

# PxrManifold3D

This nodes allows artists to place patterns using a 3D projection as opposed to a 2D solution often used for textures reliant on UVs. This allows selection of Pref (for deforming meshes) and specification of a coordinate system to transform to.

## Input Parameters

### Scale

Scale the frequency of the feature uniformly in 3D.

### Use

Select the type of position you want to use.

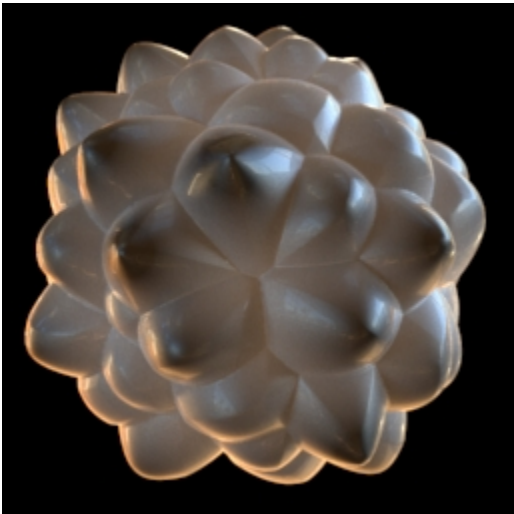
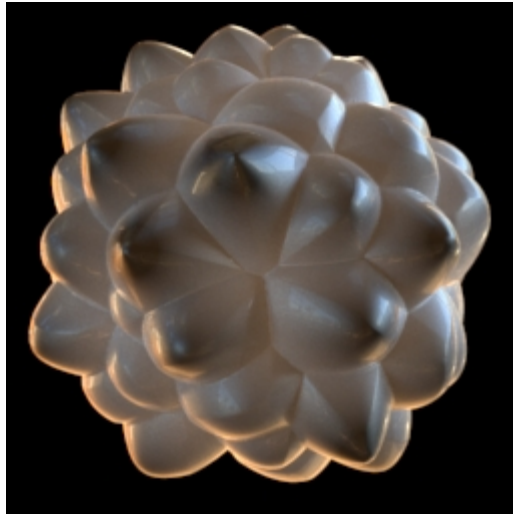
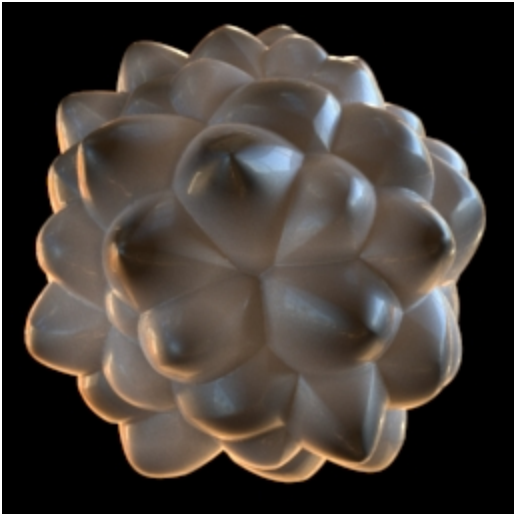
	Usage	Value	Default variable
<b>Current position: P</b>	Use the current (displaced) surface position	0	P
<b>Undisplaced position: Po</b>	Use the surface position <u>before</u> it was displaced	1	Po
<b>Deform : __Pref</b>	Use a reference position primitive variable in object space	2	__Pref
<b>Deform &amp; transform: __WPref</b>	Use a reference position primitive variable in world space	3	__WPref



You can only use `__Pref` and `__WPref` if these primitive variables have been attached to your geometry using your bridge product. Typically known as a Reference or Rest pose. Note that these are just names, the underlying bridge product provides the data as named, not the pattern node. If using a procedural such as Alembic, be sure the data has Pref baked into the objects on export.

### Why use the un-displaced position ?

When using the same 3d noise in the BxDF and the displacement, you should use Po to make sure the patterns are lining up.



Bad: using P

Good: using Po

Left: P Right: Po

## Pref

Name of geometry Pref (Maya uses `__Pref` and `__WPref`).



This field is only used when **Use** is set to "**Deform** : `__Pref`" or "**Deform & transform**: `__WPref`" .

If left empty, we assume either `__Pref` or `__WPref` , based on the current **Use** settings.

## Coordinate System

Name of a coordinate system transform to apply to the manifold. (Maya calls these place3d nodes).



If left empty, we use the position in object-space, as this is what you need for *non-deforming* objects.

## Output Parameters

### result

The 3D manifold.

### resultX

A float representation of the X component of the manifold.

**resultY**

A float representation of the Y component of the manifold.

**resultZ**

A float representation of the Z component of the manifold.