

# MAXIMISE PERFORMANCE IN YOUR BRAND NEW FLIGHT SIMULATOR



A TASTER OF OUR COMPLETE GUIDE

**SoFly**



# INTRODUCTION

GUIDING YOU TO HAVE THE BEST FLIGHT SIM EXPERIENCE

## WELCOME TO THE WORLD OF FLIGHT SIMULATION.

This is a brave new world you've embarked on and we would like to thank you for choosing our guide to help you on your quest to having the best experience possible in this virtual new world.

When Microsoft first announced that a brand new flight simulator would be coming, simmers and gamers alike were incredibly excited. The visuals of the new simulator were simply breathtaking and demonstrated a true next-generation flight simulator.

### This taster guide is just the start.

We want everyone who owns the new Flight Simulator to have a smooth experience, which is why we're giving you this guide to **maximum performance** for free.

Regardless of your computer knowledge or experience, we think these tips and tweaks will give you just enough detail to be able to get the most out of your new flight simulator.

Our tips on performance is just the start. Whilst great performance is important, knowing the simulator, the functionality, the UI and more is also vital to having the best experience. This is why we created our **Guide to Flight Simulator**.

You can get the complete Guide to Flight Simulator right now from our webstore, or on a variety of other webstores.

We hope you enjoy and find the tweaks helpful.

**The SoFly Team**



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This is just a taster of our full **Guide to Flight Simulator**, which includes details on all included aircraft, hand-crafted airports, UI and much more.



[Buy the Full Edition](#)

# GET MAXIMUM PERFORMANCE

Whilst the new flight simulator is geared towards modern hardware, as outlined on page XX, there is still plenty of scope to improve your personal performance to get the best possible results from your simulator. Here are some handy tips for you to try to get maximum performance from your simulator. All of our tips are verified by an industry expert and an IT professional.

## Before We Begin

It should be noted that these tips and tweak are simple, safe and generally quite common across multiple simulators and games. Whilst tweaking your system may result in better performance, you should be aware that the simulator can continue to be optimised (it doesn't utilise all processing cores, as an example) and that this simulator is also built for more powerful hardware in the future.

It is also worth noting what your specifications are and comparing that to the recommended components outlined by Microsoft. Tweaking will yield some positive results, but if you're on low-end machines, then you may need to consider the hardware needs upgrading.

That said, applying some of these tweaks should help you boost performance. Your mileage may vary and we'll continue to update the guide if and when new tweaks are found.

## Up to Date Video Card Drivers

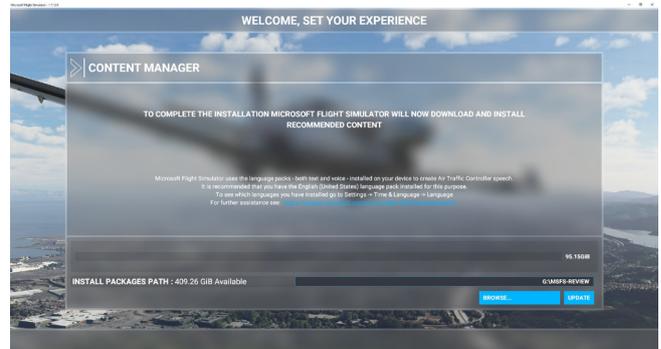
The first thing you should do is ensure that your video card drivers are up to date. Video card drivers link your physical hardware (your GPU) to your computer and have specific optimisations for games and applications (including Microsoft Flight Simulator).

### Nvidia Graphics Cards:

The latest Nvidia video card driver is **452.06 WHQL**, which was released on August 17th 2020. This driver has specific optimisations for Microsoft Flight Simulator to help maximise your performance.

### AMD Graphics Cards:

The latest AMD video card driver is **20.8.2**, which was released on August 17th 2020. This driver has specific optimisations for Microsoft Flight Simulator to help maximise your performance.



# Clean Install of Video Card Drivers

If you already have a video card driver installed (which is very likely), you should perform a “Clean” install of that video card driver. Below is a quick guide on how to uninstall your current driver and replace it with the most up-to-date in a “Clean” state.

## Nvidia Drivers

### Step 1 - Removing Old Drivers

Navigate to your ‘Add or remove programs’ menu on your Windows PC. In the search bar, look for Nvidia, which will look for all programs with that name. You will then see your driver. Click on ‘Uninstall’ and follow the prompts to uninstall the driver. This will take a few minutes and your screen may go black a few times, but this is normal. You will need to restart your PC afterwards.

**Note: If you already have 452.06 installed, then you have the latest already.**

### Step 2 - Downloading New Drivers

If you haven’t already downloaded the new drivers (452.08), then you will need to from Nvidia’s website.

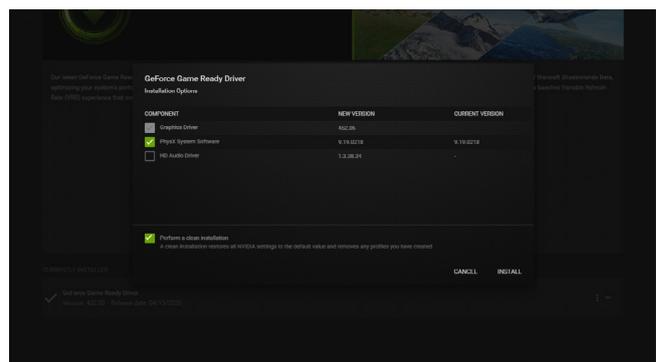
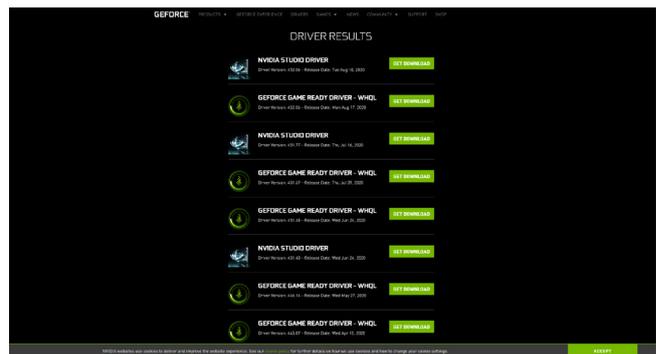
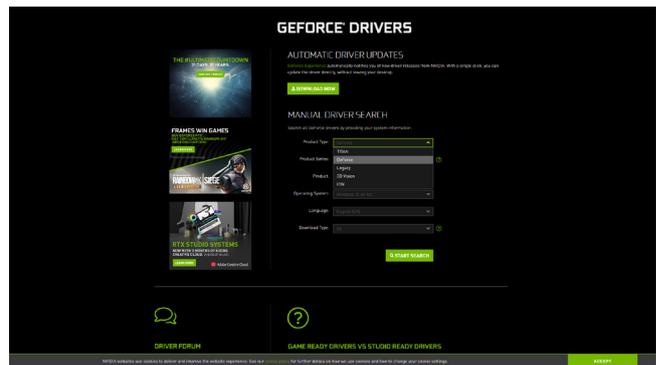
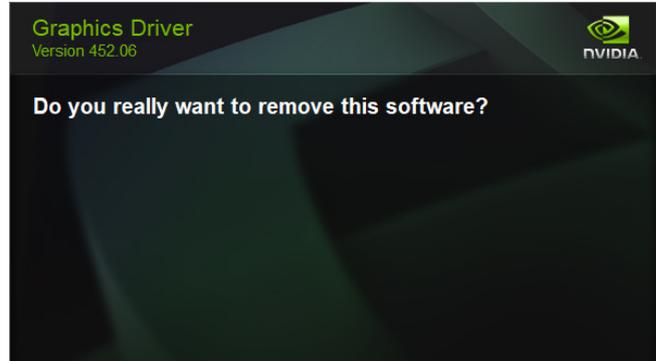
Select your graphics card, language, etc and the system will find you the correct driver to download. For the cleanest driver download, choose the ‘GeForce Game Ready Driver - WHQL’ version. The download will now start and will take a few minutes depending on your connection.

### Step 3 - Installing Clean

With your new driver downloaded, you are now able to start the process of installation. Run the download as an Administrator on your system.

During the installation process, a checkbox named “Perform Clean Install” will be visible. Ensure that this is checked. This will help ensure any old files are deleted to prevent any issues.

**With the driver now installed, SHUT DOWN your computer and turn it back on.**



## AMD Drivers

### Step 1 - Removing Old Drivers

AMD has provided a simple solution to remove your AMD drivers. Download the AMD Cleanup Utility from their website and run after it has downloaded.

Follow the prompts to reboot your PC in 'safe mode'. Rebooting in 'safe mode' will give you the best results for a smooth driver update.

After your PC has rebooted, a new prompt will appear asking you if you wish to remove all AMD drivers and applications. Click on 'Yes' and the removal process will begin. Afterwards, shut down your PC and turn it back on.

**Note: Navigate to your Windows installation folder in your Windows Explorer folder and if you have a folder named 'AMD', delete this completely. The typical location for this folder is "C:\AMD"**

### Step 2 - Downloading New Drivers

If you haven't already downloaded the new driver, v**20.8.2**, then head to the AMD website and enter the details of your card. This will search for the latest driver for you to install.

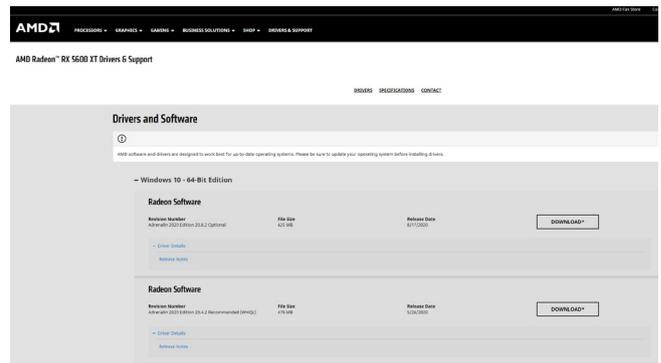
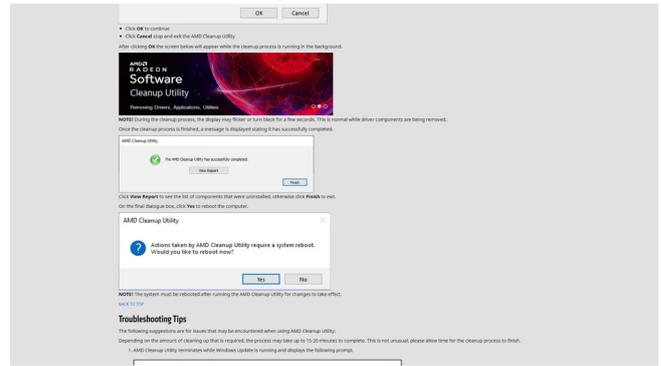
Click on download and start the process of saving the driver to your PC.

### Step 3 - Installing Clean

Once the new driver has downloaded, start the file as an Administrator.

Since you have removed all the previous folders, files and driver data in step 1, the driver will perform a clean install. You can also click on 'Clean Install' to ensure this is still the case. Wait a few minutes for this to happen. Your screen may flicker at this time.

**With the driver now installed, SHUT DOWN your computer and turn it back on.**



## ADVANCED USERS Using DDU

The previous instructions are intended for those unfamiliar with using PCs to remove/install video card drivers. For those with more advanced knowledge can also use tools such as 'Display Driver Uninstaller' (DDU) to perform the clean driver installation.

**This tool will work for both Nvidia and AMD video cards. Set up does require a little more knowledge and experience.**

## Graphic Card Settings

With fresh drivers now installed, you should now look at adjusting a few settings within your Graphic Card Control Panel.

These settings are easy to configure and change should you wish to revert back.

### Nvidia Users

On your desktop, right-click and select 'NVIDIA Control Panel' to open up a new window.

Within the Control Panel, on the left-hand side, open '3D Settings' to show a new menu named 'Manage 3D Settings'.

In the main menu area, you will see a new range of options appear. Click on the tab 'Program Settings' and from the drop-down menu, find and select Microsoft Flight Simulator. Here you will change two settings.

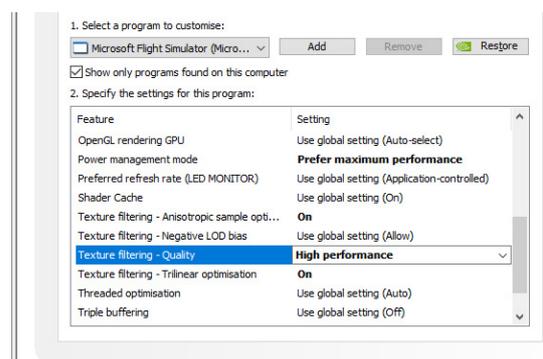
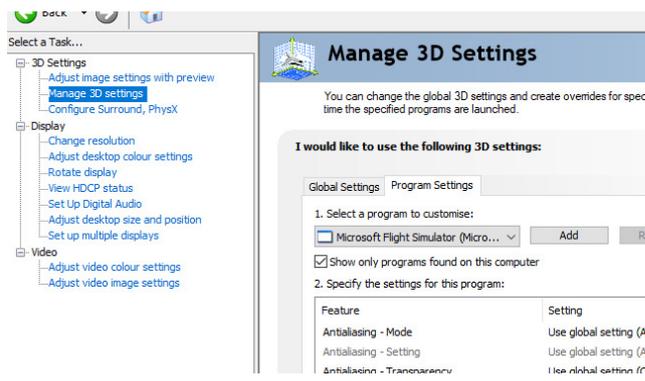
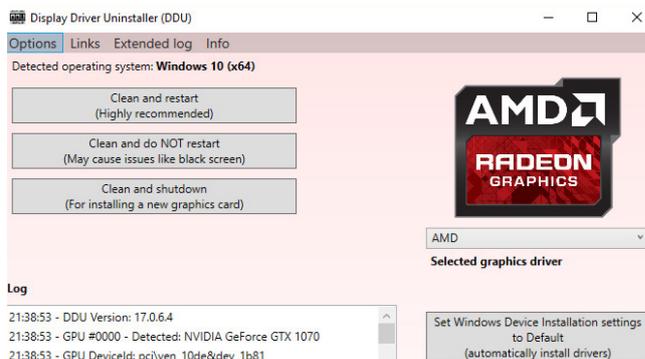
### Power Management Mode

Scroll down to find 'Power Management Mode' and change it from 'Use global setting (Optimal Power)' to '**Prefer Maximum Performance**'. This will now use the full power of your GPU.

### Texture Filtering - Quality

Find 'Texture Filtering - Quality' and change it from 'Quality' to '**High Performance**'. These are proven to help with 3D performance in various games and simulators.

**Now click on 'Apply' for these to take effect.**



## Adjusting Windows Settings

We have our video card drivers now set up, so now it's time to ensure we are getting the most from Windows.

Not only do we want to get the best performance from Windows, but we also want to ensure that our processors are doing as much work as possible to get that stutter-free experience.

There are a handful of quick tweaks we can do to maximise our performance.

### Game Mode

Contrary to popular belief, 'Game Mode' actually has benefits for those using Microsoft Flight Simulator on a Windows 10 PC. By switching this setting to on it will prioritise and allocate resources (GPU & CPU power, etc) on your PC to the game/simulator which is running.

To turn this on, in your start bar, start typing 'Game Mode' to perform a search. Select the option from your menu, and ensure the option is on.

### Hardware-accelerated GPU Scheduling

From the 'Game Mode' menu, on the right-hand side is a menu option named 'Graphics settings'. Click on this to open up 'Hardware-accelerated GPU Scheduling'.

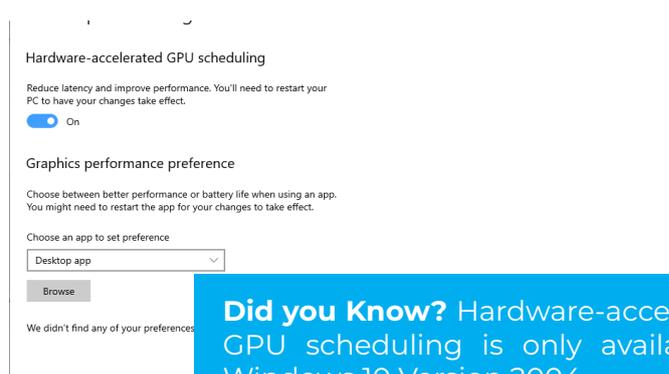
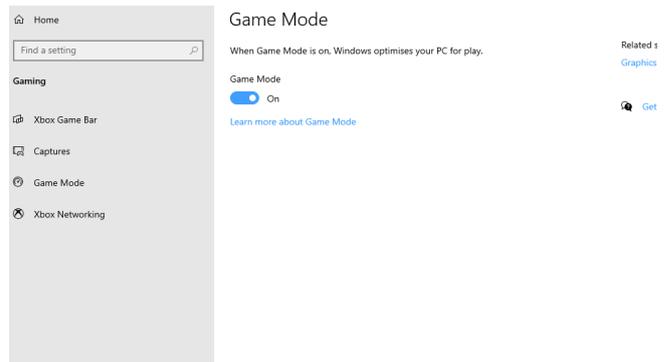
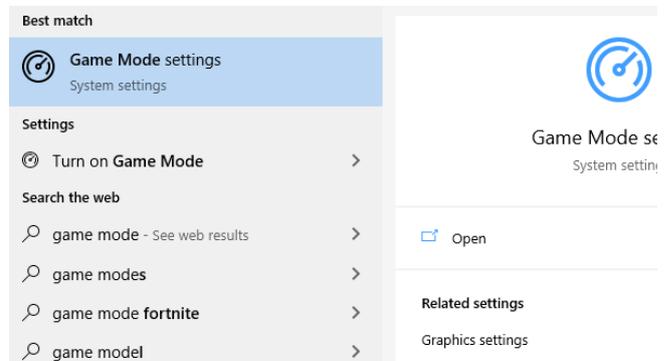
Having this option switched to 'on' will improve performance and reduce latency. If you see stutters in the simulator, changing this option should help to reduce the occurrence of them. Head back to the 'Game Mode' menu.

### Captures

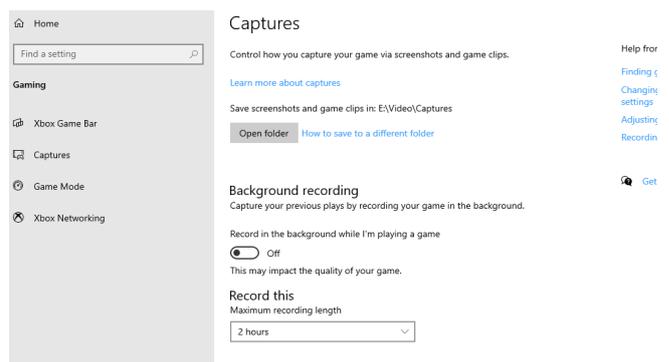
The final change you're going to make is to 'Background recording'. To ensure this is 'Off', click on 'Captures' from the left-hand side to open up a new menu. Now you can turn off 'Background recording'.

**With these changes in place, now restart your PC.**

**Top Tip:** If you are running any other background tasks such as Nvidia ShadowPlay, turning this off will also help with performance.



**Did you Know?** Hardware-accelerated GPU scheduling is only available in Windows 10 Version 2004.



## Setting the Priority to High

With the video drivers now set and your windows settings enabled to give you maximum performance, we're now going to make some changes to how the simulator runs. We want to ensure that the simulator now uses as much of the processing power we have to give us the smoothest experience. There is a function within Windows, which is known as changing priority.

To do this, first load up the simulator as you usually would. Once it starts to boot, you want to run the Task Manager. If you're unsure how to open up the Task Manager, hit CTRL + ALT + DELETE at the same time, and then click on 'Task Manager' from the menu.

### In Task Manager

When in Task Manager, you may only see a basic overview. Click on 'More Details' to show a lot more information. If you're less technically minded, don't worry as we'll only be touching a handful of things here.

With the new view on display, click on the 'Details' tab. This will show you a list of programs running on your PC. Scroll down to find 'FlightSimulator.exe'.

Now, right-click on it, hover your mouse over 'Set priority' and now select 'High'. This will now give your simulator a higher priority for your processing power over other applications.

### Why not set to Real-Time?

This has adverse effects to your system and other functions simply need to have that type of priority over a flight simulator. Setting it to 'High' is safe and gives you improved performance.

Name	Status	74% CPU	85% Memory	0% Disk	N
<b>Apps (13)</b>					
> Adobe InDesign 2020 (3)		0%	573.4 MB	0 MB/s	
> Adobe Photoshop 2020 (11)		0.4%	90.0 MB	0.1 MB/s	
> Films & TV (2)		0%	15.2 MB	0 MB/s	
> Google Chrome (39)		7.2%	2,322.1 MB	0.1 MB/s	0.
> Microsoft Flight Simulator		46.2%	5,020.0 MB	0 MB/s	0.
> Microsoft Outlook (32 bit)		0%	90.4 MB	0 MB/s	
> Microsoft Teams (32 bit) (7)		0%	294.8 MB	0 MB/s	
> Notepad		0%	0.6 MB	0 MB/s	

- Adobe InDesign 2020
- Adobe Photoshop 2020
- Films & TV
- Google Chrome
- Microsoft Flight Simulator
- Microsoft Outlook (32 bit)
- Microsoft Teams (32 bit)
- Notepad
- Settings
- Spotify (32 bit)

Process Name	System	Private	Working Set	Session
SYSTEM	00	872 K	Not allowe	
SYSTEM	00	2,464 K	Not allowe	
SYSTEM	00	20 K	Not allowe	
SYSTEM	00	272 K	Not allowe	
SYSTEM	00	312 K	Not allowe	
SYSTEM	00	749,592 K	Disabled	
SYSTEM	00	0 K	Disabled	
SYSTEM	00	6,628 K	Not allowe	
SYSTEM	00	0 K	Disabled	
SYSTEM	00	0 K	Disabled	
SYSTEM	00	107,352 K	Not allowe	
SYSTEM	00	1,048 K	Disabled	

# RECOMMENDED SIM SETTINGS

On page XX, this guide documented some of the key changes you could make to the simulator to get the best performance in your simulator.

With version 1.10 of this guide, we have decided to expand upon it, which when combined with our tweaks and tips listed on the previous pages, will give you the maximum performance possible on your simulator.

From any point in the simulator, click open up the 'Options' menu, then 'General' and ensure you are on the 'Graphics' tab.

## Biggest Performance Impact

We have identified there there are several settings within the new simulator that have the biggest impact on performance. These settings do have an effect on the overall visual look of the simulator, but tweaking them just enough will give you smoother performance whilst also retaining a good looking flight simulator.

Let us take a look at some of those that have some of the biggest impacts on performance.

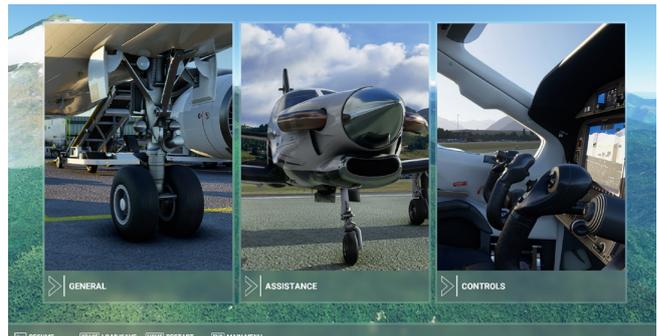
### Terrain Level of Detail

This will adjust the level of detail you will have from the terrain. The higher the setting, the better quality you will see, but reduced performance.

**We recommend a setting no higher than 100.**

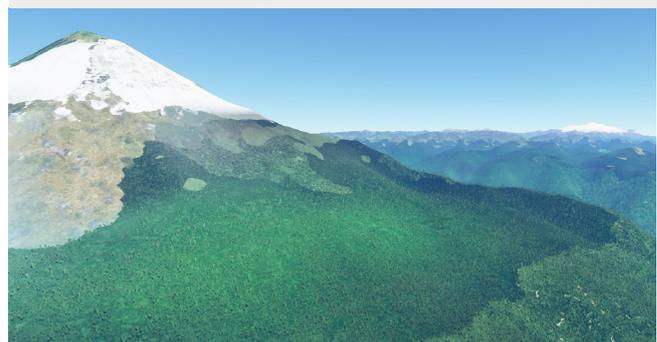
#### Why?

Our testers and experts found this was the best balance between quality and performance. Even if you have a PC that can have 'Ultra' settings, anything above 100 will degrade performance with no added benefit for visual quality.



**Above:** Terrain Level of Detail 100

**Below:** Terrain Level of Detail 200



## Object Level of Detail

This setting will adjust objects such as generated buildings and other objects in the world. The higher the setting, the better quality you will see, but reduced performance.

**We recommend a setting no higher than 100.**

### Why?

Our testers and experts found this was the best balance between quality and performance. Even if you have a PC that can have 'Ultra' settings, anything above 100 will degrade performance with no added benefit for visual quality.

## Texture Supersampling

This setting adjusts the texture's Anti-Aliasing. Higher settings will use more **VRAM**, so a modern GPU is required for higher settings. If you use a high-res display, you can use lower values to compensate for the increased pixel number.

**We recommend a setting no higher than 4 x 4** (even if your GPU has loads of VRAM)

### Why?

The performance benefit of a lower setting outweighs the minor visual differences of higher settings. Regardless of monitor size or GPU, 4 x 4 is a good setting to balance performance and visuals.

## Shadow Maps

Shadows make the world look alive, especially when the sun is low. This setting will adjust the quality. The higher the number, the more impact it will have on performance.

**We recommend a setting no higher than 768.**

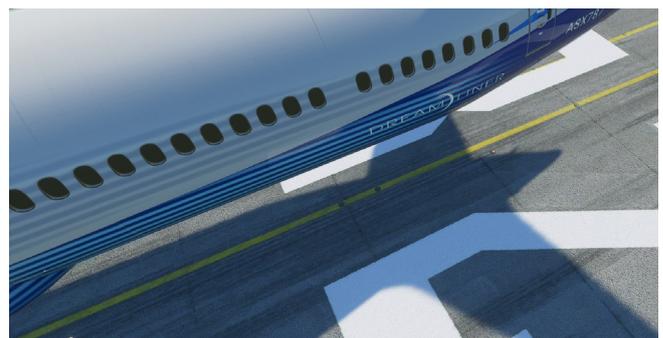
### Why?

When flying at altitude, our testers found the visual quality to be little to no different than on higher settings, but the added performance benefit was worth it. However, you may notice some jaggy textures a little closer to the ground.



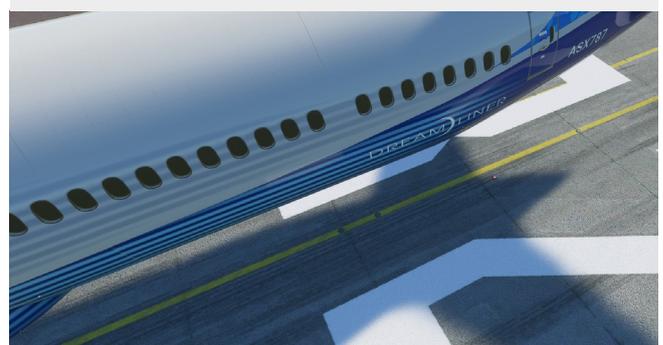
**Above:** Object Level of Detail 100

**Below:** Object Level of Detail 200



**Above:** Shadows @ 2048

**Below:** Shadows @ 768



## Anti-Aliasing

In simple terms, this setting smooths out the edges within the simulator. This will enable models and texturing to look crisp and clear with no rough edges or 'jaggies'.

**We recommend using TAA (Temporal Anti-Aliasing)**

### Why?

Whilst anti-aliasing is a huge performance killer, you want to balance visual quality and performance. Turning this setting any lower than TAA resulted in better performance, but at an expense of bad looking texturing and modelling. Our testers preferred to cut down on other elements whilst keeping this setting to TAA.

## Water Waves

This will adjust the resolution of the waves produced in the flight simulator. The higher the setting, the better the quality but at a cost to performance.

**We recommend using Medium settings.**

### Why?

Unless you intend on doing a lot of water-based flying, then putting this setting to medium will improve performance to have little to no impact on your flying experience. This was said by numerous testers, especially when flying at altitude.

## Depth of Field

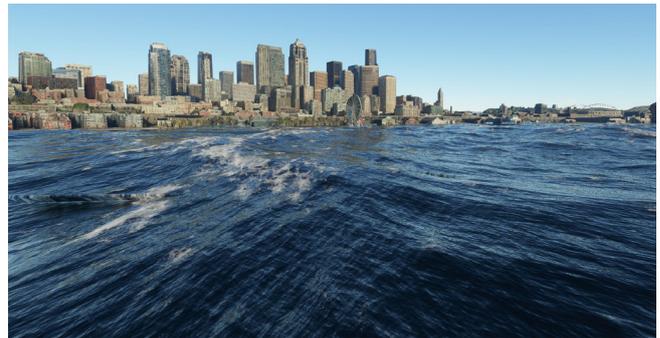
This setting will adjust how far afield the simulator will render and to what quality. High values improve quality but reduce performance.

**We recommend using Medium or High (GPU dependant)**

### Why?

This felt more like eye-candy settings rather than something that enhanced the experience. Turning this down gave better performance with little visual impact.

Left: TAA Right: FXAA



Above: Waves HIGH

Below: Waves LOW



Above: Depth of Field HIGH

Below: Depth of Field LOW



## Other Settings to Consider

Those were just some of the settings we have adjusted to improve performance, whilst maintaining a good looking flight simulator.

If you still find performance is not adequate enough for you, then you should try these other recommended settings.

### Bloom

Turning off bloom saw a minor increase in performance, but our testers did miss the visual effect.

### Reflections

Turn to medium to find a good balance between performance and good looking visuals.

### Texture Synthesis

Turning this to medium helped add a few extra FPS to our performance, even in intense areas such as New York.

### Trees

Turning this setting to medium gave our testers a small performance boost and little to no changes visually.

### VSync

Our testers found that keeping this setting 'Off' offered the best performance and minimised stutters.



**Above:** Bloom On

**Below:** Bloom Off



**Above:** High Tree Setting

**Below:** Medium Tree Setting



**Do Remember** that these tweaks have been tested by numerous people all of whom have had a varied degree of success. You should set your own expectations when it comes to performance and not always assume you will reach the magic “60 FPS” number we all so crave. Performance will improve over time thanks to updates to the simulator, changes to hardware and of course, the more we learn, the more we can advise of future tweaks and tips.

Our commitment to you is that when we feel there is something new that will enhance performance we will update this guide accordingly so you always have the best possible information to help you maximise performance in your new flight simulator.



# THIS IS JUST THE START

This small guide on helping you to maximise performance is just a small section of our overall Guide to Flight Simulator which is available right now.

In our full edition, you will have immediate access to over 135-pages of detailed information covering everything from ATC to UI and everything in between.

Our experts have crafted together a comprehensive guide perfect for newcomers to the hobby and also those looking to learn more about the simulator itself.

## DYNAMIC AND UPDATED GUIDE

The world of flight simulation doesn't stand still and nor does our guide. Feedback from the community goes into future free updates. We know there's a lot to learn so we're always updating the guide to help you out.

## CONFIGURE CONTROLS

Learn how to configure your controls with the new flight simulator or simply understand how the menu system works. A Guide to Flight Simulator will give you all of that detail in an easy to follow way.





## FEEL INSPIRED IN THE NEW WORLD

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