

Introduction

For those people not quite ready to make the Prepar3d jump, running FSX in DX10 "preview" mode (along with Steve's **DX10 Scenery Fixer**) offers a low-cost alternative - with many visual or stability improvements, whilst preserving many aircraft or scenery add-ons that may not yet be fully P3D compatible.

Note: Prepar3d is fully DX10/DX11 compatible, so has no need of a DX10 Fixer.

The most recent "How-To" guide can always be found in the following "sticky" topic at: www.sim-outhouse.com

DX10 Preview Mode: what it is - and what it isn't

The DX10 "Preview" mode in FSX is exactly that: a *preview* - and not to be confused with the full version of DirectX 10 as used in games or simulators much later.

Much of the FSX DX10 shaders code for scenery objects or aircraft is incomplete, buggy, or simply missing.

Steve's DX10 Scenery Fixer is an attempt to correct these shortfalls and allow FSX users to run in DX10 Preview Mode with as few issues as possible. As such, the "Fixer" should be seen as a series of *patches* to FSX, rather than a separate application or add-on in its own right.

The Fixer: what it does - and what it doesn't

Steve's Fixer basically allows FSX make use of some DX10 features - *and that is all*. It is not a "magic bullet" and will not, in itself, vastly improve performance or "fix" an ailing FSX install.

The main benefit of using DX10 Preview Mode in FSX is the shift in memory/CPU usage from the system CPU to the graphics card (GPU), thus freeing precious resources for general FSX use - helping to prevent "Out of Memory" (OOM) errors and improving overall stability. New DX10 routines are used for shading - notably for water, improved cockpit shadows and general lighting/bloom effects.

Many users have reported massive performance gains by using the Fixer - but these will usually be due to the cleaning up and/or optimisation of FSX (via a correctly set up fsx.cfg) or setting up the graphics card correctly (via NVidia Inspector etc.). The Fixer offers no performance enhancements of its own - but will usually allow much higher FSX display/slider options to be used.

The purpose of this guide

Setting up FSX with Steve's Fixer can be a fairly complex business - involving making changes to the system, graphics and FSX settings, along with setting up the corresponding Fixer options.

The guide aims to take the user, step-by-step, from DX9 to a fully working DX10+Fixer setup. It is *absolutely not* a replacement for Steve's official Fixer User Manual - simply a procedure for setting things up - best followed hand-in-hand with the manual. By the same token, this guide doesn't concern itself with the actual *usage* of the Fixer.

The guide is quite comprehensive, so there should be no need to trawl the Internet for additional information - particularly as much of what's out there is contradictory, confusing, or simply out of date.

Contents

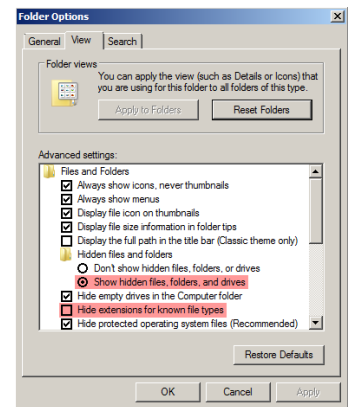
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1: Before you start

Back up your current FSX/DX9 user files

This is *very important*. If things go wrong at any stage, you'll need to return your FSX to its previous, working (!) DX9 condition before you can start again. For safety's sake, it's also a good idea to keep additional fsx.cfg backups (in a separate location) as you progress through the DX10+Fixer procedure.

Note: A basic requirement is to set the Windows **Folder Options** properly so you can see all the required FSX files. "Show hidden files ..." is optional, but you **must** deselect "Hide extensions for known file types".

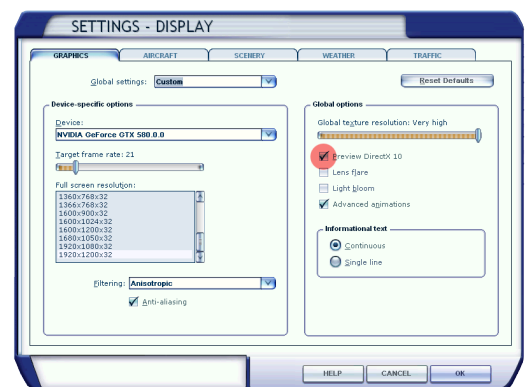


- 1) Go to the folder:
C:\Users\{your_username}\AppData\Roaming\Microsoft\FSX
- 2) Create a new folder:
C:\Users\{your_username}\AppData\Roaming\Microsoft\FSX\dx9_backup
- 3) Back up the following files (fsx.cfg being the most critical):
 - d11.xml
 - exe.xml
 - fsx.cfg
 - scenery.cfg
- 4) If you have an existing NVIDIA Inspector setup, export your current **MS Flight Simulator X** profile to the **dx9_backup** folder (as defined in [2]) - saved as **dx9_backup.nip** (or similar). See NVI section.

Pre-install check

Check that you have the latest (known good) NVIDIA/AMD drivers. If not, make a note of your current (old) drivers then download/install the latest and check that FSX still works properly. If things go wrong, de-install the problematical driver and reinstate the old ones. If using "driver cleaner" utilities, only use the ones available from NVIDIA or AMD/ATI sites, as there are many dubious "cleaner" type sites or utilities that install spyware (or worse).

Firstly, you'll need to ensure that your current DX9 FSX setup will work in stably and reliably DX10 preview mode. Usually, all that is required is to enable DX10 preview in FSX Display Options/Graphics. This will amend your fsx.cfg file (adding D3D10=1 to [GRAPHICS]), so you'll need to restart FSX to see the change.



If you have problems, check to see if you have any duplicated [DISPLAY.Device.xxxx] entries. If things are still looking pear-shaped at this stage, delete (or rename) your fsx.cfg file and restart FSX (remembering to tick the DX10 preview box before restarting FSX a 2nd time). This should generate a new, totally clean fsx.cfg file.

If you like, copy the complete [Trusted] section over from your backup (to save having to OK all your add-ons).

For the Fixer installation procedure itself, please refer to the official DX10 Fixer User Manual - it is not described in any detail in this guide.

2: Installation/setup

If the "Libraries" option is greyed out during the DX10 Fixer install (thus preventing you going any further) you may need to re-install the stock FSX shaders folder (ShadersHLSL), located in the FSX root folder. A zip archive containing the original shaders is at:

<http://www.nzfsim.org/index.php?download&fname=StockShadersHLSL.zip>.

- 1) Backup then delete your existing ShadersHLSL folder.
- 2) Unzip to a temporary location, then copy the new ShadersHLSL folder into your root FSX folder.
- 3) Go to C:\Users\{your_username_here}\AppData\Local\Microsoft\FSX and delete the "Shaders10" folder. This is the DX10 shaders *cache* folder and needs to be deleted after any changes in the FSX ShadersHLSL folder.

Fixer setup and tweaking procedure

The two most important things to remember while setting up or in subsequent tweaking - be it in the system, FSX or the Fixer are:

1) Only make one change at a time

This may appear to make the process unnecessarily long, with frequent system of FSX restarts - but it is the only sure-fire way of isolating a problematic tweak or spotting any changes.

2) Back up any relevant files

These files may be fsx.cfg or NVI/CCC graphics driver profiles. Rename them in a way that reflects the changes made, or number them sequentially, keeping a separate note of the changes made.

A clear, logical, step-by-step approach saves time in the long run.

The Fixer and basic GFX (system) settings

Important: For DX10 to work properly, your NVIDIA/NVI or ATI/CCC GFX **antialiasing** settings have to reflect the **DX10 Anti-Aliasing** setting (drop-down) in the Fixer.

Antialiasing in FSX is set automatically by the Fixer via two new entries in the [Graphics] section of the fsx.cfg - determined by your selection in the **DX10 Anti-Aliasing** drop-down. Changes to fsx.cfg are made *instantly* - which is one of the reasons why FSX needs to be closed before running the Fixer.

Of the two, it is the **MultiSamplesPerPixel** value that *must* be set properly in NVI or CCC - and needs to be read manually from fsx.cfg (more information in "[3: Setting up NVI](#)" or "[4: Setting up CCC](#)").

`MultiSamplesPerPixel=XX` << This number being the *amount* of MSAA
`MultiSampleQuality=XX` << This number being the *quality* of the enhancement

Check you have the latest video drivers (see pre-install check). If you do update them, check that FSX runs normally before changing any settings via NVI.

Note: both NVIDIA/NVI and ATI/CCC utilities write directly to the Windows registry. If, for any reason, you go to the basic Windows/NVidia or AMD Control Panel/Display Options it will instantly overwrite any changes made by NVI/CCC (as they also write directly to the same registry entries) - in which case you'll need to re-apply your NVI/CCC profile.

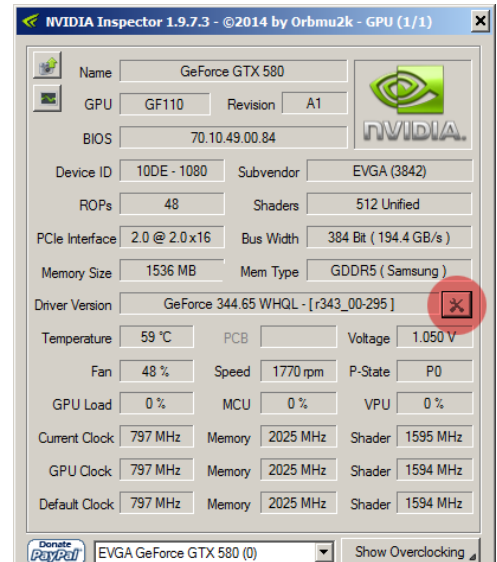
Also, note that in DX10 preview mode the anti-aliasing options in the main NVidia or AMD **Control Panels** *do not work*. These options are controlled *only* by NVI or CCC.

3: Setting up Nvidia Inspector

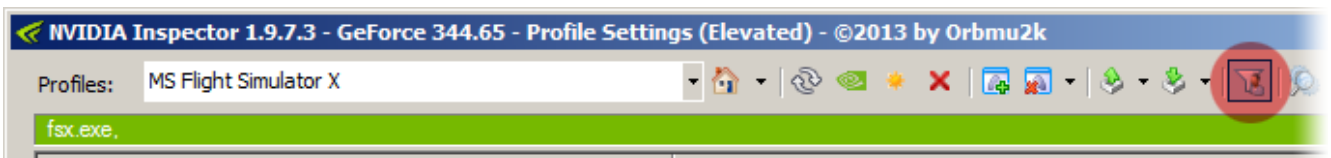
Check that you have the latest version of NVIDIA Inspector (currently 1.9.7.3) - available from: http://www.guru3d.com/files_details/nvidia_inspector_download.html or <http://orbmu2k.de/tools/nvidia-inspector-tool>

NVI can be run from any location on your system (it doesn't store or install any files outside its own folder).

- 1) Install NVI in a convenient location.
- 2) **Very important:** make sure that **Inspector.exe** and **CustomSettingNames_en-EN.xml** are both in the same folder - or NVI will not work.
- 3) At the opening screen, click on the "toolbox" button to the right of the "Driver Version" information panel.
- 4) In the "Profiles" field of the profiles screen, select the **MS Flight Simulator X** profile. You can clear any text in that field and type "MS" then select from the profile names displayed.



WARNING: Be careful not to use the wheel on your mouse to scroll the profile window, as you may inadvertently just scroll through the profiles list.



- 5) Toggle the "funnel" icon to display ALL the settings for that profile.

Any options that are greyed out in the profile *are* editable - it just means they happen to be the same value as your "default/system" profile.

Many options in the NVI MS Flight Simulator X profile can be left alone, but here are the values (from top to bottom) that you need to change:

Compatibility [section]

- 6) Ambient Occlusion Compatibility: **0x00000000**
(A/O not supported by FSX)
- 7) Antialiasing Compatibility (DX1x): **0x00000000** or **0x80000F71 (BioShock, BioShock 2)**
(may help with ground shadow quality)

Antialiasing [section]

- 8) Antialiasing Behaviour Flags: **None**
- 9) Gamma Correction: **Off**
- 10) Antialiasing Mode: **Application-controlled**
- 11) Antialiasing Setting: **Application-controlled / Off**

3: Setting up Nvidia Inspector (cont'd)

12) Antialiasing Transparency Supersampling: **[take MultiSamplesPerPixel value from fsx.cfg]**

This NVI value is determined by the **MultiSamplesPerPixel** value written by the Fixer and equates to the following settings (in order of quality):

	Fixer Setting	MultiSamplesPerPixel	MultiSampleQuality	NVI
1	No AA	---	---	Off / Multisampling
2	2x	2	0	2x Sparse Grid Supersampling
3	4x	4	0	4x Sparse Grid Supersampling
4	8x CSAA	4	8	4x Sparse Grid Supersampling
5	8x	8	8	8x Sparse Grid Supersampling
6	16x CSAA	4	16	4x Sparse Grid Supersampling
7	16xQ CSAA	8	16	8x Sparse Grid Supersampling
8	32x	8	24	8x Sparse Grid Supersampling

Typical fsx.cfg values for DX10 Anti-Aliasing:

Low-end system (eg. 2) : 2x in the Fixer

MultiSamplesPerPixel=2
MultiSampleQuality=0

Mid-range system (eg. 4) : 8x CSAA in the Fixer

MultiSamplesPerPixel=4
MultiSampleQuality=8

Top-end system (eg. 8) : 32 in the Fixer

MultiSamplesPerPixel=8
MultiSampleQuality=24

The last three parameters (FXAA) in this section can be used with little performance loss: they will generally soften FSX graphics. Enabling the indicator (14) will remove the jaggies from the spinning aircraft selection screen but may produce an undesirable green square at the top left of the 3D display.

- 13) NVIDIA Predefined FXAA Usage: **Allowed**
- 14) Toggle FXAA *Indicator* on or off: **Off** (set **On** to anti-alias the aircraft selection screen)
- 15) Toggle FXAA on or off: **On**

Texture Filtering [section]

Anisotropic filtering determines how sharp the scenery appears as the viewpoint moves away.

- 16) Anisotropic filtering mode: **Application-controlled**
- 17) Anisotropic filtering setting: **16x**
- 18) Texture filtering - Anisotropic filter optimization: **On**
- 19) Texture filtering - Anisotropic sample optimization: **On**

3: Setting up Nvidia Inspector (cont'd)

Preventing SGSS Blurring

The following three options (steps 20-22) in the Texture Filtering section are linked to the Antialiasing Transparency Supersampling option in the Antialiasing section (step 12). They serve to correct some of the blurring introduced by Sparse Grid SuperSampling and any post-processing shaders used by FSX. They have nothing to do with the texture *mapping* process.

The Level of Detail Bias (LOD Bias) controls the distance from the viewer at which the switch to lower resolution mip-maps takes place. The standard value of the LOD Bias is 0.0. If you lower the LOD BIAS below 0.000 (the default), the mipmap levels are moved farther away, resulting in seemingly sharper textures - though if the scene is moving, the textures may start to shimmer.

Because of the possible introduction of shimmering, it's generally not a good idea to use a very low LOD BIAS to improve the sharpness of the image. It's better to use an Anisotropic Filter instead (which is why we always set it to the max of 16x and application-controlled/on in FSX).

If you have texture shimmering in FSX which you can't get rid of with any of the other options, you can *increase* the LOD BIAS slightly, but note that this will also cause textures to lose detail at shorter distances from the viewpoint.

So ... if you want detailed textures and don't mind a degree of texture shimmering, you can reduce the LOD BIAS to a negative number using the figures below:

	Fixer Setting	MultiSamplesPerPixel/ MultiSampleQuality	NVI - Anti-aliasing Transparency Supersampling	Texture filtering - Driver controlled LOD Bias	Texture filtering - LOD Bias (DX)	Texture filtering - Negative LOD Bias
1	No AA	---	Off / Multisampling	On	-1.000	Allow
2	2x	2/0	2x Sparse Grid Supersampling	On	-0.500	Allow
3	4x	4/0	4x Sparse Grid Supersampling	On	-1.000	Allow
4	8x CSAA	4/8	4x Sparse Grid Supersampling	On	-1.000	Allow
5	8x	8/8	8x Sparse Grid Supersampling	On	-1.500	Allow
6	16x CSAA	4/16	4x Sparse Grid Supersampling	On	-1.000	Allow
7	16xQ CSAA	8/16	8x Sparse Grid Supersampling	On	-1.500	Allow
8	32x	8/24	8x Sparse Grid Supersampling	On	-1.500	Allow

- 20) Texture filtering - Driver controlled LOD Bias: **On**
- 21) Texture filtering - LOD Bias (DX): **[value derived from the table above]**
- 22) Texture filtering - Negative LOD Bias: **Allow**
- 23) Texture filtering - Quality: **Performance or High performance**
- 24) Texture filtering - Trili near optimization: **Off**

Common [section]

Some FSX users find that "unlimited" FPS works best for them - it does appear to vary from system to system. It is worth trying to set the FSX limiter and corresponding values set in the in-built NVI frame rate limiter. If it doesn't work for you, go back to the FSX "unlimited" option.

Note: The setting in FSX is not a true frame rate limiter. It is simply a "target" frame rate that FSX will try to achieve - optimising/cutting corners in many display-specific functions along the way.

3: Setting up Nvidia Inspector (cont'd)

The general principle is to set the NVI rate to 1/2 or 1/3 of the screen refresh rate, then set FSX to a value of that, plus one. Eg. for a typical LCD refresh rate of 60:

Refresh rate	NVI Setting	FSX Setting
1/3	PS_FRAMERATE_LIMITER_FPS_20	21
1/2	30	31
1/1	60	61

- 25) Frame Rate Limiter: **[from table above]**
- 26) Maximum pre-rendered frames: **3**
- 27) Multi-display/mixed-GPU acceleration: **Single display performance mode***
- 28) Power management mode: **Prefer maximum performance**
- 29) Threaded Optimization: **On**
- 30) Vertical sync tear control: **Standard**
- 31) Vertical sync: **[set to same as NVI frame limiter]**

* Or **Multi display performance mode** for multiple monitor setups

Screen tearing

If you're still experiencing screen tearing, try this setting in the [Main] section of fsx.cfg:
DisablePreLoad=1

This works very well for full screen vsync - but only in "Full" screen mode.

Vsync in "Windowed" mode needs Forcewindowedvsync=1 to be set in [Graphics] and/or Windows "Aero" to be running.

Don't use ForceFullScreenVsync=1. It will cost frames and you will probably lose the NVI vsync.

Multiple monitor setups - please refer to the section [8: Multiple Monitor Setup](#).

Conclusion

Important: Now make a backup of your NVI profile by using the "Export current profile" option from the "Export user defined profiles" menu button:



3: Setting up Nvidia Inspector (cont'd)

A section of the NVI setup screen, showing the DX10-specific settings:

SettingID	SettingValue	SettingValueHex
Compatibility		
Ambient Occlusion compatibility	6 0x00000000	0x00000000
Antialiasing compatibility (DX1x)	7 0x80000F71 (BioShock, BioShock 2)	0x80000F71
Antialiasing compatibility	0x00000145 (BioShock, BioShock 2, Tom Clancy's Rainbow Six: Vegas)	0x00000145
Antialiasing fix	Off	0x00000001
SLI compatibility bits (DX1x)	0x000000F5 (DX SDK Detail Tessellation 11 sample, Star Trek: Online, Tom Clancy's ...)	0x000000F5
SLI compatibility bits	0x02400205 (Race - The WTCC game (Steam version), Race - The WTCC game, Di...)	0x02400205
Sync and Refresh		
Frame Rate Limiter	25 30 fps	0xF000001E
GSYNC - Global Feature	On	0x00000001
GSYNC - Requested State	On	0x00000001
Maximum pre-rendered frames	26 3	0x00000003
Preferred Refreshrate	Use the 3D application setting	0x00000000
Triple buffering	Off	0x00000000
Vertical Sync Smooth AFR behavior	Off	0x00000000
Vertical Sync Tear Control	30 Standard	0x96861077
Vertical Sync	31 1/2 Refresh Rate	0x32610244
Antialiasing		
Antialiasing - Behavior Flags	8 None	0x00000000
Antialiasing - Gamma correction	9 Off	0x00000000
Antialiasing - Line gamma	Default	0x00000010
Antialiasing - Mode	10 Application-controlled	0x00000000
Antialiasing - Setting	11 Application-controlled / Off	0x00000000
Antialiasing - Transparency Multisampling	Disabled	0x00000000
Antialiasing - Transparency Supersampling	12 8x Sparse Grid Supersampling	0x00000038
Enable Maxwell sample interleaving (MFAA)	Off	0x00000000
NVIDIA Predefined FXAA Usage	13 Allowed	0x00000001
Toggle FXAA Indicator on or off	14 Off	0x00000000
Toggle FXAA on or off	15 Off	0x00000000
Texture Filtering		
Anisotropic filtering mode	16 Application-controlled	0x00000000
Anisotropic filtering setting	17 16x	0x00000010
Prevent Anisotropic filtering	Off	0x00000000
Texture filtering - Anisotropic filter optimization	18 On	0x00000001
Texture filtering - Anisotropic sample optimization	19 On	0x00000001
Texture filtering - Driver Controlled LOD Bias	20 On	0x00000001
Texture filtering - LOD Bias (DX)	21 -1.5000	0xFFFFFFFF4
Texture filtering - LOD Bias (OGL)	+0.0000	0x00000000
Texture filtering - Negative LOD bias	22 Allow	0x00000000
Texture filtering - Quality	23 High performance	0x00000014
Texture filtering - Trilinear optimization	24 Off	0x00000001
Common		
Ambient Occlusion setting	Off	0x00000000
Ambient Occlusion usage	Disabled	0x00000000
Extension limit	Off	0x00000000
Multi-display/mixed-GPU acceleration	27 Single display performance mode	0x00000000
Power management mode	28 Prefer maximum performance	0x00000001
Shadercache	On	0x00000001
Show PhysX Visual Indicator	Off	0x34534064
Threaded optimization	29 On	0x00000001

4: Setting up CCC

AMD/ATI Catalyst Control Center & RadeonPro

The following AMD/ATI advice is by beta tester Charles Earl, with his permission.

- As with Nvidia's Inspector - no matter what you do, you will NOT have AA in DX10 unless it is first enabled in FSX when running DX10. CCC alone has little or no effect.
- RadeonPro is necessary for good AA and Vsync control in DX10. Download from [here](#).
- As with Inspector - Vsync only works in fullscreen. It does not work at all using either CCC or forcing it from within the fsx.cfg. It can only be forced per the 3rd section, below, top-right, within RadeonPro.
- Download CCC - this version only - v12.8 - 12.11. Get it from [here](#), for the Win7/ v64-bit, or [here](#) for the v32-bit. Do not use newer versions because of uncontrolled spiking.
- Set CCC to its default settings, and then set up RadeonPro per this pic below (and also go and read some extra information from this series of posts here.)

1) Create an FSX profile

- Click the "Add New Profile" button at the top of the screen.
- Browse to and select your FSX.EXE in the FSX Program folder on your computer.

2) Highlight the new profile and start making changes

- Antialiasing to "Use Application Settings"
- Antialiasing Filter to **Multisampling (BOX)**
- Antialiasing Mode to "Supersample"
- Anisotropic Filtering to **16x**
- Under Advanced set Texture Filtering and Mipmap both to **High Quality**
- Under Tweaks set Vsync Control to "Always on"
- Enable Dynamic Framerate Control and "Keep up to 30" FPS
- OSD Tab Enable OSD settings (optional) Position Top. Enable some.
- If you are using FSX's Couatl - go to the Advanced tab and mark 'Disable API monitoring for programs not listed in my profiles list'

NOTE: RadeonPro must be running (minimized to Tray) when FSX is run for these to take effect.

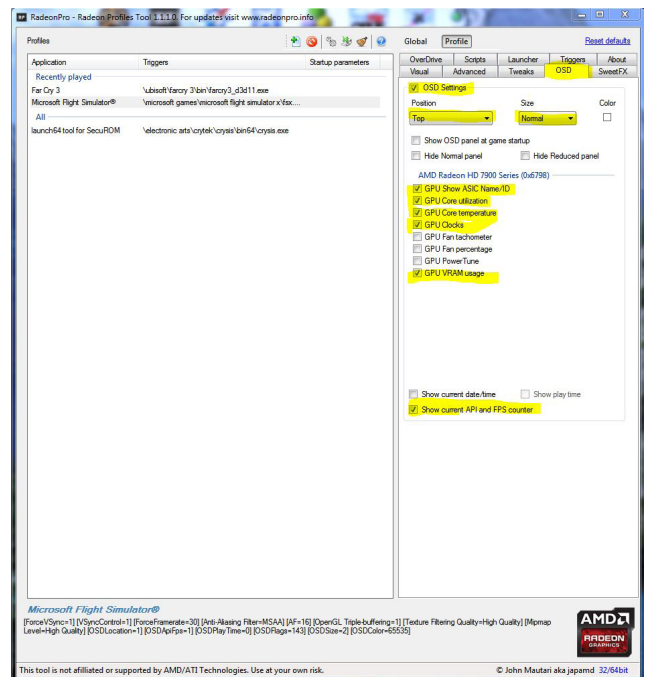
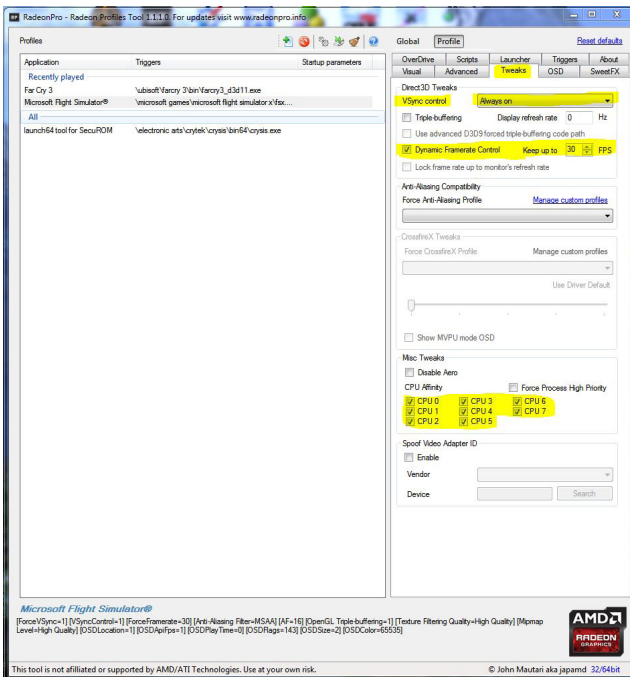
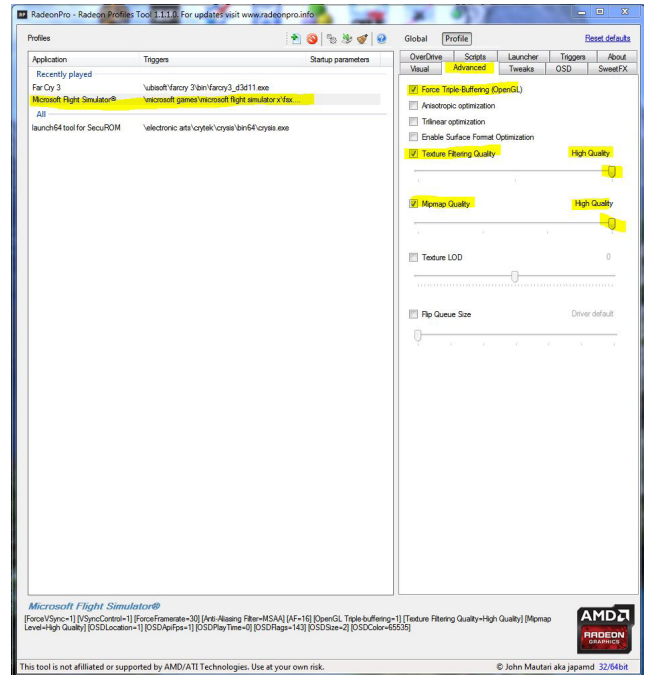
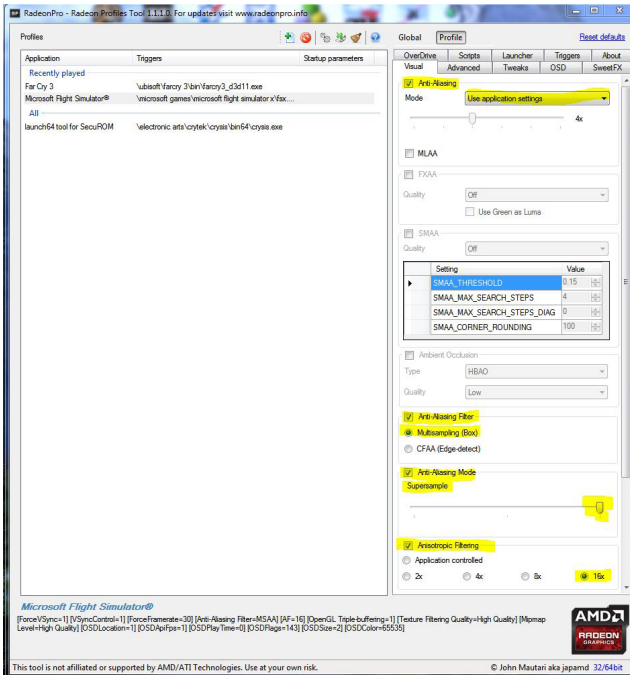
NOTE: Setting 4x AA in the DX10 Controller instead of 8xAA will help those cloudy days to maintain that magic 30fps as 8x SSAA and heavy clouds might (or will) cause stutters on many machines.

Enabling FXAA using RadeonPro

While in-game with RadeonPro, you can hit CTRL-O to open RadeonPro's OSD and then use CTRL+F to turn FXAA on and off. FXAA (Fast Approximate Anti-Aliasing) can (for free) provide a slight "additional" smoothing to edges as it will combine with SSAA.

The above settings were tested on 6950, 7950 and 7970, but should also work with the 5xxx. At this time - any Catalyst driver newer than 12.11 causes spiking for which no cure has been found other than use the older driver.

4: Setting up CCC (cont'd)



What RadeonPro adds beyond just CCC

- Multiple types of Vsync and DFC: Dynamic Framerate Control combined with “Always On” Vsync: similar to Inspector’s Tear Control and 1/2 Refresh Rate method, DFC attempts to keep a constant frame rate by matching the refresh rate to a figure set in RP, rather than in FSX. One may see an increase in frame rate using this method.
- Optionally the ability to combine FXAA with standard MSAA or SSAA if you wish.
- A switchable on-screen display showing GPU temperature, % of GPU Utilization, VRAM in use, fps and so on.

5: FSX Settings

Although you can begin with your old cfg file, it's probably best to err on the side of good practice and delete the old one - start FSX, let it build a new one, then "fix" it. You can set your common settings for sound, realism later - once all the DX10-related options are in place (and working correctly!).

Settings not mentioned here are not specifically DX10-related and can be set as desired. In general terms, DX10 preview mode appears to allow sliders to be set a notch or two higher than in DX9.

You'll need to set up a "level playing field" flight for all your testing that should have the following options set:

- a) **Aircraft:** default C172 (or your favourite, but preferably not a CPU/GFX-heavy one (PMDG etc.).
- b) **Time of day:** any time, but needs to be set so lighting doesn't change from test to test.
- c) **Weather:** set to *static*, but a theme that includes clouds.
- d) **Location:** an average semi-complex airport.

Save your test flight, then load that one for all tests. You may also want to pre-record a flight with FSrecorder and use that.

Settings ->Customize ->Graphics

- 1) Target frame rate: **21, 31, 61** (the value determined in NVI/ATI setup) or **unlimited**
- 2) Anti-aliasing: **Must be ticked**
- 3) Filtering: **Anisotropic***

*NOTE: Sometimes when switching between DX9 and DX10, this setting seems to turn itself off.

- 4) Global Texture Resolution: **Very High**
- 5) Preview DirectX 10: **Must be ticked**
- 6) Lens flare/Light bloom: **User preference**
- 7) Advanced Animation: **Ticked**

Settings ->Customize ->Aircraft

- 8) Aircraft shadows/lights: **All ticked**

Settings ->Customize ->Scenery

- 9) Mesh Resolution: **2M or higher**
- 10) Texture Resolution: **7cm or as high as you can**
- 11) Water Effects: **High 2.x**

Note: Low and Med look pretty good and don't cause any shimmering. High 2.x displays land/cloud reflections and may introduce shimmering on some systems (which may need SGSS/LOD BIAS to control).

- 13) Land Detail Textures: **Ticked**
- 14) Ground Scenery Shadows: **Un-ticked** (unless you particularly like them and can stand the frame rate hit)

Settings ->Customize ->Weather

- 15) Cloud Draw Distance: **60 Miles/96km** (suggested minimum)
- 16) Detailed Clouds: **Ticked**
- 17) Cloud Coverage Density: **Maximum**

Settings ->Customize ->Traffic

As with autogen, these settings are user-dependent and most have significant frame-rate penalties. Try not to change these values during testing.

6: Setting up fsx.cfg

Tweaking fsx.cfg is beset with controversy. Bear in mind that many of them relate to FSX in DX9 mode and are either irrelevant at best or will break your DX10 setup at worst. The following edits are a combination of all known good/necessary tweaks to get your DX10 FSX up and running.

You may have your own favourite custom tweaks (let's face it - no two systems are the same) but leave these until after you have DX10 running properly - save your fsx.cfg - then apply your additional tweaks. By the same logic, don't run your cfg through Venetubo or apply Kosta's fixes until after your DX10 setup has bedded down. Also, running your DX10 cfg through these procedures may actually undo important DX10-specific edits.

Important: You must back up your clean/newly created fsx.cfg before you start - and at regular intervals throughout (naming your backups sequentially).

- 1) If running, close down FSX.
- 2) Open up the fsx.cfg (from the location determined at the beginning of this guide) - using Notepad, Notepad++, TextPad, or any other **ASCII** editor. Do NOT use a "rich" editor like MS Word, Wordpad etc.

Check, add or modify the following lines in each of their respective section headers. Anything after a "//" is a (per-line) comment and is ignored by FSX:

[Graphics]

```
MultisamplesPerPixel=xxx  
MultisampleQuality=xxx
```

Check that these values have been added - and that they have been set to the correct values corresponding to your NVI/CCC setup.

```
D3D10=1 // Enable DX10  
HIGHMEMFIX=1 // A fix Microsoft forgot. This is a MUST  
TEXTURE_MAX_LOAD=2048 // Maximum value of 4096 - very frame rate impacting
```

Note: Going into any Setup/Options in FSX will cause the TML value to default to 1024.

[Display]

```
TEXTURE_BANDWIDTH_MULT=XXX  
// Between 40 (low-end) and 120 (high end) in multiples of 5. Start at 80.  
UPPER_FRAMERATE_LIMIT=XXX  
// Set in conjunction with NCV/CCC : Limiter value+1.
```

[Main]

```
FIBER_FRAME_TIME_FRACTION=0.11  
// Default=0.33 - may cause stuttering. Generally 0.12 - 0.22 gives very smooth  
// flight. Lower than 0.1 may give blurring of ground textures when flying fast at  
// low level.
```

```
DisablePreload=1  
// This helps prevent vsync tearing.
```

6: Setting up fsx.cfg (cont'd)

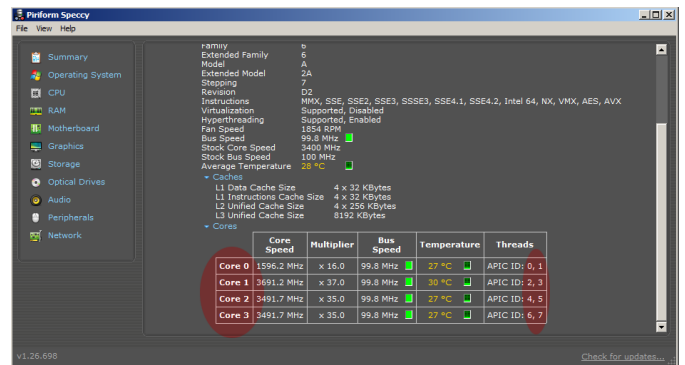
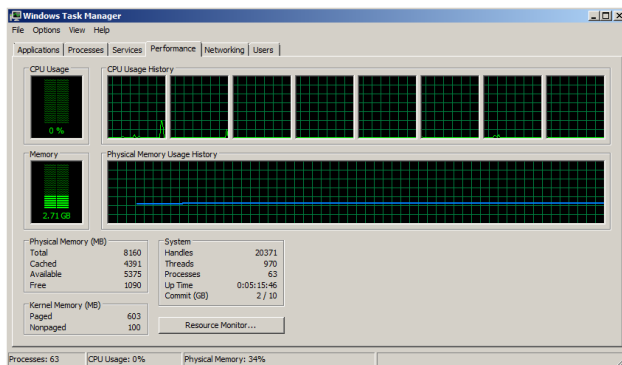
[JOBSCHEDULER]

AffinityMask=xxx

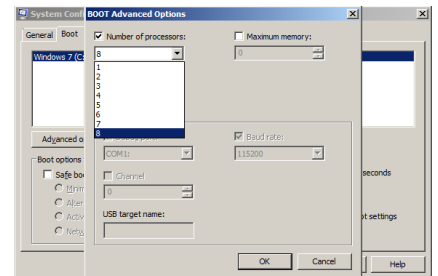
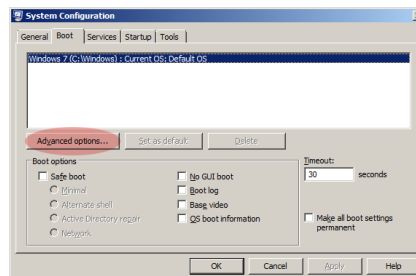
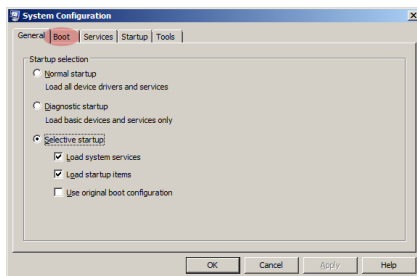
Although “Hyperthreading always off” is preached by many, a number of tests have shown that (for DX10), enabling Hyperthreading in the system and adding AffinityMask to fsx.cfg, framerate and stability appear to improve by 2-4% - particularly beneficial for aircraft that use processes outside of FSX (MJC Dash-8, PMDG etc.). Here are some example values:

4 Core HT off	14	1110		3 Main threads 1 worker
4 Core HT off	12	1100		2 Main threads 2 workers
4 Core HT on	254	1111 1110		3 Main threads 1 worker
4 Core HT on	252	1111 1100		2 Main threads 2 workers

To work out how many cores you have (and whether you have hyperthreading enabled) you can either go into the Windows Task Manager or use [the excellent] “Speccy” from Piriform: <http://www.piriform.com/speccy>.



Windows Task Manager (above left) is showing 8 active threads on a 4-core CPU - as confirmed by the Speccy CPU panel. Hyperthreading is usually enabled at BIOS level (see your M/B info) - then you can set Windows to use all cores. In the “Start” menu, type “msconfig” to bring up “System Configuration”. In “Advanced Options”, set the drop-down to the maximum value (see below).



6: Setting up fsx.cfg (cont'd)

[BufferPools]

For good performance, a Bufferpools entry needs to be in fsx.cfg - regardless of the system. **Setting the Bufferpools values is probably the most complex/daunting of task in fsx.cfg tweaking** - and a reasonable summary on how they work is here:

http://www.nzfsim.org/index.php?dsp=dload&fname=FSX_Graphics_Buffering.pdf.

It's not a "heavy" read, but may help you understand how to tweak the settings.

Buffers (blocks of memory of all kinds) are always used by any PC - whether for network, screen or hard drive, so a "pool" of buffers is always necessary to accommodate all these functions. *Graphics* buffers can be thought of as small chunks of memory (just like in system memory) which are used as temporary storage for the thousands of bits of frame data (objects) coming into the GPU from the CPU. As the GPU works its way through the "picture creating" process, this so-called "queue", will empty out and refill again (with objects) on a constant basis.

For the purposes of this guide, an FSX **graphical object** - is (usually) a list of numbers which equate to the points of a triangle which form a part the underlying 3D mesh - this mesh being all these triangles joined together before it is "skinned".

A **buffer** - is simply a "bucket" (for want of a better word) into which all these [graphical] objects go - placed there using DX10 code commands. These "buckets" can be different sizes.

A **pool** of buffers is just that - a whole slew of buckets - but called a "pool" in computer-speak.

There are several pools (of buffers) in the GPU's memory at any one time - for indexes, for holding commands, for holding copies of the image as it's built. All these [pools of] buckets/buffers are kept in a "warehouse" in the GPU (ie. its *memory*). `Usepools=0` works best for cards with a large GPU memory (a minimum of around 1.2 Gb). For instance, a 780 has 3Gb, so works very well at "0".

You have two options - depending mainly on the processing power/memory capacity of the GPU:

Usepools=0

More appropriate for the higher-end video cards. The GPU controls pretty well everything - creating its own specification for the bucket size(s) and how many it will create. Each object gets its own "personal" bucket - a *dedicated* bucket - dedicated to that one object only - and it's very fast. The section in fsx.cfg is quite simple:

```
[BufferPools]
```

```
Usepools=0
```

Usepools=1

For the mid-range to low end video cards, where you're trying to glean any possible performance gains out there. In this scenario, YOU (or more accurately - FSX via fsx.cfg) tell the GPU what size to make each "bucket" (buffer), via the `PoolsSize` setting. However - these "buckets" will (generally) be many times larger than the buffers created using `Usepools=0`, as each bucket will hold *hundreds* of objects - *all sharing that same buffer* - used continuously, being filled/emptied/filled/emptied with objects. The buffers created this way are called *shared* buffers, as opposed to the *dedicated* buffers of `Usepools=0`. To give you a rough idea - the default pool buffer size that FSX uses (if you don't specify a size yourself) is 8MB (8388608 Bytes).

The **Reject Threshold** (used by and recognised only with `Usepools=1`) is a bit more complicated. It acts as a "safety valve" (or "blow-off valve") to take care of objects which might be too large to fit

6: Setting up fsx.cfg (cont'd)

in a buffer. Let's say, for example, that you have a pool buffer size of 8MB/8388608 Bytes and then a 10Mb/10485760 Bytes object comes into the GPU (ie. 2MB/2097152 Bytes larger than the pool buffer size). It obviously can't fit, so an error of some kind is going to occur. This is taken care of by creating a set point (ie. a particular size) - where any object larger than that point is shuffled off to its own "personal", *dedicated* buffer. Well (surprise, surprise) "getting its own, dedicated buffer" is the same thing that happens when using `Usepools=0` - where each object gets its own buffer! This "set point" is called the Reject Threshold and is a value (in Bytes), set in `fsx.cfg` - so the full entry becomes:

```
[BufferPools]
Usepools=1
PoolSize=xxxxxx
RejectThreshold=xxxxxx
```

If your GPU isn't capable of running `Usepools=0` (because it lacks memory or speed), we might be able to pick up some performance by setting a relatively small Reject Threshold. The smaller the Reject Threshold, the more objects get rejected/pushed into their own buffers. The smaller you make the threshold, the closer you are (in effect) to `Usepools=0`. A `RejectThreshold` value of 0 would mean *all* objects (regardless of size) get their own individual buffer - effectively, the same as `UsePools=0`.

However - there is a performance penalty to set off against any possible gains made by setting `PoolSize` and `RejectThreshold`. The bigger the "bucket" (`PoolSize`) the more objects can be stored in it - all sharing the same bucket - or buffer. This needs the additional overhead of tracking each object and the buffer that it's in, so it may be a tad slower than when each object has its own buffer (as in `Usepools=0`).

Let's face it, trying to mimic a high end card that can use `Usepools=0` with a low end card using `Usepools=1` and a tiny Reject Threshold is simply not going to work (!), so a balance between speed/performance and stutters/graphics corruption will be found somewhere higher. Start with a low-ish Reject Threshold (or with a typical value of 262144/256k) and work your way up in 64k increments until artefacting disappears. In the following table, it can be seen that the slower GPUs need to have their RT set correspondingly higher (see lines 5-6 and 9-10).

The table gives a *very approximate* idea of how the various settings relate to possible CPU/GPU combinations. The crucial column is the last one: "Results", where we summarise the combined effect of the various settings.

Note that *both* "stutters" and "spikes" are dependent on the overall demands set by the various FSX detail levels (or other settings in `fsx.cfg`). Even a fast CPU with a fast GPU can still produce either effect. Think of it as an "accelerator pedal" - the more you press down, the greater the demand will be for *everything* - regardless of how you share the load between CPU and GPU via Bufferpools tweaking.

Stutters: are small-scale/frequent "jitters". They are caused by the **CPU** (processor) being overloaded. Worst: when the CPU is basically too slow all-round, or when coupled with a fast GPU and high detail levels set in FSX (eg.4).

Best: when the CPU is fast but the GPU is basic or slow (eg.9).

Spikes: are the large jumps and may also include artefacts. They are caused by the **GPU** (GFX card) being overloaded.

Worst: when the CPU is very fast - overloading a basic GPU (eg.9).

Best: when both CPU and GPU are fast (eg.12).

6: Setting up fsx.cfg (cont'd)

	Processor Speed	GFX Card	Bufferpools	Poolsize	RejectThreshold	FSX Settings	Result
1	4.2GHz	560Ti	1	8388608 (default)	212644	Low-med	Stuttering
2		580	0	-	-	Med	Stuttering
3		680	0	-	-	High	Stuttering
4		780	0	-	-	High	Stuttering
5	4.6GHz	560Ti	1	8388608 - 10485760	212644 -1048576	Low	Spiking
6		580	1	5242880 - 8388608	212644	Med	May spike or stutter
7		680	0	-	-	Med-high	May spike or stutter
8		780	0	-	-	High	May stutter
9	5.0GHz	560Ti	1	8388608 - 10485760	212644 -1048576	Low	Spiking
10		580	1	5242880 - 8388608	212644 -524288	Med	May spike or stutter
11		680	0 or 1	8388608 (default)	212644	Med-high	May spike or stutter
12		780	0	-	-	High	Occasional stutter

Summing it all up

A **low-end processor** (eg.1-4) simply hasn't got the processing power to supply detail to the GPU (*any* GPU) without stuttering. The only course of action is to reduce the detail levels in FSX and fsx.cfg. In general, set `Bufferpools=0`, unless you have a *really* slow GPU.

A **medium processor** (eg.5-8) is probably the hardest to deal with, as it's usually coupled with mid-range graphics cards. Much Bufferpools experimentation may be required to reduce stutters and spikes.

A **high-end processor** (eg.9-12) can still flood most GPUs out there if FSX detail settings are too high, so a moderate amount of Bufferpools tweaking may still be required.

Testing procedure

- 1) Create a test FSX flight with a medium level of terrain, weather and traffic - and maybe even record one with FSRecorder to play back. Use the same flight throughout - and *change nothing else but the Bufferpools related tweaks*.
- 2) If tweaking Bufferpools, change Poolsize first, then step through the different values for RejectThreshold for the same Poolsize value. Try various Poolsize values (start low and go up).
- 3) If all fails, then you'll need to change overall detail levels in FSX or fsx.cfg values (like `Texture_Bandwidth_Mult`, `Texture_Max_Load`, or the SGSS settings).

Fly the test any number of times until you are satisfied that you have the highest framerate with lowest artefacts, stutters or texture corruption.

PoolSize values:

5242880 (5MB), **8388608 (8 MB)** default, 10485760 (10MB), 20971520 (20MB)

RejectThreshold values:

98304 (96k), 126976 (128k), **262144 (256k)**, 524288 (512k), 786432 (768k), 1048576 (1Mb)

A typical fsx.cfg entry for the `Usepools=1` option:

```
[BufferPools]
UsePools=1
PoolSize=8388608
RejectThreshold=262144
```

6: Setting up fsx.cfg (cont'd)

TBM

If using `UsePools=1`, finding the right `Poolsize` and `RejectThreshold` sizes is fairly time-consuming because it interacts with other parameters – `TEXTURE_BANDWIDTH_MULT` (TBM) and water, for example. TBM is a ‘throttle’ that increases the total volume of [graphics] data sent to the GPU - akin to “pressure” on FSX - depending on how high the settings are for texture, mesh, autogen, traffic, and weather. Too high a TBM setting may cause graphics corruption. High is about 120, 80 is good, but 400 is normal only when using photoscenery (MegaScenery SOCAL, etc.).

Bufferpools - final note

Again - if you really can’t (or don’t wish to) get your head around Bufferpools, just use:

```
[BufferPools]  
UsePools=0
```

... and then try different values of TBM.

Framerate Test Flight with FRAPS

Pete “Frooglesim” has created a YouTube video (How to Tweak FSX Correctly), which is worth looking at to see how to set up a consistent, level playing-field test flight with FRAPS:

<https://www.youtube.com/watch?v=cXj90GBPdc8>

Some the advice in the video may (I think) relate to DX9 systems, so use the tweaks in this “HowTo” guide instead. Note that this procedure logs *framerates only* - and that they’re not the “Holy Grail” - *stability* and *smoothness* are just as important. Nevertheless, it’s a good way of testing all your tweaks.

CONCLUSION

When all is done - **save your fsx.cfg AND a duplicate as a backup/archive copy** in case things go wrong at a future date.

At the end of the day, if you’re still struggling to get good performance with a single “middle-of-the-road” fsx.cfg (still causing problems at high FSX detail levels), you may find it best to create a high detail/slow fsx.cfg AND a low detail/fast performance fsx.cfg (with corresponding NVI profiles) and swap these in/out when you know what kind of flying you’re likely to be doing.

7: Extras

DX10 version

A couple of issues arose over the last month or so, one being SweetFX and DX10 exiting with an "Unable to load..." error. The fix was to go to <http://support.microsoft.com/kb/179113> and download the latest version of the DX10 runtime. Microsoft DirectX is included as an integral part in Windows operating systems and you can update DirectX by applying the latest service pack or other updates through Windows Update. To check your DirectX version, see <http://support.microsoft.com/kb/179113#which%20version%20installed>.

Runway Lighting

From a post by Brett Lucas ... "I had approach lights, but no runway lights. So last night I was going through many of the posts and came across one very important one. If you install Michael Swannick's FSX Lights - http://www.nzfsim.org/index.php?dsp=dload&fname=fsx_lights.zip. It's the Halo bitmap that will fix the runway lights.

The trick is (if you use REX or Active Sky 2012) - you need to UNCHECK runway lights so it does not get overwritten [by the Fixer]. In my case, I use both and unchecked both, and presto, I had awesome lights again."

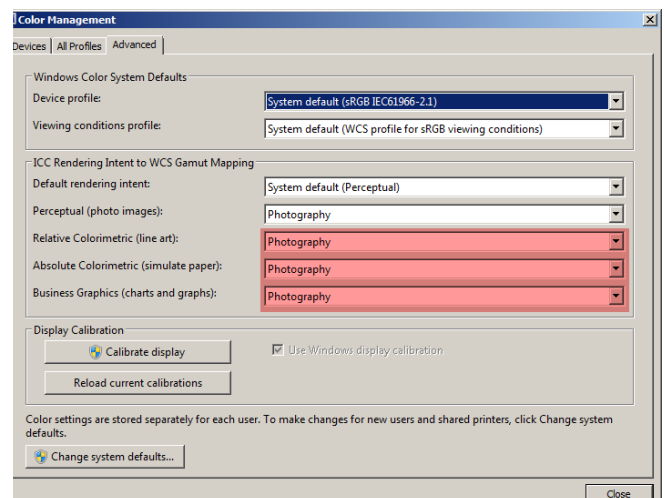
Note: I have no problems like this. Re-applying REX (or TextureDirect) textures overwrites halo.bmp with a decent version anyway.

Colour

Courtesy of Jaydor, of the OrbX/FTX support site, this little mod adds better colour to FSX through the Windows 7 operating system, by changing the Control Panel >> Color Management >> Advanced tab and then change the settings to those as shown.

Tool Tips missing

Yes - they're missing in full screen view! If it's important, you can use windowed mode and the "D3DOverride" method to "fix" it (as described in [8: Multiple Monitors](#)) so that it looks exactly like full screen - but it takes some work!



Clouds

Steve has a good comparison between DX9 and DX10 clouds here:

<http://forum.avsim.net/topic/386468-dx10-clouds/> and a note on testing (Post #7).

Following some good research on REX clouds – RodO (The Family Man), states that he found that - after making sure that DXT5 and 1024 x 1024 textures are used – the frame drop is gone. The Fixer has several functions which can improve frame rates in heavy cloud.

ENB Series

Does not work in DX10, and will cause a crash on start-up. I believe the culprit is the **d3d10.dll** that is part of its structure, and it can be found in the root folder of FSX and deleted.

7: Extras (cont'd)

FXAATool

Does not work in DX10, and will cause a black screen on start-up. It installs several .dll's and the two **injFX_Settings** and **injFX_Shaders** folders that will be found in the root folder of FSX (see right). Uninstall or delete any of these files which you find there (the datestamp will reflect the time when created or unzipped).

Name	Date modified
en	3/15/2014 10:32 AM
injFX_Settings	3/15/2014 10:32 AM
injFX_Shaders	3/15/2014 10:32 AM
profiles	3/15/2014 10:32 AM
d3d8.dll	11/26/2012 4:47 PM
d3d9.dll	11/26/2012 4:47 PM
dxgi.dll	11/26/2012 4:47 PM
enbconvector.ini	11/26/2012 4:47 PM
FXAA.s3db	11/25/2013 9:54 AM
fxaa_readme.txt	11/30/2012 3:06 PM
FXAA_Tool.exe	11/25/2013 9:52 AM
GPL.txt.txt	11/27/2012 11:23 AM
shader.fx	11/26/2012 4:47 PM
shader.hlsl	11/26/2012 4:47 PM
SQLite.Interop.dll	10/26/2013 8:29 AM

Shade

Works very well in DX10, producing some stunning screenshots.!

SweetFX

All versions from 1.3.7 through 1.5.1 work very well and bring an enormous array of colour and vibrancy to the sim - a very configurable addon. A desktop link to the **SweetFX_settings.txt** will allow one to change any parameter completely on the fly. A search on Google will also turn up a HUI front-end.

SweetFX will occasionally prevent FSX from launching when refreshing FSX using the "pause:break" button (though not when switching between windowed and full-screen mode). It seems that the **SweetFX_settings.txt** file becomes corrupt. The answer is to simply note the settings and copy in a new one from the downloaded package.

D3D11.dll Crash-to-Desktop

This one began to occur around the Nvidia 314.XX series, and apparently impacted other games, too. Thanks to some diligent work by Steam member "CCentR" - the issue is fixed by un-installing **Microsoft Update KB2670838** and watching for it to be re-installed. It needs to be "hidden" from future updates.

NOTE: I have no problems of this kind in my Win7x64 system (fully patched, including KB2670838).

Removing it may disable IE11, so do so at your own risk!

Orbx PNW custom street lights

These lights are completely fixed in the Fixer, as are the issues with Orbx's FTX Global lights (v1.1). The Fixer also has the automatic ability to reduce the size/glow of various lighting systems in foggy conditions.

UT2 Traffic and A2A Shockwave Lights

From gigemaggs99, Nov. 11, 2012: www.bleedair.de/ultimate-traffic-2-fsx.html

"If you have A2A shockwave lights and UT2 this is a great set of files. You simply replace the existing UT AI aircraft.cfg files. It takes a few minutes since there is no auto-installer but I just made sure I made a backup of the original prior to copying them over."

7: Extras (cont'd)

Cockpit Shadows

As the Fixer will copy and modify the aircraft's xxx_interior.mdl, you may occasionally come across aircraft which do not have this file (a common problem with FS9 portover aircraft), in which case it is not possible to have cockpit shadowing for that aircraft.

DX10 Scenery Fixer - Update Procedure

The recommended update procedure is to uninstall and then install the new version as below. However - always check for any specific requirements in any documentation included with the new version (or patch/upgrade).

- 1) Save (or make a backup) of your current Fixer profile - preferably in a separate location.
- 2) Uninstall the libraries using the option in DX10Controller.
- 3) Open the Windows Control Panel/Add or Remove Programs and remove the SteveFx DX10SceneryFixer.
- 4) Launch the downloaded FSS Installer for the new version and follow the instructions, re-entering your key if necessary.
- 5) Launch DX10 Controller and Install the libraries.
- 6) Import your saved profile.
- 7) Read the manual!

Note: the [old] 1.4 FSS Uninstaller removes the directory containing your profiles. All versions after that are OK.

FSPS Fiber Accelerator

In order for FA to work in DX10, it requires the NVI-set frame rate limiter to be disabled. Prior to installing FA, it's prudent to make a backup of your current fsx.cfg and NVI/CCC profiles.

Make sure you have FSX set up properly - with a decent saved test flight for later comparison tests (see [5: FSX Settings - "level playing field"](#)) before installing the limited-time demo version, as you'll quickly run out of trial sessions otherwise.

FS Water Configurator (FSWC)

FSWC "Lite" offers a degree of DX10 compatibility - ahead of a revised version of the full program that will have a set of DX10-specific features. There's just the one DX10 preset (that you can't edit in any way - yet). The program does not alter any *base* textures so should work with 3rd party add-ons in a non-destructive way. Do NOT run the current (full/3.5.1) FSWC - as it amends the DX9 shaders only.

To be on the safe side, make a backup of your water shader files (**Water40.fx** and **Water40.fxh**) in [your FSX root]\ShadersHLSL\Terrain\.

Note: Using FSWC generated effects will over-ride any Fixer water settings (the configuration panel will be greyed out). If you want to use the Fixer settings again, revert to your backups.

8: Multiple Monitor Setup

The vsync settings as configured in the previous sections work flawlessly for the **TripleHead2Go** and **Nvidia's Surround** and **AMD/ATI's EyeFinity** systems, where the three monitors are configured as one monitor within Windows and FSX.

The issue we have comes with the need to have two monitors, perhaps where the user wants use full-screen and to drop an FMC or part of the instrument panel onto a second monitor. The problem also occurs when the second monitor is of a different size, or when the large (FSX) monitor uses a VGA connection and the smaller uses DVI (in this case the GPU will take the smaller DVI monitor as #1).

In these cases, vsync will not work. There are a number of "fixes" around, but a full fix is elusive for the majority of simmers.

What we have below is a combination of fixes that does work, but is a little bit "fiddley" - and there may be ways of improving it. When using a 2560 x 1440 and a 1280 x 1024 it was flawless.

Go here: <http://www.nzfsim.org/index.php?dsp=dload&fname=D3DOverride.zip>

- 1) Download and install "D3DOverride" (part of the RivaTuner package).
- 2) Click on "D3DOverride.exe". This will launch the application, and should show as shown: If not, don't be too concerned - it's part of the RivaTuner suite of tools and some people have found the GUI won't necessarily show without RivaTuner being installed. If all is well, you should be able to see the default Global settings and, on the left side, you'll also see a profile for FSX. This download includes that fsx.profile, with "Force TripleBuffering" and "Force Vsync" set on.

Once D3DOverride is launched it will automatically detect and start with FSX.

- 3) Open up NVidia Inspector and move the "Vertical Sync from "1/2 Refresh Rate to "Force On", leaving the rest as it was. You're half-way to having Vsync for all screen mixes.

Resizing dragged Panels

The next multi-monitor issue is with dragging panels onto the second monitor, with any attempt to resize the panel resulting in a continuously flickering cursor.

Most people use the larger monitor for their flying, and a smaller one for housing an FMC or GPS, for example - and the panel, once moved, needs to be resized. Unfortunately - after it's resized - you will then encounter the dreaded "busy mouse cursor". To fix this, simply **right-click inside the new panel**. It will then return to normal operation and appearance.

Note: rather than manually resizing a panel each time one can also change its size in the panel.cfg, so that it pops up already at the right size.

Fullscreen Mode

One of the other issues is that most of us like to fly in fullscreen while enjoying the benefits of other panels setup on the second monitor - and having ToolTips available as well! Unfortunately DX10 doesn't co-operate very well when you want that second screen for different panels. However - there is a (free) answer to this: "**Pseudo FullScreen**" along with "**AutoHotKey**".

Here is a ready-to-use PseudoHotKey:

http://www.nzfsim.org/index.php?dsp=dload&fname=pseudo_full_screen.zip

Just unzip it somewhere and run "pseudo_full_screen.exe" before you run FSX. You will get a green icon in your taskbar, fullscreen without toolbars and borders, and, you will have your "ToolTips" back!

8: Multiple Monitor Setup (cont'd)

Vsync with two dissimilar monitors

If D3DOverrider doesn't fix the problem, this is courtesy of Kosta's FSX Guide to be found here:

<http://kostasfsworld.wordpress.com/fsx-software-and-hardware-guide/>

As Kosta has posted - there is a fix now, using Windows "Aero" which is normally shut down, either by choice or by FSX itself. To ensure it's running, "Themes" must be enabled in the "Services" (Start button, type "Services" in the search window).

FSX turns off Aero on startup, so an Aero restart is required which will, in turn, fix the normal Vsync operation in windowed mode.

To enable Vsync in windowed mode add following to your FSX.cfg:

```
[GRAPHICS]
ForceWindowedVsync=1
```

To restart Aero, there are three options:

1) Restart Aero - manual method

After starting FSX, quit **dwm.exe** (task manager, Desktop Windows Manager), it will restart itself, and Aero will be enabled.

2) Restart Aero - batch file

Create a text file - using NotePad and save it to your Desktop as "fsx.bat". Enter the following text:

```
@echo off
start "" "E:\FSX\FSX.exe" (insert the correct
path to your FSX.exe)
net stop uxsms
net start uxsms
```

... and run it. FSX is going to start, Aero is going to get started after FSX, and voila...

3) Restart Aero - auto batch file (FSUIPC)

An elegant solution, through FSUIPC (registered version):

As in [2] above, create a .bat file (fsx.bat) containing:

```
net stop uxsms
net start uxsms
```

Make FSUIPC to run the .bat file automatically by editing FSUIPC.ini (in your FSX\Modules folder) by entering:

```
[Programs]
Run1=HIDE,"E:\FSX\Modules\fsx.bat" (insert the link path to your FSX.bat)
```

This last solution is going to do everything silently. No CMD popup windows, only visible Aero activation.



8: Multiple Monitor Setup (cont'd)

The manual procedure

- 1) Start D3DOverride. As above this may or may not be necessary, re. the note above.
- 2) Start PseudoFullScreen (Green icon down in the right corner)
- 3) Start FSX by clicking Kosta's "Aero" .bat file. Voila!

You can now use FSX using DX10, with two dissimilar monitors, in fullscreen (with ToolTips) with Vsync working fine, and a panel or two on the second screen without having the dreaded "Rotating EggTimer" happening!

9: Dynamic Super Resolution (DSR)

Available for desktop drivers version 344.48 and above, DSR is a *dynamic* method of rendering FSX (or any other game/sim) a game at a higher, more detailed resolution and then shrinking the result back down to the resolution of your monitor.

<http://www.geforce.com/hardware/technology/dsr/technology>

Advantages:

- 1) By using the nVidia Control Panel (in preference to NVI), it is possible to disable SGSS functions from both Fixer and NVI. Many users report that the result is a much better framerate for cloudy situations.
- 2) Better rendering of detail (though this will depend on the quality of your monitor).
- 3) The ability to run FSX at much larger resolutions on over high definition devices - TVs etc. via HDMI.
- 4) Depending on the DSR/FSX resolution setting, screenshots ("V-key" variety) are correspondingly larger and give more information when resizing/downsampling in a graphics editor.

Disadvantages:

- 1) All FSX info text, menus and info boxes are vastly reduced when scaled down to monitor resolution. The workaround to this is to temporarily flip back into windowed mode (ALT-Enter), as DSR only works in full-screen/maximised mode. The "Fixer" is aiming to correct at least some of these issues, but it may not be feasible to change any *interactive* functions (menus etc.).

Important: before you start installing DSR:

Make a backup of your NVI profile by using the "Export current profile" option from the "Export user defined profiles" menu button. Save it as "pre-dsr.nip" (or similar) :



Back up your current fsx.cfg.

Backing up both of these will enable you to easily return to your pre-DSR state.

Setup

Download and install the driver (PhysX, nVidia Experience and 3D functions are optional/not necessary for DSR). Reboot, then open the nVidia Control Panel by right-clicking in a clear area on your desktop.

Note that we're not setting up the basic resolution of the desktop itself - *only the 3D output in FSX*.

1) 3D Settings/Manage 3D settings/Global Settings tab/DSR - Factors

This should produce a drop-down of resolution scalling facttrs (1.20x to 4.00x). Tick all of them - regardless of which resolution(s) you may end up using in FSX.

2) 3D Settings/Manage 3D settings/Global Settings tab/DSR - Smoothness

A slider that goes from 0% (sharp) to 100% (soft). Defaults to 33%, but 23% may be better. Over-

9: Dynamic Super Resolution (DSR) (cont'd)

sharpening (ie. below 20%) may produce excessive shimmering. In practice, I found that, other than in the readability of text, the smoothness settings didn't make a huge difference in output to the default monitor. However - I suspect the display on large displays (TVs) will show much more of an effect.

3) Display/Change Resolution

This should now give you both DSR and regular resolutions. **Do NOT select anything other than your default/native desktop resolution here.** This is just to check that steps (1-2) have worked.

4) 3D Settings/Manage 3D settings/Program Settings

Set up a profile for FSX and add your settings - pretty well as you had them in NVI. You can "mix and match" settings in both NVI and the nVidia CP, but note that they both often write back to the same registry entries - so be aware of which to run last (usually the nVidia CP if using DSR). You may need to enable Antialiasing - FXAA in either NVI or nVidia CP.

5) NVI

In your MS Flight Simulator Profile, disable/turn off **Antialiasing Transparency Multisampling** and **Antialiasing Transparency Supersampling (SGSS)**. These can also be set in the nVidia CP.

6) DX10 Fixer

Set DX10 Anti-Aliasing to "No AA".

7) FSX

Launch FSX and select one of your new [higher] resolutions.

DSR only works when FSX is in full-screen mode, so if your menus haven't changed in size when in full screen (maximised), then DSR is not working for some reason.

Experiment with the usual AA settings. Other than disabling SGSS, most NVI settings can be retained, but some tweaking in the nVidia CP may be necessary.

Settings in the nVidia CP Program Settings (game profile) tab will require an FSX restart, but all other settings can be changed and applied by toggling the FSX window from full to windowed (and back). This is particularly useful when changing the smoothness % value.

As usual, note that any changes in FSX display options (eg. setting a new resolution) will replace some customised values to default - TEXTURE_MAX_LOAD and LOD_RADIUS in particular.

A final reminder for those screenshot *artistes* - DSR functions are created dynamically ("on the fly") and display only on the default monitor (or TV). The effects are NOT stored in screenshots created by the usual "V" key - or by FRAPS. You can test this easily by capturing a screen with the parking brake (or pause) text showing - it will look like default FSX - ie. totally crisp and unaffected by DSR.

10: REX Textures

Set the Sun and Water effects drop-downs in the REX DirectX Configuration Settings to "DX10 Enabled".

It's advisable to use textures that do NOT have wave patterns already "burned in" so that DX10 can provide wave animations based on wind speed and direction.

Bright - Clear Coral

This water set includes all inland, ocean and tropical water textures and is a full replacement of all FSX/P3D water. The tropical textures within this set do not contain wave patterns and offer a clear view of tropical regions.

Bright - Default

This water set includes all inland, ocean and tropical water textures and is a full replacement of all FSX/P3D water. The tropical textures within this set contain wave patterns 'burned' into the textures and help with the illusion of wave movement.

Bright - Shallow Coral Pronounced

This water set includes all inland, ocean and tropical water textures and is a full replacement of all FSX/P3D water. The tropical textures within this set contain wave caps and surface movement which is typical with shallow coral areas. This texture set is identical to REX Global Water Bright With Shallow Coral, however the tropical representation is more pronounced.

In the examples above (from REX/Texture Direct), "Bright - Clear Coral" is recommended.

In REX/Texture Direct, all the "Bright Clear ..." textures are fine, whilst "Bright Default ..." or "Bright Shallow ..." are not.

Steve's explanation is here:

<http://stevesfsxanalysis.wordpress.com/2012/10/13/dx10-water-final-thoughts/>

But an extract is below:

"There were a couple of points about DX10 White Caps that I thought worth mentioning.

When using DX10 it is best to avoid water textures that contain a wave pattern. An example of this is the REX Bare Floor texture.

FSX in DX10 mode aligns the white cap waves with the wind. It is unaware of the contents of the water texture so the white cap breaking waves will usually therefore not align with the waves inside the texture which looks plain wrong."

Secondly the white caps are really just flashes of light superimposed on the texture. When looking at a sea plane floating in the water you will see white flashes pass along the water. To me this looks wrong. I may see if the white caps could be excluded in the immediate vicinity of the plane."

11: Links/resources/late additions

Most files are hosted at NZFSim. Some are listed below. For a complete listing, go to:
http://www.nzfsim.org/index.php?dsp=downloads&f_sort=fixer.

D3D Overrider	DX10 Fixer v2.3 User Manual
FSX Graphics Buffering	Matt's Rain Fix
Michael Swannick's FSX Lights	OOM Desktop Heap Limitation (Microsoft)
Phil Taylor's SP2 Blog	Pseudo Full Screen
ShadersHLSL	UIAutomationCore.dll

Links

DX-10 forum at Sim-Outhouse:

<http://www.sim-outhouse.com/sohforums/forumdisplay.php?92-DX10>

The Official DX10 Scenery Fixer Support Forum (Avsim):

<http://forum.avsim.net/forum/644-the-official-dx10-scenery-fixer-support-forum/>

Steve's Blog:

<http://stevesfsxanalysis.wordpress.com/>

Acknowledgements

Primarily, I'd like to thank Paul "PJ" Johnson both for his original guide (which helped me set up my own DX10 system) and for allowing me to use his guide as a basis for this one. Most of the "leg-work" is his!

Of course, I'd also like to thank Steve Parsons for giving my FSX a new lease of life!

Last minute odds ...

V2.3 Missing ini file

June 26, 2014: <https://stevesfsxanalysis.wordpress.com/2014/06/26/v2-3-missing-file/>

Unfortunately, the 2.3 FSS release of DX10 Scenery Fixer is missing a configuration file (DX10Product.ini). This causes issues with some lights such as landing lights. To correct this, download the file from either this links:

<https://www.dropbox.com/sh/nnfapxelnd8d8wbq/AADXn1vA5S7jO5B0fkUaSCh2a>

- 1) Uninstall the libraries using DX10Controller
- 2) Copy the downloaded file to [your fixer location]\DX10Scenery Fixer\
- 3) Install the libraries using DX10 Controller

Forcing VC Shadows

Add the following line to your fsx.cfg to globally enable VC shadows for all aircraft (no need therefore to use DX10 Toolbox).

```
[Display]
```

```
ForceVCShadowMap=1
```

12: Copyright

Although this guide is very much a collaborative effort, it is strictly copyright © 2014 Adam Banks (Adamski_NZ) - all rights reserved.

For the foreseeable future, distribution of this document will be via the NZFSim website:
http://www.nzfsim.org/index.php?dsp=downloads&f_sort=fixer

The site will always keep the link to the latest version up to date, so if you have picked this guide up from anywhere else, please check your version by checking the date in the footer.

Though it may be well-intentioned, it's really not a good idea to host (or re-distribute) this guide anywhere else - or we'll end up with outdated versions flying around. Please - just post the link.

Adam Banks (Adamski_NZ).

Contact: Via the **SOH** or **Avsim** forums or: <http://www.nzfsim.org/index.php?dsp=contact>