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White Noise Texture Node

The *White Noise Texture* node returns a random number based on an input Seed. The seed can be a number, a 2D vector, a 3D vector, or a 4D vector; depending on the *Dimensions* property. The output number ranges between zero and one.

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

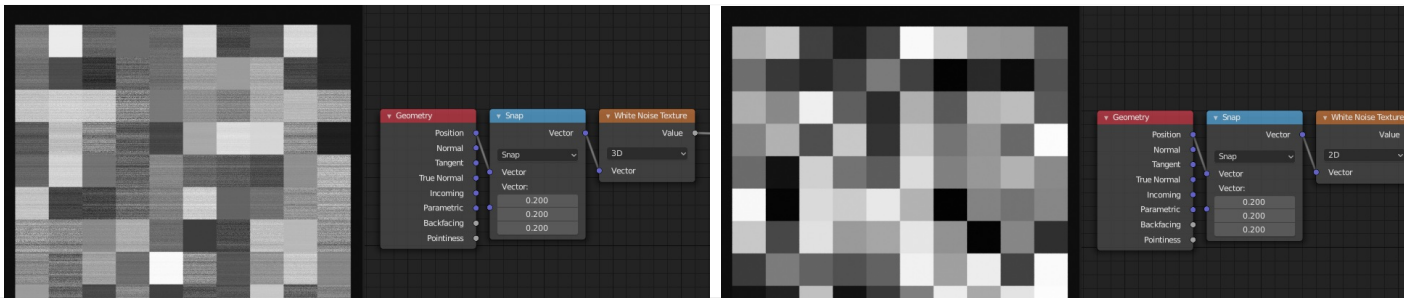
Value
: Output random value.

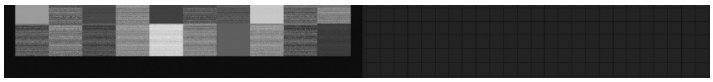
Color
: Output random color.

Notes

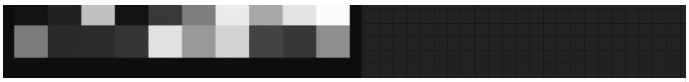
The slightest difference in seed values would result in completely different outputs. Consequently, bad precision may have significant impact on the output Usually, we can mitigate this issue by:

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

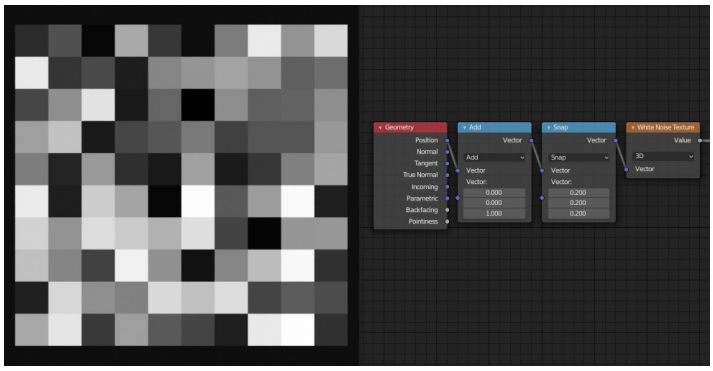




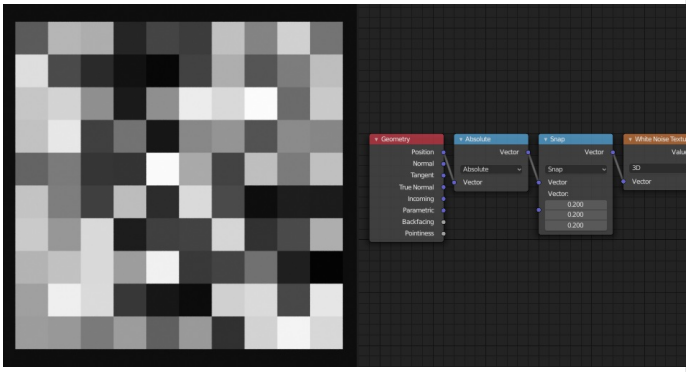
Precision issue due to signed zeros on the Z axis.



Mitigating the issue by eliminating the Z axis.

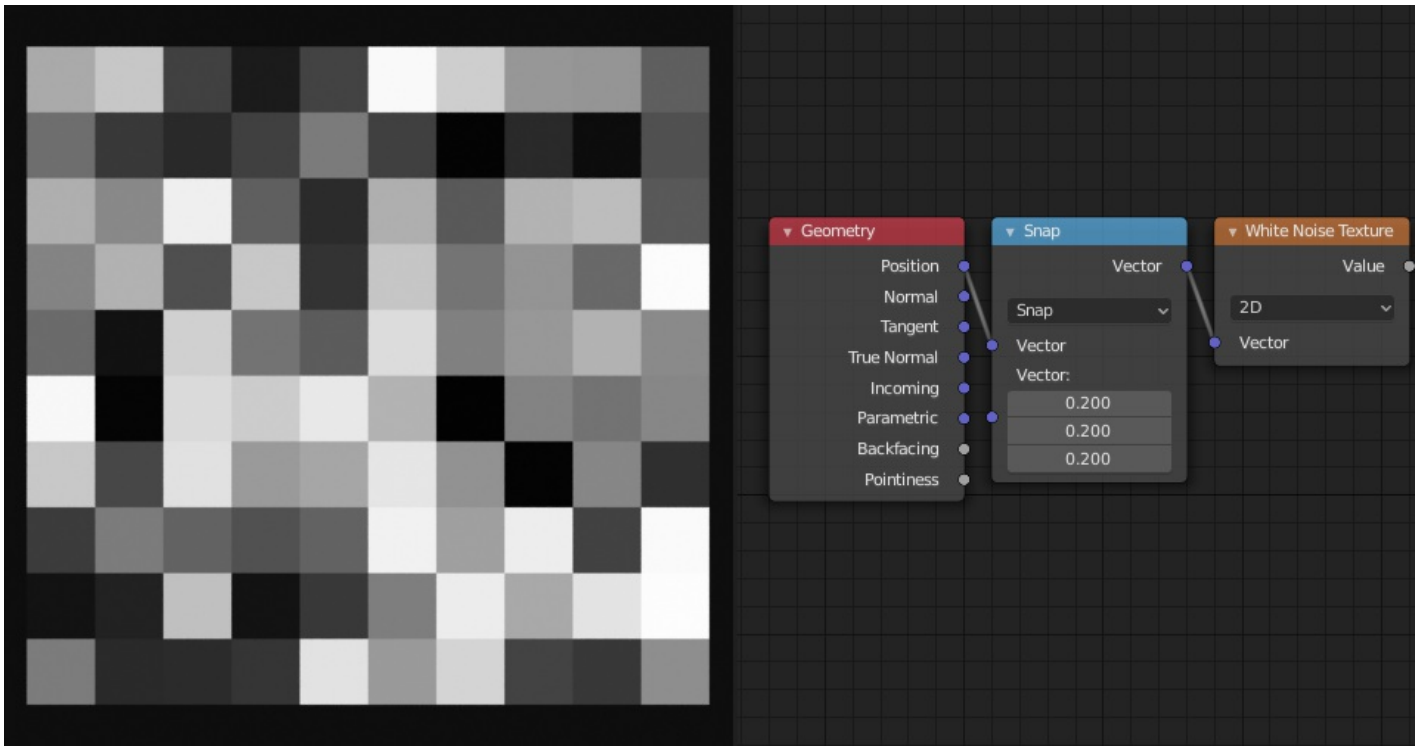


Mitigating the issue by adding an arbitrary value.



Mitigating the issue by taking the absolute value.

Examples



Generating cell noise using the *Snap* vector operation and the *White Noise* node.

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