2-13-2009

WORLDVIZ

Max to Vizard Custom Shader Workflow

WORLD VIZ

In-Production - Not Officially Released

2009

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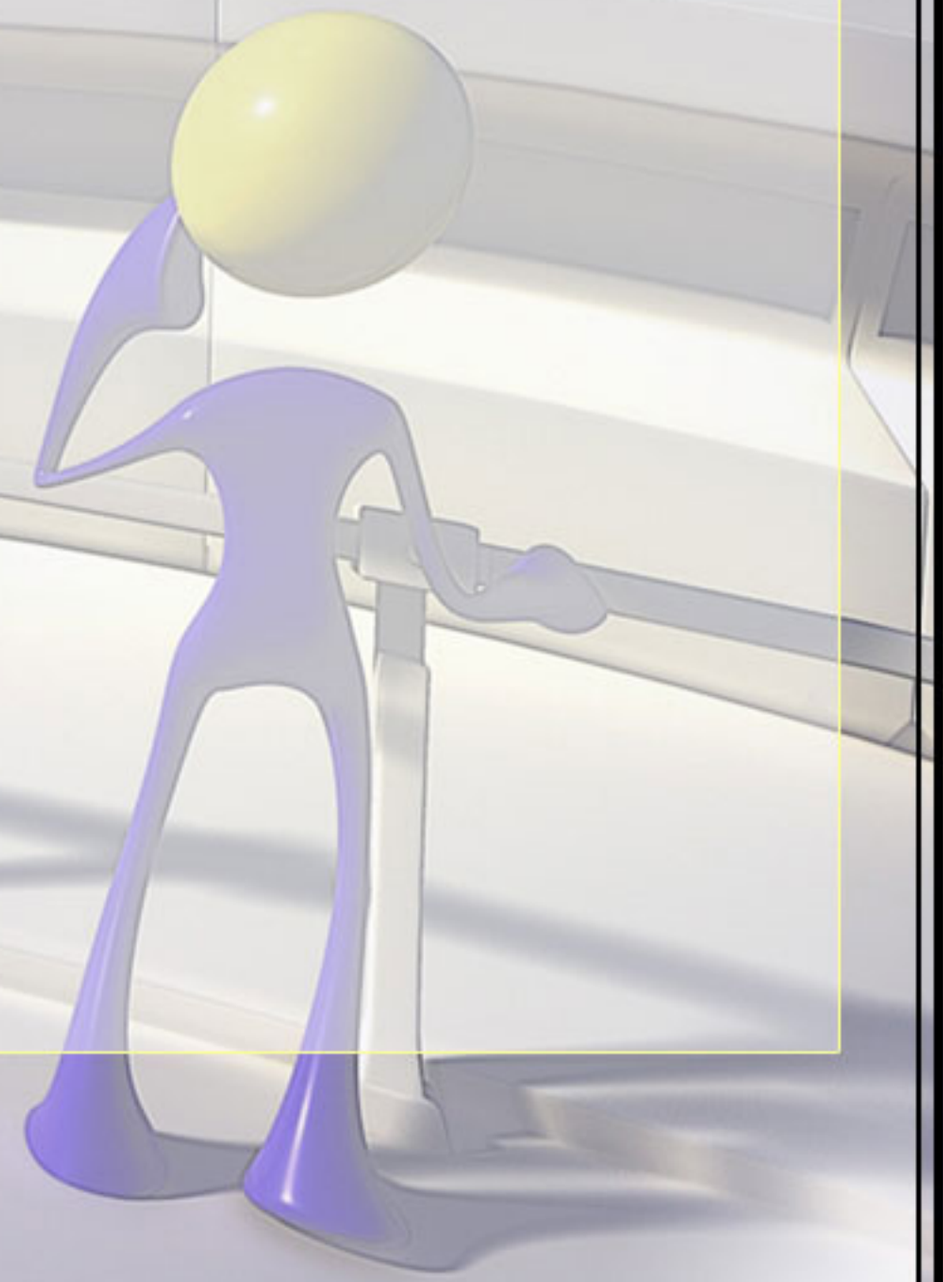
Note: This manual is not officially released - it is still in production. If you get stuck, let us know.

This guide is intended to explain the workflow from Autodesk 3ds Max to Vizard. It covers the basic features of the OpenSceneGraph (OSG) exporter and both standard and custom shader workflows.

Contents at a glance:



THE OSG EXPORTER

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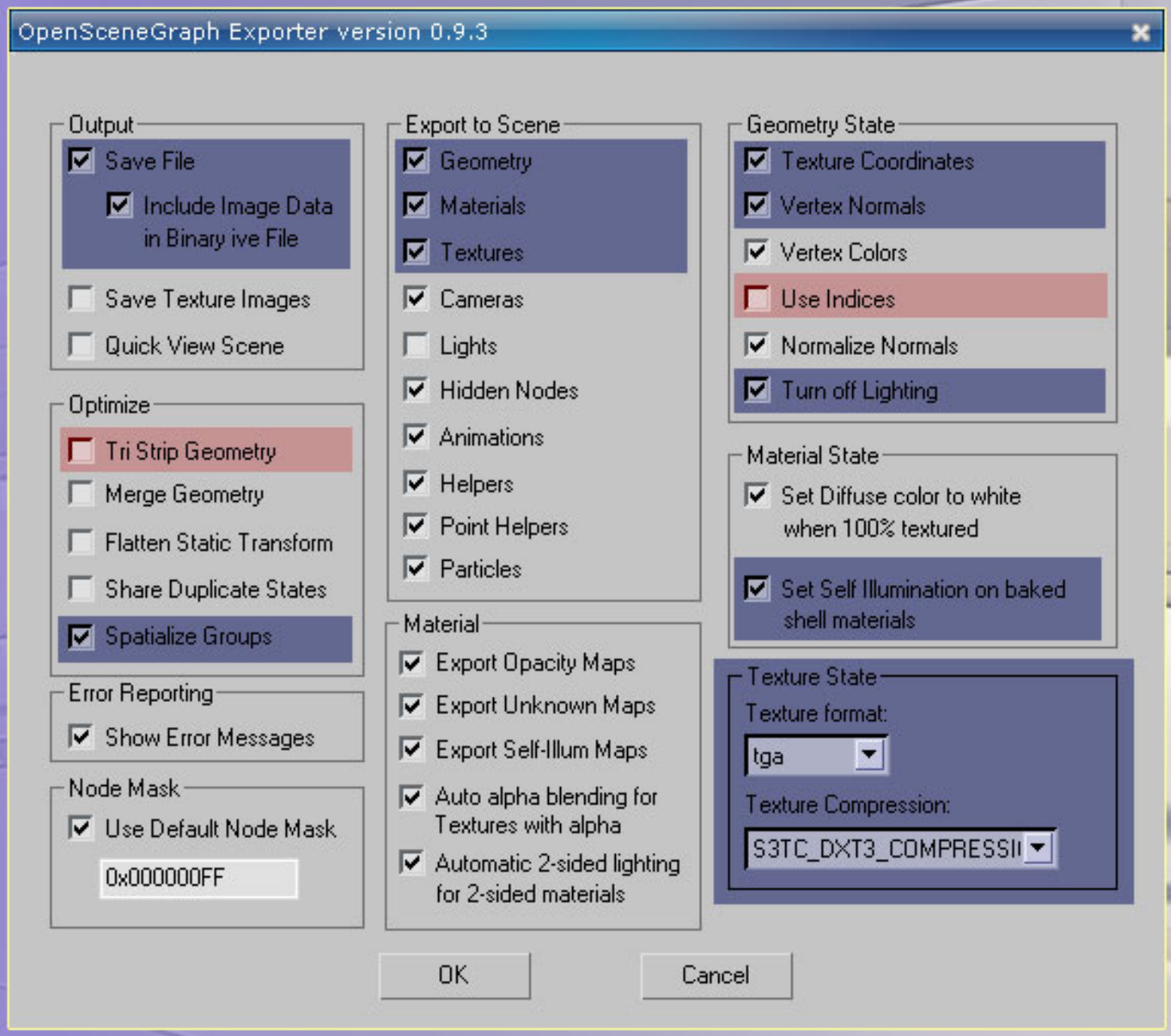

To view models in Vizard, go to *File -> Export* or *Export Selected* and chose OpenSceneGraph. By default, files will save as the .IVE binary format. This is usually the format you want to use: the files are smaller, it loads faster, and when using DXT compression, it will automatically resize textures to be compatible with your graphics card instead of at load time

Blue: Keep these checked. These are the main settings to use to see your models in Vizard.

Red: Leave these unchecked. These settings are known to cause problems in Vizard. "Use Indicies" can screw up smoothing groups, and enabling "Tri Strip Geometry" can cause crashes in certain cases.

For more information on the individual settings, visit the OSG Export website.

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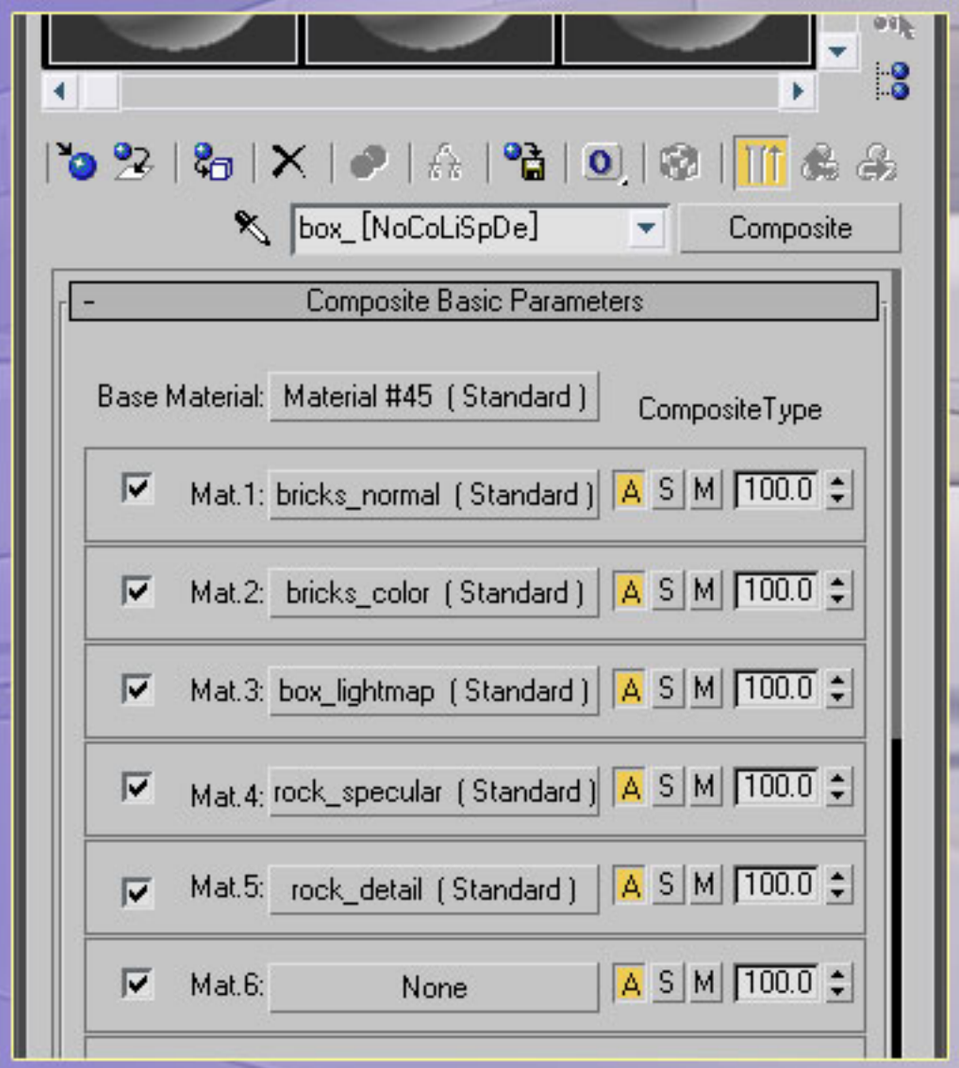
SETTING UP MATERIALS FOR EXPORTING



The shader requires a special material setup to work properly, as seen on the left.

Here are the basics:

-Shader materials are currently set up in a composite material with slots filled by standard materials. The map you want to use for that slot needs to be placed in the standard material's diffuse slot.
-The type of map is specificed in the name of the composite material with a series of two-letter codes placed within [] square brackes after an _ underscore.
-The names of the sub materials are arbitrary, but it is useful to give them a meaningful name to keep from getting confused.
-Composite materials will work within multi/sub-object materials, but not the other way around.
-The two-letter codes are case sensitive.

Reference for two-letter codes:

Co - Color map
No - Normal map
Li - Light map
Sp - Specular map
De - Detail map
Re - Reflection map
Ma - Blend mask*

*When using blend masks, maps for the second material use a 2 in place of the second leter of their map code. Same idea for the 3rd, if used. Eg: C2 - Color map 2

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MULTI/SUB-OBJECT SETUP

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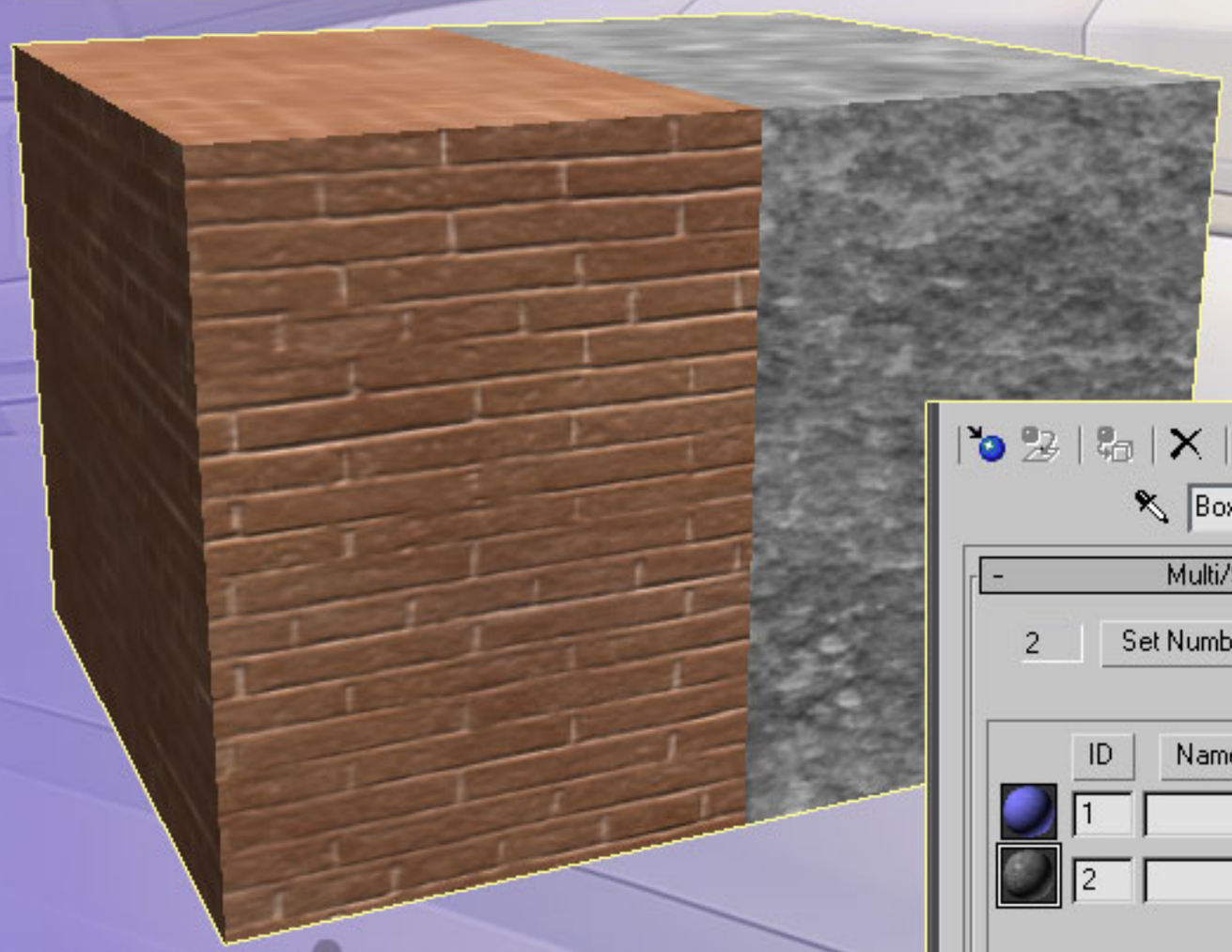
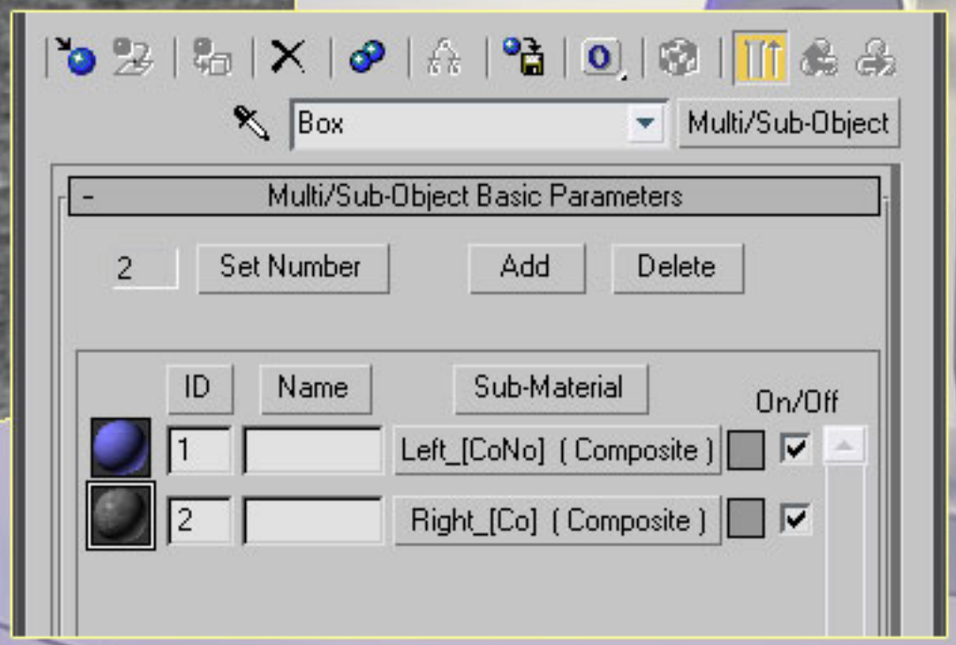
- Box (Multi/Sub-Object)
  - (1) bricks: Left_[CoNo] (Composite)
    - Base: Material #160 (Standard)
    - Mat. 1: Material #161 (Standard)
      - Diffuse Color: Map #28 (bricks_Co.tga)
    - Mat. 2: Material #165 (Standard)
      - Diffuse Color: Map #30 (bricks_No.tga)
  - (2) notbricks: Right_[Co] (Composite)
    - Base: Material #163 (Standard)
    - Mat. 1: Material #164 (Standard)
      - Diffuse Color: Map #29 (rock_De.tga)



The Multi/Sub-Object material works the same way when exporting shader materials as with regualr exports. The Multi/Sub-Object goes on the top, and the composite materials are placed in the next level down.

You are not restricted to using the same kind of maps on both parts of the object. This example uses a color and normal map on the left, and a different color map on the right.

-The Multi/Sub-Object material can be freely named. Its name has no effect on the exported scene.



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DETAIL MAPS

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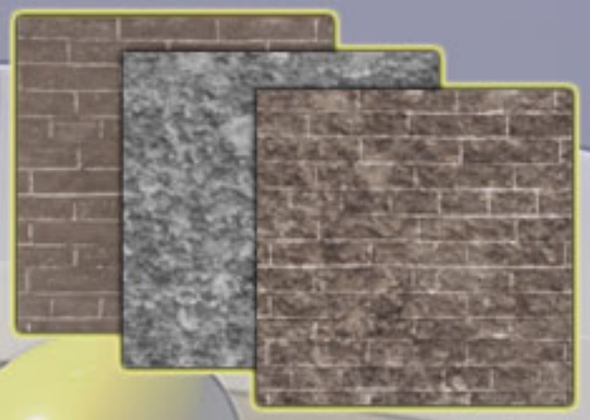
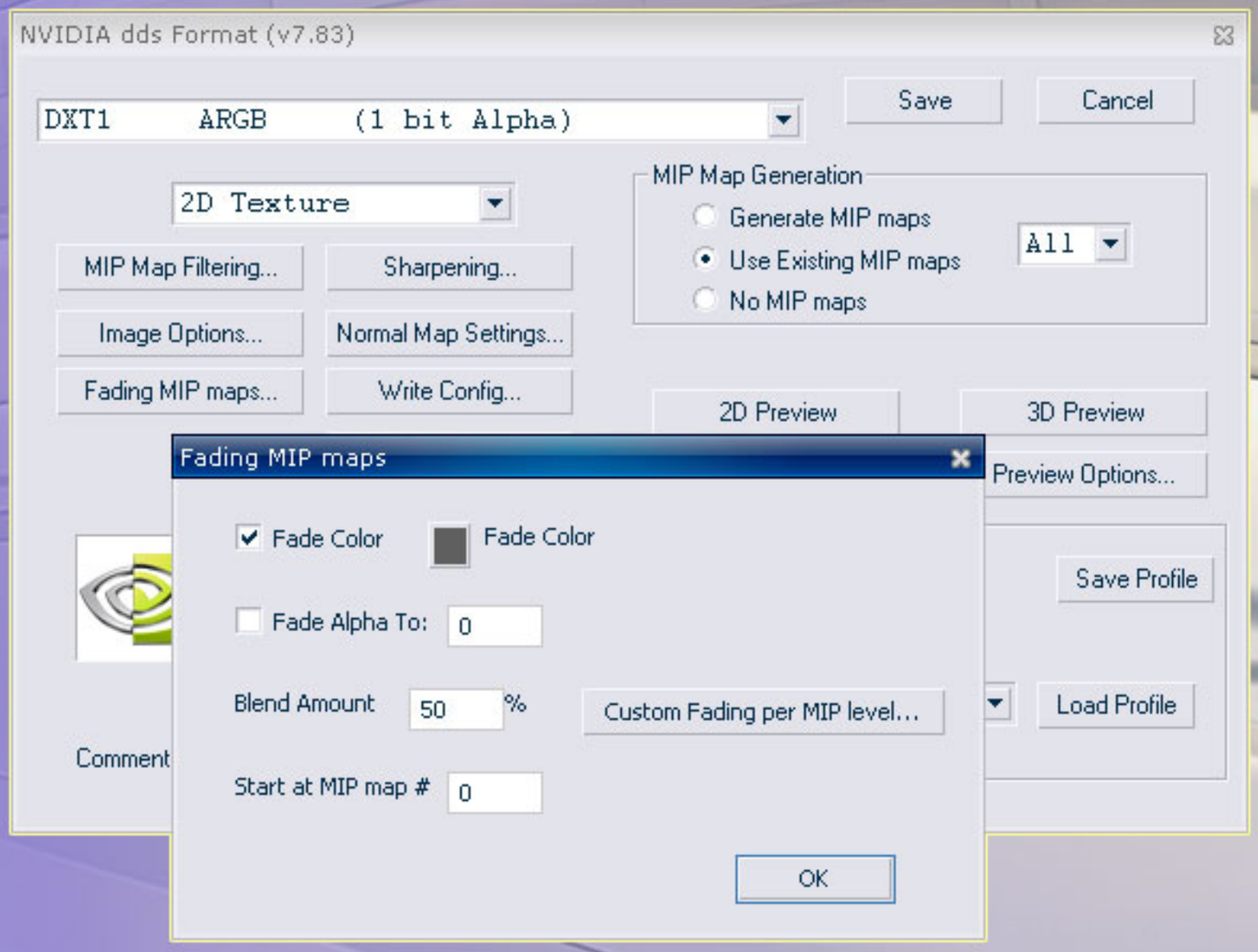
Detail maps are used to mimic the closeup detail of a map. This is done by overlaying another texture, usually greyscale and densly tiled. An example can be seen in the upper right.





To prevent the dense tiling from being noticable from a distance, it is common to save them as DDS materials with mipmaps that fade to middle grey.

Middle grey blends neutrally with the diffuse texture, so it only fades in when you get up close.

Saving to DDS from Photoshop requires a free plugin, which can be found on the NVidia website.

Production Note: The export process does yet current support custom DDS materials. Any such materials currently have to be added within thescript. The plugin also has a few compatibility issues with Vista.

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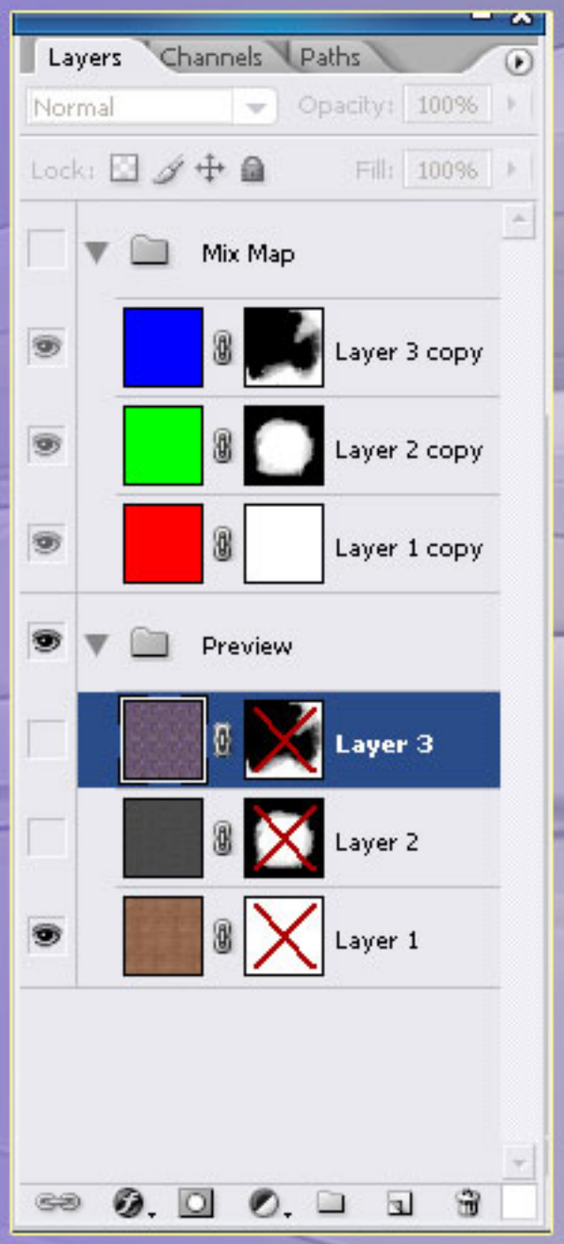
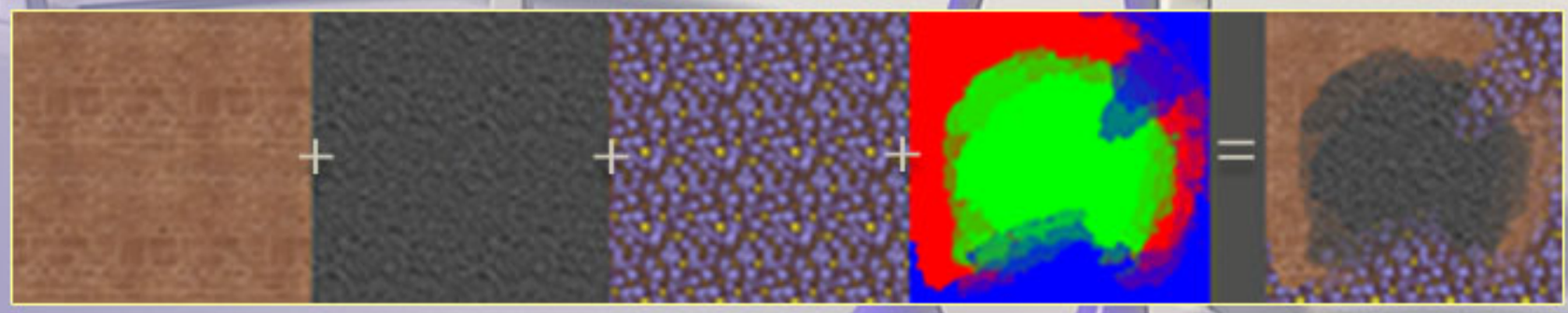
BLEND (AKA MIX) MAPS



Blend maps allow you to blend between at most three sets of maps using an RGB mask. The R value specifies the first texture, Green the second, and Blue the third. When painting the masks, it is recommended that you use only layers filled with a solid red, green, or blue and control the output with the alpha. This keeps the mixed values from going higher than they are supposed to be.

Blending is not just limited to color maps. In fact, there doesn't need to be any consistency between the kind of maps used by each set.

The composite materials used are set up the exact same way as the regular ones are, except the codes for the other sets has the second letter replaced with a number. Since there are only 9 usable slots in a composite material, you can currenlty only use 9 maps total when blending.
The material name will look like this: Object_[MaCoSpNoC2D2N2C3N3]



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REFLECTION MAPS

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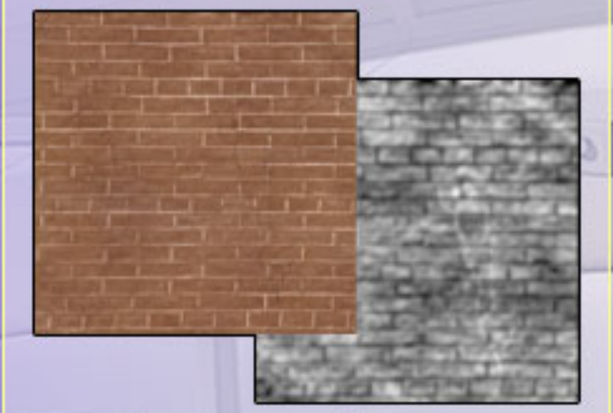
Reflection maps can be added to objects to make them look more like metal, glass, etc. The reflectivity of the surface is controlled by the specular map and the alpha channel of the reflection map. The specular map indicates what parts of the object are more refelctive, and the alpha channel indicates what parts of the map to reflect and how much. Some materials have mirror like-reflections. Other materials will reflect only the brightest parts, which is what creates specular highlights.



Color & Specular maps

Things to note about using reflection maps:

-Reflectivity is controlled by the specular level map and the alpha of the reflection map
-Reflections are applied automatically based on the surface normals.
-UVW coordinates have no effect on reflection maps
Editor's Note: Cube maps can also be used (? code I think was Cu? Not sure if we got it fully working. Cube maps can be renered out from max's "reflect" map.)

Reflection + Alpha + Specular = Result

Reflection + Alpha + Specular = Result

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WATER SHADER

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Limitations:

-Only works with flat horizontal planes.

-Relfection/refraction does not work properly in stero.

-Shader must currently be added manually to objects within vizard

-Needs a custom DuDv (?) map.

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