



Train Sim World 4

Lighting & Graphic Enhancement

By JetWash

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APPENDIX. Adjusting Your Own Settings

1 | Requirements

- Train Sim World 4
- The 'GodMode' mod by Foobian | [GodMode](#)
- The 'Lighting & Graphic Enhancement' mod | [Lighting & Graphic Enhancement](#)

2 | Recommended / Essential Mods

- Route Vegetation & Grass EP by Bescot & JetWash | [Route Vegetation & Grass](#)
- Better Rain v2 by Laika | [Better Rain v2](#)
- TSW4 | Train Lighting & LOD fixes by JetWash | [Lighting & LOD Fixes](#)
- UK Rolling Stock Orange PIS Fix by Laika | [UK Orange PIS](#)
- New Rain, Wind & Thunder Sounds by JetWash | [New Rain & Wind Sounds](#)
- Improved Signal Visuals by London Midland | [Improved Signal Visuals](#)
- TSW4 Cab-Cam Improvements by Spike1975 | [Cab Cam Improvements](#)
- Seasonal daylight timers and Emissives by Bescot | [Seasonal Lighting Timers](#)
- Aran's ToDv3 Modified Time of Day System | [UK](#), [USA](#), [DE](#), [Others](#)

3 | Introduction - What is this and what does it do?

When DTG introduced TOD4 lighting with TSW3 it generally improved the lighting in the game, particularly around dawn and dusk. However, for much of the time the game is too bright and over-exposed, with the cab interior often looking like it has been superimposed on the outside world. There is little harmony. Additionally, for a game released in 2023 the graphics presets (in particular Ultra) do not have the quality that, in my opinion, they should. The discussion as to why this is the case has raged for a long time but the fact is that on PC, where generally more processing power is available than even the newest consoles, the available presets do not reflect that.

This is a set of changes to the game's graphics to balance the visuals (making the scene look more naturally lit) and where possible, improve the graphical fidelity of the game.

There are two different types of settings included. The first set applies to all TSW2 and older routes. These settings are more graphically intense than the TSW3/4 routes (concentrating mostly on graphical improvements) as, without the TOD4 system, there is more resource to play with. The second set is for the TSW3/4 TOD4 routes only and alongside improvements to the graphics contains all of the specific TOD4 tweaks that significantly improve the lighting.

These are already set up on a route by route basis for you and should not be interchanged. Doing so will have unintended consequences as the TSW2 parameters are much more intense than the TSW3/4 ones

NOTE - The version of the mod that you use does not necessarily need to match your in-game settings. It is perfectly acceptable to have Ultra as your in-game settings and use the Medium or Low preset with that.

It is important that you read and understand this short manual to get the best out of this mod

4 | Installation

As described above, if you don't already have it you will need to install GodMode which is very straightforward. Once that is done you simply need to do the following;

1. Navigate to the following location with Explorer

Documents > My Games > TrainSimWorld4 > Saved > SaveGames

2. Open your chosen downloaded preset which is contained within a zip file. Drag the file inside (GodMode.sav) into the above location overwriting if asked.
3. Ensure the game is set to launch with DX12 in the Steam launch parameters. *Follow this guide - [DX12 Steam Guide](#) - and put -DX12 in the launch parameters box*

4. **MANDATORY** | Navigate to the following location with Explorer

Documents > My Games > TrainSimWorld4 > Saved > Config > WindowsNoEditor

Open the file named 'Engine.ini' and leaving a line at the bottom of the existing text add the following lines (I suggest you copy & paste this). This should be the only additional text in this file. *This removes the lock on the Journey Mode chapters so you can play them in any order you see fit, allows you to enable or disable save game checkpoints and disable the annoying pop-up notifications. To enable checkpoints change the value to 1. **YOU MUST ADD THE LINE RELATING TO 'TIMEOFDAY' FOR THIS MOD TO WORK AS INTENDED***

```
[SystemSettings]
```

```
ts2.dbg.JourneyChapterLockOverride=1
```

```
ts2.save.CheckpointsEnabled=0
```

```
ts2.RewardMonitor.ShowLowImpactNotificationsAsFull=0
```

```
TimeOfDaySystem.VolumetricCloud.GroundContribution=1
```

5. The next step is optional but recommended for first time users and only really needs to be done once. You will see some hitching initially whilst the new shaders compile but once done the game should be smooth. The cache also clears as part of the installation process each time you update your GPU driver

- Type 'Disk Cleanup' into the search bar on your taskbar
- Open the Disk Cleanup app
- Select C drive, or whatever your main drive is labelled as and click 'OK'
- Check the 'DirectX Shader Cache' Box and click 'OK'
- When asked click 'Delete'

6. Close Explorer and start TSW4

7. Once loaded into a route you can navigate to the dynamic.ini section and you should see the following (note, to open the dynamic.ini look in the top right corner for the icon marked '.ini') The dynamic.ini's will now be installed for all applicable routes. To access GodMode in game simply scroll your mouse pointer to the very top of the screen and the menu will appear

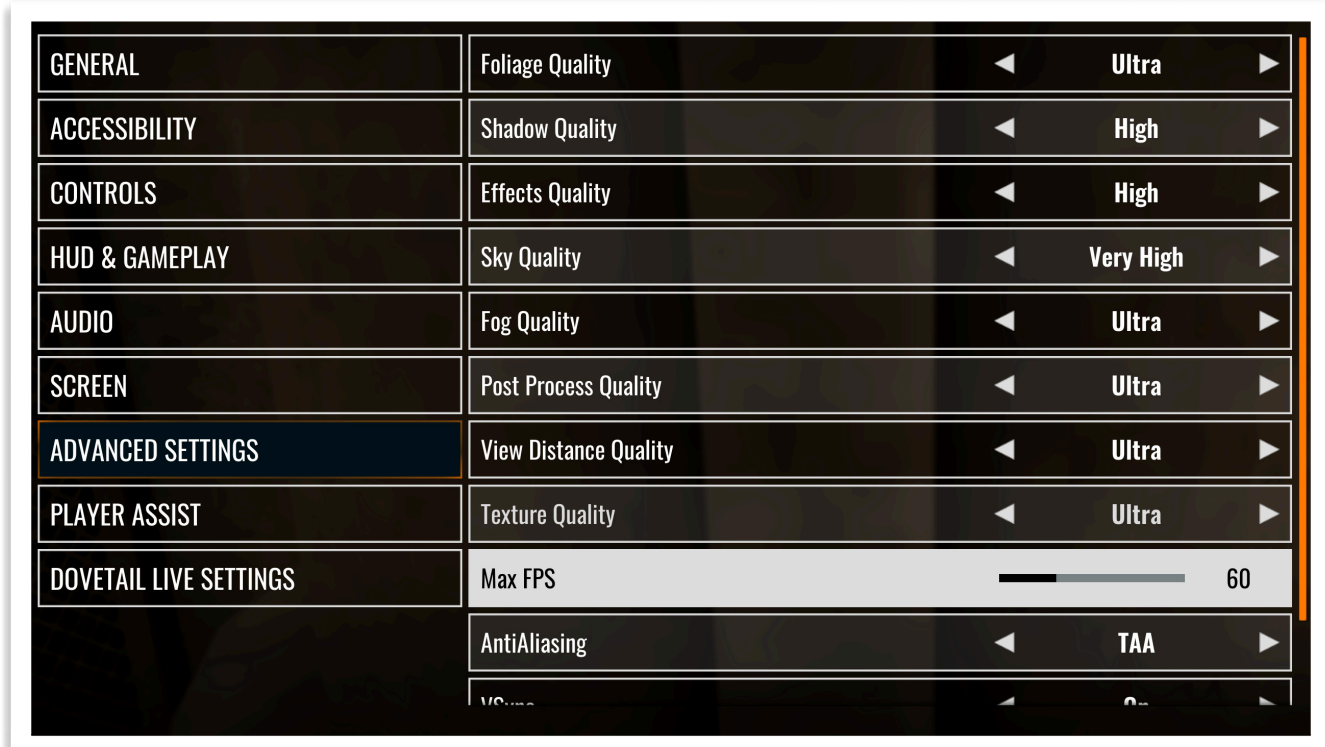


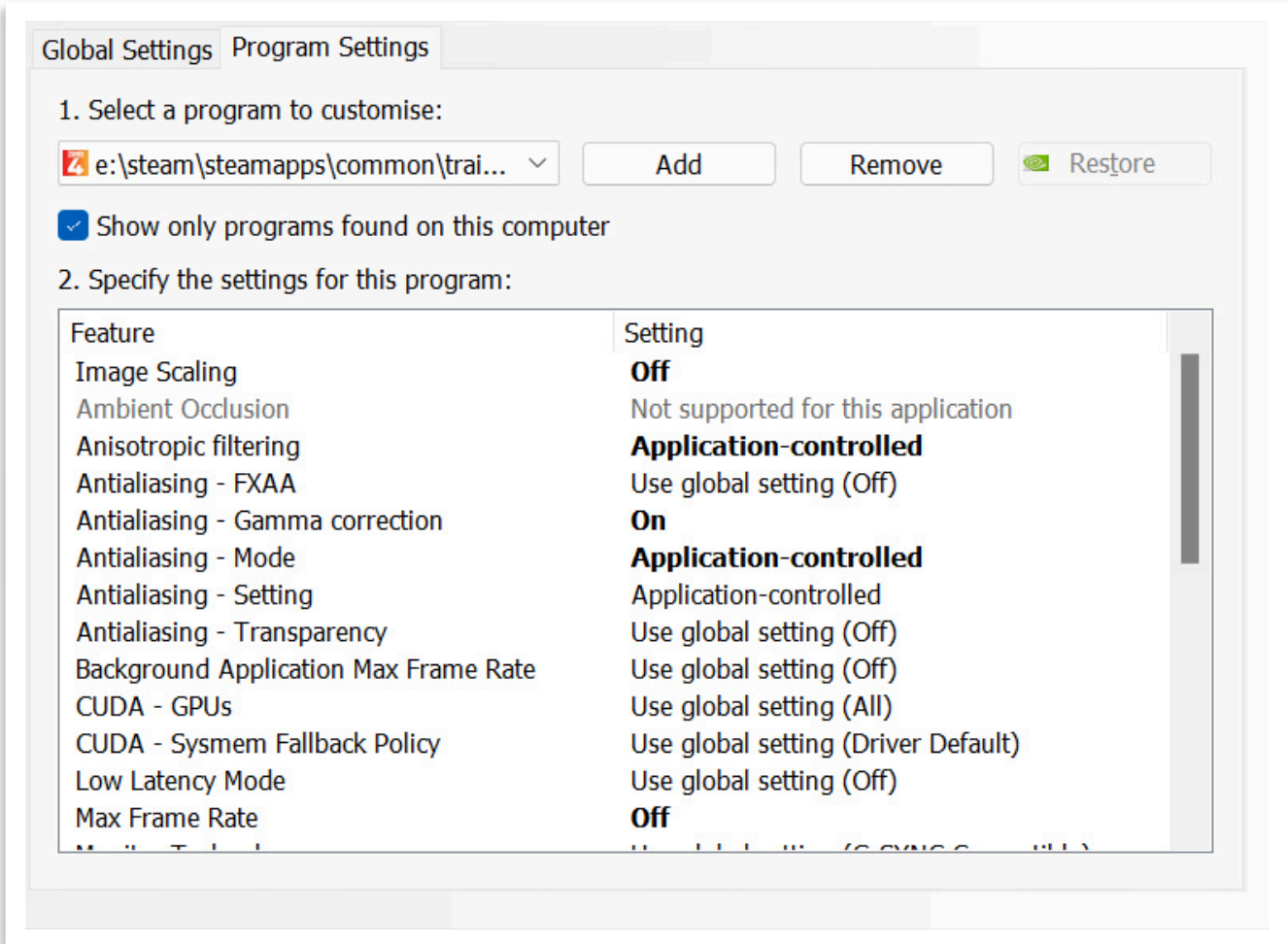
PLEASE NOTE - This mod is intended to be used with DX12. If you wish to use with **DX11** you can use the 'Low' preset without needing to change anything, otherwise you will need to make a change to each route preset which is detailed on Page 13 of this manual. With a preset other than 'low' and DX11 the game will not load unless you make the required changes

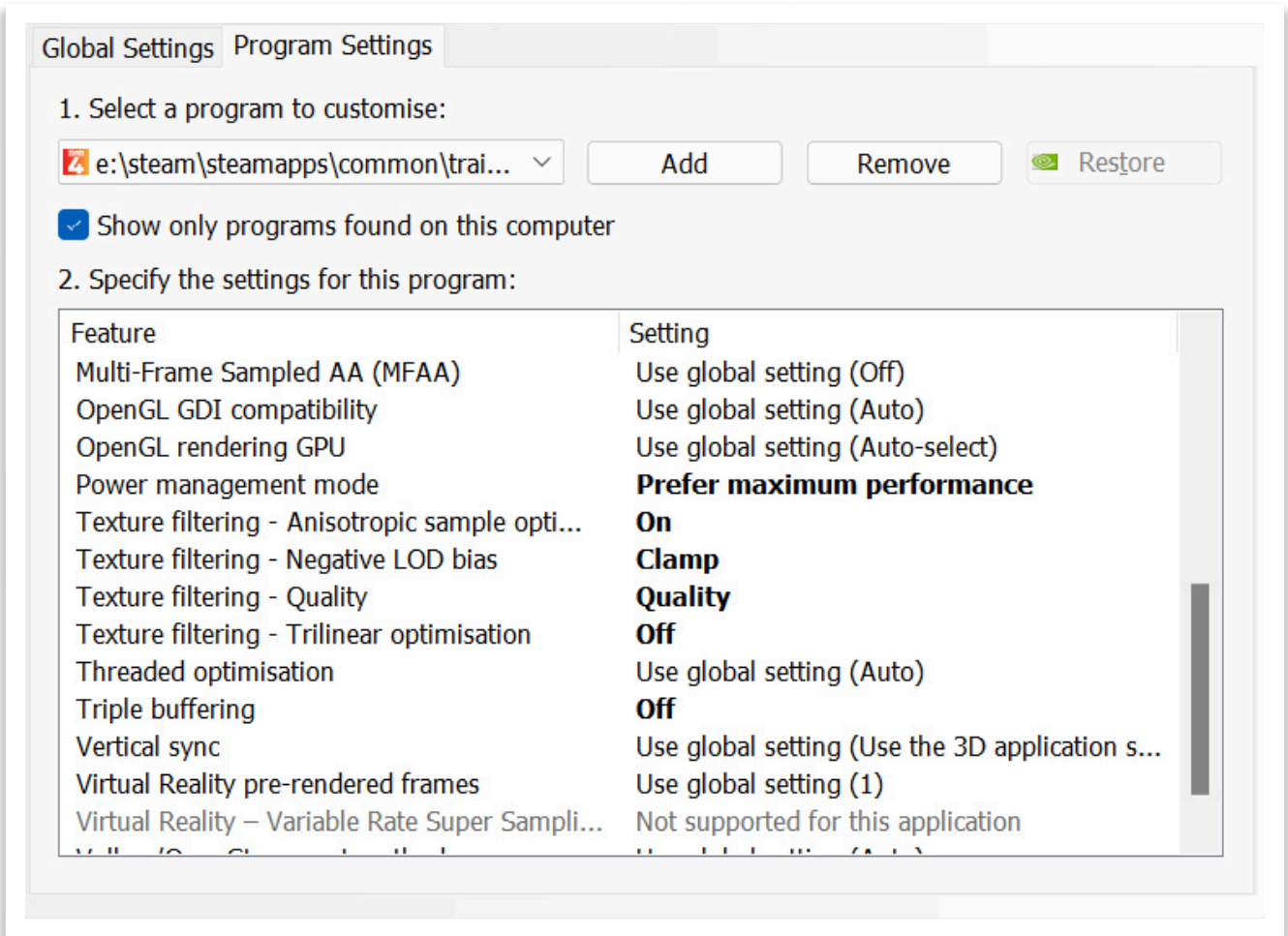
5 | My Settings

These are included as a guide only, and work well on my AMD 5800x3D, RTX3090 and 32GB of RAM

Do not set the 'Sky Quality' to Ultra. To avoid the unnecessary performance hit associated with that setting 'Sky Quality' must not be set any higher than 'Very High'. This mod includes big enhancements to the skies and volumetric clouds and Ultra will be incredibly demanding.







6 | Driving At Night

Sadly there is a fundamental problem with the lighting in TSW that makes driving at night a hugely disappointing experience due to overly bright screens etc. As it stands this is beyond the scope of a mod like this to rectify, as the only change we can make alters the emissive strength of one shader. This can, in turn, affect headlights, cab screens, instruments and PIS screens and does so at all times of day. That means that these things either look good by day but far too bright at night, or good at night and unreadable by day.

The legacy emissives are mostly left to default numbers in this mod to display correctly during daylight hours. To drive at night on **ToDv4** routes, however, I strongly recommend doing the following at the start of each service/scenario as it vastly improves the experience. Please note that this doesn't affect ToDv3 / TSW2 routes;

- 1) Scroll your mouse to the top of the screen to open the GodMode menu
- 2) Select *Console Commands*
- 3) Select *TimeOfDaySystem*
- 4) Select *TimeOfDaySystem.LegacyEmissiveAdjustments*
- 5) Overwrite the *.EmissiveMultNonLamp* value (default 2000) to somewhere between 100 and 500 depending on the route
- 6) Once done go back one menu and at the top select *TimeOfDaySystem.Reinitialize*

7 | TL:DR Checklist

For more detail please refer to page 6 of the manual

- Ensure GodMode is installed
- First time users delete your DX Shader Cache (one time only)
- Add the text on page 5 to your main engine.ini file to enable cloud ground contribution ([this is imperative!](#)), unlock Journey chapters, enable/disable save game checkpoints and disable in-game pop-ups (should you wish to do so)
- Place your chosen GodMode.sav file in the Save Games folder
- Start TSW4

8 | Thanks

I'd like to say thanks to the following forum users who volunteered to test this version, it's very much appreciated;

Bescot,
TKessel,
Fawx,
seatsea,
Thorgred

I'd also like to particularly thank [Foobian](#) for making the GodMode mod. It's a true game-changer and without it making this would have been almost impossible. I'm also really very grateful too for the additions made to enable changes to be made to the trees & skylight

Appendix I Adjusting Your Own Settings

As an example, below are all the lines in the Ultra pre-set for Midland Mainline, what they do and how they affect your game. You can change these in GodMode as you play and if you make a mess you simply have to re-install your chosen preset again.

`r.ViewDistanceScale=2`

This increases the draw distance of certain objects and is intentionally this low because of the grass cull distance line. There is no need for it to be higher than the pre-set value. Can adversely affect FPS

`foliage.LODDistanceScale=3`

`foliage.DitheredLOD=3`

Both the above commands increase the LOD draw of foliage (particularly trees) meaning you should see little to no pop-in, something TSW is famous for. Unless on a very high-end GPU do not go higher than this for post ToDv4 routes. Affects FPS

`grass.CullDistanceScale=2`

`grass.MaxUpdateFrequency=60`

Pushes the cull distance of grass further away from the player, allowing the view distance to be reduced. The second line pushes the type of foliage that grows in front of you as you drive to appear quicker than default. Increasing both these numbers will do nothing. Leave as is.

`r.D3D.ForceDXC=0`

`r.Shaders.FastMath=1`

*These two commands (as advised by Gelaxo) achieve two things. They ensure the game only compiles shaders compatible with DX12, which also perform better. **Remove this if you wish to use DX11.** The second command disables shader fast math optimisation which was originally intended to be a performance saver on mobile devices and low-end systems but which causes issues in TSW*

r.StaticMeshLODDistanceScale=0.5

Forces higher quality models to be loaded in further away. The closer to 0 the number is the higher quality models you will see. You do not need it to be any lower to this. Setting 0 causes chaos on AMD GPU's, don't do it! Affects FPS

r.SkeletalMeshLODBias=-2

Helps improve LODs on distant objects, and is included to lessen the shimmering of some fences etc. The further away from 0 you are (-5 for example) the more intensive this is. Affects FPS

r.LightMaxDrawDistanceScale=5

r.MinScreenRadiusForLights=0.02

These commands allow lights (including loco lights) to be drawn further away. 5 is the limit of the engine, so setting a higher number will do nothing. The second line is often seen set to 0.00 which is pointless. 0.02 gives better performance for no loss in visual quality

r.AllowLandscapeShadows=1

r.DistanceFieldShadowing=1

r.DFDistanceScale=10

As it says on the tin, forces on landscape and distant field shadowing. Either leave as is or remove. Affects FPS but has a huge effect on the visuals.

r.AmbientOcclusionLevels=3

r.BlurGBuffer=1

r.AmbientOcclusionRadiusScale=1.0

r.DepthOfFieldQuality=2

r.RenderTargetPoolMin=400

r.SceneColorFringeQuality=1

r.BloomQuality=5

r.FastBlurThreshold=7

r.ToneMapper.GrainQuantization=1

r.LightFunctionQuality=1

*EPIC recommended Post-Process Quality settings (which differ for each pre-set). Note, **Bloom Quality** on ToDv4 routes is always set to 5 as this affects the actual quality of the bloom. There is a separate bloom setting in amongst the lighting changes. On ToDv3 routes the Bloom Quality setting actually*

relates to the amount of bloom on a given route. If you find there is too much bloom of those older routes this is the number you need to change

r.Shadow.FilterMethod=0

r.Shadow.Virtual.ResolutionLodBiasLocal=1

0 is the default here. Should you wish to try Nvidia's shadow filtering you can change this to 1. It makes shadows softer and isn't for everyone. I see grainier shadows with it activated. Leave the second command alone

r.Shadow.DistanceScale=2

r.ShadowQuality=4

r.Shadow.CSM.MaxCascades=5

r.Shadow.MaxResolution=4096

r.Shadow.MaxCSMResolution=3072

r.Shadow.SpotLightTransitionScale=2048

r.Shadow.RadiusThreshold=0.03

r.Shadow.SpotLightTransitionScale=1.0

All the above commands relate to shadows and they will improve the look and draw of shadows. I would strongly suggest you leave them alone as they are at the limit of what the game can cope with. The numbers you can play around with are highlighted in green and relate to resolution. Be careful, they can absolutely kill FPS in certain circumstances due to DTG's love of 3D trees everywhere! You will see in the presets that these are all set differently. The numbers to use are 1024, 2048, 3072, 4096, 6144, 8192. Please note that 2048 equates to roughly 4K, 6144 to 6K and 8192 to 8K. They can work just fine in some instances but at dawn and dusk can have a massively detrimental effect on FPS due to cascaded shadows. The settings have to take this in to account and setting this too high will likely cause artefacts and could cause your PC to freeze or crash (not terminally, don't worry!)

r.CreateShadersOnLoad=1

niagara.CreateShadersOnLoad=1

Loads shaders upon route loading. Leave as is

TimeOfDaySystem.VolumetricCloud.RayMarchedShadows=1
TimeOfDaySystem.AutoExposure.ExposureBias=-0.9
TimeOfDaySystem.AutoExposure.MinBrightness=3.6
TimeOfDaySystem.SkyLightPollutionLuminance=0.3
TimeOfDaySystem.BloomIntensity=0.085
TimeOfDaySystem.SunIntensity=50000
TimeOfDaySystem.CloudShadowVolumetricResolutionScale=1
TimeOfDaySystem.Clouds.HighAltitude.CloudDensityMult=0.2
TimeOfDaySystem.VolumetricCloud.LayerHeightScale=2.0
TimeOfDaySystem.VolumetricCloud.LightPollutionMult=0.001
TimeOfDaySystem.VolumetricCloud.SampleCountScaleView=0.8
TimeOfDaySystem.VolumetricCloud.SampleCountScaleShadows=0.9
TimeOfDaySystem.StarIntensity=35
TimeOfDaySystem.MoonIntensity=2
TimeOfDaySystem.LegacyEmissiveAdjustments.EmissiveMultNonLamp=2000
TimeOfDaySystem.CloudShadowVolumetricStrength=0.8
TimeOfDaySystem.VolumetricCloud.RenderTargetMode=1
TimeOfDaySystem.ColorGrading.ShadowGamma=1.05
TimeOfDaySystem.MinimumCloudSpeed=0.375
r.VolumetricCloud.ReflectionRaySampleMaxCount=0.8
r.VolumetricCloud.Shadow.ReflectionRaySampleCount=8

All the above tweaks relate to TOD4 and have been finely tuned to each route. I'm not going to explain these as this is the crux of the mod and my setup

TimeOfDaySystem.AutoExposure.SpeedUp=10
TimeOfDaySystem.AutoExposure.SpeedDown=5

Do Not Change. These commands tune the rate at which eye adaption changes when going into, and out of tunnels, significantly speeding it up. Changing these numbers has a detrimental effect

r.Color.Mid=0.50
r.Color.Min=-0.0001

Gamma tuners that I have spent a lot of time tuning to each route. Again, strongly suggest these are left alone. For guidance ToDv4 routes have roughly 0.5 as their datum an ToDv3 seems to be closer to 0.8. The Color.Min figure affects how black darker colours are. Be very careful with these numbers, particularly the latter

gm.AutumnTreeMultiplier=0.45

r.SkylightIntensityMultiplier=0.4

Two new commands that have been enabled by Foobian very kindly adding them to GodMode for me. The first sets the redness of trees in Autumn - In Autumn the game always defaults to full 'Autumn Tree'. For the vast majority of the routes in the game this isn't realistic, and the fiery reds and oranges of a New England fall aren't generally seen in Europe. This has been tweaked to be much more realistic for each route. The second command is our old friend SkylightIntensity, except now this can be hardcoded into the route...no more messing around with sliders!

r.Upscale.Quality=4

r.TemporalAA.Upsampling=1

These commands relate to in-game upsampling and TAA. As I mentioned previously, I no longer recommend NIS as it doesn't seem to be working or looking as good as it did. I now use 4K resolution with the screen percentage at 90%. These settings improve TAA and the quality of the upscaling in the game over and above default levels

r.PostprocessAAQuality=4

r.Streaming.FullyLoadUsedTextures=1

r.Streaming.HLODStrategy=2

r.LandscapeLOD0DistributionScale=3

A number of commands to improve the visuals further. The TemporalAASamples command has been added back in once it was confirmed this wasn't responsible for blurring people thought they were seeing and significantly reduces the jitter when stationary. The next two commands are to reduce buildings and textures morphing right in front of the player and is a better option than disabling texture streaming entirely. The final command modifies the view distance for the most detailed terrain LOD allowing it to appear further away. It removes the issue you may have seen where the terrain morphs in front of you when entering and exiting tunnels. Very little to no fps impact.

r.VolumetricFog.TemporalReprojection=1

Relates to the volume textures (voxels) used by Volumetric Fog, which are relatively low-resolution. This enables the temporal reprojection filter to smooth out the aliasing

r.AmbientOcclusionLevels=2
r.AmbientOcclusionMethod=1
r.GTAO.FalloffEnd=200
r.GTAO.SpatialFilter=0
r.GTAO.NumAngles=2
r.GTAO.UseNormals=1
r.GTAO.ThicknessBlend=0
r.DFFullResolution=1

These all relate to the implementation of Ground Truth Ambient Occlusion and should really be left alone

You can add lines, take lines away, and play around with this to your hearts content. If you make a mess just re-install your favoured preset and you can start again

