
AFM 2 – Aerodrome Flattening Meshes 2 **DRAFT for RC**

Digital Elevation Mesh Sceneries for Microsoft Flight Simulator X / SE
and Prepar3D v1.4, v2.5, v3.4, v4, v5 & v6

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1. INTRODUCTION

The more sophisticated our FS Global series got, the more annoying its obstructions became. One of the greatest problems is the fact, that by Microsoft's concept every airport is designed to be flat. This of course is not true in real world. Moreover, Microsoft has adapted certain airports in altitude to the wrong default elevation mesh in Flight Simulator. By introducing Digital Elevation Meshes like FS Global, which practically resemble reality, these flaws in concept get even more obvious.

But who is to correct it?

FS Global is and always was a scientific project. Its use never was restricted to Flight Simulation only. As of today we can proudly say, FS Global is the best and consistent available DEM on a worldwide base. Now, the scientific approach always is to correct WRONG data.

This brings us to the question, which is the wrong data?

The answer is simple: Microsoft's airports are wrong, as they are designed to be absolutely flat, actually even horizontal. If you put a log (our runway) on a ground which has a slope and want the log to be absolutely horizontal, you will have to flatten the terrain, which will result in a wall at one end and a supporting hill at the other end of the log. If you want to get rid of the wall at the one end, you will have to have a more elevated hill at the other. And if you want to get rid of the hill at the other end, you will have an even higher wall at the respective first end. The eye will always see: something is wrong! This considerably reduces the otherwise breath taking effects of FS Global. We did not like this. And we knew, Microsoft will not correct their concept.

What can be done?

Actually one would have to reverse-engineer Flight Simulator to manually correct this from the scratch - for every single airport! Now, this is, if not a manpower-, at least a legal problem ... so, what else?

One can manually generate tiny little micro meshes for every airport, which will gradually merge the flat airfield into FS Global or any other high resolution mesh. OK, sounds reasonable. How many airports do Microsoft Flight Simulator and its derivatives contain? Around 24.500 you say? A lot of work. Again, the manpower-problem.

(sidestep; **DEVELOPERS**: PLEASE, whenever you create an airport NEVER just place it onto available terrain. ALWAYS manually create a micromesh in high LOD (we do recommend 14). In one fell swoop your airport will be compatible to EVERY add-on terrain available with LOD number below the one you choose for your micromesh. **ADD-ON USERS**: PLEASE, whenever an airport you buy or download does not fit into your terrain, point out what I have written above to the developer and ask them to make a micro mesh! End sidestep)

So, what can be done by one person?

2. THE PROJECT

We call it “The Generic Approach”. To cut a long story short, we collected reliable information of as many airfields we could get and merged it into a database. The main sought after infos were threshold altitudes, airport altitudes, distances to near other airfields and that kind. We ended up with a database which included around 24.500 airfields, around 10.000 of which we had runway information (type A) and 14.550 we did not have runway information (type B). The latter mostly being unimportant airstrips such as Famer Johns take off and landing area to scare birds off his vineyard. From there we had two lines. For (A) a sophisticated algorithm took over and created a transition mesh (micromesh) according to the parameters of the altitudes in our database. For (B) a transition mesh was created as well, with the difference that this mesh was created a flat circle around the airfield.

Here some pictures for better understanding ...

HR mesh (FS Global Ultimate) installed, BEFORE installation of AFM (type A):



Please note the steep change in terrain at the edge of the airport polygon.

HR mesh (FS Global Ultimate) installed, AFTER installation of AFM (type A):



The steep step is gone and everything looks nice!

HR mesh (FS Global Ultimate) installed, BEFORE installation of AFM (type B):



An extreme example. A lonely tower in the world ...

HR mesh (FS Global Ultimate) installed, AFTER installation of AFM (type B):



This of course is not reality. But ...

... remember, in this area the default mesh of Flight Simulator was wrong. Microsoft adapted their airport altitude to the wrong default mesh. Unfortunately airport altitudes are absolute in Flight Simulator. The correct mesh of FS Global Ultimate mercilessly shows this Microsoft flaw.

Enter: AFM, which eases the problem for the eye, but still leaves the surrounding mesh intact and flying in Flight Simulator is fun again!

3. INSTALLATION

There is no actual installation. The idea is to use a high resolution elevation mesh (preferably FS Global Ultimate) and to do your flying as you did before. Once you encounter an airfield, which does not look nice because of the reasons explained above, run PILOT'S AFM Configurator for remedy.

The tool is pretty much self-explanatory.

You MUST have an account at www.pilots.shop (formerly www.fsim.net) in any case.

You MUST have either registered an entitled version of FS Global Ultimate mesh (for free use of AFM2) into that account or purchased a license for the stand alone version of AFM 2 for use with other meshes.

On the main screen you can choose for which version of Flight Simulator you want to manage AFMs. We read the installation locations from the registry and check, if they are still valid. If we do not find them or they are no more valid, we provide you with a link to browse to the locations.

When you click on the FS Version a wizard opens in a new window.

From there you can

- 1) INSTALL new AFM files. They can be installed using the ICAO code of an airfield. Whenever you enter a digit or letter the selection list will be updated. Already installed AFMs can not be selected again and will be marked (installed). You can select, unselect ICAO codes and install the connected AFMs.

NOTE: You can install 100 AFMs at a time. We want this tool to be used with sense and prevent "give me all", as installing all AFMs **will result** in unwanted situations.

- 2) UNINSTALL AFM files. You can uninstall them by ICAO code or use the BROWSE button to list all installed. You also can export selected to an AFM group file and thus share with friends.

A scenery layer will be created automatically in Flight Simulator scenery library. In FSX it will be on top of the list. Please keep it there and move it up from time to time as you may install new add-ons.

Also take note, AFM works only reliably at default airports. Add On airports should in any case always come with their own micro meshes.

4. COMPATIBILITY & KNOWN PROBLEMS

AFM 2 will detect, if you have FTX Vector installed and if you have enabled or disabled certain AECs Vector provides. This also means, IF you newly enable or disable an AEC via your Vector Configurator for which you already have installed an AFM for, you **MUST** uninstall the AFM and install it again to switch to the other version.

AFM was designed for FS Global Mesh products. It will however also work with other high resolution meshes of other developers. If you use AFM with a mesh of another developer we can of course not guarantee it to be fully functional as it depends on the mesh.

As explained, AFM is a generic approach. The product was conceived as a result of complex mathematical and logical processes. As we can not know, which airfield needs an AFM installed, we created AFMs for (nearly) ALL airfields. But **NOT ALL airfields will need an AFM!** This is why we restrict installation to 100 AFMs at a time.

It is up to you to decide, if the airfield looks nicer to you with or without the AFM. Use AFM with care and open eyes. It may even downgrade the situation, if it comes to airfields which have others in close vicinity or when coastlines come into play.

If you experience any problems, please **FIRST** read the manual **THEN** check our website www.pilots.shop

If your problem is not addressed by then, please send us an email.

Your PILOT'S FS Global Team

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5. DISCLAIMER

Flight Simulator is a trademark of Microsoft Corp.

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These files may NOT be distributed in whatever way!

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