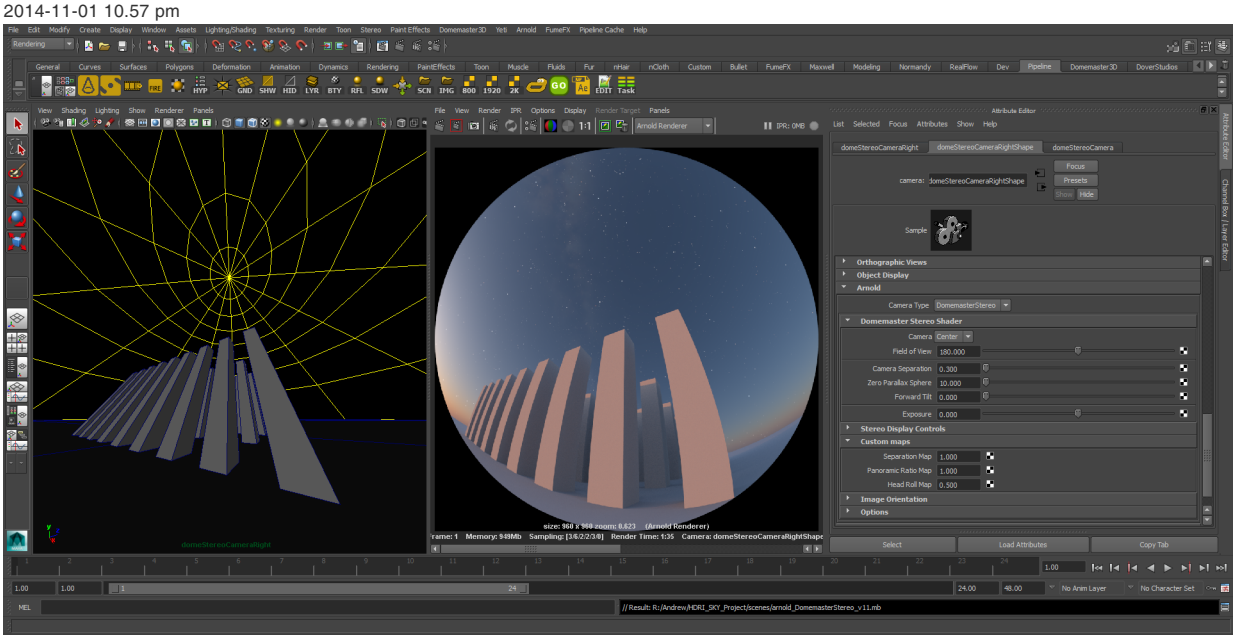
Arnold Domemaster Stereo Guide

2014-11-01 10.57 pm



Overview

The Domemaster Stereo Shader is a set of fulldome stereo and latlong stereo production lens shaders for 3DS Max, Maya, Softimage, Houdini, Maxwell Studio, Mental Ray Standalone, and Arnold Standalone. The lens shaders are available for Mental Ray and Arnold, and comes integrated in Maxwell Render version 3.1+.

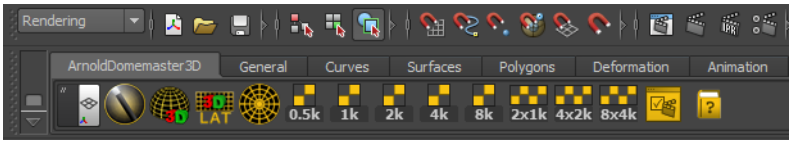
This guide covers the Arnold version of the Domemaster Stereo Shader.

Tip: After you use the Maya shelf tools to add a fulldome or latlong stereo camera rig to your scene, you need to adjust the left camera in the stereo rig to change the "linked" lens shader attributes for the **LatLongStereo** or **DomemasterStereo** rigs.

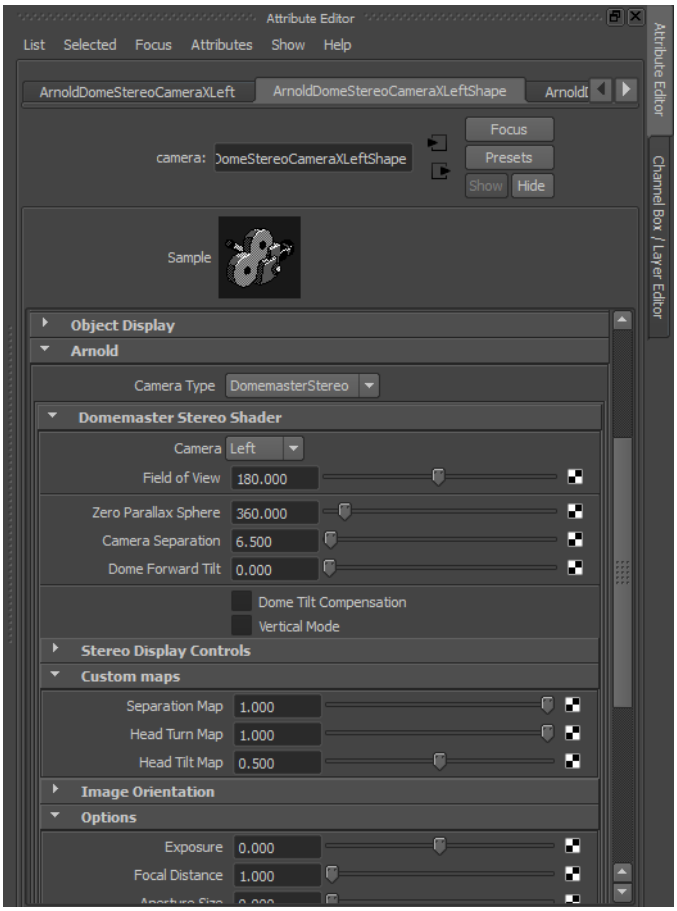
Shader Screenshots

Here are a few screenshots of the Maya Shelf tools and the Arnold based **DomemasterStereo** Shader and the **LatLongStereo** Shader GUIs for Maya.

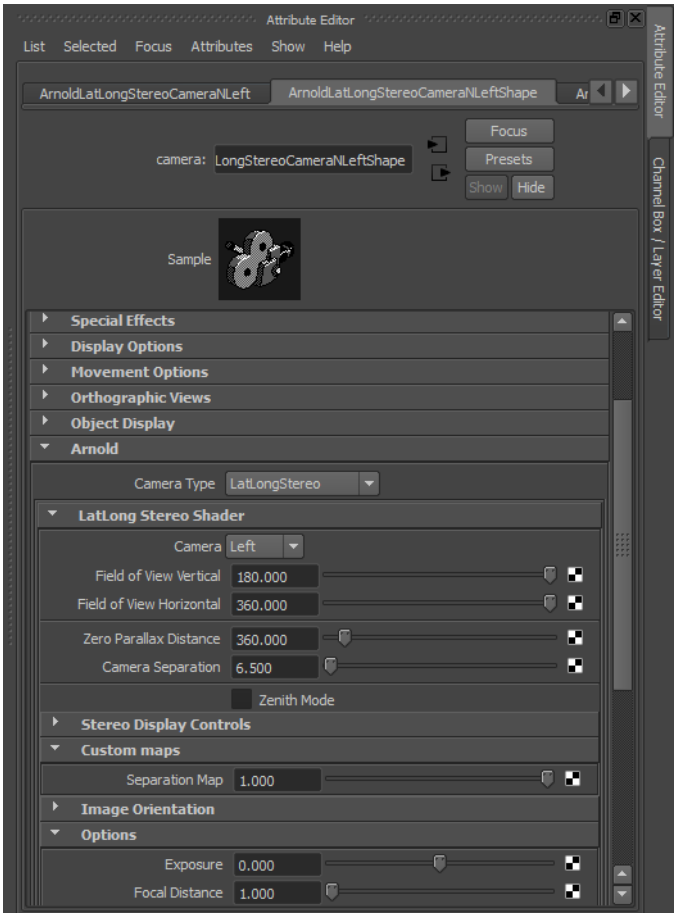
Maya Shelf



DomemasterStereo Shader



LatLong Shader



Maya Shader Installation

Windows 64-bit

Step 1.
Download the Visual Studio 2012 (VC++ 11.0) Redistributable Package.

Step 2.
Copy the .dll and .mtd files to the Arnold shaders directory:
`C:\solidangle\mtoadeploy\<Version>\shaders\`

Maya Shader Files:

```
DomemasterStereo.dll
DomemasterStereo.mtd
LatLongStereo.dll
LatLongStereo.mtd
```

Step 3.
Copy the Arnold AE Template File "DomeStereoTemplate.py" and "LatLongStereoTemplate.py" to the Arnold AE folder:

`C:\solidangle\mtoadeploy\<Version>\scripts\mtoa\ui\ae`

Note: The Maya AE Template path can be found using the following environment variable:

`%MTOA_TEMPLATES_PATH%` or `%MTOA_PATH%\scripts\mtoa\ui\ae\`

Step 4.
Copy the Maya scripts from `Arnold-DomemasterStereo-src\install\maya\scripts` to your user account's Maya scripts folder.

Step 5.
Copy the Maya shelf file from `Arnold-DomemasterStereo-src\install\maya\shelf` to your user account's Maya shelves folder.

Step 6.
Edit your Windows Environment variables using the System Control Panel to include Arnold's env vars and path:

```
PATH="C:\solidangle\mtoadeploy\2014\bin\"
ARNOLD_PLUGIN_PATH="C:\solidangle\mtoadeploy\2014\shaders"
MAYA_RENDER_DESC_PATH="C:\solidangle\mtoadeploy\2014\"
```

Mac 64-bit

Step 1.
Copy the .dylib and .mtd files to the Arnold shaders directory:
`~/solidangle/mtoa/<Version>/shaders/`

Maya Shader Files:

```
DomemasterStereo.dll
DomemasterStereo.mtd
LatLongStereo.dll
LatLongStereo.mtd
```

Step 2.
Copy the Arnold AE Template File "DomeStereoTemplate.py" and "LatLongStereoTemplate.py" to the Arnold AE folder:

`~/solidangle/mtoa/<Version>/scripts/mtoa/ui/ae/`

Note: The Maya AE Template path can be found using the following environment variable:
`$(MTOA_TEMPLATES_PATH)` or `$(MTOA_PATH)/scripts/mtoa/ui/ae/`

Step 3.
Copy the Maya scripts from `Arnold-DomemasterStereo-src\install\maya\scripts` to your user account's Maya scripts folder.

Step 4.
Copy the Maya shelf file from `Arnold-DomemasterStereo-src\install\maya\shelf` to your user account's Maya shelves folder.

Step 5.
Edit your `.bash_profile` to include Arnold's env vars and path:

```
# Arnold Settings
export PATH="$PATH:$HOME/solidangle/mtoa/2014/bin/"
export ARNOLD_PLUGIN_PATH="$HOME/solidangle/mtoa/2014/shaders"
export MAYA_RENDER_DESC_PATH="$HOME/solidangle/mtoa/2014/"
```

Linux 64-bit

Step 1.
Copy the .so and .mtd files to the Arnold shaders directory:

`/opt/solidangle/mtoa/<Version>/shaders/`

Maya Shader Files:

```
DomemasterStereo.so
DomemasterStereo.mtd
LatLongStereo.so
LatLongStereo.mtd
```

Step 2.
Copy the Arnold AE Template File "DomeStereoTemplate.py" and "LatLongStereoTemplate.py" to the Arnold AE folder:

`/opt/solidangle/mtoa/<Version>/scripts/mtoa/ui/ae/`

Note: The Maya AE Template path can be found using the following environment variable:
`$(MTOA_TEMPLATES_PATH)` or `$(MTOA_PATH)/scripts/mtoa/ui/ae/`

Step 3.
Copy the Maya scripts from `Arnold-DomemasterStereo-src\install\maya\scripts` to your user account's Maya scripts folder.

Step 4.
Copy the Maya shelf file from `Arnold-DomemasterStereo-src\install\maya\shelf` to your user account's Maya shelves folder.

Step 5.
Edit your .bash_profile to include Arnold's env vars and path:

```
# Arnold Settings
export PATH="$PATH:/opt/solidangle/mtoa/2014/bin/"
export ARNOLD_PLUGIN_PATH="/opt/solidangle/mtoa/2014/shaders"
export MAYA_RENDER_DESC_PATH="/opt/solidangle/mtoa/2014/"
```

Verify the Shader Loaded in Arnold

Listing the Nodes

You can list all of the active Arnold Shader nodes using:

Windows Node List

`C:\solidangle\mtoadeploy\<Version>\bin\kick.exe -nodes t`

Mac Node List

`~/solidangle/mtoa/<Version>/bin/kick -nodes t`

Linux Node List

`/opt/solidangle/mtoa/<Version>/bin/kick -nodes t`

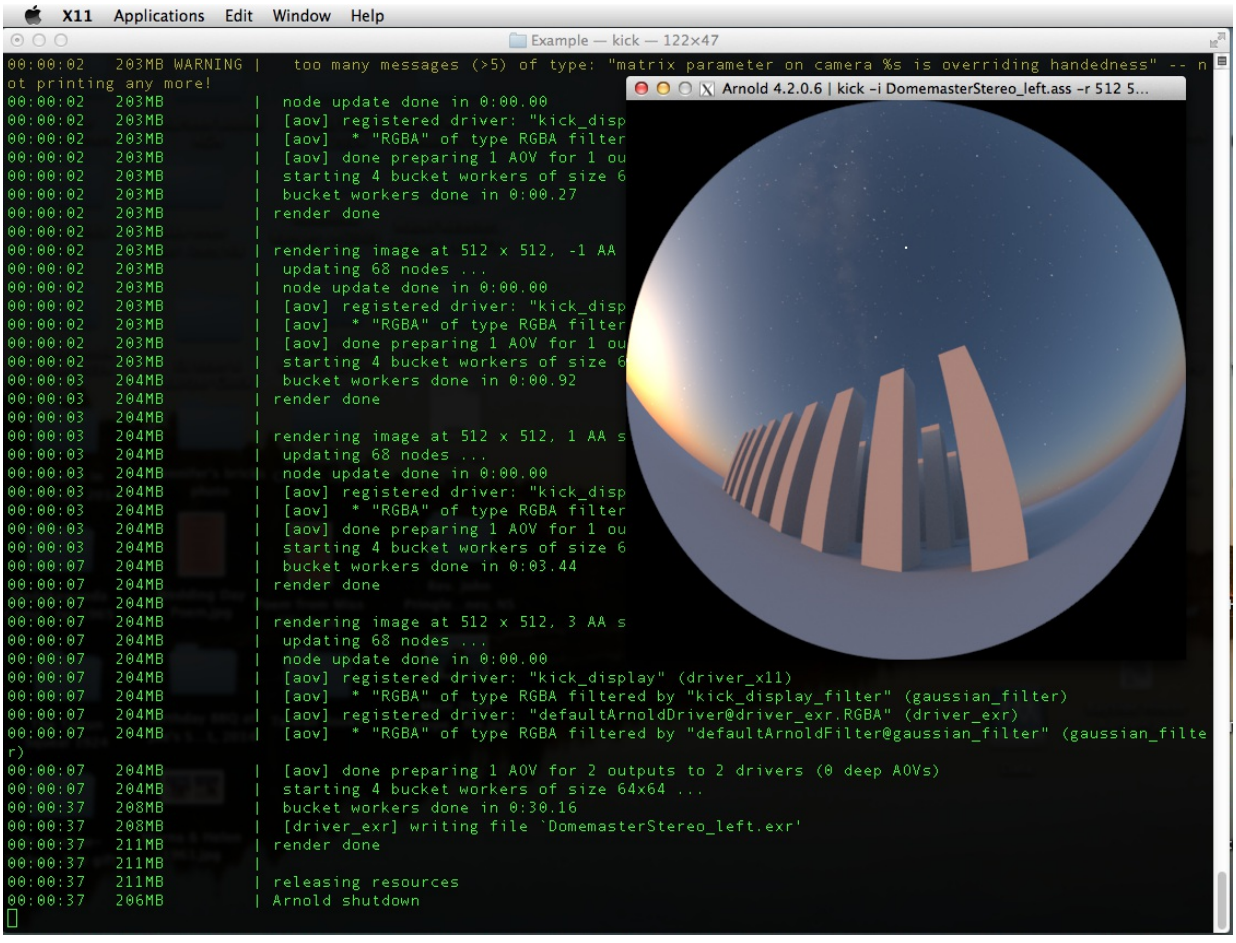
DomemasterStereo Node Parameters

If you run Arnold's Kick utility with the info flag you can see the DomemasterStereo shader's node parameters:

```
  WARNING |  node "DomemasterStereo" is already installed
  node:         DomemasterStereo
  type:         camera
  output:       (null)
  parameters:   27
  filename:     C:\solidangle\mtoadeploy\2014\shaders\DomemasterStereo.dll
  version:      4.2.0.6

  Type          Name                            Default
  ------------  ------------------------------  --------------------------------
  INT           camera                          0
  FLOAT         fov_angle                       180
  FLOAT         zero_parallax_sphere            360
  FLOAT         separation                      6.5
  FLOAT         forward_tilt                    0
  BOOL          tilt_compensation               false
  BOOL          vertical_mode                   false
  FLOAT         separation_map                  1
  FLOAT         head_turn_map                   1
```

```
FLOAT       head_tilt_map                 0.5
INT         flip_ray_x                    false
INT         flip_ray_y                    false
POINT[]     position                      0, 0, 0
POINT[]     look_at                       0, 0, -1
VECTOR[]    up                            0, 1, 0
MATRIX[]    matrix
FLOAT       near_clip                     0.0001
FLOAT       far_clip                      1e+30
FLOAT       shutter_start                 0
FLOAT       shutter_end                   0
ENUM        shutter_type                  box
POINT2[]    shutter_curve                 (empty)
ENUM        rolling_shutter               off
FLOAT       rolling_shutter_duration      0
NODE        filtermap                     (null)
ENUM        handedness                    right
FLOAT[]     time_samples                  (2 elements)
POINT2      screen_window_min             -1, -1
POINT2      screen_window_max             1, 1
FLOAT       exposure                      0
STRING      name
```



Assuming Arnold's kick tool is in your system PATH variable, you can check if the shader is installed correctly and read the default parameters using the following parameters:

Windows Parameters

`kick.exe -info DomemasterStereo`
`kick.exe -info LatLongStereo`

or

you can check if the shader is installed and define a custom library search path at the same time:

`kick -l C:\solidangle\mtoadeploy\<Version>\shaders\DomemasterStereo.dll -info DomemasterStereo`

`kick -l C:\solidangle\mtoadeploy\<Version>\shaders\LatLongStereo.dll -info LatLongStereo`

Mac Parameters

`kick -info DomemasterStereo`
`kick -info LatLongStereo`

or

you can check if the shader is installed and define a custom library search path at the same time:

`kick -l ~/solidangle/mtoa/<Version>/shaders/DomemasterStereo.dylib -info DomemasterStereo`

`kick -l ~/solidangle/mtoa/<Version>/shaders/LatLongStereo.dylib -info LatLongStereo`

Linux Parameters

`kick -info DomemasterStereo`
`kick -info LatLongStereo`

or

you can check if the shader is installed and define a custom library search path at the same time:

`kick -l /opt/solidangle/mtoa/<Version>/shaders/DomemasterStereo.so -info DomemasterStereo`

`kick -l /opt/solidangle/mtoa/<Version>/shaders/LatLongStereo.so -info LatLongStereo`

Rendering the Example Scene

```
kick -i DomemasterStereo_right.ass -r 512 512
kick -i DomemasterStereo_left.ass -r 512 512
```

Compiling Instructions

Windows 64-bit

Step 1.
Install Visual Studio, Arnold, and MtoA. The current script has the paths for command line compiling with Visual Studio 2012 (11.0)

Step 2.
Open a new command prompt and cd into the source code folder.

Step 3.
Run the "windows64_setup.bat" script using a new command prompt window to setup the compiling environment variables:
`windows64_setup.bat`

Step 4.
Compile the source code using "windows64_compile.bat" bat script in the same command prompt window used step 3:
`windows64_compile.bat`

Mac OS X 64-bit

Step 1.
Install Xcode, Arnold, and MtoA.

Step 2.
Open a new terminal window and cd into the source code folder.

Step 3.
Edit the Makefile.osx file and change the "MAYA_VERSION" variable to match your current Maya release, and update the "MTOA_API_VERSION" variable to match your current Arnold release number. You might want to edit the "macosx_version_min" option if you are compiling the shader exclusively for systems running Mac OS X Mavericks 10.9 or newer.

Step 4.
Use the Mac OS X makefile to compile a new DomemasterStereo.dylib shader:
`Make -f Makefile.osx`

Step 5.
You can check your compiled dylib architecture with the following command:

```
bash-3.2# lipo -info DomemasterStereo.dylib
Non-fat file: DomemasterStereo.dylib is architecture: x86_64
```

Linux 64-bit

Step 1.
Install G++, Arnold, and MtoA.

Step 2.
Open a new terminal window and cd into the source code folder.

Step 3.
Edit the Makefile and change the "MAYA_VERSION" variable to match your current Maya release, and update the "MTOA_API_VERSION" variable to match your current Arnold release number.

Step 4.
Use the linux makefile to compile a new DomemasterStereo.so shader:
`Make -f Makefile`

Credits

- Roberto Ziche created the original domeAFL_FOV_Stereo shader for 3DS Max.
- Luis Silva created the initial Arnold lens shader port for Softimage.
- Andrew Hazelden finished porting the DomemasterStereo lens shader for Arnold on Maya/Softimage/Houdini.
- Daniel Ott created the original 2D domeAFL_FOV lens shader for mental ray.

Version History

Version 0.1 - 2014-11-01

Initial Arnold support for Maya/Softimage/Houdini.

Created DomemasterStereo.mtd and LatLongStereo.mtd documents for Maya and Houdini users.

Created Maya stereo rig scripts for the LatLongStereo and DomemasterStereo lens shaders.

Changed the attribute names to match the Domemaster Stereo Shader / Arnold conventions:

`Dome_Radius` is now named `zero_parallax_sphere`, and `dome_tilt` is now `forward_tilt` based upon the fulldome NING discussion.