



Connection, Framerate and Visual Tweaks

Framerate and Visual Tweaks

We are in the process of compiling a variety of settings so you can obtain the best compromise between performance and visual quality for your system. In order to use the tweaks you must add them to a file called *autoexec.cfg* in your Doom3 'base' directory or test them at the console. See the FAQ [How do I access the console](#) for details on how to enable the console.

The Magic Number - 60 FPS

Unlike previous games from id software you only need to achieve a *steady* frame rate of 60 FPS. Anything higher is simply ignored by Doom3's world update and player movement code. This will help even the physics field in multiplayer as physics will be the same on all machines. There appear to be cvars and hints in the source code (#define GAME_FPS 60) that with a mod servers could *possibly* alter the default tic rate, even if that were the case all players would still be forced to the server's game tic.

John Carmack of id software: *"The game tic simulation, including player movement, runs at 60hz, so rendering any faster, it would just be rendering identical frames. A fixed tic rate removes issues like Quake 3 had, where some jumps could only be made at certain framerates. In Doom, the same player inputs produce the same motions, no matter what the framerate is."*

Benchmarking

- 1) Load Doom3 using the shortcut that enables the console
- 2) Open the console using the ~ key below ESC or press CTRL ALT ~
- 3) Enter the command *timedemo demo1*
- 4) Wait until demo has finished and note your FPS
- 5) Adjust your settings/tweaks and repeat steps 2 to 4 until you find the settings with the best average FPS

Repeat steps 2-5 with the other Doom 3 benchmark

benchmark

To test your FPS while online type "com_showfps 1" at the console

Please make sure that you read the *Display and Rendering Tweak Notes* at the foot of this page. The hardware system specification I have here is a 1.8 GHZ AMD Athlon XP, Geforce4 ti4200/128/8x with 512 megabyte system ram. Tweaks are based on best compromise / quality in the single player game for that system.

Make sure that you do a *writeconfig DoomConfig.cfg* followed by a *vid_restart* after setting the cvar

Main Menu Options

Ultra

Each texture (diffuse, specular, normal) will be at full resolution with no compression. In a typical DO level, this can hover around 500 megabyte of texture data. This will run on current hardware but will run onto a 256MB card, causing texture thrashing. The amount of texture referenced in a given scene per frame (60 times a second) can easily be 50 megabytes+. This is ideal for 512 megabyte video cards.

High quality

Uses hardware compression (DXT1,3,5) for specular and diffuse textures and no compression for normal textures. This looks very very close to Ultra quality but the compression does cause some loss in quality. This is ideal for 256 megabyte video cards.

Medium quality

Uses hardware compression for all textures (specular, diffuse and normal). While this still looks good, compressing the normal maps can produce a few artifacts especially on hard angled or round edges. This is ideal for 128 megabyte cards.

Low quality

Uses hardware compression for all textures (specular, diffuse and normal) and automatically resizes diffuse and normal textures to no more than 256x256 and specular texture maps to no more than 64x64. This is ideal for 64 megabyte video cards.

Best Visual Compromise / FPS Compromise Config

Create a file called *autoexec.cfg* in your Doom3 'Base' directory and add the relevant config text

This is the best all round config for singleplayer, offering a good compromise between visual quality and FPS. If you wish to try more tailored configs (excellent, high, medium and low) see our [Tailored Configs](#) page or your own using the 'Display and Rendering Tweak Notes' section at the foot of this page.

64 Megabyte Video Cards

```
seta image_downSizeLimit "256"
seta image_ignoreHighQuality "1"
seta image_downSizeBumpLimit "256"
seta image_downSizeSpecularLimit "64"
seta image_downSizeBump "1"
seta image_downSizeSpecular "1"
seta image_downSize "1"
seta image_forceDownSize "1"
seta image_lodbias "0"
seta r_preload "1"
seta r_skipBump "0"
seta r_shadows "0"
seta r_useOptimizedShadows "1"
seta r_useTurboShadow "1"
seta g_bloodEffects "1"
seta g_decals "0"
seta g_showBrass "0"
seta g_muzzleFlash "0"
seta g_doublevision "0"
seta g_showPlayerShadow "0"
seta image_anisotropy "0"
seta image_filter "GL_LINEAR_MIPMAP_NEAREST"
```

128 Megabyte+ Video Cards

```
seta image_downSizeLimit "512"
seta image_ignoreHighQuality "1"
seta image_downSizeBumpLimit "512"
seta image_downSizeSpecularLimit "64"
seta image_downSizeBump "1"
seta image_downSizeSpecular "1"
seta image_downSize "1"
seta image_forceDownSize "1"
seta image_lodbias "0"
seta r_preload "1"
seta r_skipBump "0"
seta r_shadows "0"
seta r_useOptimizedShadows "1"
seta r_useTurboShadow "1"
seta g_bloodEffects "1"
seta g_decals "0"
seta g_showBrass "0"
seta g_muzzleFlash "0"
seta g_doublevision "0"
seta g_showPlayerShadow "0"
seta image_anisotropy "0"
seta image_filter "GL_LINEAR_MIPMAP_NEAR"
```

Display and Rendering Tweak Notes

Note: These are work in progress, more will be added over the coming weeks. To experiment with / use these settings try them at the console or create a file called *autoexec.cfg* in your Doom3 'Base' directory.

Some of the descriptions are currently taken from id software's in game list (listcvars)

NOTE: Some of these cvars are only suitable for multiplayer. In singleplayer you must determine if the trade off for FPS is worth losing some of the visual effects. As a guideline, faster is generally (but not always) uglier than slower =)

image_anisotropy	Sets the maximum texture anisotropy if available in the renderer. Set this cvar to 0 (faster) to 20 (slower)
image_filter	Changes texture filtering used for mipmapped images "GL_LINEAR_MIPMAP_NEAREST" (faster) "GL_LINEAR_MIPMAP_LINEAR" (slower)
r_shadows	Enables or disables shadows Set to 0(faster) or 1(slower)
r_useOptimizedShadows	Determines if static shadow volumes are used Set to 1(faster) or 0(slower)
r_useTurboShadow	Use a faster technique for generating dynamic shadows Set to 1(faster) or 0(slower)
image_roundDown	Controls if incorrectly sized textures are resized so they are close to a power of two. Set to 1(resize) or 0(no resize)
r_skipBump	Controls bump mapping, can be set so that games uses a flat surface instead of bump maps Set to 1(faster / uglier) or 0 (slower)
r_skipSpecular	Uses black for specular lighting, not worth the FPS gain in singleplayer Set to 1(faster / uglier) or 0 (slower)
r_skipOverlays	Skip overlay surfaces on textures. Negligible FPS gain.

	Set to 1(faster / uglier) or 0 (slower)
r_skipFogLights	Skip all fog lighting, negligible FPS gain. Set to 0(slower) or 1(faster)
r_skipPostProcess	Skip all post-process rendering such as distortion on windows glass / etc. FPS gain on some systems. Set to 0(slower) or 1(faster)
r_skipBlendLights	Skip all blending of lights, not worth the negligible FPS gain in singleplayer Set to 0(slower) or 1(faster)
r_skipDynamicTextures	Do not dynamically create textures, may help for slower systems Set to 0(slower) or 1(faster)
r_skipMegaTexture	Controls if the lowest level texture is always used. Not worth the , negligible FPS gain. Set to 1(faster / uglier) or 0 (slower)
r_skipTranslucent	Controls translucent interaction rendering such as the loading bar. FPS gain on some systems. Set to 1(faster) or 0 (slower)
r_gamma	Does not affect FPS, helps with brightness, do not set this too high or colours will become washed out. See r_lightscale. Set between 1 and 1.5, adjust r_lightscale for settings high than 1.5
r_brightness	Does not affect FPS, helps with brightness. Set between 1 and 2, if brightness is still a problem use r_gamma and/or r_lightscale
r_lightscale	Does not affect FPS, helps with brightness and raises the intensity of all colours.

	Set between 2(default) and 3, only use when you feel r_gamma and r_brightness have not helped.
image_lodbias	Controls lod bias on mipmapped images Range from -2 (slower / crisper) to 2 (faster / uglier)
pm_runbob pm_runpitch pm_runroll pm_bobpitch pm_bobroll pm_bobup pm_crouchbob pm_walkbob	Controls 'bobbing' up/down/side movement of player. Can help if you get motion sickness Set each of the bob cvars to 0 to disable bobbing
image_downSizeBump image_downSizeBumpLimit	Controls resizing of textures for bump maps. Helpful if your video card has less than 256 megabyte of video ram Set image_downSizeBump to 0(disabled) or 1(enabled) Set image_downSizeBumpLimit higher(slower) or lower(faster) Try 512 for 128 megabyte video cards and 256 for 64 megabyte video cards
image_downSizeSpecular image_downSizeSpecularLimit	Controls resizing of textures for bump maps. Helpful if your video card has less than 256 megabyte of video ram Set image_downSizeSpecular to 0(disabled) or 1(enabled) Set image_downSizeSpecularLimit higher(slower) or lower(faster) Set to 64 for 128 megabyte or 64 megabyte video cards
image_downSize image_downSizeLimit	Controls resizing of textures for bump maps. Helpful if your video card has less than 256 megabyte of video ram Set image_downSize to 0(disabled) or 1(enabled) Set image_downSizeLimit higher(slower) or lower(faster) Try 512 for 128 megabyte video cards and 256 for 64 megabyte video cards
image_forceDownSize	Forces resizing of textures. May not be worth the FPS gain in singleplayer

	Set to 0(slower) or 1(faster)
ui_showGun	Shows or hides your on screen gun model. Set to 1(slower) or 0(faster)
image_useCache image_cacheMegs image_cacheMinK	Controls memory set aside for temporary loading of full-sized precompressed images and files. WARNING - When set incorrectly this can cause Doom3 to crash at startup or cause instability/graphical artifacts in game. Set cache megs to a higher value if you have 512 megabytes or more of system RAM. Guideline is 1/6 to 1/4 of your system RAM. Set image_cacheMinK to 2048, this can be lower but may cause Doom3 to crash. Set image_useCache to 1 to enable background load image caching
image_useCompression	Determines if textures are used compressed. Set to 0 (uncompressed, high quality) Set to 1 (compressed, slight loss of quality) Important: Only set to 0 if you have over 256 megabyte of video ram.
image_useNormalCompression	Determines how normal textures are compressed. Unconfirmed settings: Set to 2 for higher quality/larger/slower rxgb compression Set to 1 for lower quality/smaller/faster 256 compression
image_ignoreHighQuality	Controls high quality settings on materials. Not worth the FPS gain in singleplayer
g_bloodEffects	Set to 0(slower) or 1(faster) Controls blood splats, sprays and gibs Set to 0 (faster) or 1 (slower)
g_decals	Control if decals such as bullet holes, burns on walls etc. are shown

	Set to 0 (faster) or 1 (slower)
g_showBrass	Controls if animation of ejected shells from weapons is shown.
	Set to 0 (faster) or 1 (slower)
g_skipFX	Controls if additional in game graphic effects are used
	Set to 1 (faster) or 0 (slower)
g_skipViewEffects	Controls damage and other view effects
	Set to 1 (faster) or 0 (slower)
g_projectileLights g_skipParticles r_skipParticles	Control if projectiles such as fireballs, etc. create dynamic lights or particles when fired (unconfirmed)
	Set g_projectileLights to 0(faster) or 1 (slower)
	set g_skipParticles and r_skipParticles to 1(faster) or 0 (slower). Do not alter r_skipParticles for singleplayer.
g_doublevision	Controls if your vision is affected when you take damage.
	Set to 0 (no doublevision) or 1 (doublevision)
g_muzzleFlash	Controls muzzle flashes when you or the enemy fires a weapon.
	Set to 0 (faster) or 1 (slower / more realism)
g_showPlayerShadow	Controls your player shadow
	Set to 0 (faster) or 1 (slower / more realism)

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