



Database

AivlaSoft EFBv2
User Guide

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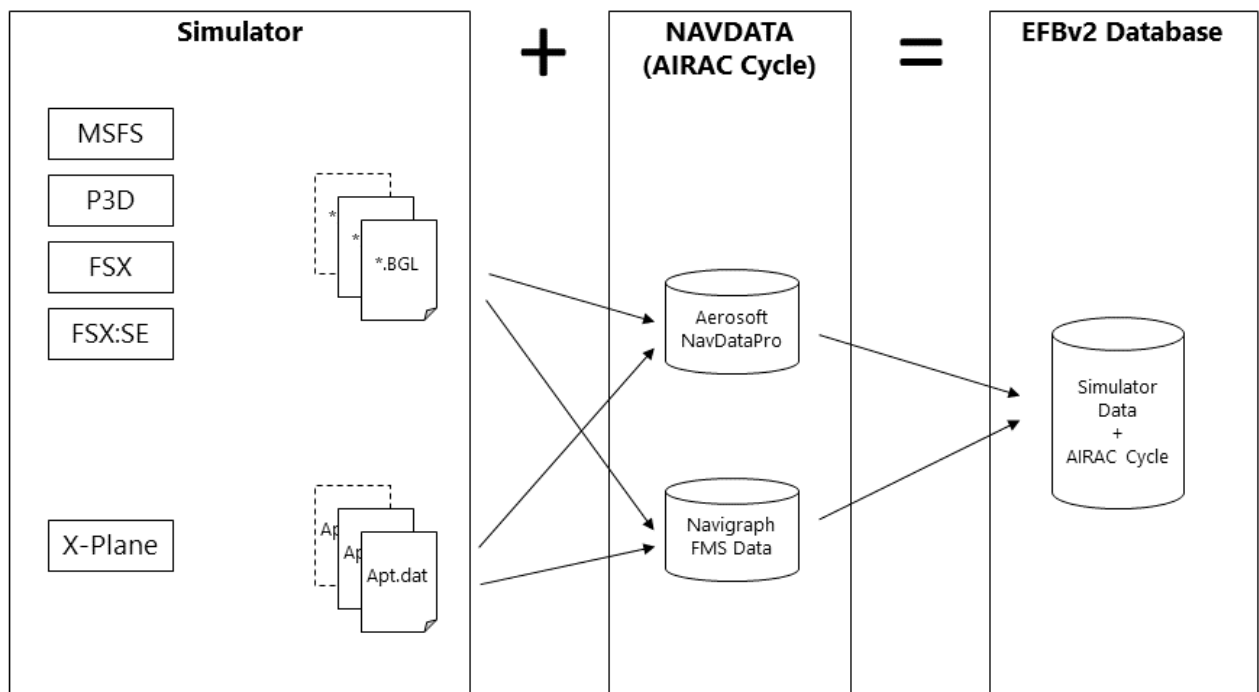
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1 Overview

The database of EFBv2 is set up from two different sources:

1. Data from the Simulator and
2. Navigational Data.

the latter also known under the popular term "AIRAC Cycle". The following schematics shall help you to understand the basic principle:



During the creation process of a database a few intermediate steps are stored to facilitate and speed up later updates.

At the time of this User Guide's editing (4th Q/2020) the following data sources can be used:

Simulators

- Microsoft Flight Simulator 2020 / MSFS
- Lockheed Martin Prepar3D™ (Version 2, 3, 4 and 5)
- Laminar Research X-Plane 11.30 (and higher)
- Microsoft Flight Simulator FSX
- Dovetail Games FSX Steam Edition

Navigational Data

- Aerosoft NavDataPro (Lufthansa/LIDO)
- Navigraph FMS Data (Jeppesen)

Whenever a new add-on scenery is added to the Simulator or whenever a new AIRAC Cycle is added, the Database of EFBv2 must be updated to reflect the latest changes. These updates are performed with the program "Database Builder".

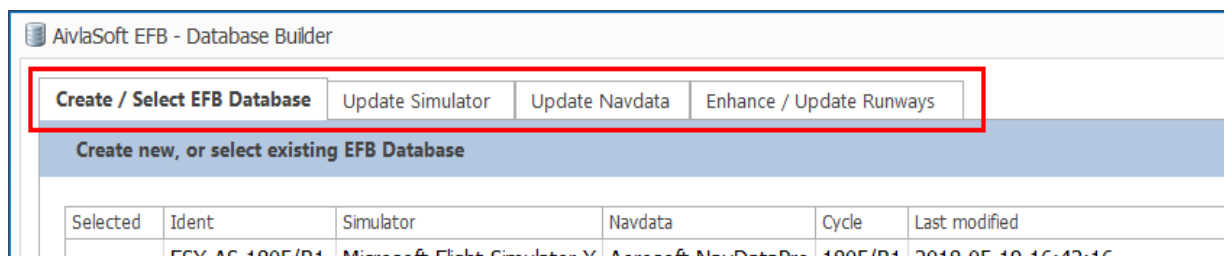
At each start-up EFBv2 checks whether there have been changes in the Simulators configuration and produces a corresponding information box. Simultaneously it offers to start the "Database Builder" to perform the necessary updates. Detecting database changes for MSFS is not possible at the moment.

2 Database Builder

The program "Database Builder", which is mainly used to create and update the EFBv2 Database, can be run from the EFBv2 Server's Menu. Alternatively there is also a Program Icon available after installation.

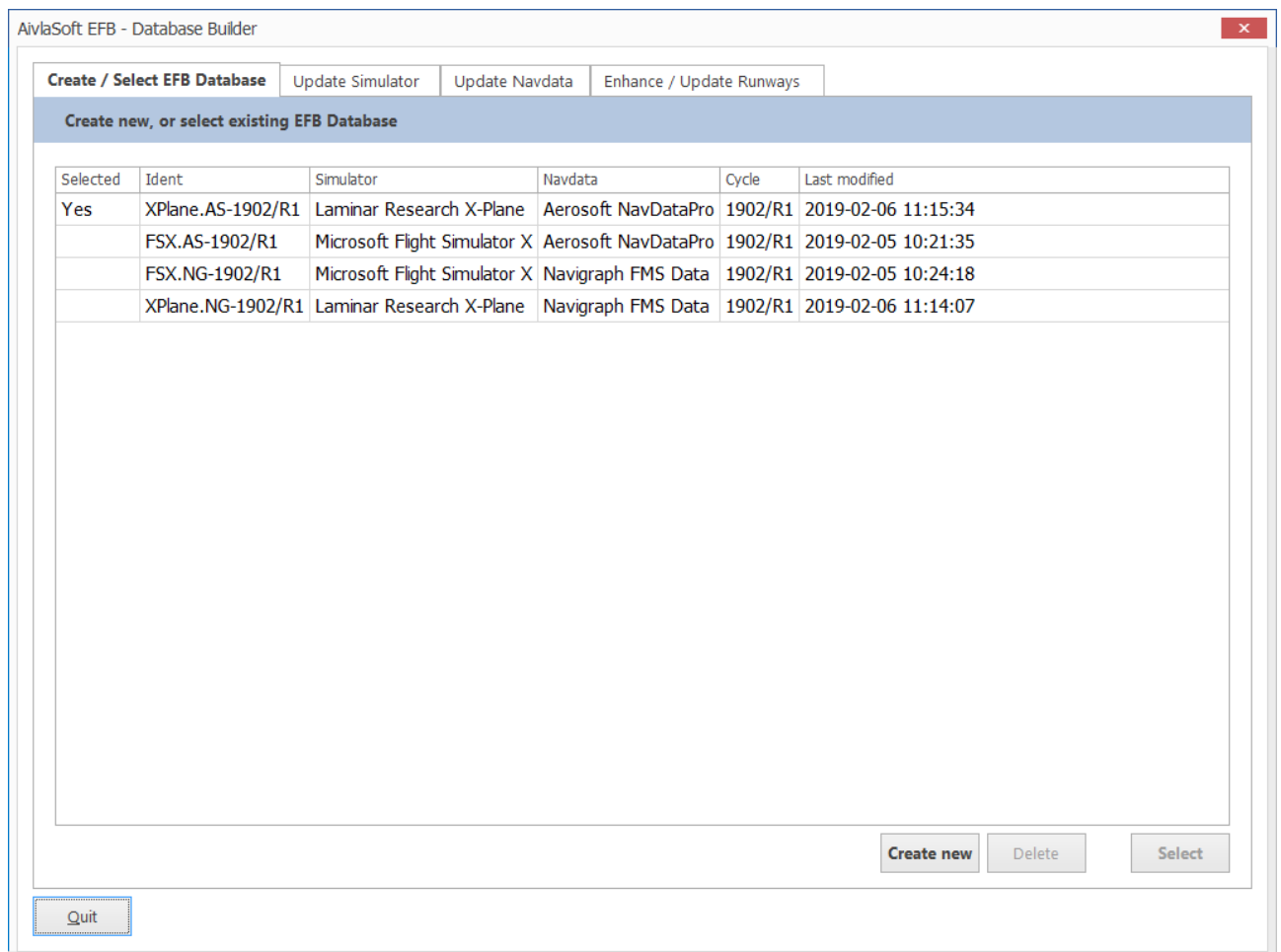
At first start of the EFBv2 Server (immediately after installation), the Database Builder is invoked automatically.

2.1 User Interface



The four **Main Functions** of the Database Builder are selectable by the Tabs at the upper edge. The functions are explained on the following pages.

2.2 Create/Select EFB Database

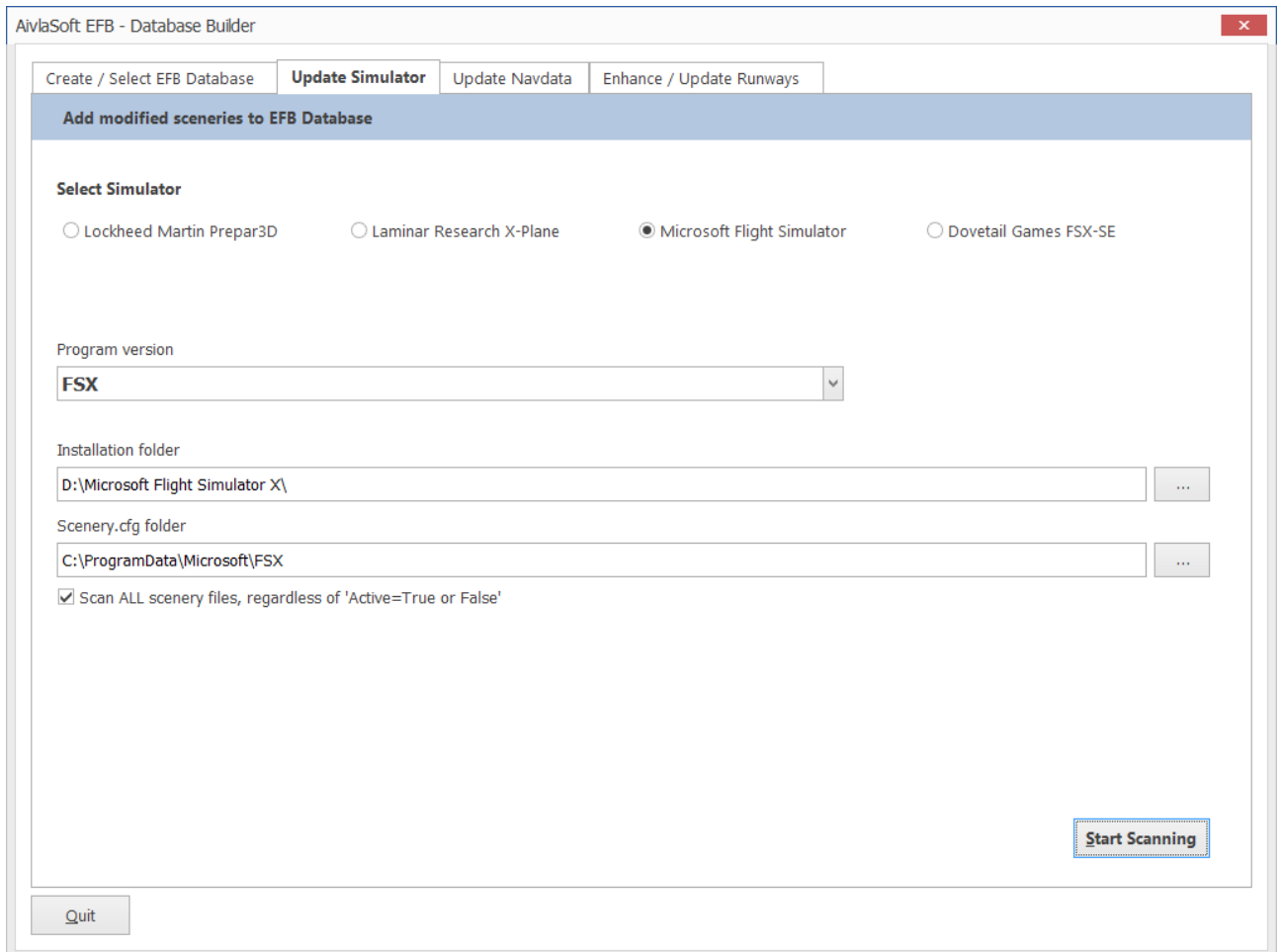


This function allows you to **create a new** Database or to **delete** an existing Database.

In case you are using more than one Simulator, you will need to create an EFBv2 Database for each Simulator. Each of these Databases is presented in the list. In order to use the matching Database for the intended Simulator in use, you need to select it from the list. To make a selection, simply click the **desired Database** and press the **"Select"** Button.

After pressing the "Select" button, the Database Builder will be shut down automatically and EFV v2 Server will start.

2.3 Update Simulator



Whenever you have made changes in the Simulator Setup (adding or deleting add-on scenery), you need to run this update function.

First select the affected **Simulator** in the upper part of this screen, then right below select the **Program Version** (in this example Prepar3D v4). With this information the Database Builder will try to locate and display the installation paths for the selected Simulator's program and data. In case this automatic locating should fail, you will need to use the Button on the right side to select the respective paths manually.

The option "Scan ALL scenery..." gives you the possibility to scan all entries in the "scenery.cfg" including the items marked "Active=FALSE". In case this box remains unchecked, the inactive scenery will be excluded from the data building process. After having the selection completed, press "Start Scanning" to start the Creation/Update process.

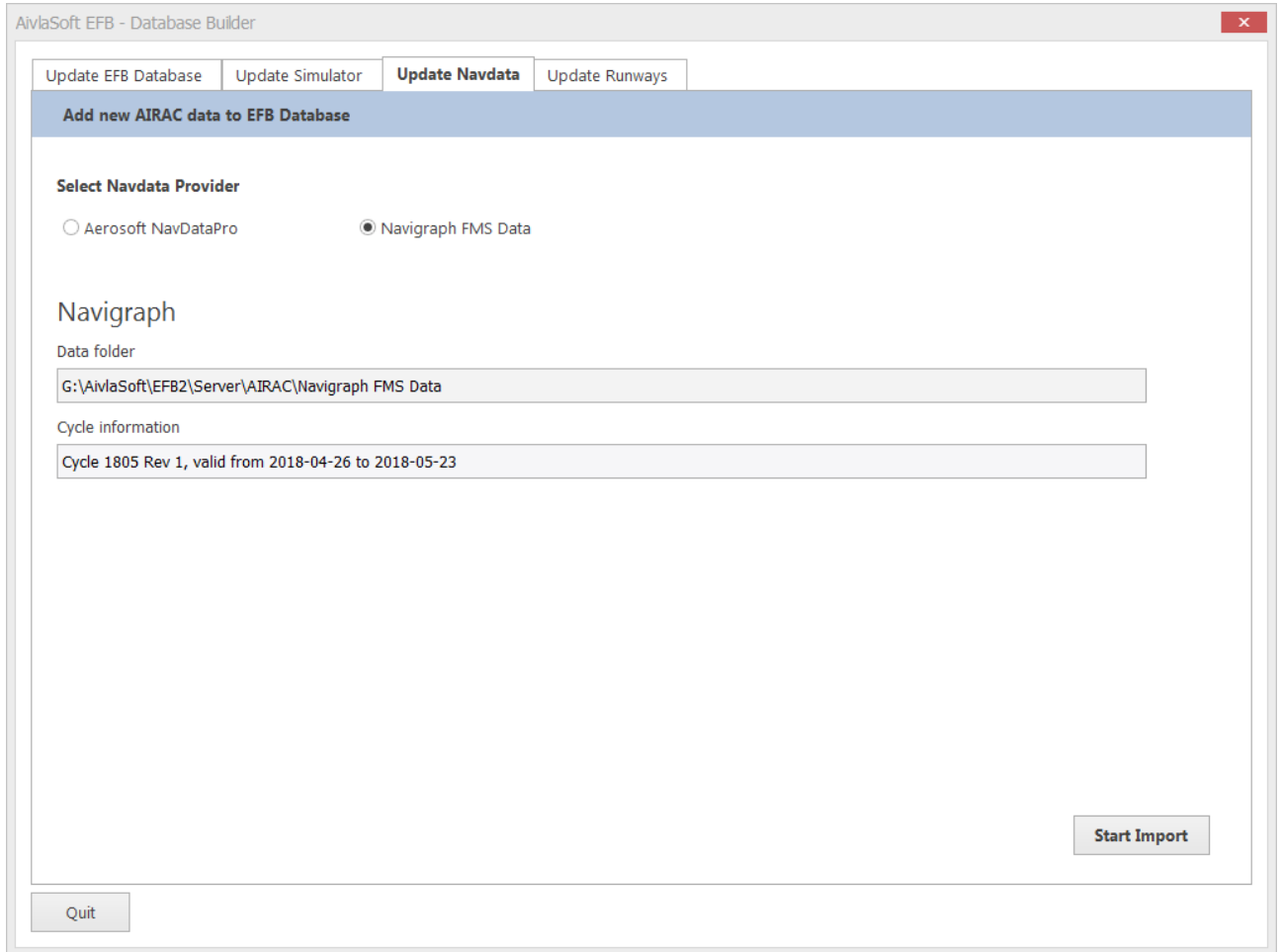
X-Plane

The option „Scan ALL scenery files ...“ as well as the path to the file „scenery.cfg“ is **not available** for X-Plane databases.

Airports can only be processed if their **specification number is 1000 or higher** (see line 2 in the respective apt.dat file). If the Database-Builder is detecting a specification lower than 1000, it will ignore this airport and it will generate a warning in the database creation logfile. The creation process will not be interrupted but this certain airport will not be available in the EFB database. However, if there is another apt.dat for the same airport in a lower hierarchical layer (stock airports, or global airports), and with a valid specification, then that airport ground layout will be used for the EFB database.

When the Database Builder is scanning the airport files within the „Custom scenery“ it follows the inverted sequence of the content of the file „**scenery_packs.ini**“. The user is responsible for the correct sequence in this file.

2.4 Update Navdata



The screenshot shows the 'AivlaSoft EFB - Database Builder' window with the 'Update Navdata' tab selected. The window has a title bar with a close button. Below the title bar is a tabbed interface with four tabs: 'Update EFB Database', 'Update Simulator', 'Update Navdata' (active), and 'Update Runways'. The main content area is titled 'Add new AIRAC data to EFB Database'. It contains a section 'Select Navdata Provider' with two radio buttons: 'Aerosoft NavDataPro' and 'Navigraph FMS Data' (selected). Below this is a section titled 'Navigraph' with two text input fields. The first field is labeled 'Data folder' and contains the path 'G:\AivlaSoft\EFB2\Server\AIRAC\Navigraph FMS Data'. The second field is labeled 'Cycle information' and contains the text 'Cycle 1805 Rev 1, valid from 2018-04-26 to 2018-05-23'. At the bottom right of the main content area is a 'Start Import' button. At the bottom left of the window is a 'Quit' button.

Select the Navdata Provider of your choice on the top line. After its selection the installation path and the information for the available AIRAC Cycle is displayed.

The path to the Navdata files cannot be altered as it is part of the fixed data structure of the EFBv2 Server.

Press "Start Import" to activate the Creation/Update process of the EFBv2 Database.

2.5 Enhance/Update Runways

Sometimes it can happen that Simulator data are faulty or incomplete. The term "faulty" in this context refers to differences to real world data. There are various reasons for this kind of data. Mostly they are stemming from technical "workarounds", which are used by the Scenery Designers to create effects that were originally not available in a specific Simulator, but were introduced to fulfill the various requests issued by the community over time.

These "workarounds" are usually not visible in the Simulator. For a program like EFBv2 however, which needs to analyze and display such data, this can lead to improper graphic depictions.

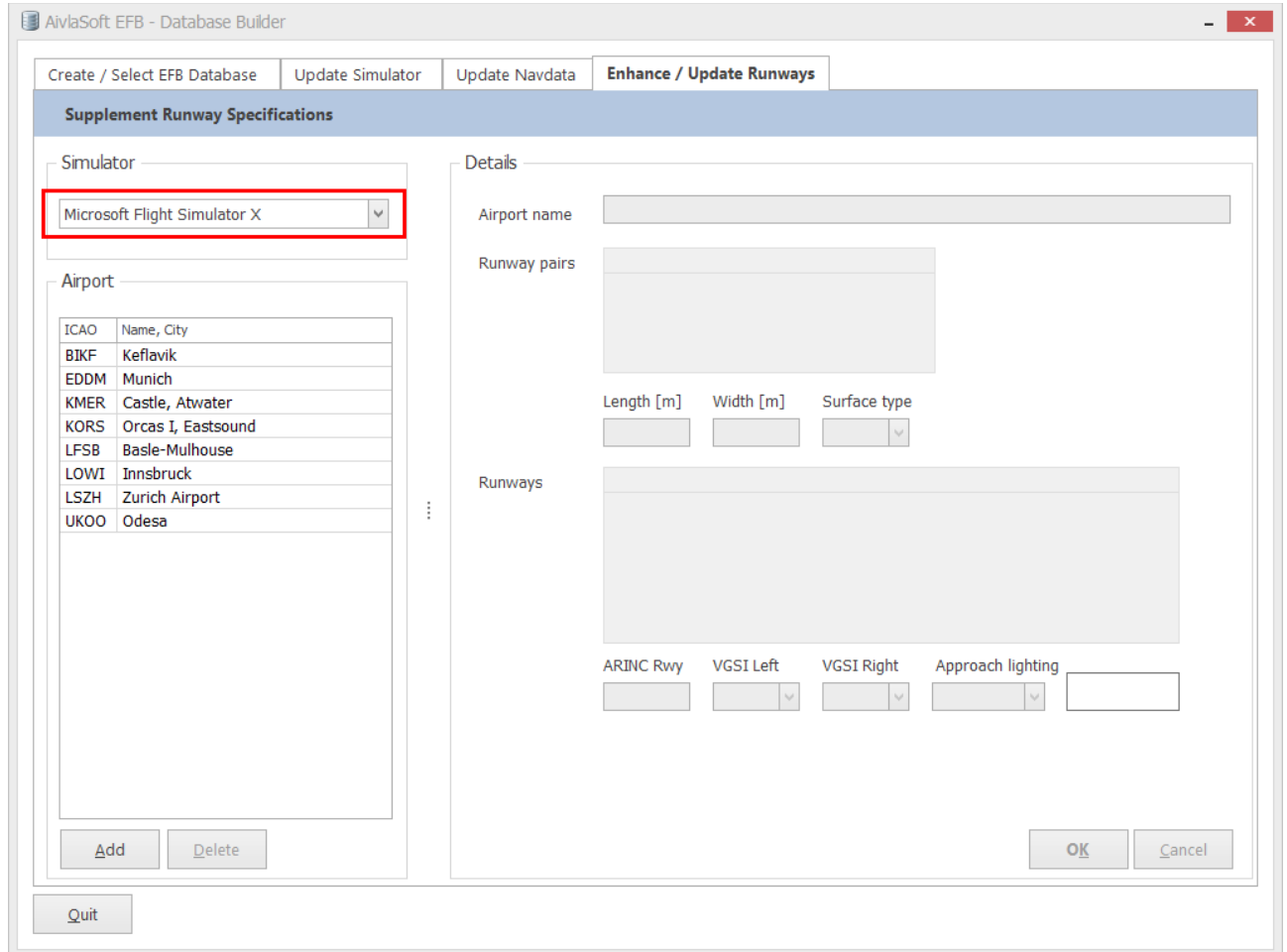
EFBv2 gives you the opportunity to add or change missing or faulty data. Whenever changes are applied through this option, EFBv2 will use the changed data for all future Database Creation processes in order to create a correct display in the Client.

Generally most of the missing or incorrect data are to be found in the specific field of runway data or airport naming.

Important

All these additional or corrective data, which can be collected within this option, are exclusively stored in the EFBv2 Database and therefore also displayed exclusively in EFBv2's Client. There are no changes whatsoever within original Simulator data!

Data can be recorded with the input mask shown on the following page:



AivlaSoft EFB - Database Builder

Create / Select EFB Database Update Simulator Update Navdata **Enhance / Update Runways**

Supplement Runway Specifications

Simulator

Microsoft Flight Simulator X

Airport

ICAO	Name, City
BIKF	Keflavik
EDDM	Munich
KMER	Castle, Atwater
KORS	Orcas I, Eastsound
LFSB	Basle-Mulhouse
LOWI	Innsbruck
LSZH	Zurich Airport
UKOO	Odesa

Add Delete

Quit

Details

Airport name

Runway pairs

Length [m] Width [m] Surface type

Runways

ARINC Rwy VGSI Left VGSI Right Approach lighting

OK Cancel

First thing to do is to select the Simulator, for which data need to be altered/added.

After selecting the Simulator all data changed so far (if any available) will be displayed in the listing below the Simulator selection. At first start of this option the list will of course be empty. If data have been altered/added, it will take a few seconds to present the complete list.

You can now either alter airport data that you have already entered for a specific airport by clicking on the airport in the presented list, or you can alter/add data for a new airport by clicking the **"Add"** button.

What data can be altered/added?

Experience has shown that usually only a few values need to be changed. These are:

- Airport Name
- Dimensions of the runways and changes in surface type
- Corrective measures for altered runway designators (runway mapping)
- Information on lighting systems for runways

All these values CAN be entered, but they can also be OMITTED. Most of the alterations are for some specific data. Only in rare cases all data for one airport must be altered/added. Some of the input fields may therefore **remain blank**. One single exception exists for runway designators. If ever altered, ALL designators need to be inserted.

Airport Name

If required, this field can be used to replace the Airport Name used by the Simulator. If the field remains blank, no changes to the Airport Name are made.

Runways: Dimension and Surface Type

Whenever an airport is selected from the list, the Runway designators are automatically displayed in the table's first column to the left.

To enter new values for a specific runway, click on the desired runway. New values for length and width in meters can then be entered in the input fields below. To change the surface type make your selection from the drop down menu.

Runways: Designator and Lighting

For each airport selected from the list, all runway designators are automatically displayed in the table's first column to the left.

Runway Designators are usually representing the 2-digit magnetic bearing (mathematically rounded). Due to continuous changes in the Earth's Magnetic Field these Designators may change over time to account for the changes in Magnetic Deviation. Depending on the world's regions such changes can become significant and will therefore lead to changes of the Runway Designators.

With the introduction of EFBv2 such differences between Simulator Airway Designators and ARINC (real life as used in the AIRAC cycle) are automatically detected and - as far as possible - corrected. However our algorithm cannot detect all possible combinations at a 100% reliability. EFBv2 therefore offers the possibility to change the assignment manually and thus oversteering automatic correction.

Important

Whenever Runway Designators are entered, it is of utmost importance that **all** Designators for **all** Runways are entered.

To enter new values for a certain Runway, simply select the required line in the table. In the data field below all necessary changes for the Designator can be entered. If new data for Lighting Systems need to be added, those can be selected from the respective drop down menus.

Saving the changes

Whenever you have completed all necessary changes, press the "OK" Button to save the changes. To dismiss all changes press "Cancel".

Important

Please be aware that all changes made in this program segment will become active only after updating the respective EFBv2 Database.

We therefore recommend to use the "Update Simulator" Option after having completed your changes in the "Enhance/Update Runways" segment to activate the changes within the EFBv2 Database.

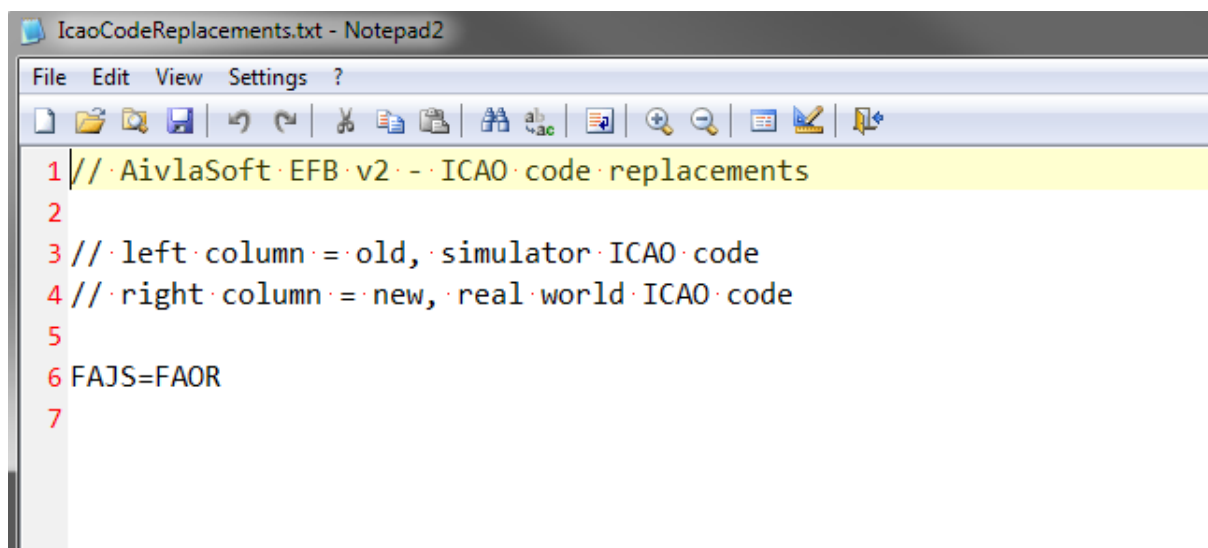
2.6 Changing the ICAO Code

In rare cases it can happen in Real Life that the 4-letter ICAO Code of a certain airport will change. A well known example of this kind is Johannesburg Airport in South Africa. It used to carry the code FAJS. For specific reasons it was later changed to FAOR.

Most Simulators still carry the old ICAO Code FAJR in their sometimes really outdated databases. Navigation Data from the AIRAC Providers however use of course the new ICAO Code FAOR (provided you use one of the two offered update services "NavDataPro" or "FMS Data"). This leads to the unwanted effect that there will be no IFR procedures available for the airport with the ICAO Code FAJS.

To provide a solution for this problem, EFBv2 offers the possibility to manually enter altered ICAO Codes into a separate text file. This File "IcaoCodeReplacements.txt" can be found in the path **"..\DbBuilder\Base"** inside the **EFBv2 Server's** data structure.

Enter one line per changed IACO code. The entry starts with the old (outdated) code, followed by an equal sign and immediately thereafter the new (valid) code (see next picture):



```

1 // AivlaSoft EFB v2 - ICAO code replacements
2
3 // left column = old, simulator ICAO code
4 // right column = new, real world ICAO code
5
6 FAJS=FAOR
7

```

2.7 EFB specific "AFCAD" Files

MS-based simulators like FS9, FSX and Prepar3D are unable to display sloped or bumpy runways by common means. Nevertheless a few gifted Add-ON developers have found a method to outmanoeuvre the simulator and created a number of interesting and beautiful sceneries with extremely sloped runways like Aerosoft's Lukla or the French Altiports by LLH Créations. For all these airports it is not possible to create a BGL File containing the necessary AFCAD information. Sometimes the developers use runway definitions with a width of 0m or no runway, taxiway and tarmac definitions at all, as they are not on the same (flat) level. Apart from that there are a few developers who do not create AFCAD information files at all or do use the default ones. The Add-On is then kind of "painted" to the simulator's surface without caring too much about the AFCAD underneath.

For EFBv2 this means of course, that all these airports' ground maps cannot be properly displayed or not displayed at all, because the necessary information is missing. In order to eliminate this shortcoming, EFBv2 allows the use of specially designed AFCAD BGL files in its own dedicated Server path: C:\Users\<username>\Documents\AivlaSoft\EFB2\Server\AFCAD. It is however important to know that these specially designed files cannot be used to display missing or to correct misplaced nav aids. For this task the respective BGL file of the Add-On would need to be redesigned or modified.

All files in the mentioned path are read in highest priority by EFBv2 and will replace any other AFCAD information for the same airport. Nevertheless it is very important to point to the fact that all these data are **exclusively used for displaying the airport layout in EFBv2's Ground map**. There is **no influence** whatsoever to the **depiction** of the respective airport in the **Simulator**.

Important

The BGL files in the mentioned dedicated Server path **must in no case** be copied into the regular "Scenery" path of the respective airport Add-On. This can create **severe problems** with the scenery representation within the simulator or can even **lead to crash** the simulator program.

2.8 EFB specific APT.DAT files

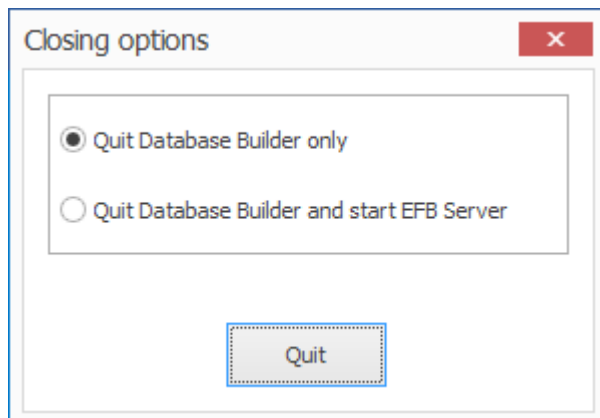
X-Plane

In a similar way as described in the chapter before (AFCAD), you can add specific APT.DAT files for X-Plane.

If an airport (provided by a developer) does only have crude layout information, you can create your own apt.dat using the WED (World Editor). Your self created apt.dat files must be placed into the folder „XPAPT“. When the Database Builder is creating the EFB database, it will consider the files in the XPAPT folder as the highest priority. That means that apt.dat files in this folder will replace any other airport files from the same airport (same ICAO code).

As described in the chapter before, files in this XPAPT folder will not have any impact at all on the X-Plane installation. In X-Plane only apt.dat files from their developers will be used, and not the apt.dat files from the XPAPT folder.

2.9 Closing the Database Builder



Upon closing the Database Builder you are offered two options: Closing the Database Builder only or automatic start of the EFBv2 Server.

Select the option of your choice and press the "Quit" Button.

2.10 Data Structure

The following files **might be** changed by the user:

Path: [X]:\<Data path Server>\DbBuilder\Base

Filename	Content / Purpose
BglSceneryExclude.txt	Simulators P3D, FSX, FSX:SE Configuring folders and files which shall be excluded from the analyzing process. There is a detailed description in the file on how to create such exclusions.
BglSceneryExcludeMsfs.txt	Only for MSFS Configuring folders, files and airports which shall be excluded from the analyzing process. There is a detailed description in the file on how to create such exclusions.
IcaoCodeReplacements.txt	Configuring changed ICAO codes. There is a short description in the file on how to create such entries.
IcaoCodesClosed.txt	A list of airports which are closed (in real world). This list is according to the FAA. The information whether an airport is closed or not, is only indicated in the Client's airport information. This information is currently not used furthermore.
IcaoCodesPrivate.txt	Same as above, but for private airports.
magdec.bgl	This file contains information about the earth's magnetic variation.

X-Plane

There is no appropriate file like the „BglSceneryExclude.txt“ in X-Plane. This file is not considered when creating a database. However, the other four files will be considered.

2.11 Automatic Backups

Should you use any programs that automatically create backups or even do automatic data restore, **make sure that the complete EFBv2 Server directories are excluded** from these operations! Be aware that automatic alteration of any data by external programs **can lead to severe problems!**