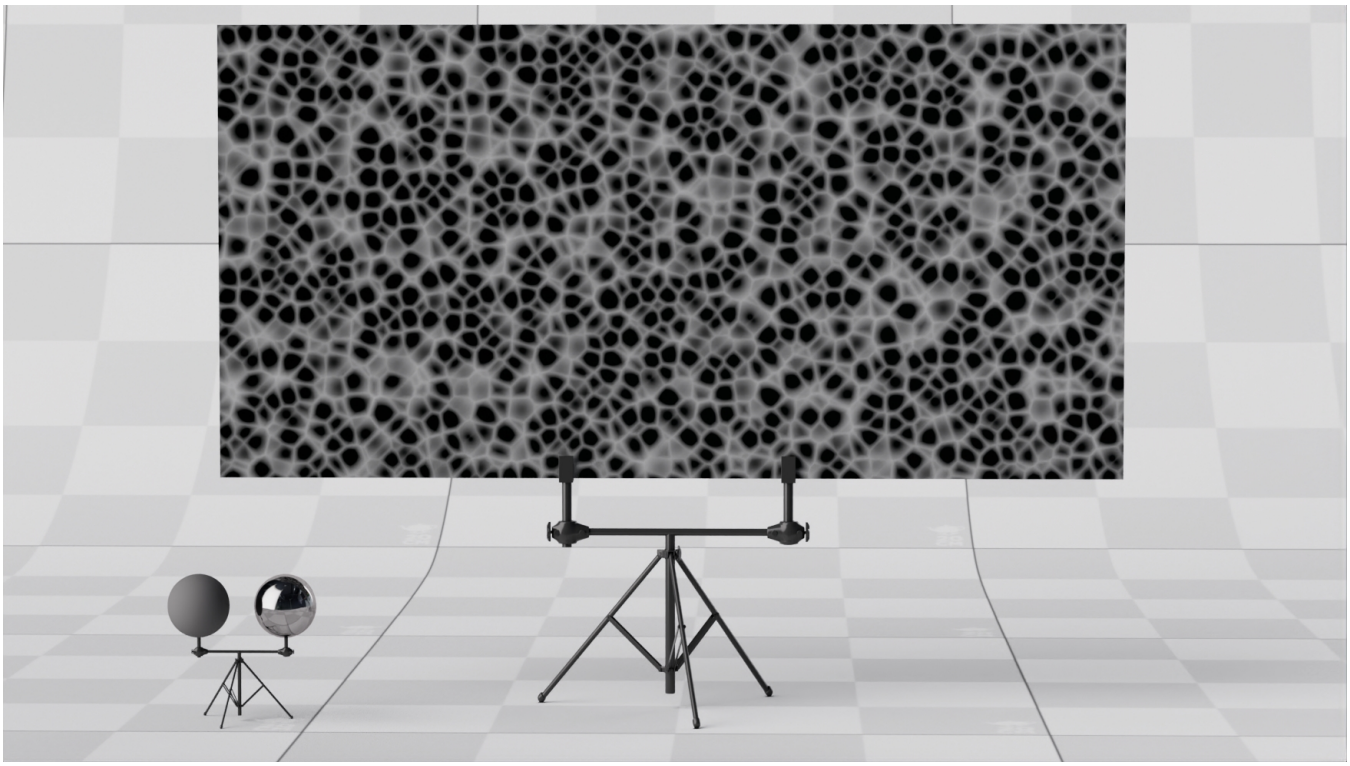
PxrWorley



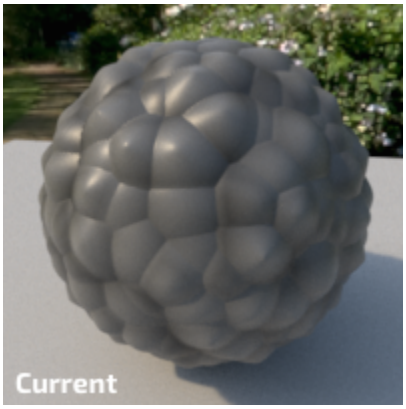
Like all texture style nodes, this node takes a manifold that describes either a 2D or 3D domain to apply a Worley noise texture to. The default behavior, if no manifold is attached, is to apply over P in 3D. This node computes Worley noise, as described by Steven Worley.

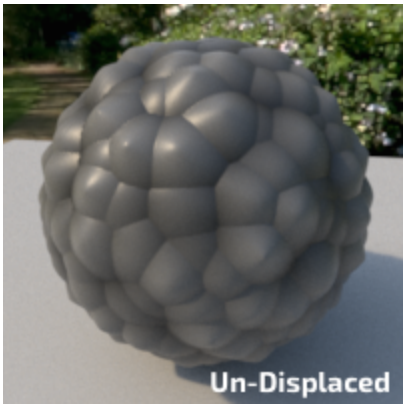
Input Parameters

Surface Position

The noise can be computed based on the **Current Position** or the **Undisplaced Position** (the position of the surface prior to displacement).

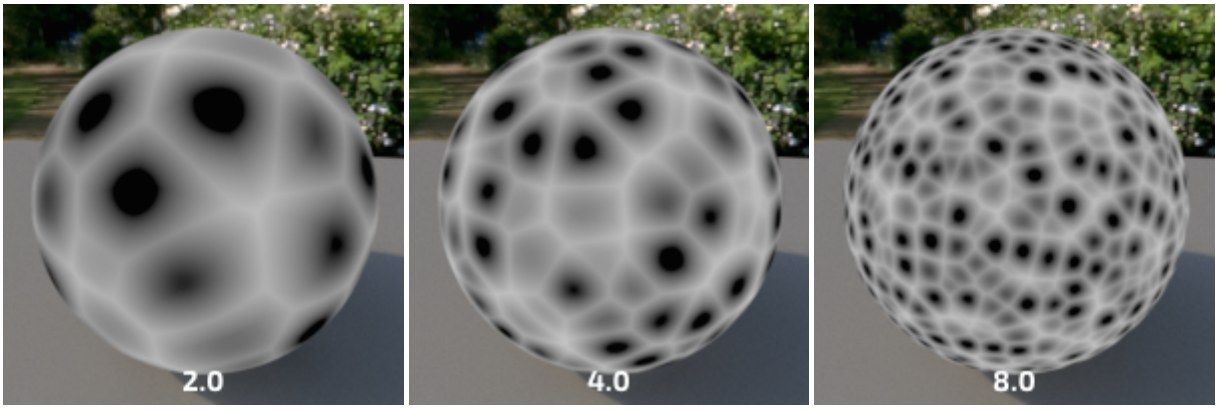
If you want your displacement and shading patterns to match, use the **Undisplaced Position**.





Frequency

Controls the size of the cells. Higher frequencies make smaller cells.

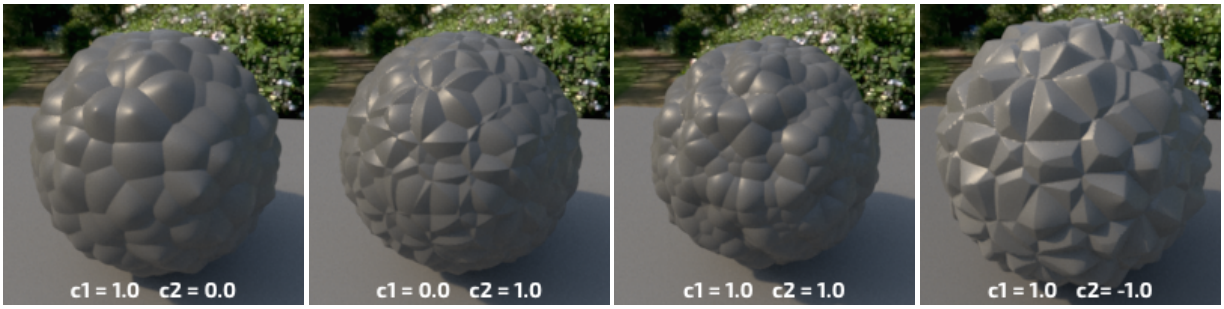


Distance Metric

The means to measure distances to neighboring cells. Manhattan distance gives more rectangular shapes and Euclidian distance gives more spherical shapes.

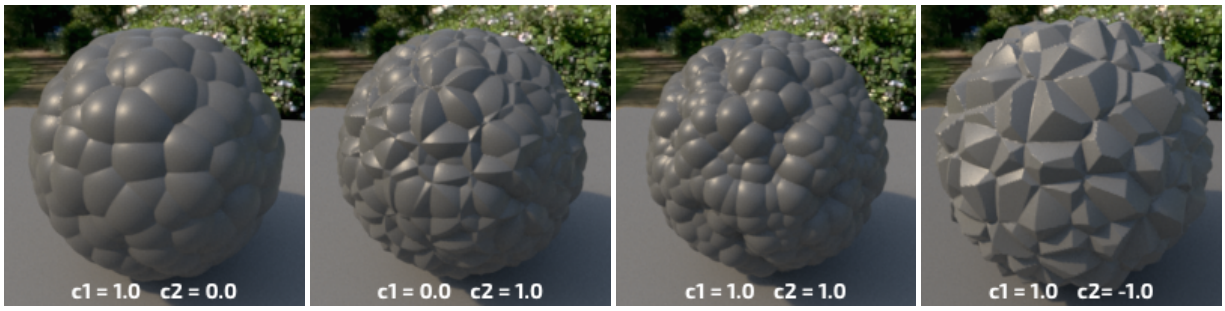
Euclidean

Computes the euclidean distance to the nearest points. It looks a bit more pointy than Squared Euclidean distance.



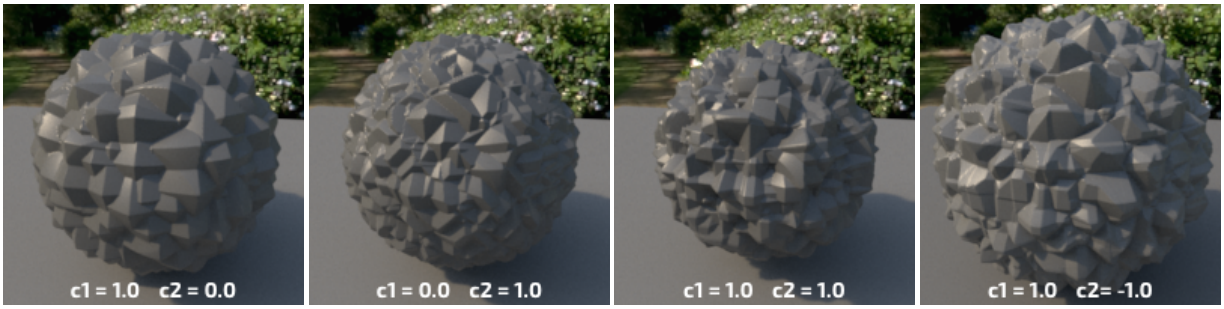
Euclidean Squared

Computes the squared euclidean distance to the nearest points. It looks rounder than pure Euclidean distance and more organic.



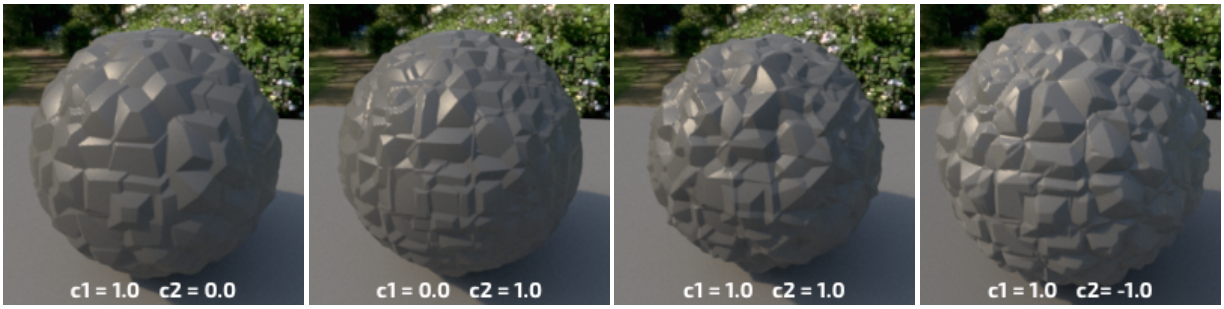
Manhattan

Inspired by the grid-like organization of Manhattan, this is the distance to the nearest points when you can only travel around the cell's boundaries.



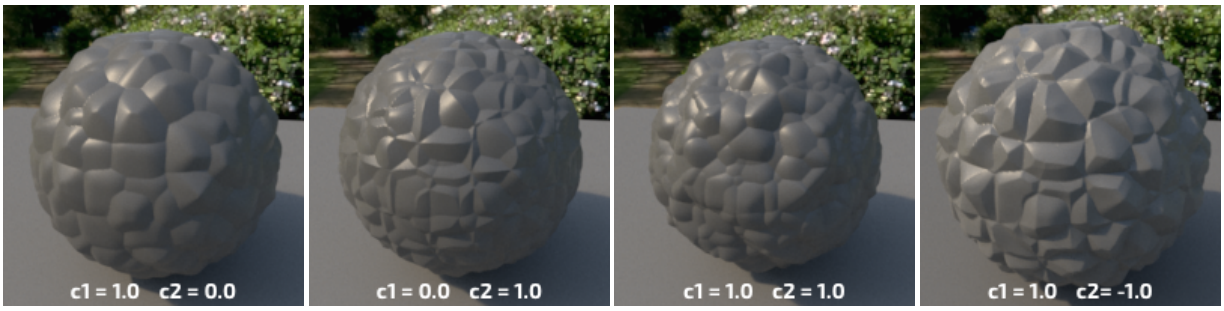
Chebyshev

Named after Pafnutty Chebyshev, it is also known as the Chessboard Distance. It is somewhat similar to the Manhattan distance, but with 45 degrees rotation.



Minkowski

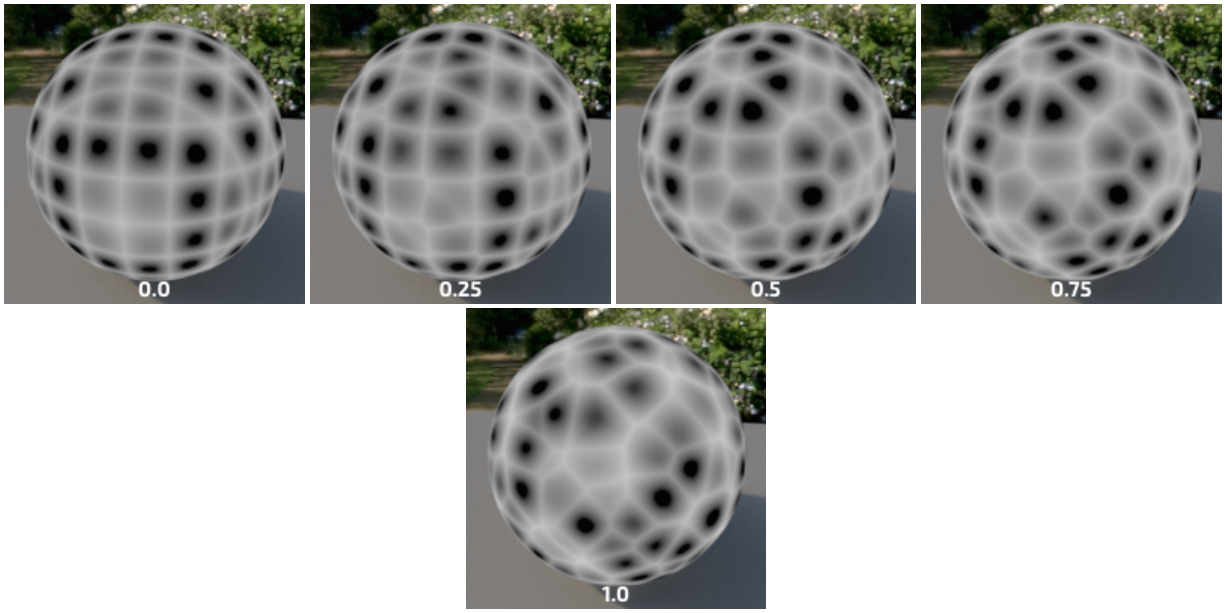
Minkowski is a generalization of both euclidean and Manhattan distance. The exponent will make the pattern transition from Euclidian to Manhattan.



⚠ Minkowski is more expensive than the other distance metrics, but it is fine for displacement as you will pay the cost only once when the geometry is displaced.

Jitter

Controls the distortion of the cells.



C1

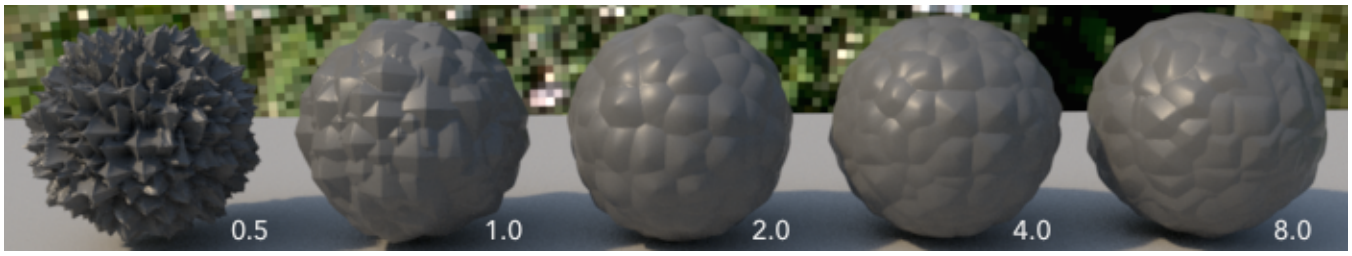
Multiplier for the distances to the first feature.

C2

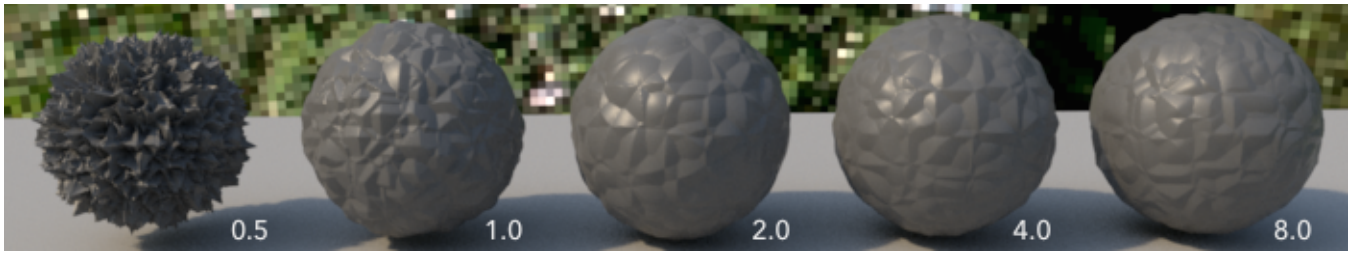
Multiplier for the distance to the second feature.

Minkowski Exponent

Makes the distance transition smoothly from Manhattan (1.0) to Euclidean (2.0) to weird un-explored territories.



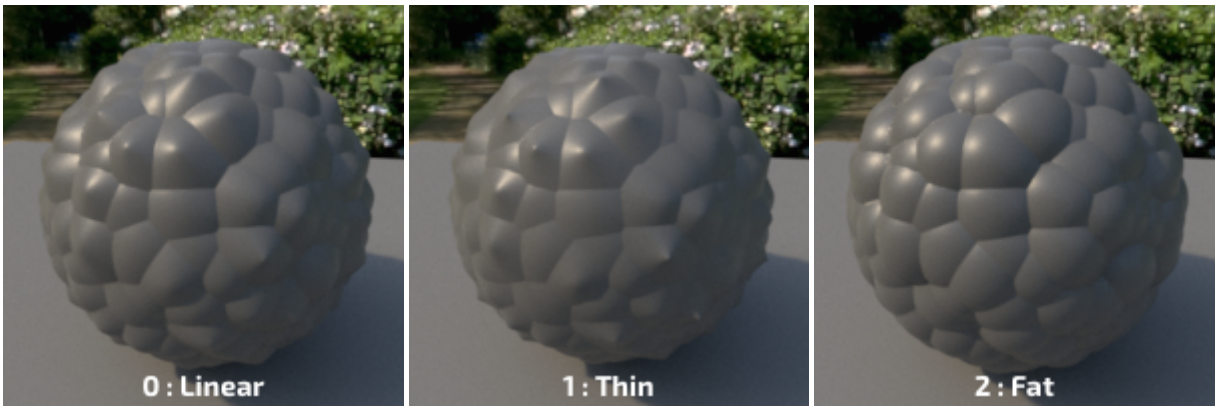
C1



C2

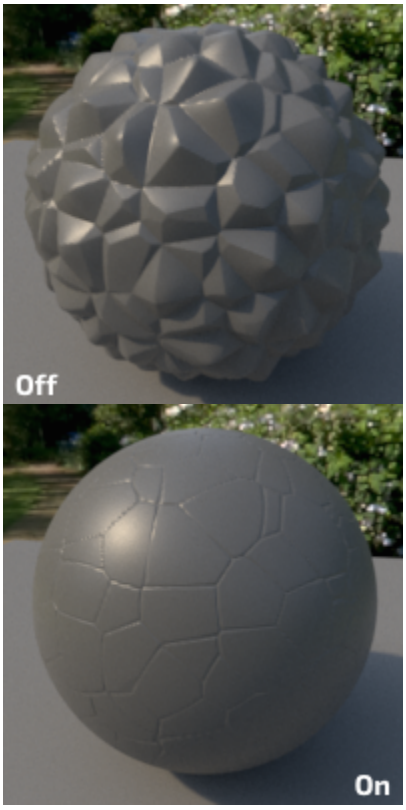
Shape

Modifies the computed distances to create different shapes. The example below uses c1 = 1.0 and c2 = 0.0.



Clamp Output

Causes resulting distances to be clamped to the range 0.0 to 1.0.



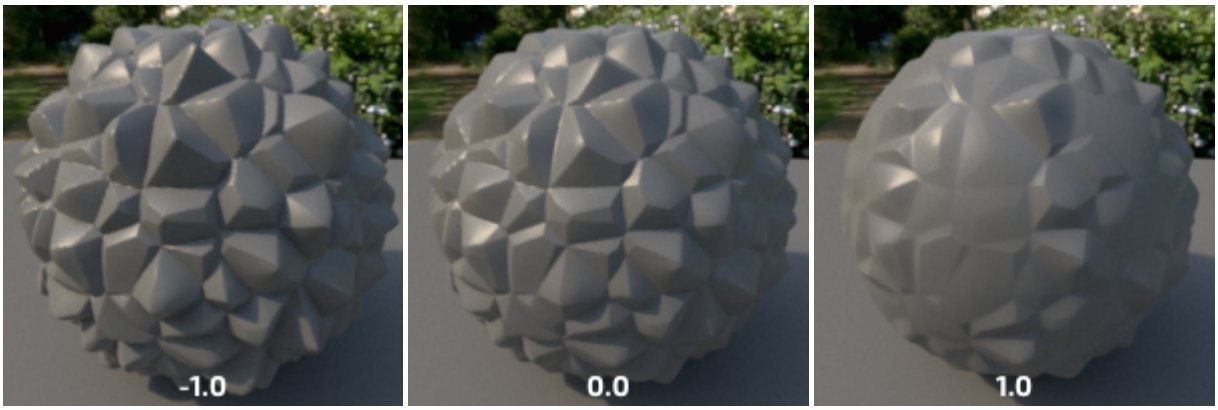
c1: 1.0 **c2**: -0.95 **distancemetric**: Euclidean

Invert

Inverts the final pattern.

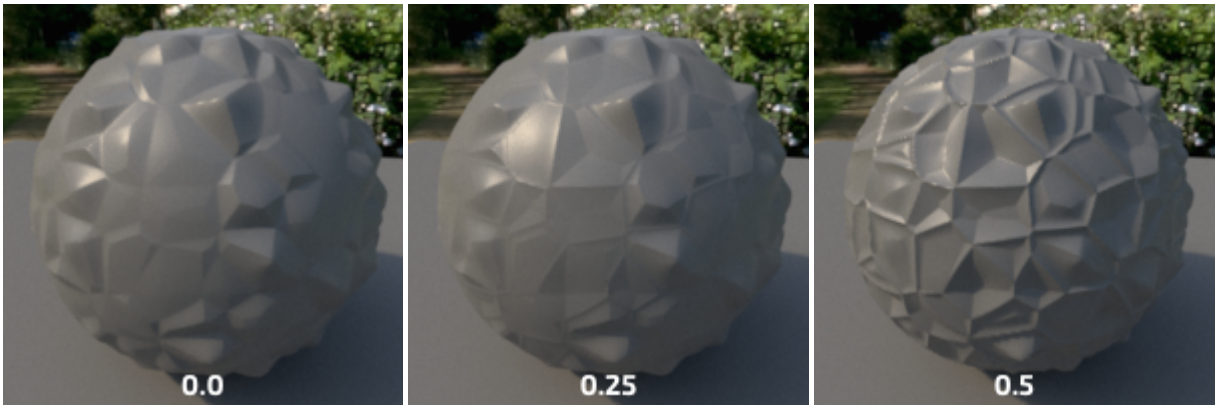
Random Scale

This will randomly scale the features' amplitude and give a slightly more regular appearance.



Random Scale Center

This is applying a an offset to the signal before applying the random scale. Use this to create more variations.



Manifold
The manifold over which to apply the noise. (The default is P).
You can connect a 3D or 2D manifold.

Adjust Output

Color Scale

A multiplier for the color values in a texture can be used to adjust brightness or manipulate individual color channels

Color Offset

Apply an offset to the result, shifting the colors of the result

Float Scale

Scalar Float value

Float Offset

Float Offset value

Output Parameters

resultF

The result of Worley noise texture.

resultRGB

The texture as a monochrome color.