Skip to content

Voronoi Texture Node

The *Voronoi Texture* node evaluates a Worley Noise at the input texture coordinates.

Inputs

The inputs are dynamic, they become available if needed depending on the node properties.

Vector

Texture coordinate to evaluate the noise at; defaults to *Generated* texture coordinates if the socket is left unconnected.

W

Texture coordinate to evaluate the noise at.

Scale

Scale of the noise.

Detail

Number of noise octaves. The fractional part of the input is multiplied by the magnitude of the highest octave. Higher number of octaves corresponds to a higher evaluation time.

Roughness

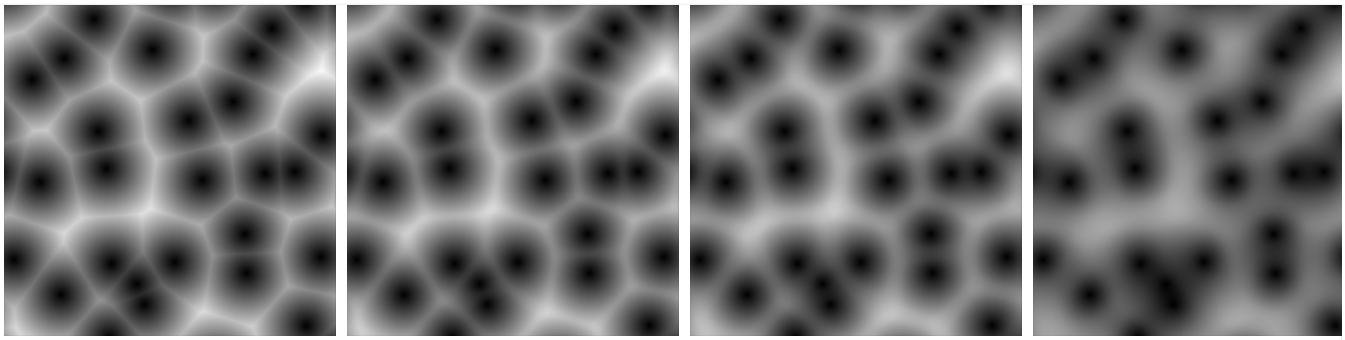
Blend between a smoother noise pattern, and rougher with sharper peaks.

Lacunarity

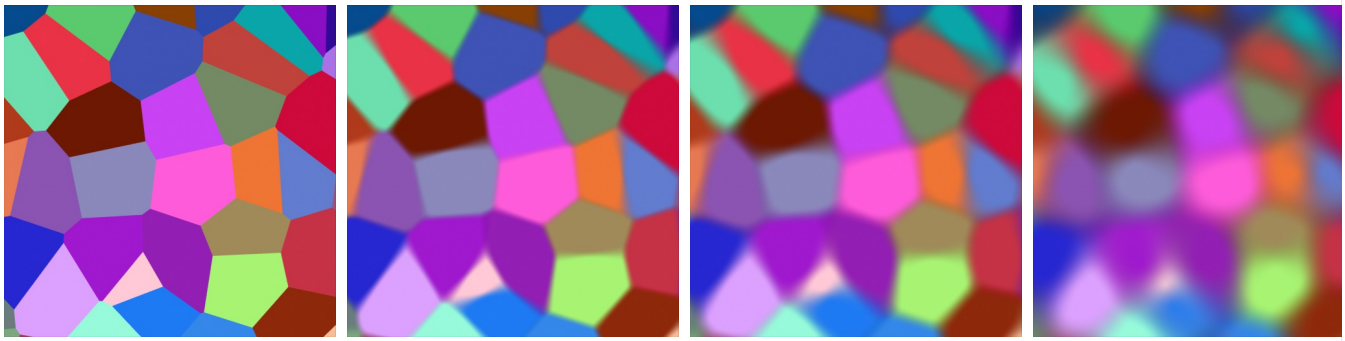
The difference between the scale of each two consecutive octaves. Larger values corresponds to larger scale for higher octaves.

Smoothness

The smoothness of the noise.



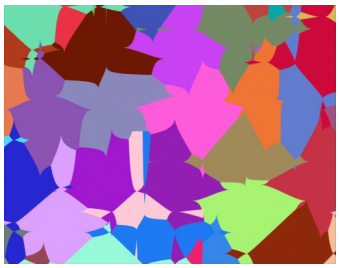
Smoothness: 0.0. Smoothness: 0.25. Smoothness: 0.5. Smoothness: 1.0.



Smoothness: 0.0. Smoothness: 0.25. Smoothness: 0.5. Smoothness: 1.0.

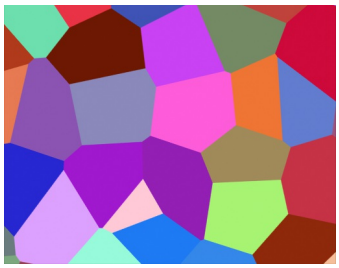
Exponent

Exponent of the Minkowski distance metric.

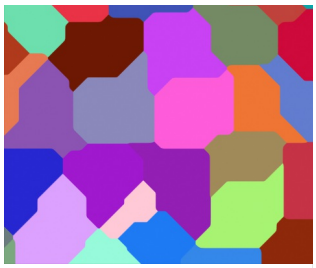


Exponent: 0.5.

Exponent: 1.0.



Exponent: 2.0.

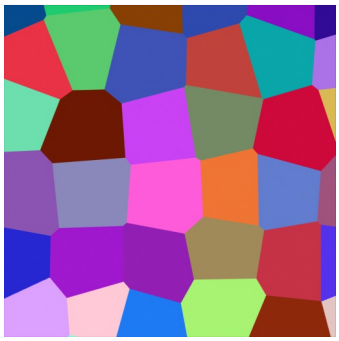


Exponent: 32.0.

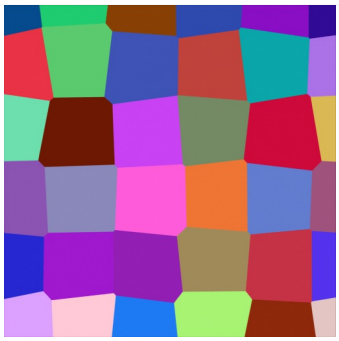
Randomness

The randomness of the noise.

Randomness: 1.0.



Randomness: 0.5.



Randomness: 0.25.

Randomness: 0.0.

Properties

Dimensions

The dimensions of the space to evaluate the noise in.

1D:

Evaluate the noise in 1D space at the input W.

2D:

Evaluate the noise in 2D space at the input Vector. The Z component is ignored.

3D:

Evaluate the noise in 3D space at the input Vector.

4D:

Evaluate the noise in 4D space at the input Vector and the input W as the fourth dimension.

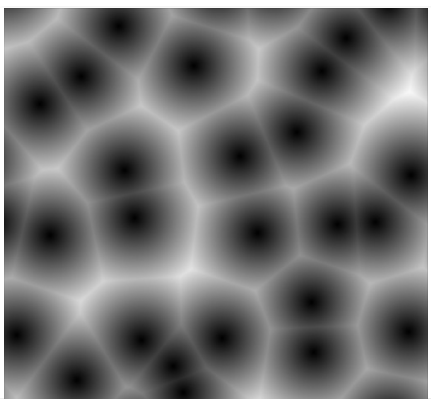
Higher dimensions corresponds to higher render time, so lower dimensions should be used unless higher dimensions are necessary.

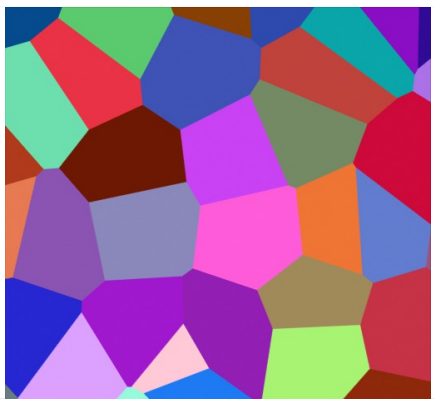
Feature

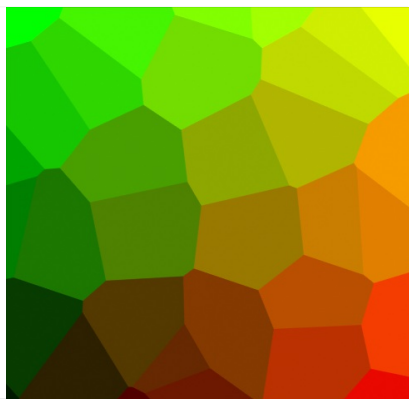
The Voronoi feature that the node will compute.

F1:

The distance to the closest feature point as well as its position and color.



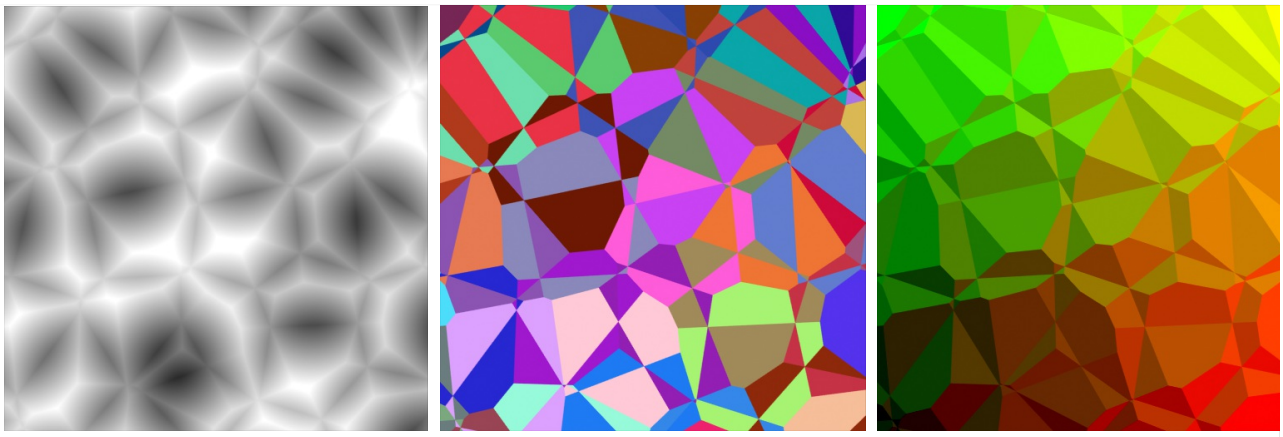




Distance. Color. Position.

F2:

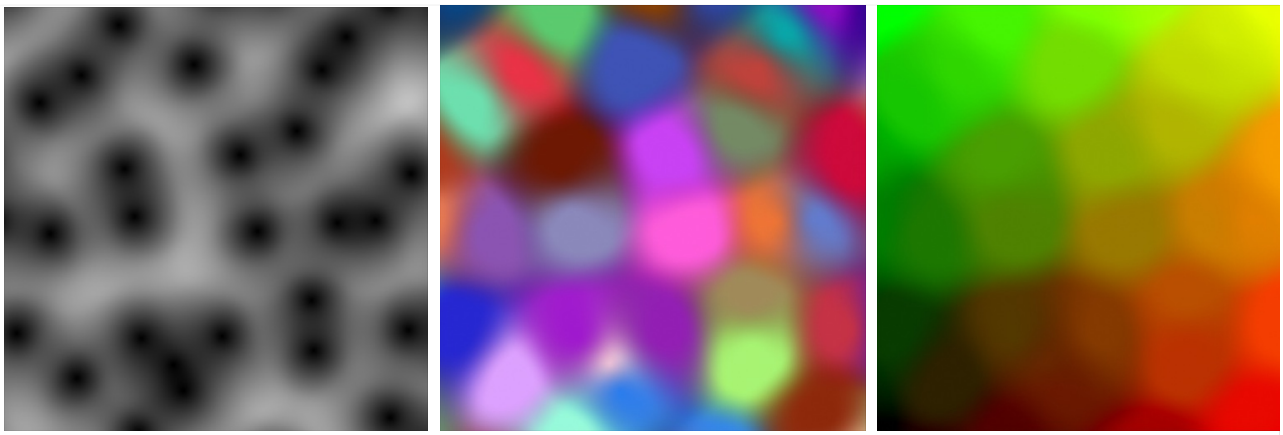
The distance to the second closest feature point as well as its position and color.



Distance. Color. Position.

Smooth F1:

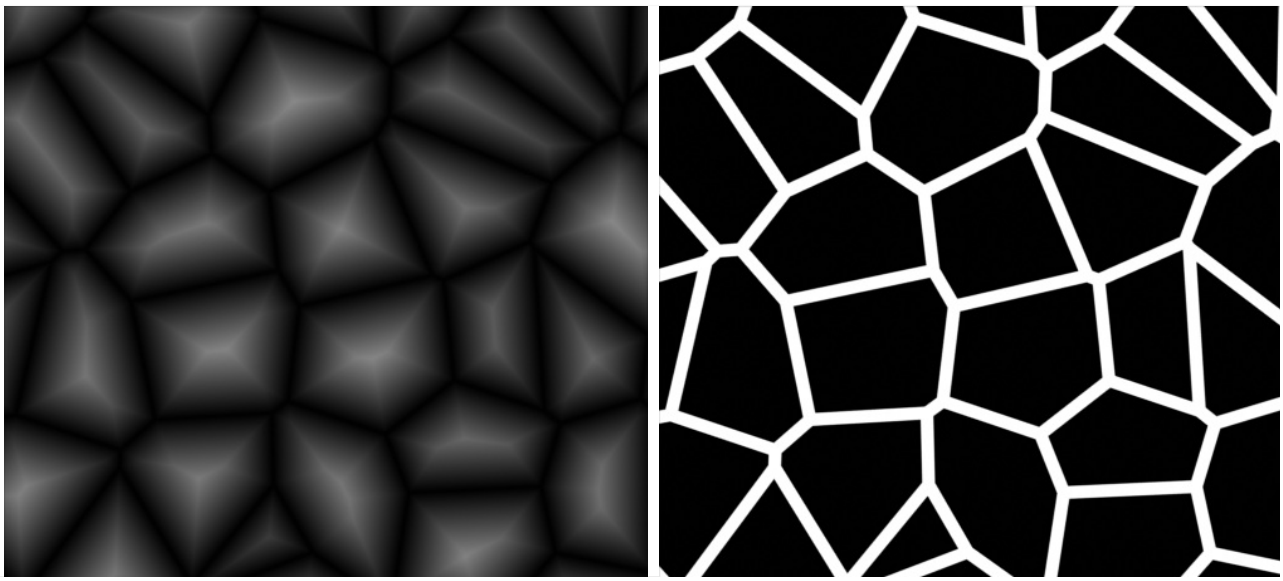
A smooth version of F1.



Distance. Color. Position.

Distance to Edge:

The distance to the edges of the Voronoi cells.

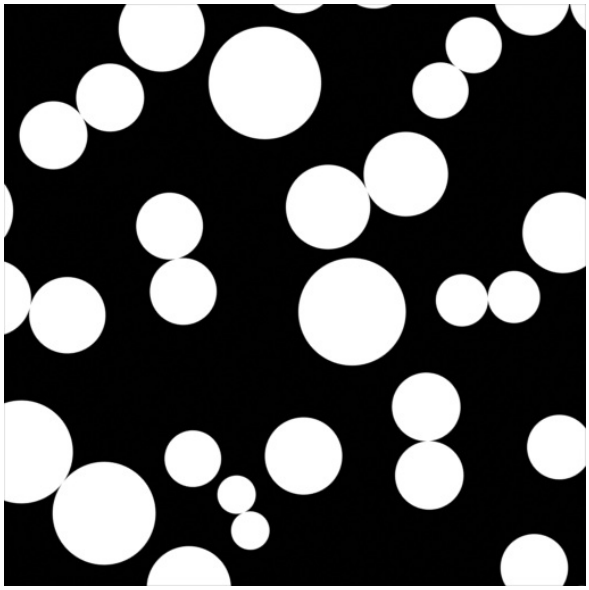


Distance.

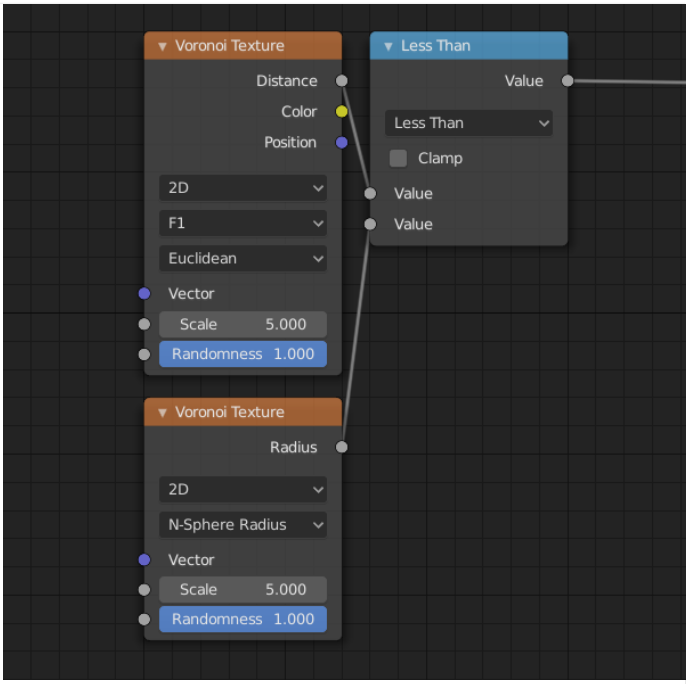
Distance smaller than 0.05.

N-Sphere Radius:

The radius of the n-sphere inscribed in the Voronoi cells. In other words, it is half the distance between the closest feature point and the feature point closest to it.



The n-sphere radius can be used to create tightly packed n-spheres.



Node tree for the shader to the left.

Distance Metric

The distance metric used to compute the texture.

Euclidean:

Use the Euclidean distance metric.

Manhattan:

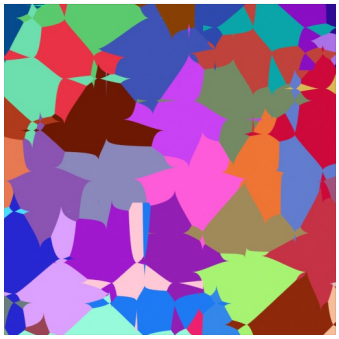
Use the Manhattan distance metric.

Chebychev:

Use the Chebychev distance metric.

Minkowski:

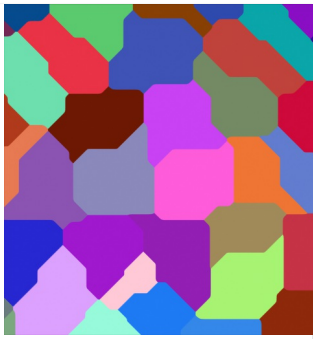
Use the Minkowski distance metric. The Minkowski distance is a generalization of the aforementioned metrics with an *Exponent* as a parameter. Minkowski with an exponent of one is equivalent to the *Manhattan* distance metric. Minkowski with an exponent of two is equivalent to the *Euclidean* distance metric. Minkowski with an infinite exponent is equivalent to the *Chebychev* distance metric.



Minkowski Exponent: 0.5 (Minkowski 1/2).

Minkowski Exponent: 1.0 (Manhattan).

Minkowski Exponent: 2.0 (Euclidean).



Minkowski Exponent: 32.0 (approximation of Chebychev).

Normalize

If enabled, ensures that the output values stay in the range 0.0 to 1.0. In rare cases, the output value may be outside that range when *Feature* is *F*

Outputs

Distance

Distance.

Color

Cell color. The color is arbitrary.

Position

Position of feature point.

W

Position of feature point.

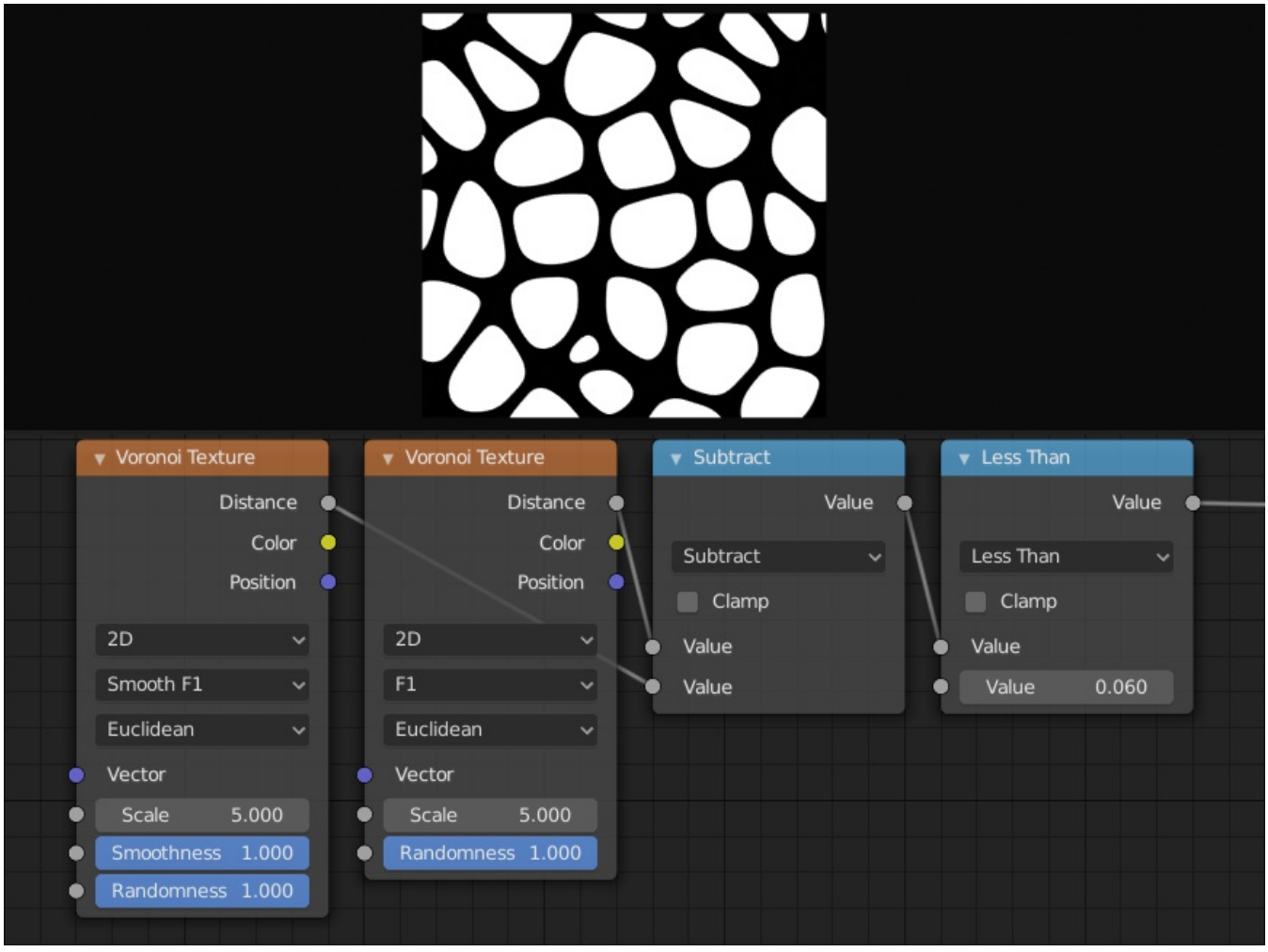
Radius

N-Sphere radius.

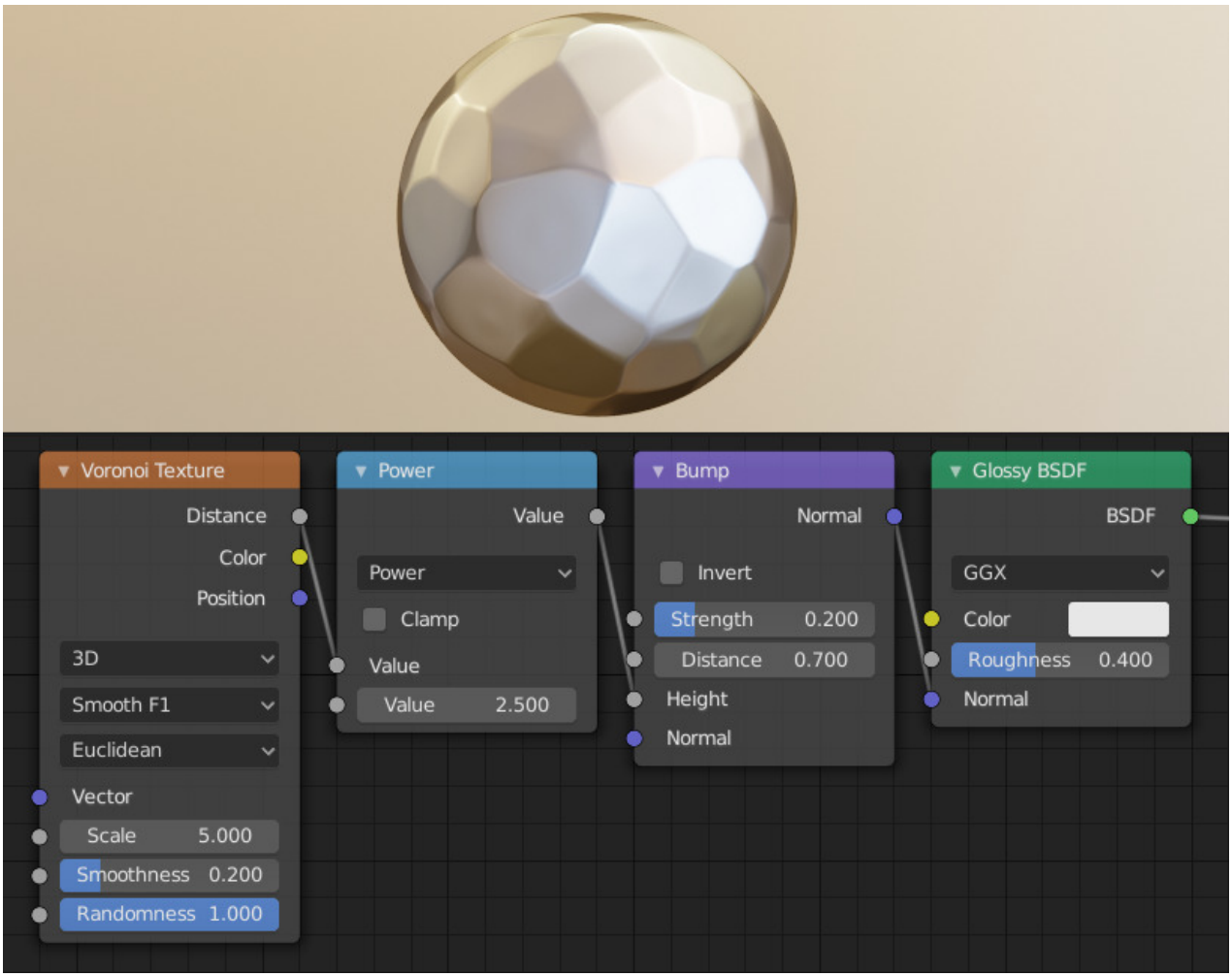
Notes

In some configurations of the node, especially for low values of *Randomness*, rendering artifacts may occur. This happens due to the same reasons described in the Notes section in the White Noise Texture page and can be fixed in a similar manner as described there.

Examples



The difference between *F1* and *Smooth F1* can be used to create beveled Voronoi cells.



Creating a hammered metal shader using the *Voronoi Texture* node.

Previous
Sky Texture Node

Wave Texture No

Made with Furo
Last updated on 2025-05-10

View Source
View Translation
Report issue on this page