11.1.9 Editors - Shader Editor - Header - Add Menu - Texture

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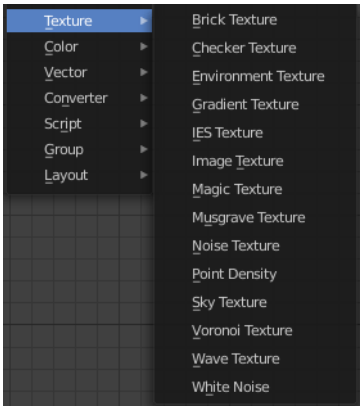
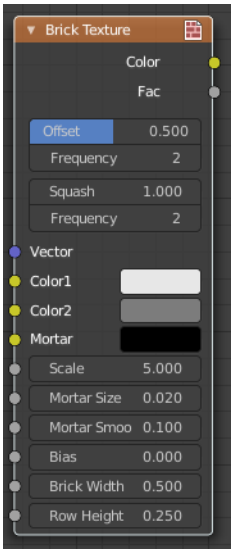
Detailed table of content

Add menu - Texture



Here are the texture nodes. They allow you to add different texture types to the scene. The content is the same for the sub modes and the different renderers. However, a environment texture just makes sense for the world sub mode.

Brick Texture



The Brick Texture node is used to add a procedural brick texture.

Inputs

Color 1, Color 2 and Mortar

Color of the bricks and mortar.

Scale

Overall texture scale.

Mortar Size

The size of the filling between the bricks known as “mortar”; 0 means no mortar.

Mortar Smooth

Blurs/softens the edge between the mortar and the bricks. This can be useful with a texture and displacement textures.

Bias

The color variation between Color 1/2. Values of -1 and 1 only use one of the two colors; values in between mix the colors.

Brick Width

The width of the bricks.

Row Height

The height of the brick rows.

Properties

Offset

Determines the brick offset of the various rows.

Frequency

Determines the offset frequency. A value of 2 gives an even/uneven pattern of rows.

Squash

Amount of brick squashing.

Frequency

Brick squashing frequency.

Outputs

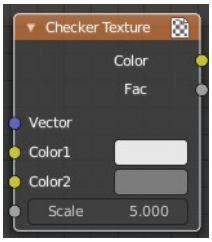
Color

Texture color output.

Factor

Mortar mask (1 = mortar).

Checker Texture



The Checker Texture node adds a procedural checkerboard texture.

Inputs

Vector

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

Color1, Color 2

Color of the checkers.

Scale

Overall texture scale. The scale is a factor of the bounding box of the face divided by the scale. For example, a scale of 15 will result in 15 alternate patterns over the overall UV bounding box. Different patterns could be achieved using other nodes to give different input patterns to this socket. For example, using the Math Node.

Outputs

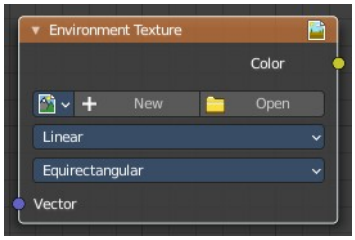
Color

Texture color output.

Factor

Checker 1 mask (1 = Checker 1).

Environment Texture



Load an environment texture to light your scene.

Inputs

Vector

Texture coordinate for texture look-up. If this socket is left unconnected, the image is mapped as environment with the Z axis as up.

Properties

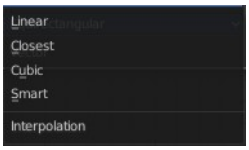
Image

Image data-block used as the image source. Additional settings can be found in Sidebar > Item > Properties: These include options to control the alpha channel along with addition options for the color space. These addition options are documented with the rest of Common Image Settings.

Color Space

Type of data that the image contains, either Color or Non-Color Data. For most color textures the default of Color should be used, but in case of e.g. a bump or alpha map, the pixel values should be interpreted as Non-Color Data, to avoid doing any unwanted color space conversions.

Texture Interpolation



Interpolation method used for the environment texture.

Linear

Regular quality interpolation.

Closest

No interpolation, use closest pixel.

Cubic

Smoother, better quality interpolation.

Smart

Bicubic when magnifying, otherwise Bilinear is used. This is only available for OSL.

Projection Method

Allows you to use different types of environmental maps.

Equirectangular

Projection from an Equirectangular photo.

Mirror Ball

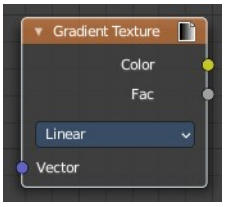
Projection from an orthographic photo or mirror ball.

Outputs

Color

RGB color from the image.

Gradient Texture



The Gradient Texture node generates interpolated color and intensity values based on the input vector.

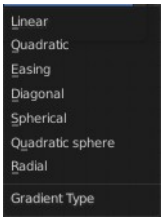
Inputs

Vector

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

Properties

Gradient Type



Controls the type of gradient generated.

Linear

Directly returns the input X coordinate.

Quadratic

Interpolates the input X coordinate quadratically.

Easing

Uses a combination of quadratic and linear interpolation to return a smooth gradient from the input X coordinate.

Diagonal

Averages the input X and Y coordinates.

Spherical

Creates an inverse gradient using the length of the input vector; the maximum value is at (0, 0, 0).

Quadratic Sphere
The same as Spherical, except interpolated quadratically.

Radial
Returns a value based on the angle of the input around the Z axis.

Outputs

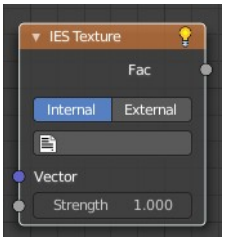
Color

Texture color output.

Factor

Texture intensity output.

IES Texture Node



The IES Texture is used to match real world lights based on IES files. IES files store the directional intensity distribution of light sources.

Inputs

Vector

Texture coordinate for lookup in the light distribution. Defaults to the normal.

Strength

Light strength multiplier.

Properties

Mode

Internal
Use IES profile from a file embedded in a text data-block in the blend-file, for easy distribution.

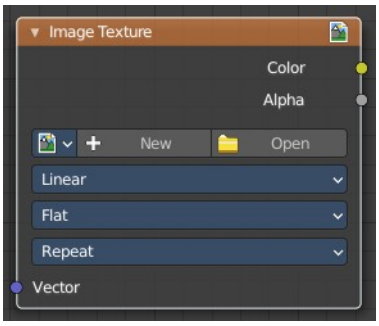
External
Load IES profile from a file on the drive.

Outputs

Factor

Light intensity, typically plugged into the Strength input of an Emission node.

Image Texture



The Image Texture is used to add an image file as a texture.

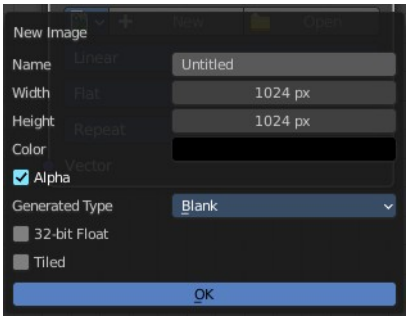
Inputs

Vector

Texture coordinate for texture look-up. If this socket is left unconnected, UV coordinates from the active UV render layer are used.

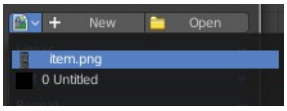
Properties

Image

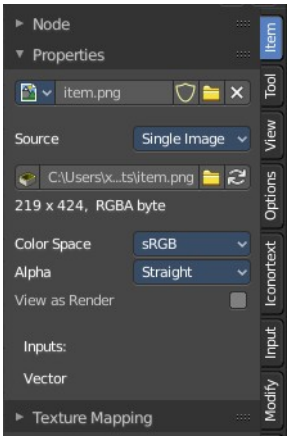


Open an image, choose an existing image, or generate a new image.

When you click at Open then a file browser opens up. When you click at New then a popup dialog opens. up where you can create a new image.

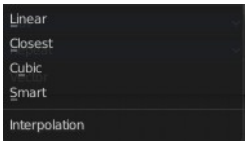


The image browser at the left allows you to pick an already existing texture from the scene.



More image settings can be found in the Sidebar in the Items tab. Usually you find in the Item tab the very same settings like in the selected node. But the Image texture node is an exception. It shows here the usual image related settings too. This will be explained in the sidebar chapter.

Interpolation



Method to scale images up or down for rendering.

Linear

Regular quality interpolation.

Cubic

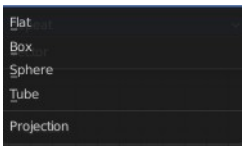
Smoother, better quality interpolation. For bump maps this should be used to get best results.

Closest
No interpolation, use only closest pixel for rendering pixel art.

Smart
Cycles Only

Only for Open Shading Language. Use cubic interpolation when scaling up and linear when scaling down, for a better performance and sharpness.

Projection



Projection to use for mapping the textures.

Flat
Uses the XY coordinates for mapping.

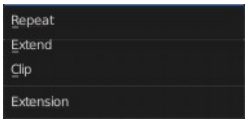
Box
Maps the image to the six sides of a virtual box, based on the normal, using XY, YZ and XYZ coordinates depending on the side.

Blend
For Box mapping, the amount to blend between sides of the box, to get rid of sharp transitions between the different sides. Blending is useful to map a procedural-like image texture pattern seamlessly on a model. 0.0 gives no blending; higher values give a smoother transition.

Sphere
Sphere mapping is the best type for mapping a sphere, and it is perfect for making planets and similar objects. It is often very useful for creating organic objects.

Tube
Maps the texture around an object like a label on a bottle. The texture is therefore more stretched on the cylinder. This mapping is of course very good for making the label on a bottle, or assigning stickers to rounded objects. However, this is not a cylindrical mapping so the ends of the cylinder are undefined.

Extension



Extension defines how the image is extrapolated past the original bounds:

Repeat
Will repeat the image horizontally and vertically giving tiled-looking result.

Extend
Will extend the image by repeating pixels on its edges.

Clip
Clip to the original image size and set all the exterior pixels values to transparent black.

Outputs

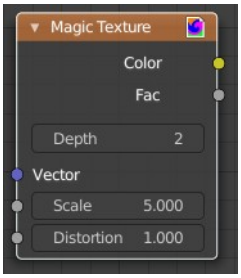
Color

RGB color from image. If the image has alpha, the color is premultiplied with alpha if the Alpha output is used, and unpremultiplied or straight if the Alpha output is not used.

Alpha

Alpha channel from image.

Magic Texture



The Magic Texture node is used to add a procedural psychedelic color texture.

Inputs

Vector

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

Scale

Scale of the texture.

Distortion

Amount of distortion.

Properties

Depth

Number of iterations.

Outputs

Color

Texture color output.

Factor

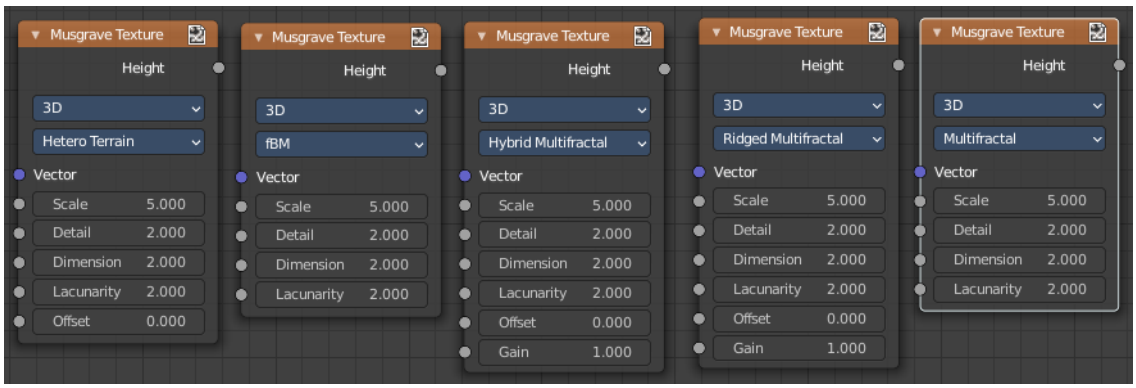
Texture intensity output.

Musgrave Texture

The Musgrave Texture node evaluates a fractal Perlin noise at the input texture coordinates. Compared to the noise texture, the Musgrave Texture allows greater control over how octaves are combined.

Inputs

The available input types change, dependent of the chosen Type and dimensions.



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. Appears with 4 dimensions.

Scale

Scale of the base noise octave.

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 render time.

Dimension

The difference between the magnitude of each two consecutive octaves. Larger values corresponds to smaller magnitudes for higher octaves.

Lacunarity

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

Offset

An added offset to each octave, determines the level where the highest octave will appear.

Gain

An extra multiplier to tune the magnitude of octaves.

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

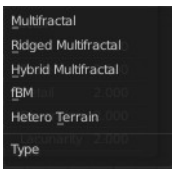
Evaluate the noise in 3D space at the input Vector.

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.

Type



Type of the Musgrave texture.

fBM (fractal Brownian Motion)

Produces an unnatural homogeneous and isotropic result. Uses an additive cascade, the values are simply added together.

Multifractal

The result is more uneven (varies with location), more similar to a real terrain. Uses a multiplicative cascade.

Hybrid Multifractal

Creates peaks and valleys with different roughness values, like real mountains rise out of flat plains. Combines the additive cascade with a multiplicative cascade.

Ridged Multifractal

Creates sharp peaks. Calculates the absolute value of the noise, creating “canyons”, and then flips the surface upside down.

Hetero Terrain (Heterogeneous Terrain)

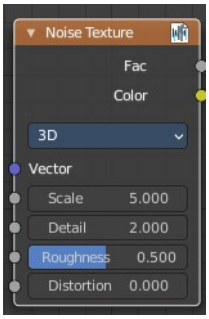
Similar to Hybrid Multifractal creates a heterogeneous terrain, but with the likeness of river channels.

Outputs

Factor

Texture value.

Noise Texture



The Noise Texture node evaluates a fractal Perlin 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 base noise octave.

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 render time.

Roughness

Adds a roughness noise.

Distortion

Amount of distortion.

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.

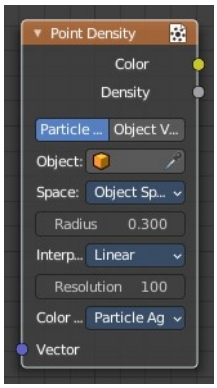
4D
Evaluate the noise in 4D space at the input Vector and the input W as the fourth dimension.

Outputs

Factor
Value of fractal noise.

Color
Color with different fractal noise in each component.

Point Density



The Point Density node is used to add volumetric points for each particle or vertex of another object.

Inputs

Vector
Texture coordinate to sample texture at; defaults to global position (Position output of Geometry node) if the socket is left unconnected.

Properties

Point Data
Where to get points from.

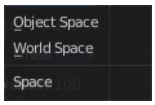
Particle System
Use each particle position from the specified particle system.

Object Vertices
Use each vertex position from the specified object.

Object
Which object’s vertices or particle system will be used.

Particle System
Particle positions from this system will be used.

Space



The coordinate system for mapping points.

World Space

Map each point exactly where the source particle/vertex is.

Object Space

Fit the points from the source particles/vertices inside the bounding box of the object with the point density texture.

Radius

Size of the points.

Interpolation

Texel filtering type.

Closest

No interpolation, use nearest texel. Produces blocky looking points.

Linear

Interpolate linearly between texels, producing soft, round points.

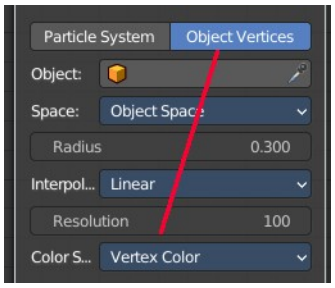
Cubic

Use cubic falloff, producing very soft points. Useful when points are very densely packed.

Resolution

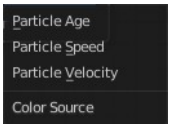
The dimensions of the texture holding the point data.

Color Source



Which attribute of the particle system or mesh is used to color the output. Switch to Object vertices to show the Vertex color sources.

Particle Color Sources



Particle Age

Lifetime mapped as (0.0 - 1.0) intensity.

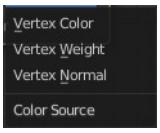
Particle Speed

Particle speed (absolute magnitude of velocity) mapped as (0.0 - 1.0) intensity.

Particle Velocity

XYZ velocity mapped to RGB colors.

Vertex Color Sources



Vertex Color

Use a vertex color layer for coloring the point density texture.

Note. Vertex colors are defined per face corner. A single vertex can have as many different colors as faces it is part of. The actual color of the point density texture is averaged from all vertex corners.

Vertex Weight

Use weights from a vertex group as intensity values.

Vertex Normals

Use object-space vertex normals as RGB values.

Outputs

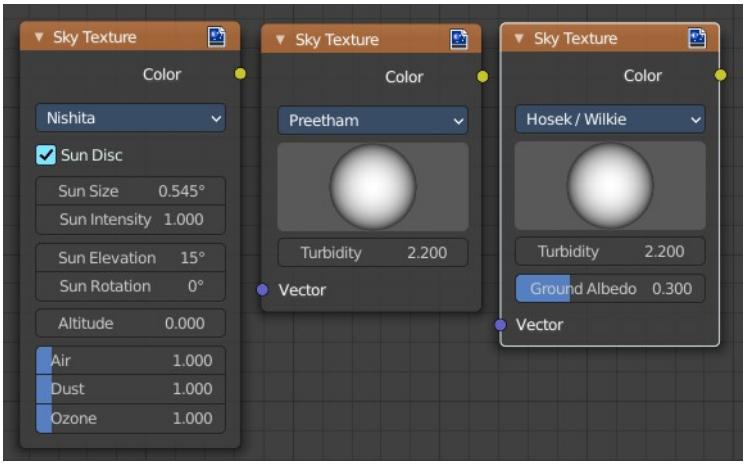
Color

Texture color output.

Density

Density of volume.

Sky Texture



The Sky Texture node adds a procedural Sky texture.

Inputs

Vector

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

Properties

Sky Type

Sky model to use. You have the choice between three methods. Nishita, Preetham and Hosek/Wilkie

Sun Direction

Sun direction vector. Click at the image and drag to change the sun direction.

Turbidity

Atmospheric turbidity. Some reference values:

2: Arctic like

3: clear sky

6: warm/moist day

10: hazy day

Ground Albedo

Amount of light reflected from the planet surface back into the atmosphere. (RGB(0, 0, 0) is black, RGB(1, 1, 1) is white.)

Outputs

Color

Texture color output.

Voronoi Texture

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.

Randomness

The randomness of the noise.

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.

Feature

The Voronoi feature that the node will compute and return.

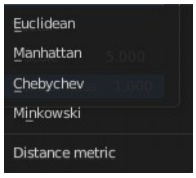
F1
Compute and return the distance to the closest feature point as well as its position and color.

Smooth F1
Compute and return a smooth version of F1.

Distance To Edge
Compute and return the distance to the edges of the Voronoi cells.

N-Sphere Radius
Compute and return 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.

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.

Outputs

Distance

The Distance.

Color

Cell color. The color is arbitrary.

Position

Position of feature point.

W

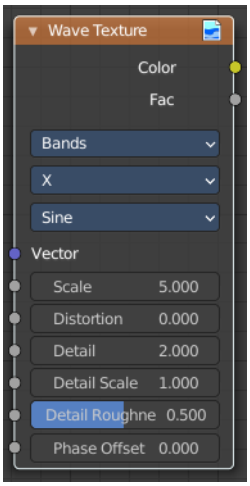
Position of feature point.

Radius

N-Sphere radius.

Note. 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.

Wave Texture



The Wave Texture node adds procedural bands or rings with noise distortion.

Inputs

Vector

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

Scale

Overall texture scale.

Distortion

Amount of distortion of the wave (similar to the Marble texture in Blender Internal).

Detail

Amount of distortion noise detail.

Detail Scale

Scale of distortion noise.

Detail Roughness

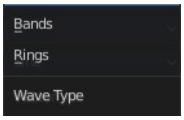
Adds a roughness noise.

Phase Offset

Set an offset for the phase.

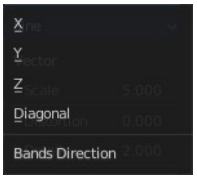
Properties

Wave Type



Bands or Rings shaped waves.

Bands direction



In which direction the bands should point.

Wave Profile

Controls the shape and look of the wave type.

Saw

Uses a saw tooth profile.

Sine

Uses the standard sine profile.

Triangle

Uses a triangle shape.

Outputs

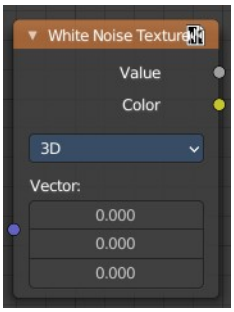
Color

Texture color output.

Factor

Texture intensity output.

White Noise Texture



This node adds noise.

Inputs

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

Vector

Vector used as seed in 2D, 3D, and 4D dimensions.

W

Value used as seed in 1D and 4D dimensions.

Properties

Dimensions

The dimensions of the space to evaluate the noise in.

1D

The W input is used as seed.

2D

The X and Y components of the Vector input are used as seed.

3D

The Vector input is used as seed.

4D

Both the Vector input and the W input are used as seed.

Outputs

Value

Output random value.

Note! The slightest difference in seed values would result in completely different outputs. Consequently, bad precision may have significant impact on the output. Usually, we can mitigate this issue by:

Eliminating the problematic seed value. If the problematic seed value is constant, it should be eliminated by choosing a lower dimension or multiplying it by zero.

Adding an arbitrary value to the seed. The issue might only happen at certain boundaries, like unit boundaries, so simply adding an arbitrary value might solve the issue.

Taking the absolute value of the seed. In computing, zero may be positive or negative, so taking the absolute values unifies the zero into a single value.