

CompeGPS HELP 3D Performance

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1 INTRO

The 3D Textures options have changed since version 5.61. Now there is an information box where you can see the memory status. Look at this document for more information about 3D performance and to take the most of the 3D view in accordance to your PC features.

2 TEXTURES AND VIDEO MEMORY

The 3D view performance can change a lot, depending on your PC configuration.

The first thing you must know is that the modern video cards store the textures in their own memory. (Textures are the bitmaps images shown in 3D, like maps, sky, etc). Video cards normally have 32Mb, 64Mb, or 128Mb.

If you configure CompeGPS to use a lot of textures, or very big textures, then these textures will not fit in the video card memory, so they will be stored in the conventional PC memory. If this happens, then the 3D performance will decrease.

2.1 SIZE TEXTURES

This is the size of the textures:

	No MipMaps		Using MipMaps	
	16bits	32bits	16bits	32 bits
256x256	0.12 Mb	0.25 Mb	0.16 Mb	0.33 Mb
512x512	0.5 Mb	1 Mb	0.66 Mb	1.3 Mb
1024x1024	2 Mb	4 Mb	2.6 Mb	5.3 Mb
2048x2048	4 Mb	8 Mb	5.4 Mb	10.6 Mb

If you select the 'Use MipMaps' option, the textures will need about 33% more of memory.

2.2 WE RECOMMEND

So we recommend using textures with a size of **1024**, and having your graphic card configured with **16** bits of colour. Each texture will use then 2 Mb.

3 MIP MAPS

Mipmaps are textures with different quality level on them. A mipmapped texture of 1024x1024 is really a texture made by several textures: 1024x1024, 512x512, 256x256, 128x128, 64x64, 32x32, 16x16, 8x8, 4x4, 2x2. If the texture is drawn far away, then the 3D system will use a low texture quality, maybe the 16x16 texture.

The effect of this is that the blinking of the far away texture disappears. Mipmaps are also drawn faster, but they need more memory!

4 COMPEGPS 2004 3D ENGINE

This new 3D engine can work with several textures and landscape qualities at the same time, so the terrain which is near is drawn with much more quality than the far away terrain.

4.1 STANDARD

The **STANDARD** mode generates 4 textures, and each texture is 3 times better than the previous one. This is the system used in CompeGPS version 5.4 and 5.5.

4.2 SIMPLE

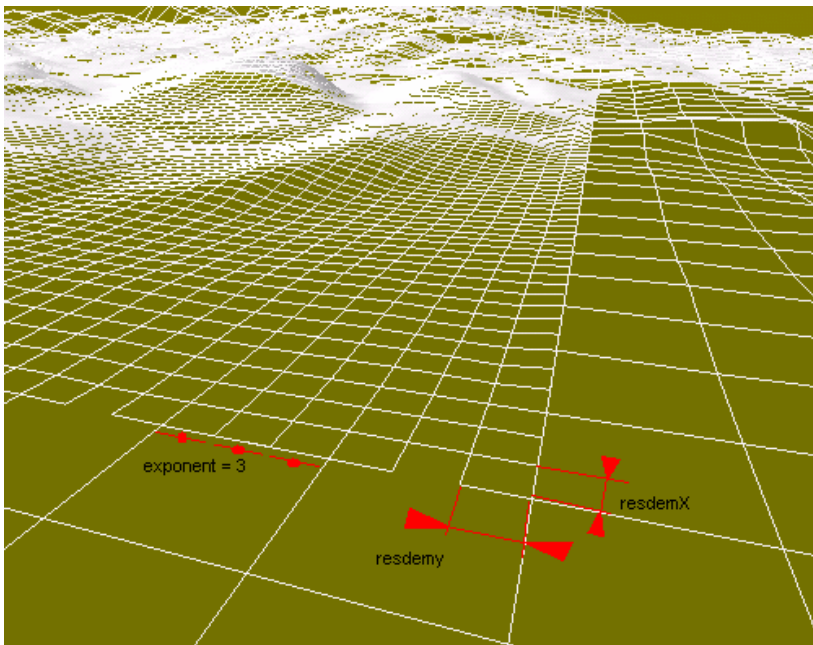
The **SIMPLE** mode only generates 1 texture, so it is recommended to use with powerless computers. You can try this mode with 100.000; it works quite well in a normal PC! (We made tests up to 10 millions of polygons: It works ok, but slow!)

4.3 ADVANCED

The **ADVANCED** mode, let's you configure all the 3D options. This is the definition of all its variables:

```
resdemx=90  
resdemy=90  
exponent=3  
num_polygons=5329// (73x 73)  
num_layers=4  
num_layers_subdem=1
```

This image shows some of these parameters:



“Exponent” is the size relation between one layer and the next one. In this example, it is 3.

num_polygons

The total number of polygons by layer.

num_layers



The number of layers

num_layers_subdem

Extra layer which will not have a better DEM precision, but have a better texture. The subdem layer only has texture, but not polygons. This is useful if you load a good 2D map, with a bad 3D map.

5 REGENERATION

When you are looking a 3D image, and you go out of the best precision sector, you can:

1. Press the Regeneration button . This button moves some layers, so they are centred again in your position.
2. Press the Automatic regeneration button, . When this button is pressed, then CompeGPS will continuously be regenerating, so the best quality area is always visible.

CompeGPS uses a separate process to make the automatic regeneration, so while it is regenerating, you can still navigate through the 3D view. In a normal Pentium PC, when it is regenerating, you will feel that the 3D is a bit slower. Some new Pentium IV, are real-multithreading: This mean they can really run two programs at the same time. If you have this type of processors, then the 3D view will not be slowed by the regenerating process!