Choose DDS as the format you want to save in.

# **DDS Texture Export**

# **Overview**

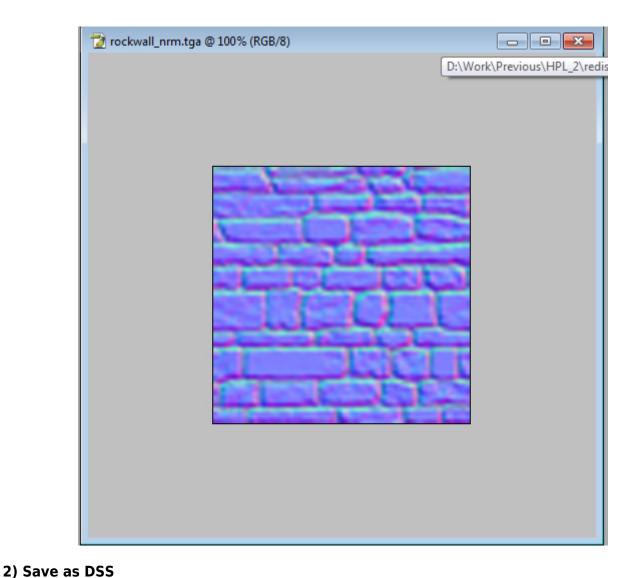
This tutorial will go through how to export a normalmap in the 3Dc format using the NVidia Texture Tools.

The pretty much the same pattern can be used to export a diffuse, specular, etc texture, but normal map has some extra stuff so using this in this tutorial.

# Steps

## 1) You texture

Here is the texture that we want to export as a DDS.



| 🍠 Save As                             |                       |                                                                         | <b>X</b> |
|---------------------------------------|-----------------------|-------------------------------------------------------------------------|----------|
| Save i                                | n: 🌗 rockbox          | - 🚱 🍺 📂 🖽 -                                                             |          |
| Recent Places<br>Desktop<br>Libraries | s<br>.svn             |                                                                         |          |
| Network                               | File name:            | rockwall_nm.dds                                                         | Save     |
|                                       | Format:               | D3D/DDS (*.DDS)                                                         | Cancel   |
|                                       | Save Options<br>Save: | As a Copy     Annotations     Alpha Channels     Spot Colors     Layers | se DDS   |
| Color:                                |                       | Use Proof Setup: Working CMYK<br>ICC Profile: sRGB IEC61966-2.1         |          |
|                                       | Thumbnail             | Use Lower Case Extension                                                |          |

#### 3) The Save dialog

Choose the format at the upper left of the dialog. Here we will choose 3Dc, which is the normalmap format the engine uses. For a color texture this would be DXT1 or DXT5.

Always make sure to generate the mipmaps when saving and make sure to have it set to "All".

|            | NVIDIA dds Format v8.23                      |                                                                                     |                             |
|------------|----------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|
| The Format | 3Dc XY 8 bpp   Normal Map                    | Save Cancel                                                                         |                             |
|            | 2D Texture ▼<br>MIP Map Filtering Sharpening | MIP Map Generation<br>Generate MIP maps<br>C Use Existing MIP maps<br>C No MIP maps | Always generate<br>mipmaps! |
|            | Image Options Normal Map Settings            |                                                                                     |                             |
|            | Fading MIP maps Write Config<br>Read Config  | 2D Preview 3D Preview<br>Refresh Preview Preview Options                            |                             |
|            |                                              | Refresh Preview         Preview Options           Profiles                          |                             |
|            | 🗼 nvidia.                                    | Set Profile Directory Save Profile                                                  |                             |
|            | Comments to SDKFeedback@nvidia.com           | Load Profile                                                                        |                             |
|            |                                              |                                                                                     |                             |

### 4) Mip map filers

The default box filter often gives subpar quality and the mipmaps, so good to choose something else to use for all images. "Catrom" is used here but there are others that work fine too. If the image has a lot of finer details it is worth to try a bit if it looks strange in-game.

| MIP Map Generation Filtering Settings  |  |  |  |  |
|----------------------------------------|--|--|--|--|
| Catrom Filter Type                     |  |  |  |  |
| Gamma Correct 2.2<br>Gamma Value       |  |  |  |  |
| Blur factor: >1 is blurry, <1 is sharp |  |  |  |  |
| 🔲 Override Filter's Default Width      |  |  |  |  |
| 10 Filter Width Override Value         |  |  |  |  |
| 🗖 Alpha Modulate                       |  |  |  |  |
| OK                                     |  |  |  |  |

#### 5) Normalmap settings

This is specific for normal maps. Simply make sure that all boxes are unchecked.

| Normal Map                                                                                                                                                                                                                                                                          |    |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|--|--|
| Normal Map<br>Normal Map Conversion<br>Convert to Tangent Space Normal M<br>Height Generation<br>Filter Type C 4 sample<br>0 3 x 3<br>Wrap 0 5 x 5<br>Invert X 0 7 x 7<br>Invert Y 0 9 x 9<br>0 dUdV<br>Min Z 0 0.255<br>Scale 20<br>Alpha Field<br>Unchanged<br>Filter Type Height |    |  |  |  |
| C Set to 0.0<br>C Set to 1.0                                                                                                                                                                                                                                                        |    |  |  |  |
| Normaliize                                                                                                                                                                                                                                                                          | OK |  |  |  |

#### 6) Check in the modelviewer

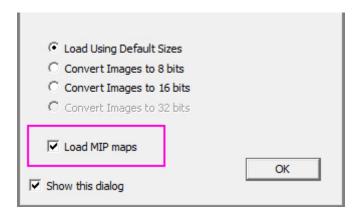
Once saved and exported, check so everything looks okay in the modelviewer. Having "keylight on camera checked" makes it easier to see the normals and turning of shadows can remove some jitter that the shadowing algorithm might produce.

Also make sure to turn off all texture except specular and normalmap to makes sure the normalmap looks okay.

| AvgFrame: 6.622525 FPS: 150.999817 Avg: 6.644869           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ModelView Toolba                | r                        |        |   |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------|--------|---|
| Texture memory usage: 2213 kb / 2.2 Mb<br>Num of sounds: 0 | Everything except normalmap and spec turned off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Background:                     | Black                    | •      |   |
| Will of Soulids. O                                         | to make it easier to check.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Model                           |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rotate                          | Show AABB                |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Material Textures:              |                          | - I    |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Diffuse                         | <ul> <li>NMap</li> </ul> |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Specular                        | Alpha                    |        |   |
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|                                                            | and the second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Cubemap                         | DissoiveAipi             |        |   |
|                                                            | The state of the s | CubeMapAlpha                    | DetailDiffus             |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Detaininap                      | Tansiucenc               | 9      |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Animation                       |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Show Skeleton                   | Add anim                 |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Current Animation:              |                          | _      |   |
| and the second second                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                          | -      |   |
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|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Physics                         |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul> <li>Active</li> </ul>      | Draw Debug               |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Accuracy: High                  |                          | -      |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Body:                           |                          | -      |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Mat: Defau                      | lt                       | ▼<br>▼ |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Mass: 0                         |                          | Ξ      |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                          |        |   |
|                                                            | The main light is on the camera,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Keylight on Came                | era                      |        |   |
|                                                            | The main light is on the camera,<br>Makes it easier to see normal map                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Ambient lighting                |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SSAO                            |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Bloom                           |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul> <li>ToneMapping</li> </ul> |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Amb Amc 🖌                       |                          | Þ      |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Light:                          | Кеу                      | -      |   |
| Havin                                                      | ng no shadows can make the image cleaner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Visible                         | Shadows                  |        |   |
| TIAVII                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                          |        | - |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                          |        |   |
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                          |        |   |

#### 7) Loading normal map

This step and the next one is not really needed but might be good just to see it is generated properly! First, when loading the texture make sure that you load the mipmaps aswell!



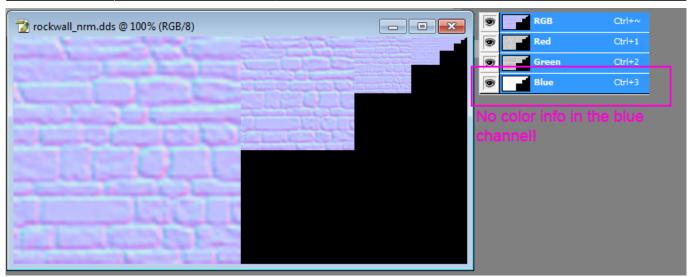
#### 8) The loaded image

DO NOT SAVE THIS IMAGE!

Especially for normalmaps, the image you just loaded cannot be save.

You can see in the image that all mipmaps have been generated and you can also see that the Blue channel contains (almost) no information (what is there is due to the compression technique used)!





# **Cubemap Export**

## **Overview**

This tutorial will go through downscaling and exporting of cubemaps to make sure that borders stay correct.

# Steps

## 1) Your texture

Place each of the cubemap sides on its own layer and place them after each other in a row. The image width should be 6 times larger then the height. The sides should be placed in the following order: Right, Left, Top, Bottom, Front, Back



#### 2) Downscale the image

If your image is to large in size it is a good idea to downscale it. Place each side on its own layer.

#### layers.png

Select Image > Image Size...

| Image Size                                                                                                                                                                     |                                               |               |                                                                    |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------|--------------------------------------------------------------------|--|--|
|                                                                                                                                                                                | ixel Dimen                                    | sions: 288,01 | K (was 1,13M)                                                      |  |  |
|                                                                                                                                                                                | <u>W</u> idth:                                | 50            | Percent  Reset                                                     |  |  |
|                                                                                                                                                                                | <u>H</u> eight:                               | 50            | Percent - Auto                                                     |  |  |
|                                                                                                                                                                                | Document Size: Only downscale by 50%, 25% etc |               |                                                                    |  |  |
|                                                                                                                                                                                | Wi <u>d</u> th:                               | 27,09         | Centimeters - 3                                                    |  |  |
|                                                                                                                                                                                | Hei <u>a</u> ht:                              | 4,52          | Centimeters -                                                      |  |  |
| Re                                                                                                                                                                             | esolution:                                    | 72            | Pixels/Inch 👻                                                      |  |  |
| Scale Styles       Make sure bilinear is selected, othe edges will bleed over         Constrain Proportions       edges will bleed over         Resample Image:       Bilinear |                                               |               | Make sure bilinear is selected, otherwise<br>edges will bleed over |  |  |

### 3) Save the image

Select "Cube Map" as the image type and then follow the steps in the DDS Texture Export tutorial

| NVIDIA dds Format (v8.54.0625.1800) |                                                         |  |  |  |
|-------------------------------------|---------------------------------------------------------|--|--|--|
| DXT1 RGB 4 bpp   no alpha           | ✓ Save Cancel                                           |  |  |  |
| Cube Map 👻                          | MIP Map Generation<br>Generate MIP maps                 |  |  |  |
| MIP Map Filtering Sharpening        | ◯ Use Existing MIP maps All                             |  |  |  |
| Image Options Normal Map Settings   | O No MIP maps                                           |  |  |  |
| Fading MIP maps Write Config        | Iect Cube Map           2D Preview           3D Preview |  |  |  |
| Read Config                         | Refresh Preview Preview Options                         |  |  |  |
| Save Flipped Vertically             | Profiles                                                |  |  |  |
|                                     | Set Profile Directory Save Profile                      |  |  |  |
| 📀 nvidia.                           | Load Profile                                            |  |  |  |
| Comments to SDKFeedback@nvidia.com  | <no loaded="" profile=""></no>                          |  |  |  |

