

6/6/2007

WORLDVIZ

Max to Vizard Cookbook

2007

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Welcome to the Worldviz: 3ds Max to Vizard Cookbook. This guide is intended to ease the process of exporting from max to Vizard.

The topics covered are:

p.2 - Using the OSG exporter

Materials:

p.3 - Setting Up Materials for Exporting

p.4 - Multi-subobject setup

p.5 - Detail Maps

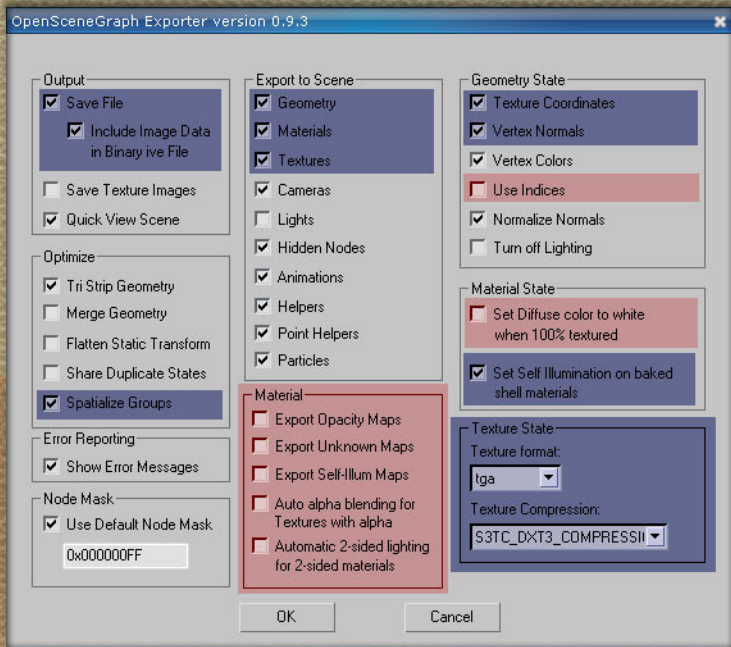
p.6 - Blend Mask Setup

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The OSG Exporter



To view models in Vizard, go to *File* -> *Export* or *Export Selected* and choose 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 it can automatically resize textures to be divisible by 4 for using DXT compression.

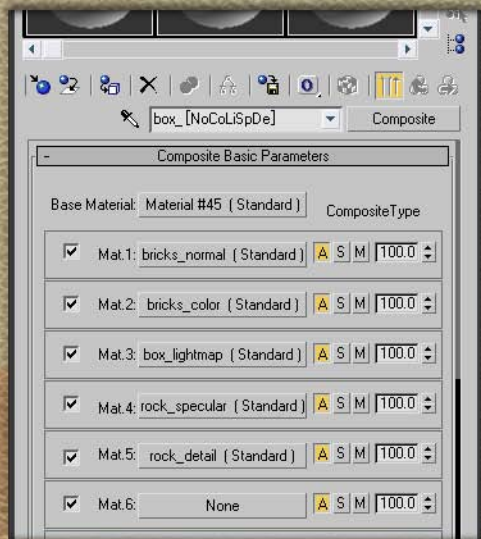
Blue: Keep these checked. These are the main settings to use to see your models in Vizard.

Red: Leave these unchecked. These either have no effect, such as the items under Material, or they can conflict with the shader, such as with Use Indices.

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

Setting Up Materials for Exporting



We need to set up a material that Vizard can use to automatically apply the necessary shaders. It will look something like the image on the left.

Here are the basics:

- For each map, create a standard material and place that map in the material's diffuse slot.
- The name of the composite material is read by the shader to determine how to use each map
- The suffix must come after an underscore `_` and must be surrounded with square brackets `[]`
- The suffix uses a series of two letter codes that reflect what maps are used, and the order they have been placed in.

Maps to two letter suffixes (case sensitive)

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, for the maps you are blending into the regular ones, substitute a 2 for the second letter.

Ex. C2 - Color map 2

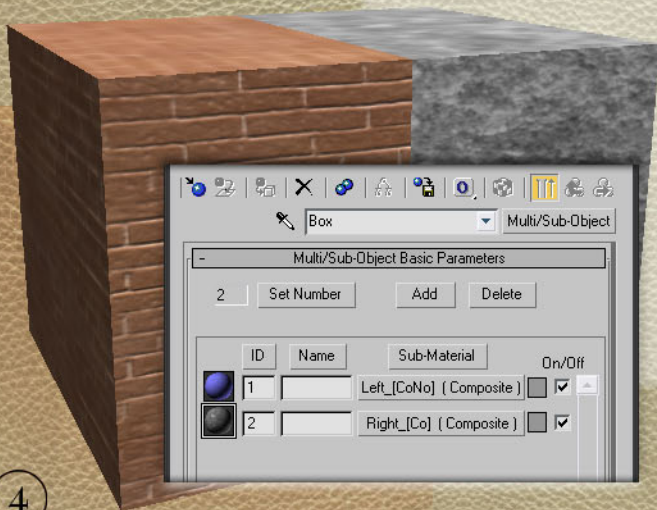
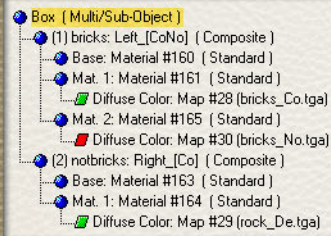
Multi/Sub-object setup

Setting them up:

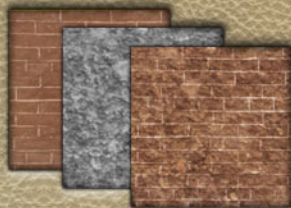
The Multi/Sub-Object material works the same way with Vizard exports as with regular Max scenes: The Multi/Sub-Object goes on the top, and the materials for each Mat ID are placed in the next level down. These materials use the exact same setup as shown on the previous page.

Things to note:

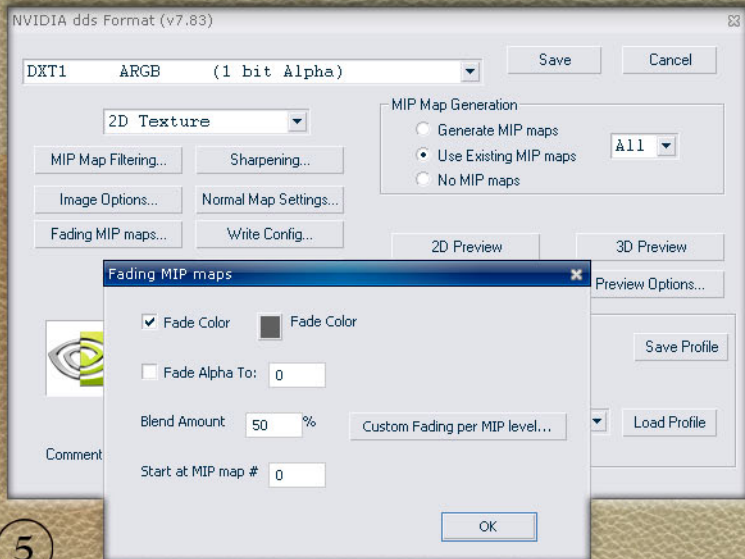
- You are not restricted to using the same kind of maps on both parts of the object. The example uses a color and normal map on the left, and a different color map on the right.
- The Multi/Sub-Object material can be freely named. Its name has no effect on the exported scene.



Detail Maps



Detail maps are used to make relatively low resolution color maps look like very high resolution color maps. This is done by overlaying a grayscale texture, which is often tiled densely. An example can be seen in the upper right.

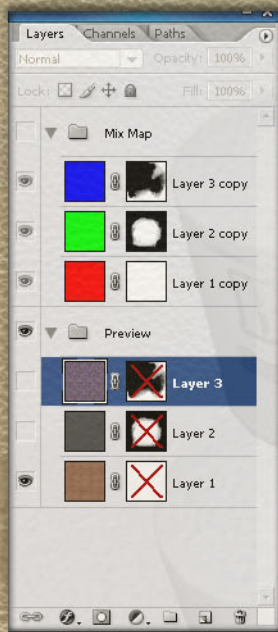


To prevent the dense tiling from being noticeable from a distance, it is common to save them as DDS materials with mipmaps that fade to middle grey.

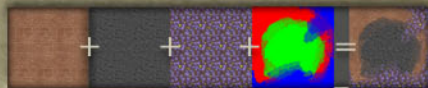
Middle grey blends neutrally with the diffuse texture, so it only fades in when you get up close.

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

Blend 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.

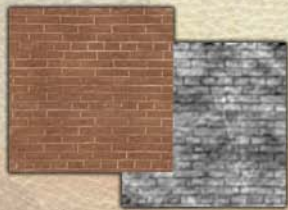


Blending is not just limited to color maps. In fact, there doesn't need to be any consistency between the kind of maps used by each set.

The composite materials used are set up the exact same way as the regular ones are, except the tags for the other sets get a number attached to them. Since there are only 9 usable slots in a composite material, you can currently only use 9 maps total when blending. The material name will look like this: Object_[MaCoSpNoC2D2N2C3N3]

Reflection Maps

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 reflective, 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:

- The composite material tag for reflection maps is Re
- 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 affect on reflection maps
- The shader cannot currently handle cube/spherical maps. It is currently impossible to do a completely accurate reflections of an object's surroundings using this method.



Reflection + Alpha + Specular = Result



Reflection + Alpha + Specular = Result

Water Shader



Limitations:

-Only works with flat and nearly flat objects (eg. plane), and is not meant for objects with real dimension (eg. boxes/spheres/characters)

-Shader must currently be added manually to objects within vizard

Change Log

6/6/2007

- **New** Reflection map page
- Modified table of contents to reflect changes
- Updaed other pages to include reflection map info
- Changed page order

5/10/2007

- **New** Blend Map page
- Modified table of contents to reflect changes

Change Log

4/25/2007

- **New** Detail Map page
- Modified table of contents to reflect changes
- Corrected spelling errors

4/24/2007

- Now in PDF Format
- Modified table of contents to reflect changes
- Modified OSG Page:
 - Made blue darker and red lighter so page is still understandable when printed in black and white.
 - Now recommending DXT3 compression instead of DXT1
 - Slight modifications to text
- **New** Multi/Sub-object Setup page
 - Defines setup to be able to use Multi/Sub-Object materials with the shader
- **New** Water Shader page
- **New** Change Log page

4/20/2007

- Slight change to composite material naming convention. Suffixes must now be surrounded by square brackets []
- **New** OSG Exporter Page

4/19/2007

- Cookbook started, created page template
- **New** Cover
- **New** Intro/Table of contents
- **New** Composite material export page