PxrProjector

This node is meant to work in conjunction with PxrProjectionLayer but can be used as a general projection manifold. This manifold supports camera, spherical and cylindrical mapping. It encapsulates 2D parameterization for pattern generators and allows transformations and selection of arbitrary variables bound to primitives.

Input Parameters

Projection

Select a projection:

- 0: Camera
- 1: Spherical
- 2: Cylindrical
- 3: Planar

Coordinate System

Name of coordinate system transform (e.g. place3dTexture node in Maya or the camera).

You **must** set a coordinate system. This field can not be left empty.

Use

Selects the positions you are going to project on.

- **0: P - N** P is the current position and N the current normal
- **1: Pref - Nref** Use this if your object if deforming and you want the projected texture to 'stick'. This relies on two primvars : `__Pref` and `__Nref` that should be present on the deforming geometry. In Maya, use the RenderMan > Primvars > Freeze menu to add them to the selected geometry.
- **2: WPref - WNref** This will allow your projected texture to stick if the object is deforming AND transformed. It relies on `__WPref` and `__WNref` primvars. In Maya, use the RenderMan > Primvars > Freeze menu to add them to the selected geometry.

Occlusion frontOnly
Restricts the projection to the points facing the projection direction.

This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Front Falloff
Introduces a smooth transition when using frontOnly. Useful to blend transitions between different projections. The default, 0.0, means no falloff.

This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Trace Occlusion
Shoots rays to avoid projecting on areas that are occluded by geometry, from the projections point of view.

This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Trace Max Distance
When traceOcclusion is on, you can limit the ray length. This number is expressed in scene units, whatever it may be in your authoring package.

This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Trace Set
The name of a trace set to restrict ray hits to a specific group of objects. The default is to consider all objects in the scene.

Camera

Horizontal Resolution
The horizontal image resolution. This is used to specify your image's original resolution, prior to txmake-ing.

Vertical resolution
The vertical image resolution. This is used to specify your image's original resolution, prior to txmake-ing.

Focal Length
The focal length of the camera is in millimeters (mm). To convert the Field of View (fov) to the Focal Length, use this

```
fov = atan((0.5 * aperture) / (focalLength * 0.0393701))
```

Horizontal Aperture

The width of your camera's film back in inches.

Vertical Aperture

The height of your camera's film back in inches.

Near Clip Plane

Positions closer than this distance from the coordinate system will be masked. This number is expressed in scene units, whatever it may be in your authoring package.

⚠ This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Far Clip Plane

Positions farther than this distance from the coordinate system will be masked. This number is expressed in scene units, whatever it may be in your authoring package.

⚠ This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Film Fit

The way your image is fitted to the film back if they have different aspect ratios. This is mimicking Maya's camera settings.

- 0: Fill
- 1: Horizontal
- 2: Vertical
- 3: overscan

⚠ This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Clamp To

Activates the mask output. You can mask different areas but this is mostly useful with camera projection.

- 0: **Off** The projected texture is everywhere
- 1: **Frustum** The projected texture only appears inside the camera frustum
- 2: **Texture** The texture is projected in its entirety, irrespective of the camera frustum.

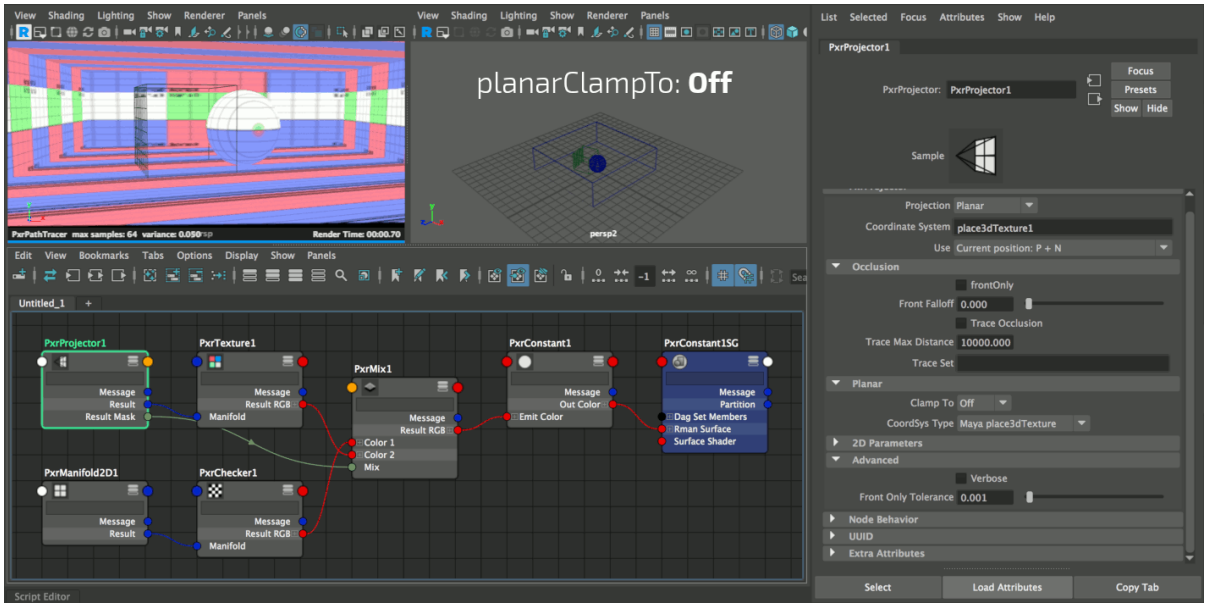
⚠ This setting will update the **resultMask** output so you may use it to mix between the projection and the underlying surface material.

Planar

Clamp To

Clamp the planar projection, assuming the coordinate system is represented as a cube.

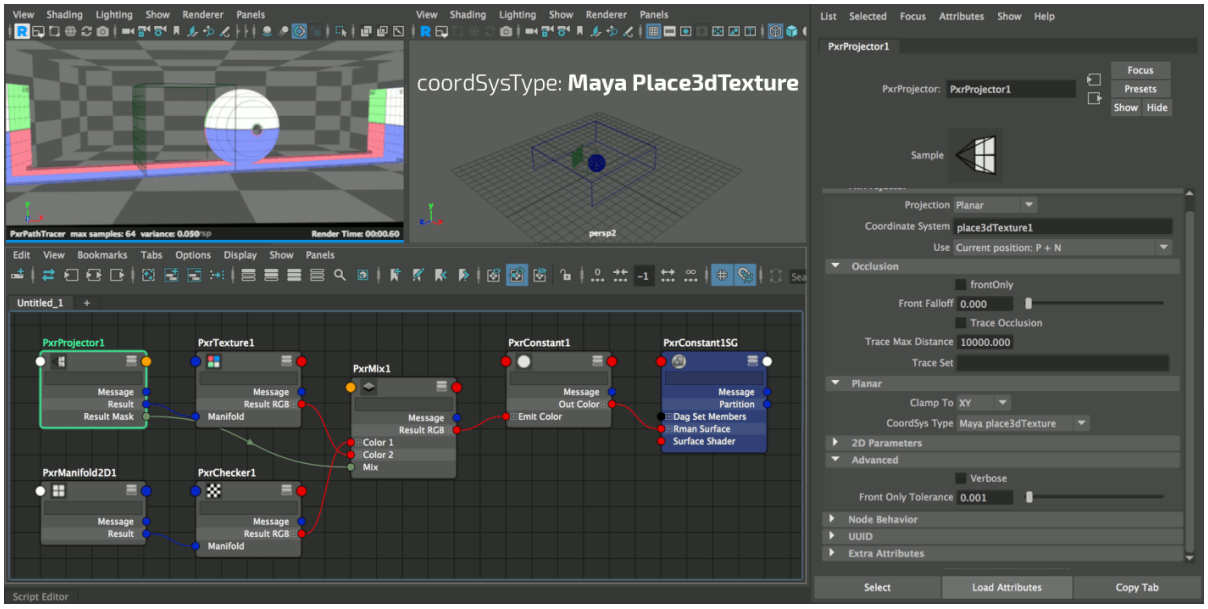
- 0: **Off** The projected texture is everywhere.
- 1: **XY** The projected texture appears on the XY plane of the coordinate system.
- 2: **XZ** The projected texture appears on the XZ plane of the coordinate system.
- 3: **YZ** The projected texture appears on the YZ plane of the coordinate system.
- 4: **XYZ** The projected texture appears inside the coordinate system's volume.



CoordSys Type

There are 2 different types to match different viewport representations.

- 0: **Generic** The coordinate system is a 1 unit wide cube.
- 1: **Maya place3dTexture** the place3dTexture is 2 units wide.



2D Parameters

Angle

Rotation angle around the origin.

Scale S

Frequency of feature in the S direction.

Scale T

Frequency of feature in the T direction.

Offset S

Offset from the origin in the S direction.

Offset T

Offset from the origin in the T direction.

Invert T

Flip the manifold in the T direction.

Advanced

Verbose

Outputs various infos to help you debug your scenes.

Front Only Tolerance

This parameter is sometime useful to avoid projecting on surfaces that are close to the grazing angle.

Output Parameters

result

The 2D manifold.

resultS

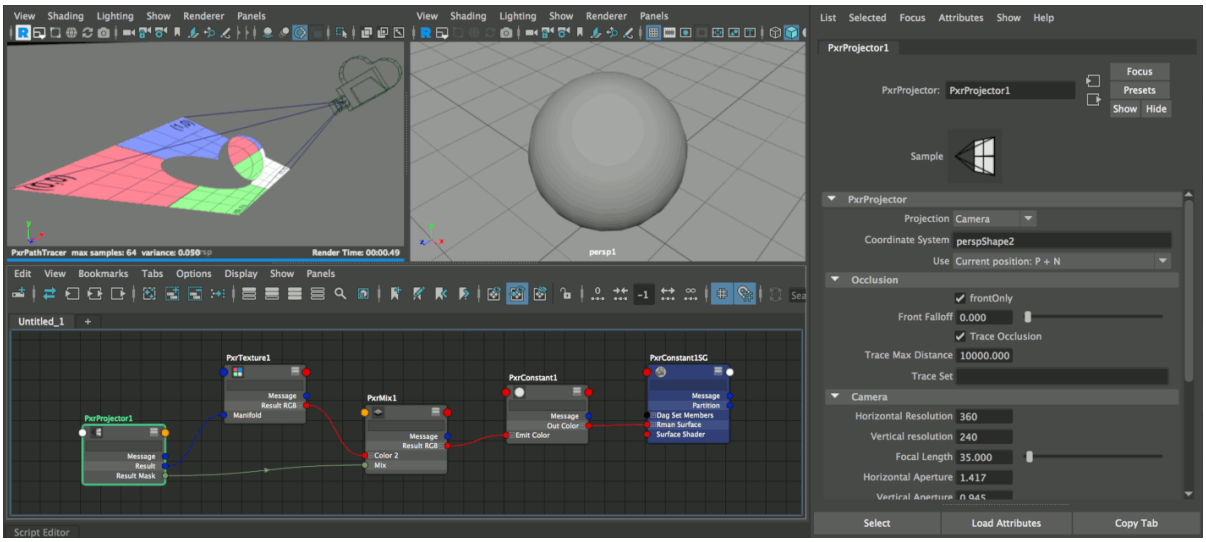
A float representation of the S component of the manifold.

resultT

A float representation of the T component of the manifold.

resultMask

A binary mask defining a restricted projection area.
Should be plugged into the mask input of PxrProjectionLayer or used to blend between the projection and the underlying texture.


View Shading Lighting Show Renderer Panels
PxrPathTracer max samples: 64 variance: 0.050
Render Time: 00:00.49
persp1
Edit View Bookmarks Tabs Options Display Show Panels
Untitled_1
PxrTexture1
Message
Result RGB
Manifold
PxrProjector1
Message
Result
Result Mask
PxrMix1
Message
Result RGB
Color 2
Mix
PxrConstant1
Message
Out Color
Emit Color
PxrConstant15G
Message
Partition
Dag Set Members
Rman Surface
Surface Shader
Script Editor
List Selected Focus Attributes Show Help
PxrProjector1
PxrProjector: PxrProjector1
Focus
Presets
Show Hide
Sample
PxrProjector
Projection Camera
Coordinate System perspShape2
Use Current position: P + N
Occlusion
frontOnly
Front Falloff 0.000
Trace Occlusion
Trace Max Distance 10000.000
Trace Set
Camera
Horizontal Resolution 360
Vertical resolution 240
Focal Length 35.000
Horizontal Aperture 1.417
Select
Load Attributes
Copy Tab