

Tweaking Flight Simulator 2002 for Optimal Performance

Tips to help boost frame FS2002 frame rates and performance on your system.

Drivers, Drivers, Drivers - In most cases, updating your video and sound card drivers will increase performance. Drivers are basically a set of instructions that tell your hardware how to handle the software you are using. Obviously with a 'better' set of instructions, your hardware can run much more efficiently.

The Frame Rate Killers

Note: You can determine your frame rate within FS2002 by hitting Shift+Z on your keyboard twice while in cockpit view. The frame rate counter will show in the top left of the screen.



The frame rate displaying showing at the top left corner.

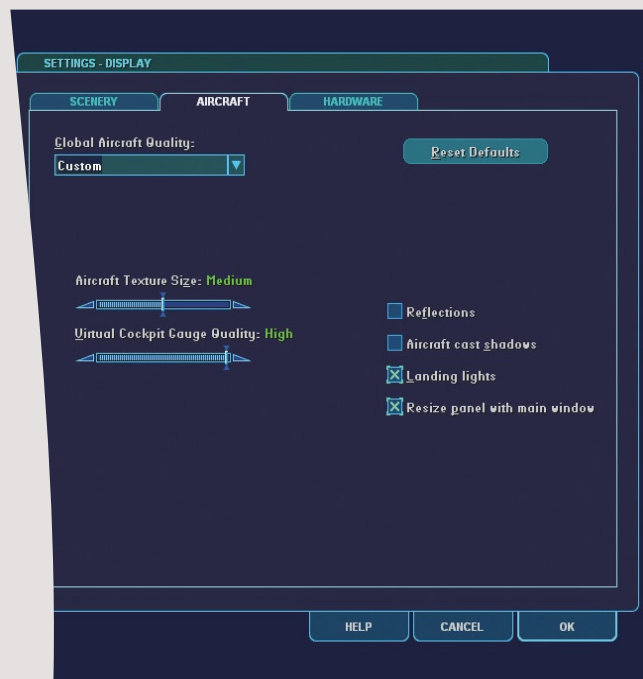
To access the following options, from the cockpit in FS2002, select **Options > Settings > Display**. You may need to hit the "Alt" key if you are running in full screen mode to bring up the menu bar. You can also access these menus from the Settings option on the main FS2002 screen.

In the Scenery tab:



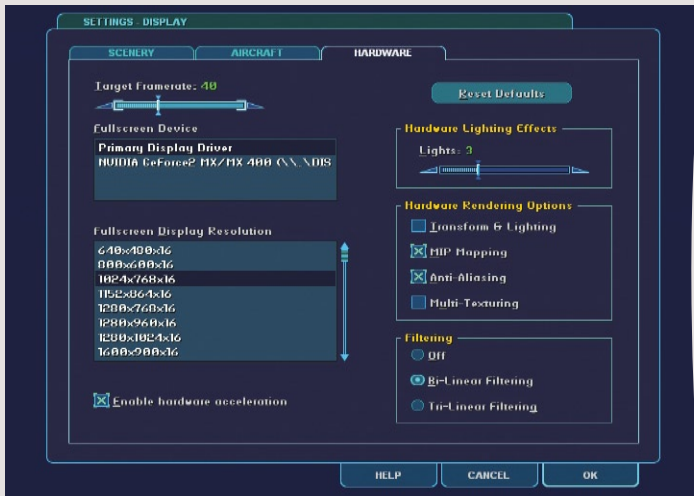
1. **Autogen Density** - Sure it is nice to see mountains covered in trees and cities bursting with buildings and houses but Autogen will chew up frame rates on most systems. Pull this setting back to 'Normal' or lower if you are having frame rate issues.
2. **Terrain Mesh Complexity** - The lower the setting, the higher the frame rates. Unfortunately bringing this setting back a little also reduces the realistic look of mountain ranges. You can save frame rates by lowering this setting as your system does not need to load as many reference points for each particular mountain it renders.
3. **Scenery Complexity & Dynamic Scenery** - Test the water with these two settings... Obviously you want as much detail as possible but are 10 or 15% more buildings and aircraft worth a 25% drop in frame rates? Tinker with them and see how you go.
4. **Texture Quality & Terrain Texture Size** - The amount of video memory on your video card will play a large role with these settings. If you have a 64Mb video card, then you can probably leave these at highest settings. A 32Mb card should also be able to handle it as well. Anything lower and you may need to decrease both these settings if you find textures not appearing or performance is low, particularly when switching between aircraft views.
5. **Down The Right Side of the Scenery Tab** - The most notable options on the right hand side of the box here that will affect frame rates and performance and particularly cause increased CPU load are; *Maximum Visibility, Cloud Density and Ground Scenery Cast Shadows*. The remaining options are more likely to be affected by video card memory and speed.

In the Aircraft Tab:

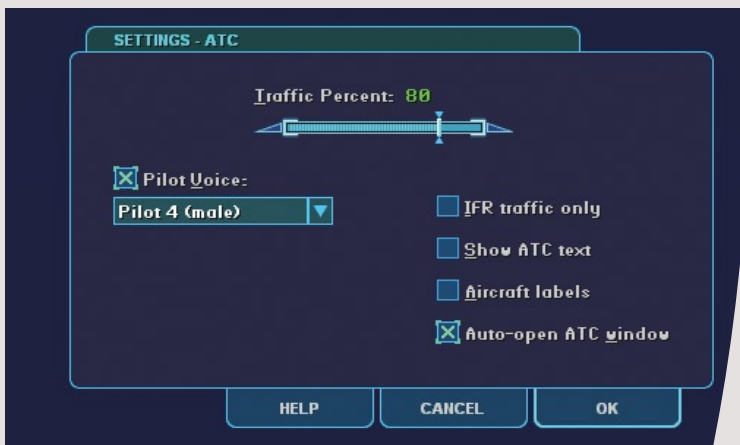


1. **Aircraft Texture Size & Virtual Cockpit Gauge Quality** - If you only fly within the cockpit and never switch to external views or virtual cockpit mode, then you pull these settings back to minimum as you won't need any enhanced detail. This will save you precious video memory and perhaps 1 or 2 frames per second as well. If you love external views or like to fly in virtual cockpit mode, then you will obviously want to keep these settings as high as possible to make for 'good' visuals or screenshots. It is all about enhancing the options you use, and removing those you don't need in the name of performance.
2. **Down The Right Side of the Aircraft Tab** - The two main concerns here are *Reflections and Aircraft Cast Shadows*. Do you need or want them? If yes, keep them checked, if no, turn them off to gain a little extra performance.

In the Hardware Tab:



1. Target Frame Rate - To explain how this setting works is beyond the scope of this article as it is a very detailed setting requiring extensive explanation. You should set it roughly to around the average frame rates you experience during flight. For a more detailed description of this setting, take a look at http://flightsimvetclub.tripod.com/tips_simulator.htm
2. Full Screen Display Resolution - Fairly self explanatory. Although you need a video card with 32mb (preferably 64mb) of onboard memory if you want to use the resolutions at the higher end of the scale. Ensure you have *Enable Hardware Acceleration* enabled directly under the screen resolution box if you are using a 3D accelerator card.
3. Down the Right Side of the Hardware Tab - Most of these options are video card related but do have an impact on the workload of your CPU as well, and hence, will affect frame rates. The settings of particular note are *Anti-Aliasing* and *Multi-Texturing*. *Anti-Aliasing* - This is a setting which, when enabled, will provide a much crisper visual look to your aircraft and scenery. It works by removing the 'jaggies' (or that stepping effect) from objects appearing on screen. It is most noticeable when performing a turn with buildings in view ahead of you. Unfortunately, anti-aliasing will often cut frame rates by up to 50% on most video cards. If you can stand putting up with the jaggies, then leave this option OFF. Anti-Aliasing is only supported on later model Voodoo, GeForce and ATI Radeon cards. Multi-Texturing is basically a method to enhance the visual appearance of textures within the sim. It seems to be somewhat video card dependant as to how the results differ between having this option turned ON or OFF. If you are happy with texture quality when this option is turned OFF, then leave it unchecked as it has been shown to give a minor frame rate boost when disabled on some user's systems.
4. Filtering - This will provide enhanced texture quality. Very much video card dependant, so set it to your needs and to your hardware. Tri-linear filtering gives the best quality textures of course but may also borrow frame rates in the process. *Hardware Lighting Effects* will up the eye-candy as well. Tinker with it and see how it affects performance on your system.



ATC Settings - These settings can be accessed via the **Options > Settings > ATC** menu from within the cockpit. The only option you need to worry too much about is the *Traffic Percent* option. The overall amount of ATC traffic you have flying around in any particular area will have an effect on frame rates and performance. Lowering this setting will help frame rates, particularly in areas like San Francisco, New York, London, Paris, Hong Kong etc. Basically anywhere that receives a large volume of air traffic. Again, find a setting you are comfortable with. I use eighty percent on my machine. It works well for me and I avoid suffering from sensory overload when cruising into heavy traffic areas.

On some systems, you can get incredible performance and frame rate boosts by running FS2002 in window mode. I noticed that running in Window mode (hit Alt+Enter to switch between full screen and window mode) gave me roughly 60 frames per second with my display and scenery settings, whereas in full screen mode with the exact same settings in use, it drops to around 20 frames per second. I must admit that full screen mode looks much better and I attribute the decrease in frames to my video card which probably has features that run only in full screen mode and not in window mode, hence when I switch to full screen mode, it starts using all those texture and lighting enhancements that don't work with the card in window mode. This is most probably the influence of anti-aliasing in full screen mode as mentioned above.

That's about all the basic settings we can tinker with within FS2002 itself. You can tinker with settings in the FS2002.cfg file for extra performance boost, but we will not cover that here.

There are a number of other things you can do to help FS2002 performance even before you start up the sim. Some examples are:

- Close down all other programs that may be running in the background that don't need to be running. Email programs, file windows, Office applications, ICQ...whatever! The more you have running in the background, the less memory is available for Flight Simulator.
- A fresh reboot of your system before running FS2002 never hurt anyone. This will help recover memory if your system has been switched on for a lengthy period of time and you have suffered from 'memory leak', which is more common in Windows 95/98 etc than it is in Windows 2000/XP.

I think the best way to tackle the frame rate issue for users with older/slower systems is to try the following. Go into the various settings tabs as mentioned above and turn everything OFF and pull all the sliders to the left (minimum settings). Then start adding features one by one and keeping an eye on the frame rate counter. If a particular feature causes a large decrease in frame rates, set it lower or keep it off altogether and move on to the next setting. It is like a scientific experiment. You alter only one variable at a time and gauge its influence on the overall outcome. When you are happy with the result of that variable, move on to the next. With a bit of tinkering and perhaps sacrificing some features, you should be able to come up with settings that provide a good balance of performance and detail for your hardware setup. If you have the performance you want but the detail is not to your standards...it may be time to consider a hardware upgrade. That is probably the only real fix in many cases. →