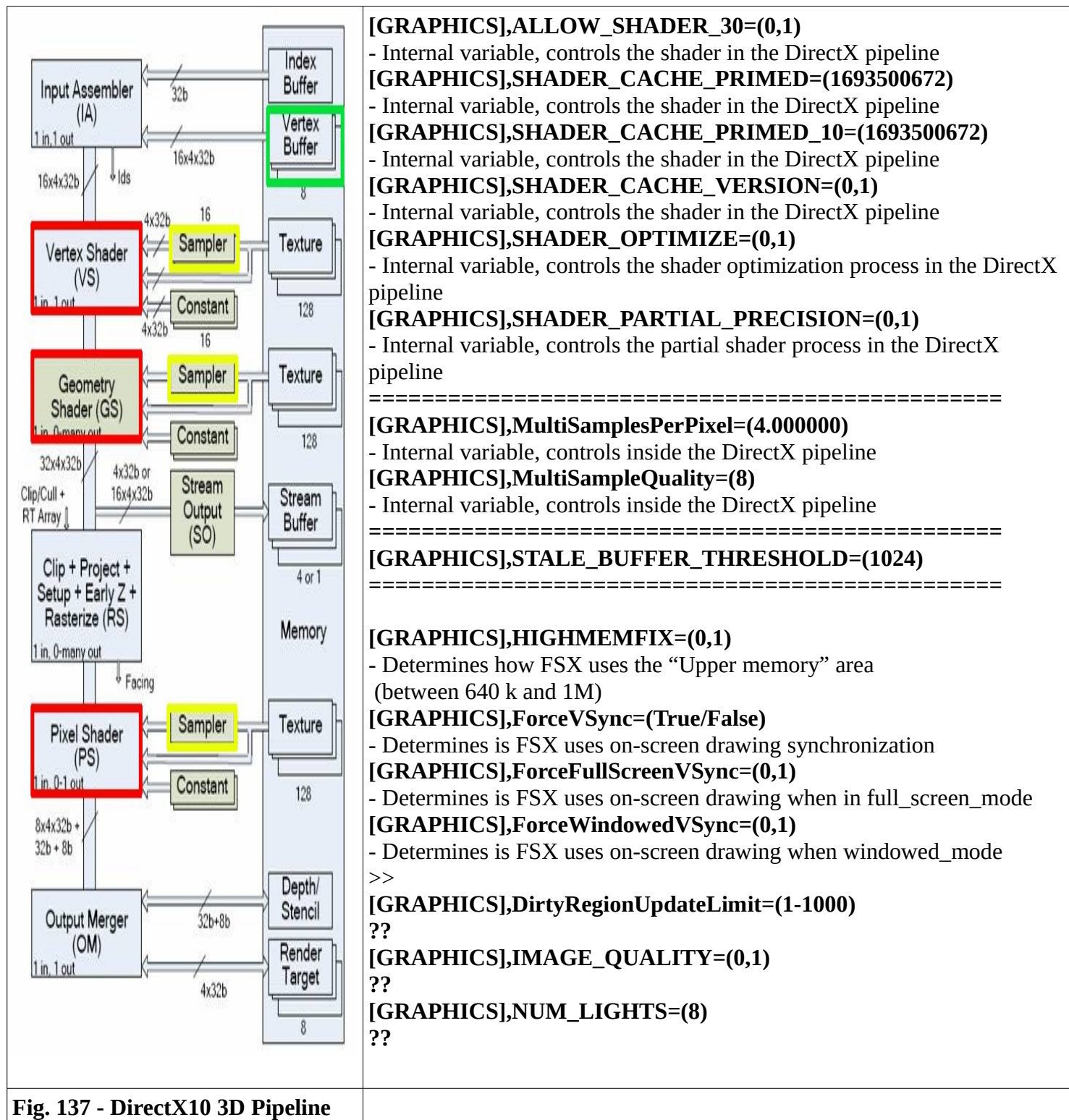


Fig. 136 – Select Airport dialog box
[FACILITIES],GTL_BUTTON=(xxxx)
??



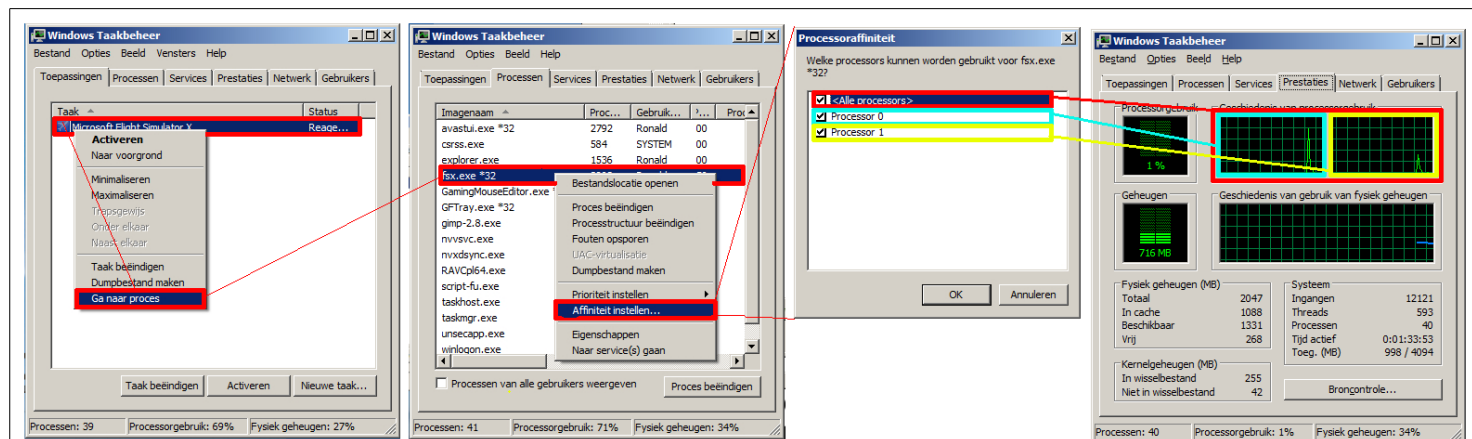


Fig. 138 - Setting the FSX Process Affinity mask manually via the Windows Task manager.

[JOBSCHEDULER],Affinitymask=(1,3,7,15)

- This setting allows you to fully control on which of the CORES from your (multicore) processor FSX runs. You can do this via the correct Affinitymask setting inside FSX.CFG, [Jobscheduler] section
You can also set this manually – via the Windows Task Manager – in the way it is shown in to above figure.

[Main],FIBER_FRAME_TIME_FRACTION =(0.15, ..)

- FFTF determines the fraction of the CPU time given to the scenery loader in relation to the time spent rendering. Basically it's a relation between the scenery loader and faster FPS. Run it lower, you get more FPS. Run it 0, you give CPU no time to load scenery, if your FPS is below locked. The faster the CPU, the lower this number can be, because less fraction of the CPU clock is required to successfully load the scenery.



Fig. 139 - Info(rmational) messages on screen

[Main],HideInfoText=(0,1)

- Determines if you can see Fsx'Information Messages (Parking brakes, stall, overspeed) on screen (or not).

[Main],HideMenuFullscreen=(0,1)

- Determines if you can see the FSX's menu bar in full_screen_mode.

[Main],HideMenuNormal=(0,1)

- Determines if you can see the FSX's menu bar in Windowed_mode.

[Main],Location=(444,138,1476,904,\\.\DISPLAY1)

- UpperLeft, LowerRight X,Y screencoordinates of the last Free Flight in Windowed_mode.

[Main],Maximized=(0,1,2)

- Determine if FreeFlight is shown in Windowed_mode (0) or Fullscreen_mode(1).

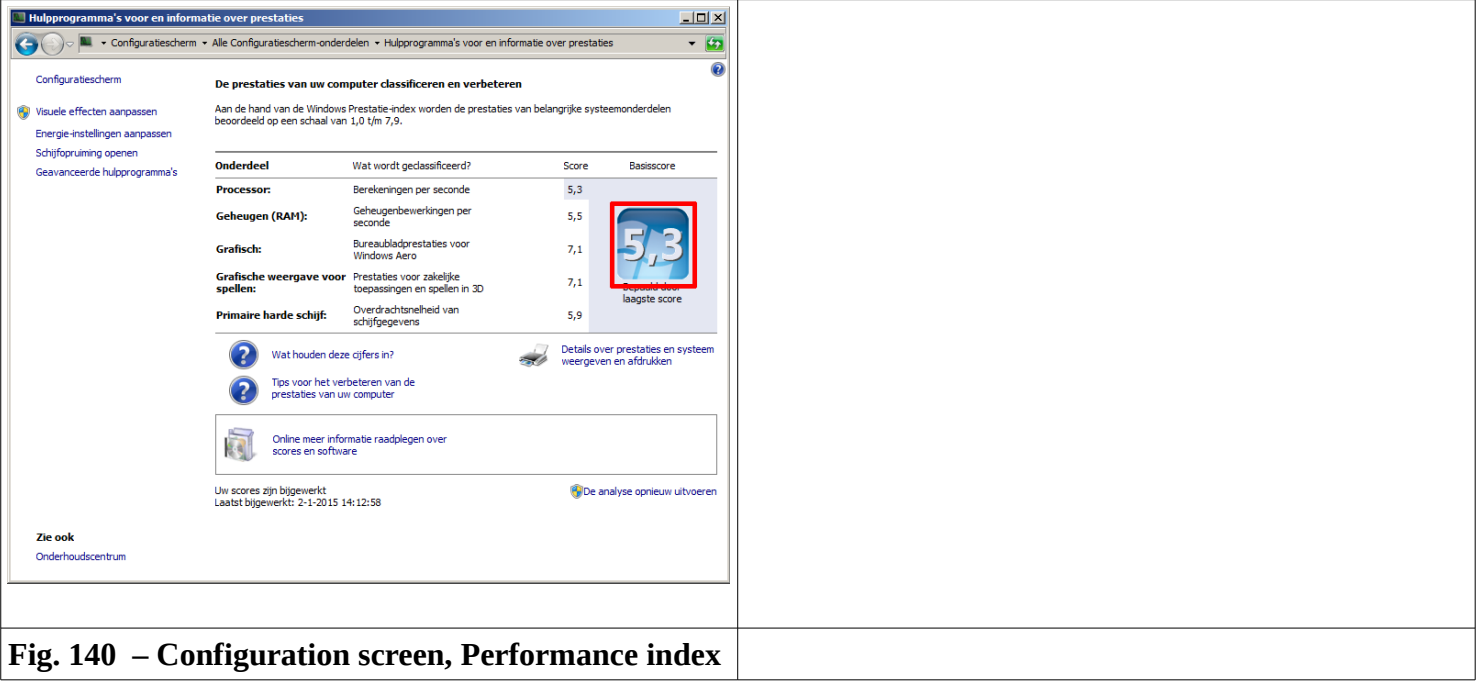
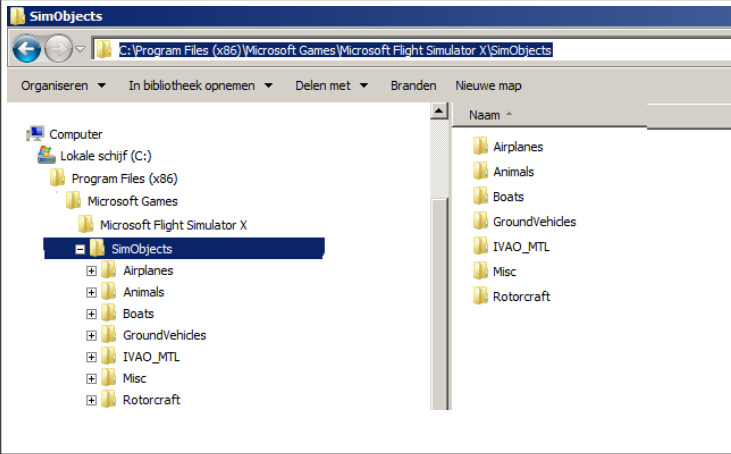


Fig. 140 – Configuration screen, Performance index

[Main],PerfBucket=(7)
- Internal “performance measurement” variable, created during installation of FSX.
This is determined during the installation of FSX

[Main],ProcSpeed=(5875)
- Internal “performance measurement” variable, created during installation of FSX

These variable do not have any useful purpose inside FSX after installation. You can compare them with the value of the Windows Operating System Basic Score Index on you computers configuration panel.

	<p>FSX – SimObjects Folder overview.</p> <p>This image shows you where FSX stores the different type of “simulated objects”.</p>
Fig. 141 – SimObjects folder overview	

- [Main],SimObjectPaths.0=(SimObjects\Airplanes)**
- Relative pathname to FSX's Aircraft folder
- [Main],SimObjectPaths.1=(SimObjects\Rotorcraft)**
- Relative pathname to FSX's Helicopter folder
- [Main],SimObjectPaths.2=(SimObjects\GroundVehicles)**
- Relative pathname to FSX's Ground Vehilces folder
- [Main],SimObjectPaths.3=(SimObjects\Boats)**
- Relative pathname to FSX's Boats folder
- [Main],SimObjectPaths.4=(SimObjects\Animals)**
- Relative pathname to FSX's Simulated Animals folder
- [Main],SimObjectPaths.5=(SimObjects\Misc)**
- Relative pathname to FSX's Other” simulated objects folder

- [Main],User Objects=(Airplane, Helicopter)**
- Determines which FSX objects can be selected/flown/controlled in the FSX simulator.

[Misc],Com_Rate=(7)
??



Fig. 142 - Panels Stretching=0

[PANELS],PANEL_STRETCHING=(0,1)

- Determines if you can resize (the window-borders of) a panel (or not).

[PANELS],IMAGE_QUALITY=(0,1)

??

[PANELS],PANEL_MASKING=(0,1)

??

[PANELS],UNITS_OF_MEASURE=(0)

??

[PointOfInterestSystem],CycleSetting=(0,1,2,...)

??



Fig. 143 - Panels Stretching=1

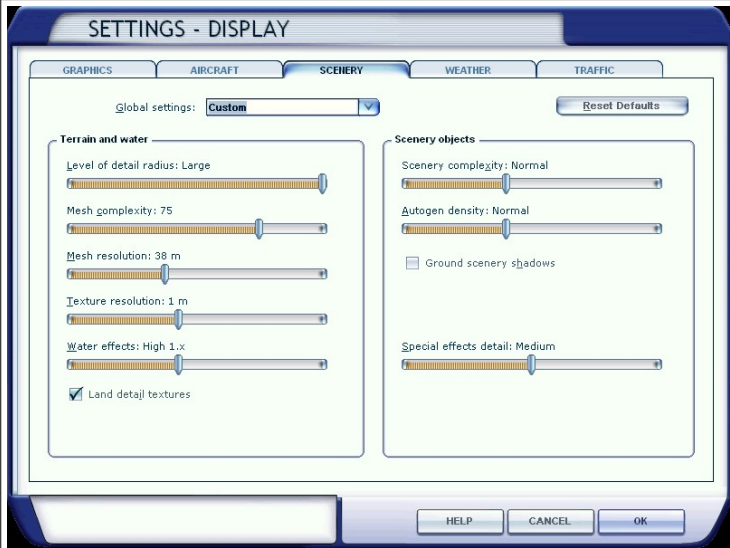


Fig. 144 – Settings, Display, Scenery_tab

[SCENERY],SmallPartRejectRadius=(1,2,3,4)

- Determines which scenery objects do not get displayed on screen, based on their Level Of Detail value.

[SCENERY],MAX_ASYNC_BATCHING_JOBS=(2.500000, 6.500000)

- tells the FSX engine what is the maximum number of threads that can be used for autogen batching.

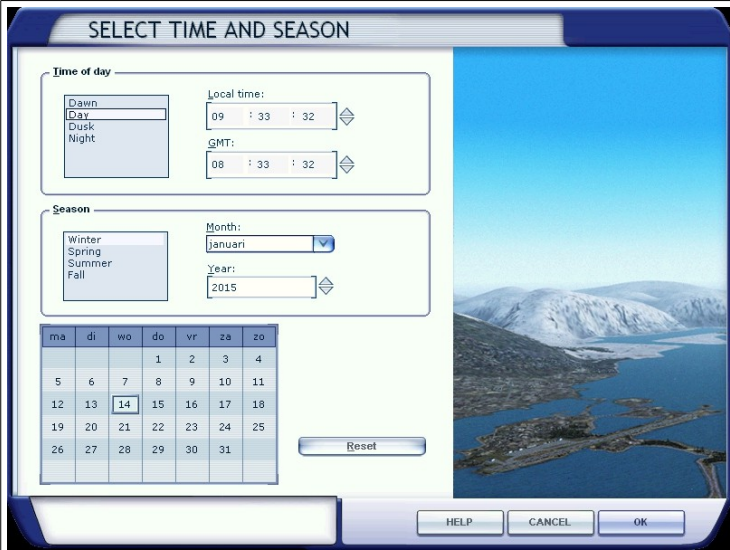


Fig 145. - Time and Season selection

[SCENERY],DAWN_DUSK_SMOOTHING=(0,1)

- Determines the daylight-to-nightlight smoothing

[GRAPHICS],DAY_THRESHOLD=(32768)

- Internal variable, that determines the transition from night to day lighting

[GRAPHICS],NIGHT_THRESHOLD=(4096)

- Internal variable, that determines the transition from day to night lighting

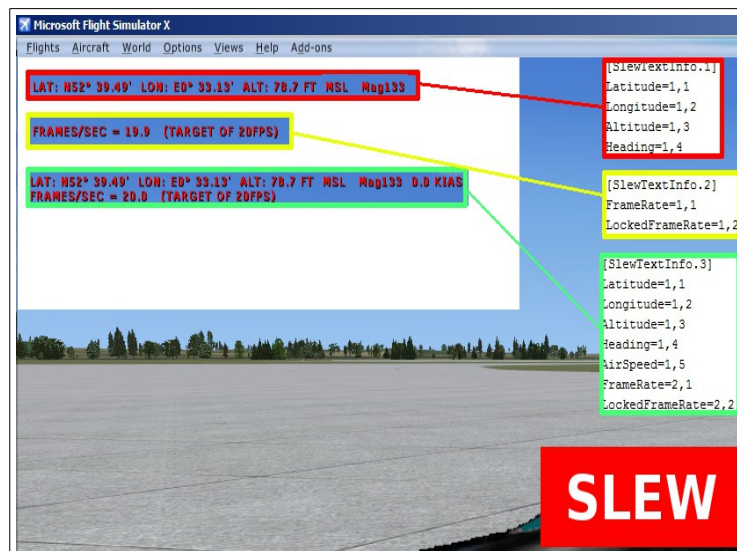


Fig. 146 – Shift Z info lines when in “Slew_mode”

NOTE: These variables work the same as inside the regular [TextInfo] blocks.

This is the information you get to see when you press [Shift][Z] for the 1st time in SLEW mode

Syntax: [TextInfo.1],fsx-variable_name=(Line_number, Position number)

[SlewTextInfo.1],Latitude=(1,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.1],Longitude=(1,2)

- 2nd fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.1],Altitude=(1,3)

- 3rd fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.1],Heading=(1,4)

- 4th fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.1],AirSpeed=(1,5)

- 5th fsx_internal variable-value on the 1st Shift_Z line.

>>

This is the information you get to see when you press [Shift][Z] for the 2nd time in SLEW mode

Syntax: [TextInfo.1],fsx-variable_name=(Line_number, Position number)

[SlewTextInfo.2],FrameRate=(1,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.2],LockedFrameRate=(1,2)

>>

This is the information you get to see when you press [Shift][Z] for the 3rd time in SLEW mode

Syntax: [TextInfo.1],fsx-variable_name=(Line_number, Position number)

[SlewTextInfo.3],Latitude=(1,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[SlewTextInfo.3],Longitude=(1,2)

[SlewTextInfo.3],Altitude=(1,3)

[SlewTextInfo.3],Heading=(1,4)

[SlewTextInfo.3],AirSpeed=(1,5)

>

[SlewTextInfo.3],FrameRate=(2,1)

- 1st fsx_internal variable-value on the 2nd Shift_Z line.

[SlewTextInfo.3],LockedFrameRate=(2,2)



Fig. 147 - FSX Main Menu – Startup screen

[SOUND],AmbientUIMusicVolume=(-6.000000)

- Determine the volume level of the intro themes that are being play when startup up FSX

[SOUND],SOUND_QUALITY=(x)

- Determine the sound quality of the intro themes that are being play when startup up FSX

[SOUND],SOUND_LOD=(x)

??

[STARTUP],DEMO=(0,1)

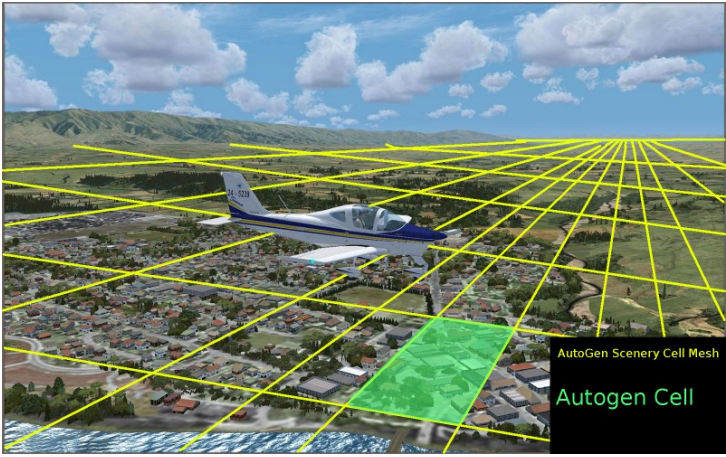
- Determines is FSX is started up in Kiosk / Demo mode

[STARTUP],LoadWindow=(0,1)

??

[STARTUP],STARTUP_DEMO=(0,1)

-

	FSX 3D outside view with AutoGen scenery cells
Fig. 148 - 3D view with AutoGen scenery cells	

[TERRAIN],SWAP_WAIT_TIMEOUT=(2)

- Determines the amount of time before a scenery texture is deleted from memory again.

[TERRAIN],TERRAIN_MAX_AUTOGEN_BUILDINGS_PER_CELL=(xxxx)

- Autogen parameter, that determines the maximum amount of Buildings objects per scenery cell

[TERRAIN],TERRAIN_MAX_AUTOGEN_TREES_PER_CELL=(4500)

- Autogen parameter, that determines the maximum amount of Tree objects per scenery cell

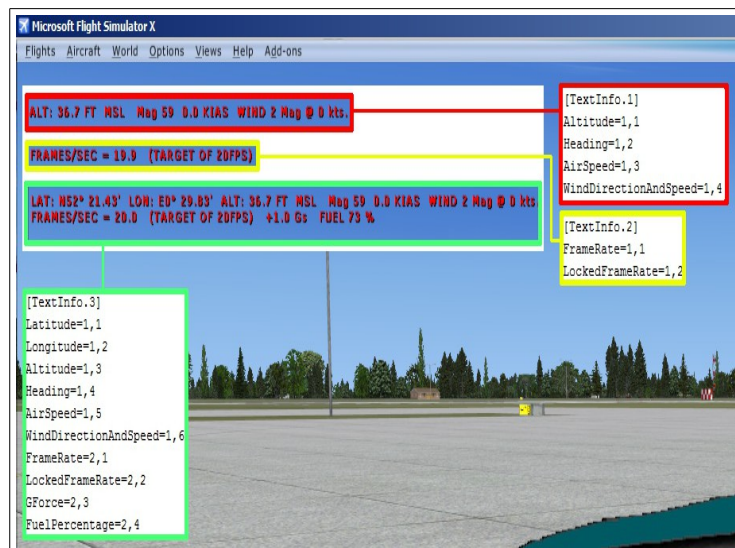


Fig. 149 – SHIFT-Z lines when in FreeFlight mode

This is the information you get to see when you press [Shift][Z] for the first time in FreeFlight mode

Syntax: [TextInfo.1],fsx-variable_name=(Line_number, Position number)

[TextInfo.1],Altitude=(1,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[TextInfo.1],Heading=(1,2)

- 2nd fsx_internal variable-value on the 1st Shift_Z line.

[TextInfo.1],AirSpeed=(1,3)

- 3rd fsx_internal variable-value on the 1st Shift_Z line.

[TextInfo.1],WindDirectionAndSpeed=(1,4)

- 4th fsx_internal variable-value on the 1st Shift_Z line.

>>

This is the information you get to see when you press [Shift][Z] for the 2nd time in FreeFlight mode

Syntax: [TextInfo.2],fsx-variable_name=(Line_number, Position number)

[TextInfo.2],FrameRate=(2,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[TextInfo.2],FuelPercentage=(2,4)

- 2nd fsx_internal variable-value on the 1st Shift_Z line.

>>

This is the information you get to see when you press [Shift][Z] for the 3rd time in FreeFlight mode

Syntax: [TextInfo.2],fsx-variable_name=(Line_number, Position number)

[TextInfo.3],Latitude=(1,1)

- 1st fsx_internal variable-value on the 1st Shift_Z line.

[TextInfo.3],Longitude=(1,2)

[TextInfo.3],Altitude=(1,3)

[TextInfo.3],Heading=(1,4)

[TextInfo.3],AirSpeed=(1,5)

[TextInfo.3],WindDirectionAndSpeed=(1,6)

>

[TextInfo.3],FrameRate=(2,1)

- 1st fsx_internal variable-value on the 2nd Shift_Z line.

[TextInfo.3],LockedFrameRate=(2,2)

[TextInfo.3],GForce=(2,3)

[TextInfo.3],FuelPercentage=(2,4)

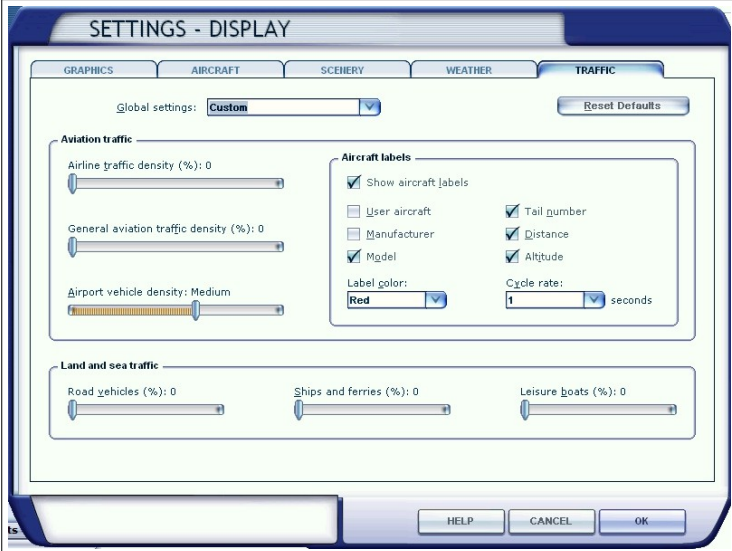


Fig. 150 – Settings, Display, Traffic_tab

[TrafficManager],IFROnly=(0,1)
??

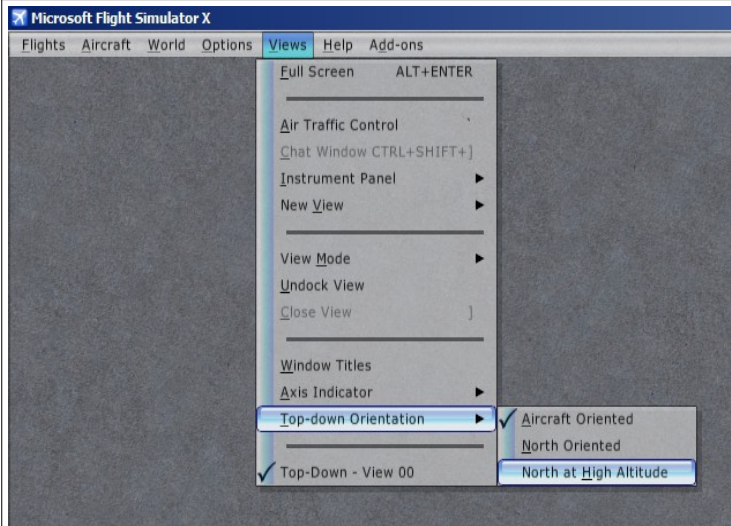


Fig. 151 – Inflight, View, Map orientation

[USERINTERFACE],Map_Orientation=(0,1,2)

- Determines how the FSX map (and top-down view) is oriented (North aligned or Aircraft aligned)

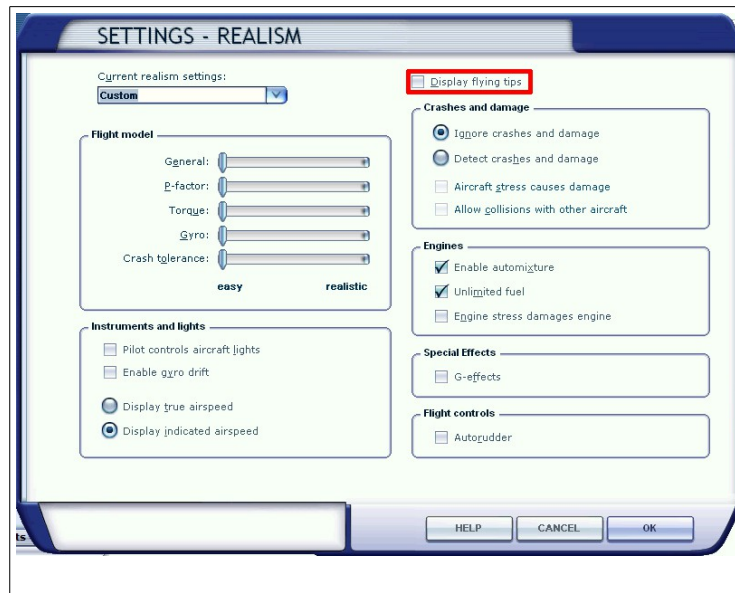


Fig. 152 – Settings, Realism, Display Flying Tips

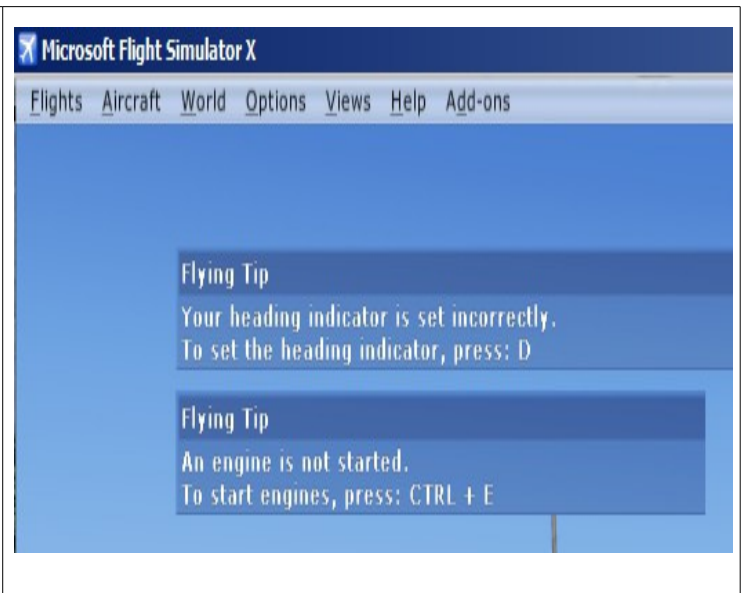


Fig. 153 – Flying tips from your virtual co-pilot

[VirtualCopilot],VirtualCopilotActive=(0,1)

- To display flying tips! In the cockpit

[LANGUAGE],DLL=A:\games\language.dll

??

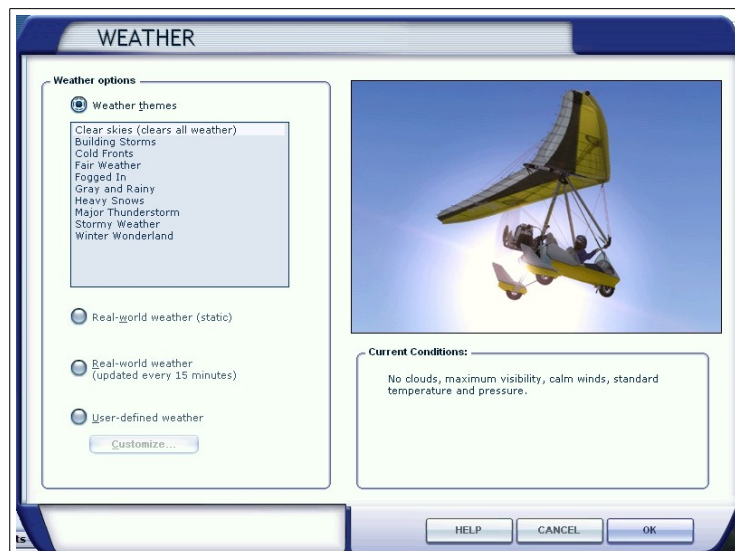


Fig. 154 – World, Weather Settings

[Weather],AdjustForMagVarInDialog=(0,1)

??

[Weather],AntiAlias=(0,1)

??

[Weather],MaxGustRampSpeed=(0-?)

- Maximum wind gust speed on ground-level.

[Weather],MinGustRampSpeed=(0-?)

- Minimum wind gust speed on ground-level.

>

[Weather],MaxGustTime=(0-?)

- Maximum wind gust time speed on ground-level.

[Weather],MinGustTime=(0-?)

- Minimum wind gust time speed in the air.

>

[Weather],MaxVarRampSpeed=(0-?)

- Maximum wind gust speed variation speed on ground-level.

[Weather],MinVarRampSpeed=(0-?)

- Minimum wind gust speed variation speed on ground-level.

>

[Weather],MaxVarTime=(0-?)

- Maximum wind gust variation duration time in the air.

[Weather],MinVarTime=(0-?)

- Minimum wind gust variation duration time in the air.

>

[Weather],TurbulenceScale=(0-1.000000)

- Wind Turbulence factor

>

[Weather],WeatherGraphDataInDialog=(0,1)

- Determines id you can see weather front-lines on screen, when selected weather information source.

[Weather],WeatherServerAddress=(fs2k.zone.com)

- DNS name, from which FSX downloads real-time weather information from the internet.

[Weather],WeatherServerPort=(80)

- TCP-IP Port to the weather download server

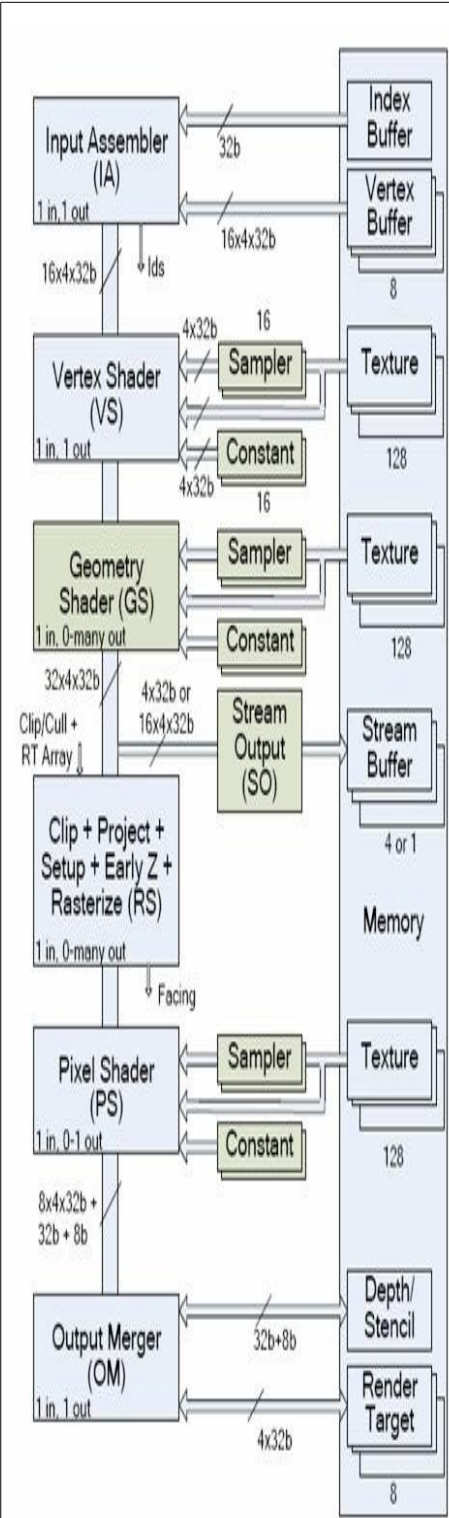
[Weather],WindshieldPrecipitationEffects=(0,1)

- Determines if you can see precipitation effect (raindrops, snowflakes) on the cockpit window (or not)

8. Some FSX.CFG things to consider:

During my research of FSX.CFG parameter and value pairs, I wondered why only a *few possible parameters* were added with which the end-user is able to control the entire DirectX10 3D Drawing process?

Given the complexity of this operation, one might expect that more “tweaking” parameters can be added to the fsx.cfg?



The input-assembler stage is responsible for supplying data (triangles, lines and points) to the pipeline.

Vertex-Shader Stage - The vertex-shader stage processes vertices, typically performing operations such as transformations, skinning, and lighting. A vertex shader always takes a single input vertex and produces a single output vertex.

Geometry-Shader Stage - The geometry-shader stage processes entire primitives. Its input is a full primitive (which is three vertices for a triangle, two vertices for a line, or a single vertex for a point). In addition, each primitive can also include the vertex data for any edge-adjacent primitives. This could include at most an additional three vertices for a triangle or an additional two vertices for a line. The Geometry Shader also supports limited geometry amplification and de-amplification. Given an input primitive, the Geometry Shader can discard the primitive, or emit one or more new primitives.

Stream-Output Stage - The stream-output stage is designed for streaming primitive data from the pipeline to memory on its way to the rasterizer. Data can be streamed out and/or passed into the rasterizer. Data streamed out to memory can be recirculated back into the pipeline as input data or read-back from the CPU.

Rasterizer Stage - The rasterizer is responsible for clipping primitives, preparing primitives for the pixel shader and determining how to invoke pixel shaders.

Pixel-Shader Stage - The pixel-shader stage receives interpolated data for a primitive and generates per-pixel data such as color.

Output-Merger Stage - The output-merger stage is responsible for combining various types of output data (pixel shader values, depth and stencil information) with the contents of the render target and depth/stencil buffers to generate the final pipeline result.

Fig. 155 - DirectX10 - 3D Pipeline **Description of the various stages of the graphics pipeline**

9. Overview of the tools I used to complete my “FSX.CFG Hacking Project”

These are the tools I have used to complete this project. They are mostly open source and free downloadable!

Firefox – Internet browser:

<https://www.mozilla.org/en-US/firefox/new/>

Copernic – (offline) Desktop Internet (re)search tool:

<http://www.copernic.com/en/products/desktop-search/>

Notepad++ - Editing of the many FSX.CFG files:

<http://notepad-plus-plus.org/>

Total Commander – File and Document management:

<http://www.ghisler.com/>

XnView – Graphics management:

<http://www.xnview.com/en/>

Sysinternals “Process Monitor” – Tracing FSX internal actions inside the Windows Operating system:

<https://technet.microsoft.com/en-us/library/bb896645.aspx>

WinMerge – Comparing various versions of FSX.CFG files:

<http://winmerge.org/>

The Gimp – Creating the indocument graphics:

<http://www.gimp.org/>

Libre Office – Writing and publishing this document.

<https://www.libreoffice.org/>

I would like to thank all wonderful developers of this free software for making these awesome tools!

10. An overview of the FSX.CFG Hacking process

In this section I will show you which methods and tools I have used to accomplish this project.

I share this information with you, so you can find out for yourself and learn from it by doing it yourself!

10.1 – Initial FSX.CFG data gathering process:

1. Installation of the standard FSX program.

2. *copy fsx.cfg → fsx_1.cfg in another folder*

3. Installation of FSX Acceleration Pack

4. *copy fsx.cfg → fsx_2.cfg in another folder*

5. Make a little testflight over Seattle

6. *copy fsx.cfg → fsx_3.cfg in another folder*

7. Start up FSX, and set everything to the bare minimums

7a - *every Checkbox unchecked*

7b - *every Slider set to the left*

7c - *every dropdownbox – select the 1st option*

8. Close FSX again.

9. *Copy fsx.cfg → fsx_4.cfg in another folder*

10. Start up FSX, and press every button with the text [Reset to Default] I could find.

11. Close FSX again.

12. *Copy fsx.cfg → fsx_5.cfg in another folder*

13. Start up FSX, and set everything to the max.

13a - *every Checkbox checked*

13b - *every Slider set to the right*

13c - *every dropdownbox – select the last option*

14. Close FSX again.

15. *Copy fsx.cfg → fsx_6.cfg in another folder*

>

16. *Deleted the original FSX.cfg from my personal folder.*

17. Start up FSX .. and let it FSX create a new entirely FSX.CFG all by itself!

18. Close FSX again.

19. *Copy fsx.cfg → fsx_7.cfg in another folder*

>

20. Start up FSX and saved the Settings to external file.

21. Close FSX again

This way I gathered 6 “clean” / unmodified but different versions of FSX.CFG.

22. I used WinMerge to see what and where the differences were between each FSX.CFG version.

23. Store all FSX.CFG sections, parameter- value pair into a spreadsheet

En voila.. On spreadsheet full of possible FSX.CFG sections, parameters and possible values

24. Searched the internet with:

- Copernic Desktop Serach agent

- Metasearch engines (Dogpile, Metacrawler, Clusty, Mamma, Ixquick, ..)

- Regular search engines (Google, Yahoo, Bing, DuckDuckGo, Ask.com, ..)

to gather as many different FSX.CFG's contents as I was able to find online.

25. Collected, Sorted and Added the new FSX.CFG parameters to my spreadsheet.

10.2 Advanced FSX.CFG data gathering process.

In order for me to match FSX.CFG entries to FSX's normal and in-game menu screens, I had to come up with another way of discovering. This is how I handle this phase of the FSX.CFG data gathering.

I started with the clean FSX_3.CFG .This was the 3rd clean FSX.CFG after:

- FSX Standard installation setup
- FSX Acceleration pack installation setup
- Making a 10 minute testflight over Seattle in a Cessna172. (see appendix document).

This was the basic / reference FSX.CFG for the rest of this operation. Here is how I discovered the rest:

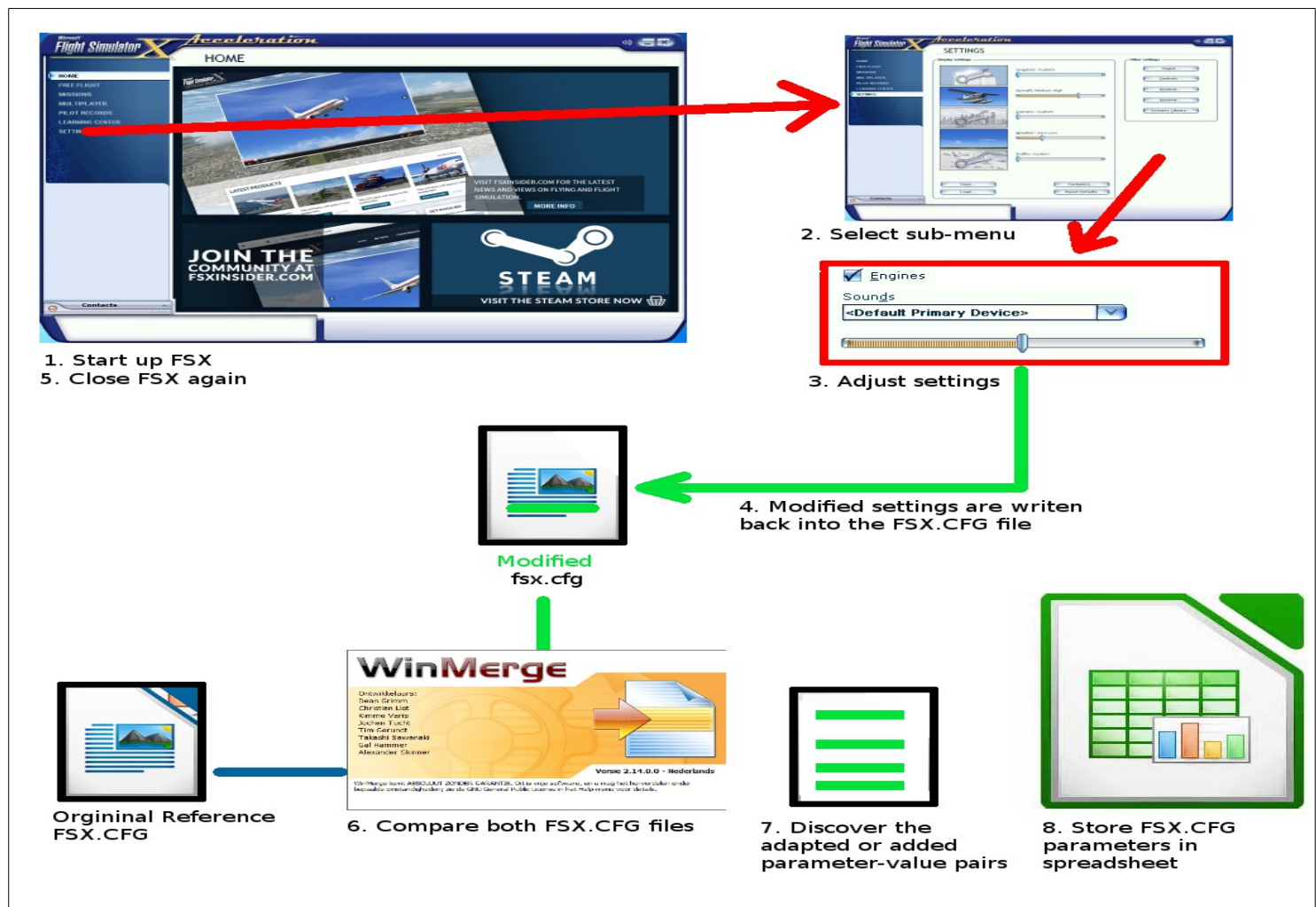


Fig. 156 – Matching FSX menu options against FSX.CFG parameter-value pairs.

I completed this process for every! menu! screen I could find inside FSX menus and FreeFlight menus.

That is how I discovered which FSX.CFG parameter-value pairs are behind which FSX menu screen. It was a lot of work, I still have not found every possible parameter, but I have come a long way :-)

10.3 What have I learned from these steps so far?

1. Every FSX installation phase adds new parameter-value pairs to FSX.CFG.

2. Some parameter-value pairs are only used once and never again.

For Example:

[Main],PerfBucket=(7)	- This is determined during the installation of FSX
[Main],ProcSpeed=(5875)	- Only set by FSX standard installation
[AccelerationPack], ControlsFirstRun = (0,1)	- Set by FSX Acceleration Pack installation.
[AccelerationPack], HomePageFirstRun = (0,1)	- Set by FSX Acceleration Pack installation.

3. FSX only adds parameter-value pairs to FSX.CFG when you actually start using parts of FSX!

For example:

If you do not use a weather map, you are never going to find parameters like this:

[StationMap],SHOW_AIRPORTS=(0,1)

4. Not all FSX Menu and in-game options are written back into the FSX.CFG file.

For example:

All weather related information (cloud, wind, temperature, layers) are not stored inside FSX.cfg

Finally:

I still have a very strong gut-feeling that I do not have discovered and documented EVERY FSX.CFG parameter.

I hope that my initial “FSX.CFG Hacking Project” document will inspire the rest of the global flightsim community, to dig deeper into it, so that we can finally come up with a complete and accurate FSX.CFG documentation. That way we can all tweak our flightsim to the max (of our wishes and/or hardware).

Contact:

If you would like to share your findings and/or send me feedback on this document, feel free.

I'm only 1 man and can discover only so much, together we can complete this better!.

You can send me an email at: **indigowarrior9 [AT] yahoo [DOT] com**

Best Regards,

Ronald Vermeij

11. SimStarter - An Flightsimulator configuration tool worth mentioning and using!

In the last week, just before the end of my FSX.CFG Hacking Project I stumbled upon this wonderful tool, called SimStarter created by Peter Rosendahl

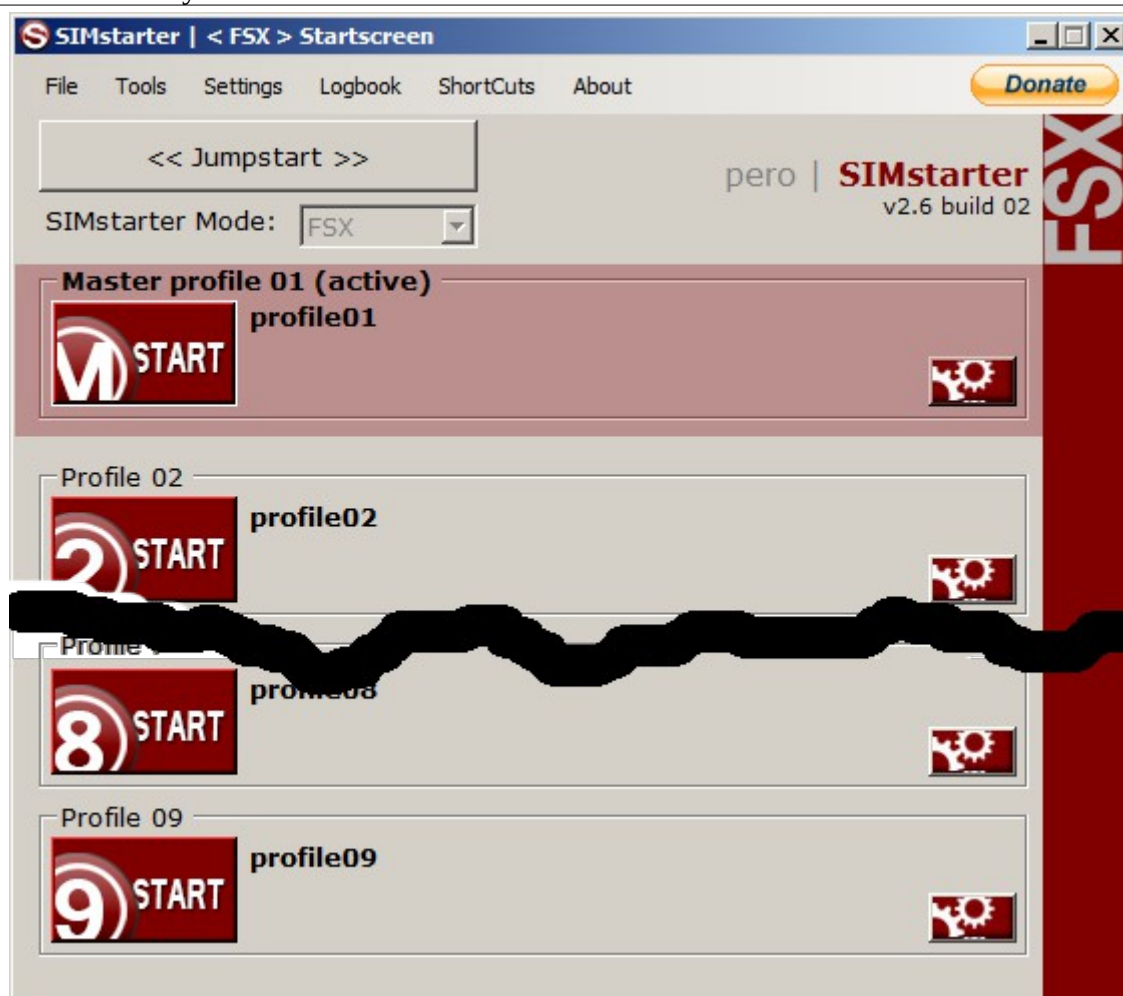



Fig. 157 – SimStarter FSX-startup tool created by Peter Rosendahl.

This tools can be – amongst others – be used to tweak FSX.CFG in a very easy way!

	<p>This wonderfull free tool can be downloaded from Peter's own website: http://aviation.pero-online.de/wordpress/?cat=11</p> <p>See this Youtube video on how to use SimStarter https://www.youtube.com/watch?v=2SH_SwIVy5E</p>
--	---

The End!