

DYNAMIC VOLUME by ALTITUDE



Support

This program is unsupported or just partially supported. The author may help with the application but it is strictly on a voluntary basis.

Discuss it or find extended information on the program, please visit the ProSim737 forum at: <https://www.prosim737.com/forum/>

Copyright

The program is copyright protected by the author but it is "as it is" so no user license needs to be obtained or in other words, it is not needed.

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Objective

This small program regulates the simulator's main system volume depending on altitude, density altitude and other important factors. In fact, I made this small program because a *respected commercial user* of **ProSim-AR** asked if there was a way to decrease the volume of the system depending on altitude.

He is right and because indeed airliners fly relatively high, the overall engine noise and wind-noise is noticeably lower at high Flight-Level altitudes.

History and goal

• What the simulator does and does not •

Unfortunately, FS does not simulate this effect, so I thought I would try to make a little application that simulates this effect, namely a program that slightly decreases the system's volume depending on altitude.

The program was mainly created for home cockpit users - and commercial ones of course - but it does not really suite the "desktop users" mainly because they also use their single-PC system for other tasks and applications dealing with sounds, while flying.

The application assumes that there is a single-main computer, which runs the core simulator program, and it is not used for anything else, thus a slightly decreasing volume - depending on the altitude - will not interfere with other programs and important tasks. Therefore, the program regulates the system's main volume, and only the output "play" device, that is the default one on the system.

• Application Detail •

The program regulates the volume by the actual altitude the airplane is flying at, but it is just one of the factors considered, because apart from altitude, density altitude, pressure, airspeed, precipitation and several other factors are calculated and considered.

Installation

This small application does not come with its own installer. There is no actual need for that, you should simply unzip the distributed file and move it to any folder of your liking. However we strongly advice against placing it in the Program Files folder, because depending on your system settings, it may happen that the program will be unable to write its configuration file, sue to security settings.

The best is to install it as far as from the C:\ drive as possible.

The application itself was written in 64 bits but it can also be used in a 32 bit environment.

Besides the descriptions in this document, the program itself has a considerable amount of *“tooltips”* above each setting or parameter, so it is a good practice to read those when trying to configure the program.

After the program is properly configured, there is no need anymore for the user interface, so the best practice would be to start it minimized, which is now the default behavior.

There are several ways and methods to start the program automatically, FSUIPC is the most common for this purpose, but any other solution can be used.

If you wish to automatically start the application by FSUIPC, then in the [Programs] section of the fsuipc5.ini file simply add a line, requesting automatic startup and close, referring to the program. Depending on how many other startup programs you use there, it will look something like:

```
RunIf1=READY,CLOSE,D:\YOURFOLDER\Dynamic Volume.exe
```

Startup

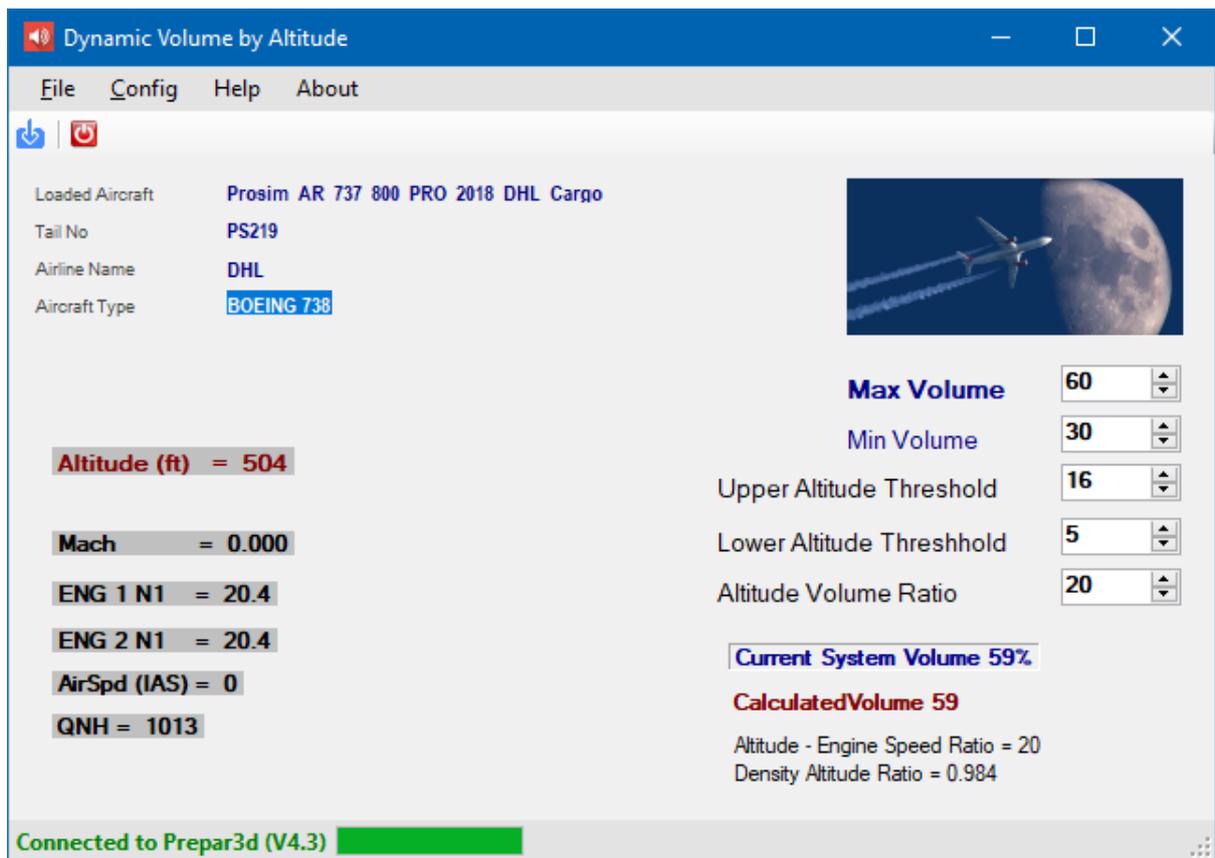
The program starts up in MINIMIZED mode without any icon on the taskbar. The only place you will find it is in the Notification Bar, where a single click brings up the UI window and you can also find options to run minimized and close it, if you right-click on the notification icon.

Configuration

• The user interface •

The user interface of the program is quite simple but at the same time contains all the needed and necessary configuration options.

We repeat that the configuration process is necessary only once and the settings are automatically loaded at every instance of startup. Obviously, the configuration file needs to be saved for this purpose. Just save it from the “Configuration” menu item or click on the blue button.



The user interface also shows some of the most important simulator variables that the program is using to calculate the system's volume.

Needs to be repeated that the current configuration can be saved either via the dedicated "Configuration" menu item or by the leftmost blue button.

- Configuration settings in detail •



This is the most important setting. The maximum setting depicts your system's maximum volume setting, so regardless how you set or have set your volume, the program will overwrite it and hence regulate the simulator's volume - depending on your altitude and other factors.

It is a good practice to first find your Max setting and only then configure all the other settings.

Tip: Set the Max Volume to your actual setting that is being used in your system and then SAVE it.

Repeat: Set it to your USUAL fixed system volume setting!

Min Volume

Leave this setting 35-50% below the Max setting. The higher the Max setting is you need to have more difference between the Max and Min settings.

Upper Altitude Threshold

Default setting is around 3-22. The ratio also depends on your overall MAX volume.

When your plane is in a fixed zero altitude AGL, you can see that by changing both the Upper and Lower values, you get a different volume and '*Calculated_Volume*' percentage.

The higher the Max volume is these two numbers need to be also increased.

The best is to change these two values (upper & higher thresholds)

Default setting is around 20. The ratio also depends on your overall MAX volume. (The higher the needed system max volume, this value should be proportionally increased.)

When your plane is in a fixed zero altitude AGL, you can see that by changing both the Upper and Lower values, you get a different volume and *Calculated_volume* percentage.

Higher overall max volume needs a higher value.

Experiment, until at zero altitude your **Volume % becomes the same** as your desired Max volume setting above.

Lower Altitude Threshold

The two values the (upper & lower thresholds) define a ratio between the low and high values.

Default setting is around 3-12. The ratio also depends on your overall MAX volume.

When your plane is in a fixed zero altitude AGL, you can see that by changing both the Upper and Lower values, you get a different volume and '*Calculated_volume*' percentage. The higher the Max volume is these two numbers need to be also increased.

The best is to change these two values (upper & higher thresholds) until a zero altitude your Volume % becomes the same as your desired Max volume setting above.

Altitude Volume Ratio

This setting regulates the changes in volume, as altitude increases and decreases. This is a setting internal to the program, but you can change it according to your experience.

Default setting is 20. Yet another variable influences the final upper and lower volume achieved.

This ratio setting does not depend on the Max volume being set.

This is a setting mostly internal to the program but important.

The two values the (upper & lower thresholds) define a ratio between the low and high values.

The upper value needs to be very close to your desired normal base volume.

Tip:

The best practice is to first set the desired volume at 0 altitude AGL, (engines running) and then close this upper value to the desired maximum system volume.

Current System Volume 59%

Volume %

This is one of the most important values. This will show the percentage That the program regulates your system's volume.

From the moment the program starts running, it will adjust your main system-volume according to your aircraft's altitude and other factors.

CalculatedVolume 59

Internal to the program, and shows the final volume to be set.

By comparing this value to the actual volume % above, you will observe the percentage that the program decreases the volume by.

Mach Factor

This setting also takes account on the speed. Default value is 2 but you will hardly ever see significant changes in the calculated volume, because the threshold values already manage the Mach related factors.

Lower the value by at least 1 if you are usually flying with Max speed, around Mach 0.80

Precipitation Factor 1.0 

This setting also takes calculates volume effect if the plane flies in dense clouds or precipitation. Default value is "1", but you will hardly ever see significant changes in the calculated volume, because it has already been managed internally.

Increase the value if you are usually flying with Max speed, around Mach 0.80 and especially if you forget to decrease your speed to the "turbulence penetration" value, when flying in precipitation and dense clouds.

Happy flying!

The ProSim Team,
A.K.-Lapi

Many thanks to:

Paul Henty for his great FSUIPCClient.dll

Ray Molenkamp for his CoreAudioApi.dll

We separately wish to express our gratitude to Pete Dowson – the author of FSUIPC – for his continued and valued support and friendship!