

12.1.18 Editors - Geometry Nodes Editor - Header - Add Menu - Utilities

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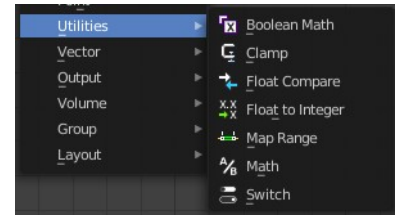
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Add menu - Utilities

Utility nodes are mainly for mathematical operations.



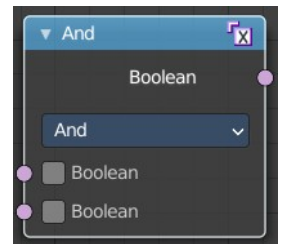
Boolean Math

The Boolean Math node performs a basic logical operation between its inputs.

Inputs

Boolean

Two standard Boolean inputs.



Properties

Operation

And

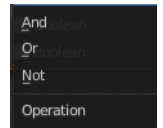
True if both inputs are true.

Or

True if either or both inputs are true.

Not

True if both inputs are false.



Output

Boolean

Standard Boolean output.

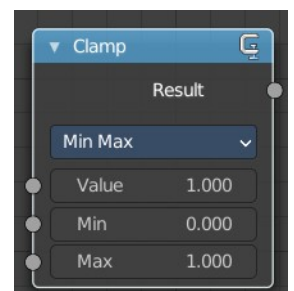
Clamp

Clamps a value between a minimum and a maximum.

Inputs

Value

The input value to be clamped.



Min

The minimum value.

Max

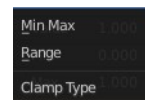
The maximum value.

Properties

Clamp Type

Min Max

Clamp values using Min and Max values.



Range

Clamp values between Min and Max range.

Outputs

Result

The input value after clamping.

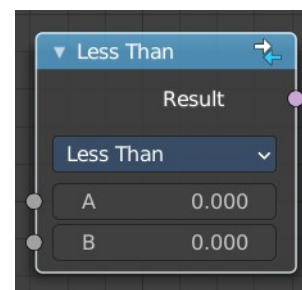
Float Compare

The Float Compare node takes two inputs and does a math comparison between them.

Inputs

A, B

Standard float value input.



Properties

Operation

A is less than B

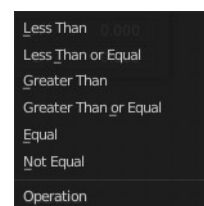
True if A is smaller than B.

A is lesser than or equal B

True if A is smaller or equal than B.

A is greater than B

True if A is bigger than B.



A is greater than or equal B

True if A is bigger or equal than B.

A is equal B

True if A and B are the same.

A is not equal B

True if A and B are different.

Output

Result

Standard Boolean output.

Float to Integer

Converts a floating point value into an integer value.

Inputs

Float

The input float value.

Properties

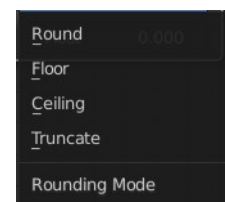
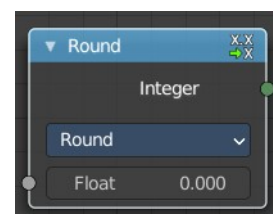
Rounding Mode

How the float value should be converted.

Outputs

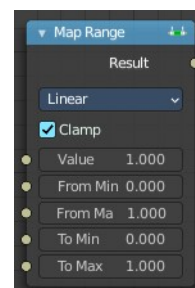
Integer

The output integer value



Map Range

This node converts (maps) an input value range into a destination range. By default, values outside the specified input range will be proportionally mapped as well. This node is similar to Map Value node but provides a more intuitive way to specify the desired output range.



Inputs

Value

Standard value input.

From Min

Start of the input value range.

From Max

End of the input value range.

To Min

Start of the destination range.

To Max

End of the destination range.

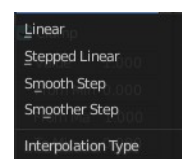
Properties

Interpolation Type

how to interpolate the values between min and max.

Clamp

Clamps values to Min/Max of the destination range.



Outputs

Value

Standard value output.

Math

The Math Node performs math operations.

Inputs

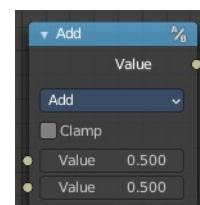
The inputs of the node are dynamic. Some inputs are only available with certain operations. For example, the Addend input is only available in the Multiply Add operator.

Value

Input Value. Trigonometric functions read this value as radians.

Addend

Input Addend.



Base

Input Base.

Exponent

Input Exponent.

Epsilon

Input Epsilon.

Distance

Input Distance.

Min

Input Minimum.

Max

Input Maximum.

Increment

Input Increment.

Scale

Input Scale.

Degrees

Input Degrees.

Radians

Input Radians.

Properties

Operation

The mathematical operator to be applied to the input values:

Functions

Add

The sum of the two values.

Subtract

The difference between the two values.

Functions	Comparison	Rounding	Trigonometric	Conversion
Add	Minimum	Round	Sine	To Radians
Subtract	Maximum	Floor	Cosine	To Degrees
Multiply	Less Than	Ceil	Tangent	
Divide	Greater Than	Truncate	Arcsine	
Multiply Add	Sign	Fraction	Arccosine	
Power	Compare	Modulo	Arctangent	
Logarithm	Smooth Minimum	Wrap	Arctan2	
Square Root	Smooth Maximum	Snap	Hyperbolic Sine	
Inverse Square Root		Ping-pong	Hyperbolic Cosine	
Absolute			Hyperbolic Tangent	
Exponent				

Multiply

The product of the two values.

Divide

The division of the first value by the second value.

Multiply Add

The sum of the product of the two values with Addend.

Power

The Base raised to the power of Exponent.

Logarithm

The log of the value with a Base as its base.

Square Root

The square root of the value.

Inverse Square Root

One divided by the square root of the value.

Absolute

The input value is read with without regard to its sign. This turns negative values into positive values.

Exponent

Raises Euler's number to the power of the value.

Comparison

Minimum

Outputs the smallest of the input values.

Maximum

Outputs the largest of two input values.

Less Than

Outputs 1.0 if the first value is smaller than the second value. Otherwise the output is 0.0.

Greater Than

Outputs 1.0 if the first value is larger than the second value. Otherwise the output is 0.0.

Sign

Extracts the sign of the input value. All positive numbers will output 1.0. All negative numbers will output -1.0. And 0.0 will output 0.0.

Compare

Outputs 1.0 if the difference between the two input values is less than or equal to Epsilon.

Smooth Minimum

Smooth Minimum.

Smooth Maximum

Smooth Maximum.

Rounding

Round

Round the input value to the nearest integer.

Floor

Rounds the input value down to the nearest integer.

Ceil

Rounds the input value up to the nearest integer.

Truncate

Outputs the integer part of the value.

Fraction

Fraction.

Modulo

Outputs the remainder once the first value is divided by the second value.

Wrap

Outputs a value between Min and Max based on the absolute difference between the input value and the nearest integer multiple of Max less than the value.

Snap

Round the input value to down to the nearest integer multiple of Increment.

Ping-pong

The output value is moved between 0.0 and the Scale based on the input value.

Trigonometric

Sine

The Sine of the input value.

Cosine

The Cosine of the input value.

Tangent

The Tangent of the input value.

Arcsine

The Arcsine of the input value.

Arccosine

The Arccosine of the input value.

Arctangent

The Arctangent of the input value.

Arctan2

Outputs the Inverse Tangent of the first value divided by the second value measured in radians.

Hyperbolic Sine

The Hyperbolic Sine of the input value.

Hyperbolic Cosine

The Hyperbolic Cosine of the input value.

Hyperbolic Tangent

The Hyperbolic Tangent of the input value.

Conversion

To Radians

Converts the input from degrees to radians.

To Degrees

Converts the input from radians to degrees.

Clamp

Limits the output to the range (0.0 to 1.0). See Clamp.

Outputs

Value

Numerical value output.

Switch

Switch between two inputs values based on a boolean.

Inputs

Switch

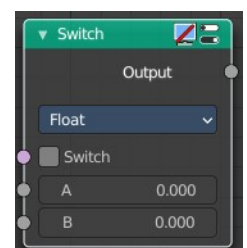
The boolean switch.

A

The input value A. Used when the switch is off.

B

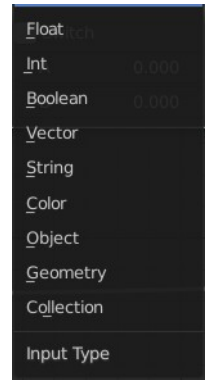
The input value B. Used when the switch is on.



Properties

Input Type

What input type the values are, which defines what type to output then.



Outputs

Output

Numerical value output.