Creating DDS Textures

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Introduction

As you may have noticed during your editing period, MaxED2.0 and in general Max Payne 2 uses a special texture format - the so called *.dds-format (Direct Draw Surface).
This tutorial will show you, how to save your textures to *.dds, how to make transparent textures and how you can save much time when creating big amounts of textures

Everything you need

In this tutorial I use Adobe Photoshop, as far as I know it's not possible to create semi-transparent textures with Jasc Paintshop Pro, but I will show you how to do full transparent ones in Paintshop too.

Next you need the plugins to create the *.dds-textures. Download the file/s at:

- http://developer.nvidia.com/object/nv_texture_tools.html

Well, it's maybe quite useful when you download *All NVIDIA Texture Tools*. You basically just need the *DDS Photoshop Plug-in*. Extract the plug-in to your *plug-ins\file formats*-folder of your Photoshop. The same plugin works for your Paintshop Pro.

Some small rules

- Texture size must be the power of 2 (2,4,8,16,32,64,128,256,512,1024,2048 -- can be 128x512,1024x256), otherwise the save button is not activated in the dds dialogue
- For stuff like HUD, menu or the graphicnovelpages DO NOT use mip-maps
- If your texture has an alpha channel (transparency), use DXT3 or DXT5

- For a level texture or character texture use DXT1 with "Full Discrete Fourier" as MIP map generation filter

Creating a DDS texture

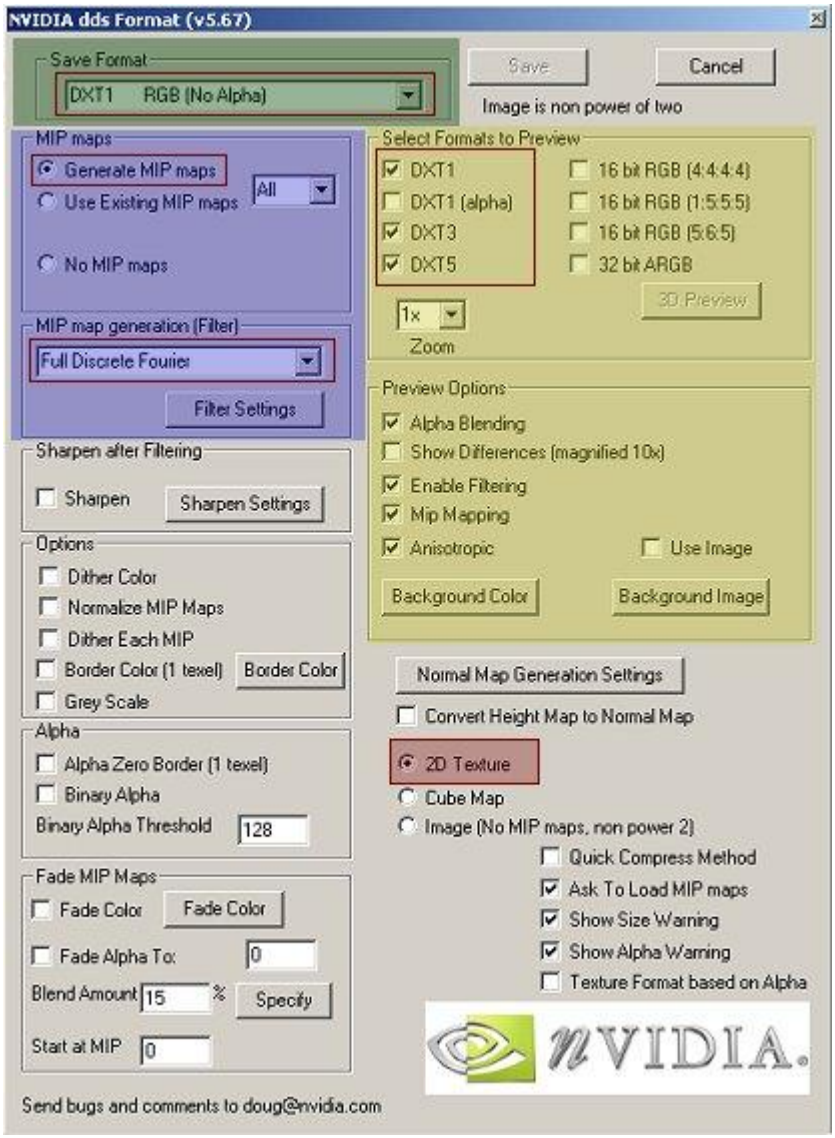
Now we create a dds texture. In this example a level texture - DXT1 and "Full DF"

It's good when you save your texture while editing as a *.tga-file (24bit or 32bit). Once you are finished with it you can *export* it to *.dds.

In Photoshop, open the finished texture. Then go to *File > Save As ...*. Now choose a folder, a filename and as format choose DDS (*.DDS). If this format option isn't available, check if you copied the plugin correctly. When you're

ready press Save.

After that, the Nvidia dds format properties window should popup. We are now able to change some important things.



Save Format (green)
Since we want to create a level texture we have to choose DXT1

MIP maps (blue)
Check the "Generate MIP maps" radio button

MIP map generation (Filter)
Choose the *Full Discrete Fourier*

2D Texture
This option indicates, that you want to save a normal 2D texture

Preview (yellow)
You can preview your texture in different internal formats of the *.dds-file

format.

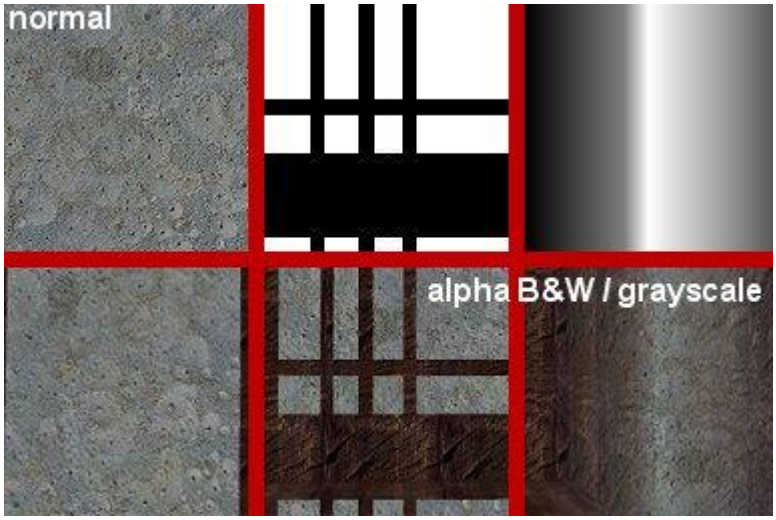
As you can see the *Save* and *3D Preview* buttons are not clickable, because my example texture size is not a power of 2. When it is you can save the *.dds-file by clicking on the save button or preview the texture formats by clicking on 3d Preview.

Creating a transparent texture - Photoshop

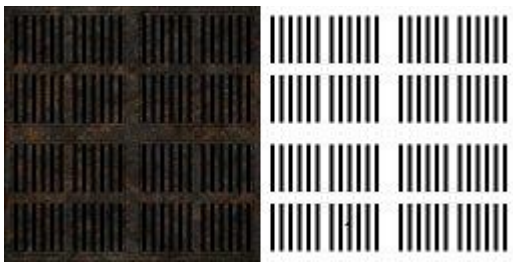
To create a transparent texture, we need to have the *normal* texture/image and an *alpha* channel image. The alpha channel of an image defines, where the texture is transparent and where not. This is defined through black, white and grayscales.

- ***White***, Full Opaque
- ***Black***, Full Transparent
- ***Grayscales***, Semi Transparent steps

Below is an example of a normal texture, a black&white alpha texture and a grayscale alpha texture:

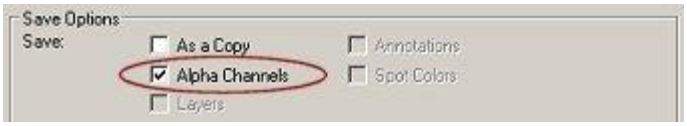


As you can see the white areas are opaque and the black areas are transparent. Now follows a real example for an alpha channel:



Well, to create a transparent texture, open up the *normal* texture in photoshop. Now go to the channel panel of photoshop and create a new channel by clicking on the small symbol on the bottom or the by clicking on the arrow in the right top corner *> New Channel …*

A new channel should appear. If the channel is not selected, select it. At least you have to copy your alpha image to the clipboard and insert it to the alpha channel of the texture. Then go to *File > Save As …* and again choose folder, filename and file format. At Save Options be sure that *Alpha Channels* is ticked on.



At the dds dialogue set the following options:

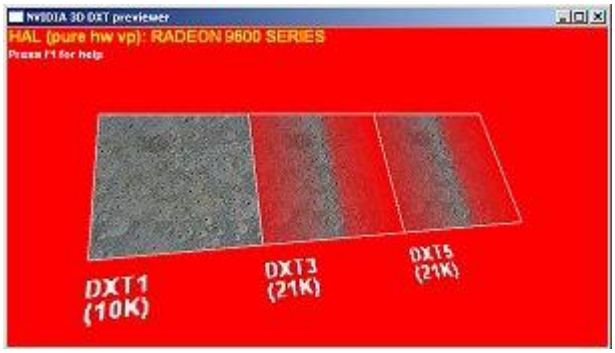
Save Format
Texture with transparency -> DXT3 or DXT5

MIP maps
Check the "Generate MIP maps" radio button

MIP map generation (Filter)
Choose the *Full Discrete Fourier*

2D Texture
Again, a normal 2D texture

Preview
You should do a preview before saving the texture. Tick on the checkboxes DXT1, DXT3, DXT5. Then click on 3D Preview. You now see the texture in different internal formats. Zoom with Mousewheel, Move with RMB, Rotate with LMB.
If you did everything allright, DXT3 and DXT5 images should be transparent...



Enabling transparency in MaxEd

After inserting the texture in MaxEd you have to change a bit at the texture properties. Open up the properties and click on the *Alpha Compare* radiobutton. If the result is not good change the *Reference Value* to 128 or 64.

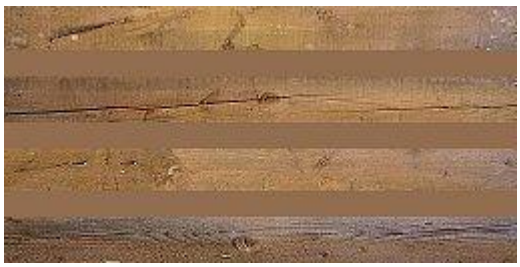
When using a grayscale alpha texture, like my second example, you have to enable *Edge Blend* and you maybe need a pretty small *Reference Value* like 32to1.

Creating a transparent texture - PaintShop Pro

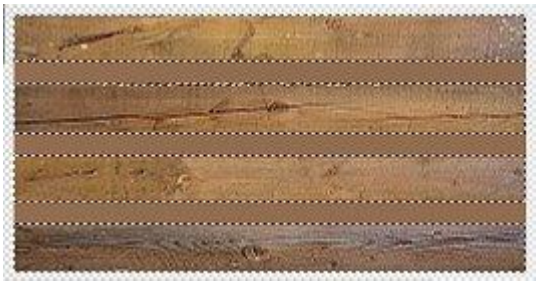
Well, as long as I know there's only a way to create full or no transparency in Paintshop. If you know how to create semitransparent stuff in Paintshop, send me a mail.

Put the photoshop plugin into the plugin folder of Paintshop Pro. Then check if the *.dds-format is available in your saving dialogue.

Open up your texture once it's finished.



Now you have to select the parts of the texture which should be visible. In most cases it's easier to select the nonvisible, but single colored, parts and then invert the selection. So in my example I select the brown parts using the common selection tools and after this I open up *Selections > Invert* in the menu bar. This will invert the selection.



Now go to *Selections > Save To Alpha Channel ...*
Click two times on OK and be sure that after this, your selection is still there.
Then go to *File > Save As ...*

Choose folder, filename and file format. At the dds dialogue set the following options:

Save Format
Texture with transparency -> DXT3 or DXT5

MIP maps
Check the "Generate MIP maps" radio button

MIP map generation (Filter)
Choose the *Full Discrete Fourier*

2D Texture
Again, a normal 2D texture

Preview
You should do a preview before saving the texture. Tick on the checkboxes DXT1, DXT3, DXT5. Then click on 3D Preview. You now see the texture in different internal formats. Zoom with Mousewheel, Move with RMB, Rotate with LMB.
If you did everything allright, DXT3 and DXT5 images should be transparent...

Creating dds textures using a batch file

When having big amouts of textures you can convert them to dds using a batch file and the nvdxt.exe (included withing full tools download)

Create a folder and copy the nvdxt.exe to it. Save the textures you want to

convert, to the same folder as *.tga files (24Bit, 32Bit-alpha).

Now open up a texteditor and write the following - Thanks for that example to SamiV:

nvdxt.exe -24 dxt1c -32 dxt5 -dither -timestamp -deep c:\mytexturefolder -outsamedir -rescale lo -file *.tga

Here's a description what it does:

- reads files from *c:\mytexturefolder*
- convert 24bit TGAs to DXT1
- convert 32bit TGAs to DXT5
- add dithering to all images (highly recommended due to the "palette" compression DDS uses)
- uses timestamps so only .tga files which are newer than their .dds counterparts are converted. Eg, only the changed files are converted
- processes folders recursively
- outputs the .dds files in the same folder as the .tga files were found
- if the .tga file is not a power of two (eg, 512*512) then it wil be rescaled downwards to the nearest power of two

Save the file as *.bat file (e.g. convert.bat) into your created folder. Execute it by double clicking.

In this example the default mip map filter *box* is used, because the -full parameter isn't available anymore. As you see you also can save the textures to a folder of your choice.