12.1.6 Editors - Geometry Node Editor - Header - Add Menu - Attribute

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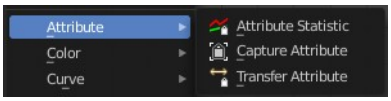
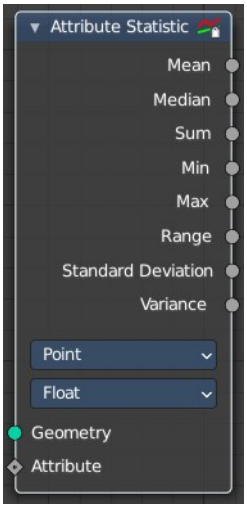
Add menu

The Attribute menu contains the attribute nodes. These nodes allows you to work with object attributes.



Attribute Statistics

Retreive statistic values from the input mesh.



Inputs

Geometry

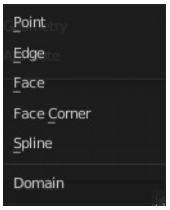
Standard geometry input.

Attribute

Attribute to get the statistics from

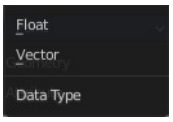
Properties

Domain Type



From which domain to retreive the data.

Data Type



What data type to use.

Float will output a single floating point value.

Vector will outupt a vector 3 with floating point values.

Outputs

Outputs the statistics for the different types.

Mean

The average value of all data.

Median

The median value of all data.

Sum

The sum value of all data.

Min

The min value of all data.

Max

The max value of all data.

Range

The difference between the max and min value.

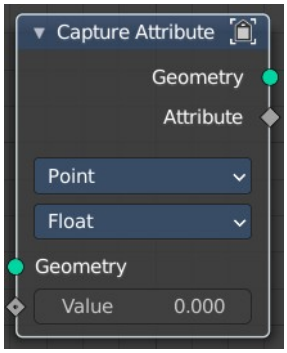
Standard Derivation

How much values differ from the mean. A low standard deviation indicates that the values are grouped tightly together at the mean. A high standard deviation indicates that the values are spread out over a large range.

Variance

The variance of all data, defined as the square of the standard deviation.

Capture Attribute



The Capture Attribute node stores the result of a field on a geometry, and outputs the data as a node socket so it can be used by other nodes.

The result is stored on the geometry just like a regular attribute with a name. But instead of referencing it with a name, it is retrieved whenever the socket is connected to the input of a node. Later on when evaluating the node tree, the attribute will be removed automatically if it is no longer used.

Inputs

Geometry

Standard geometry input.

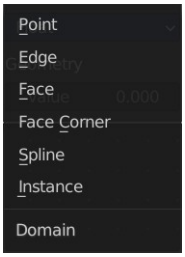
Value

Name of the attribute that is used as input. It should be a float attribute with values between zero and one.

Properties

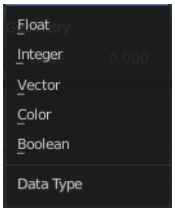
Domain Type

In which domain to store the data.



Data Type

What data type to use.



Outputs

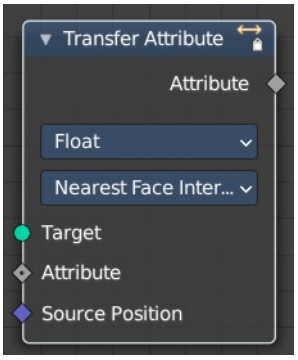
Geometry

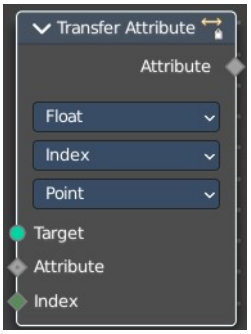
Standard geometry output.

Attribute

Attribute output.

Transfer Attribute





Captures and transfers values from a target object and provides them as an attribute.

Inputs

Target

Target Object.

Attribute

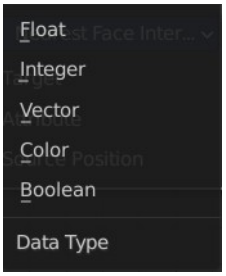
Attribute input.

Source Position

Source position input.

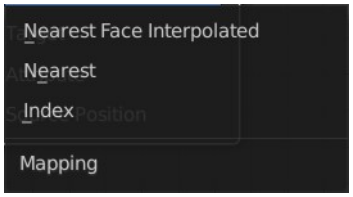
Properties

Data Type



The type for the source and result data.

Mapping



Which data to transfer.

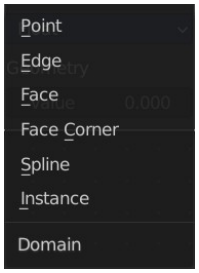
Nearest Face Interpolated

Transfer the attribute from the nearest point from anywhere on the surface. Non-face attributes are interpolated across the surface (edge attributes are not supported yet). Loose points and edges are ignored.

Nearest

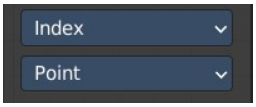
Transfer the attribute from the nearest element (with a domain chosen by the Domain input). No interpolation is done.

Domain



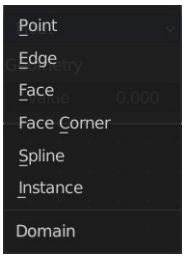
What element to use.

Index



Copy the attribute data from the value at the input index. In this mode, the target geometry can consist of a mesh, point cloud, or curve. The matching component type from the context will be chosen if possible, otherwise a component will be chosen in that order.

Domain



What element to use.

Outputs

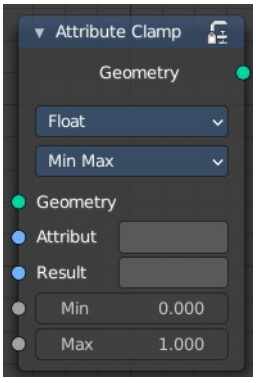
Attribute

Attribute output.

Add menu - Legacy Nodes

These nodes existed in a former Bforartists version, but are now deprecated. They do not show in the regular menu or UI anymore. And you cannot insert them in a newer Bforartists version. But old projects that uses this nodes still loads with these nodes showing and enabled.

Attribute Clamp



Clamps the values of an attribute between a min and a max value

Inputs

Geometry

Standard geometry input.

Attribute

Name of the attribute that is used as input. It should be a float attribute with values between zero and one.

Result

Name of the attribute where the output is stored. If the attribute does not exist yet, it is created.

Min

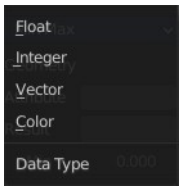
The minimum value.

Max

The maximum value.

Properties

Data Type



What data type to clamp.

Operation

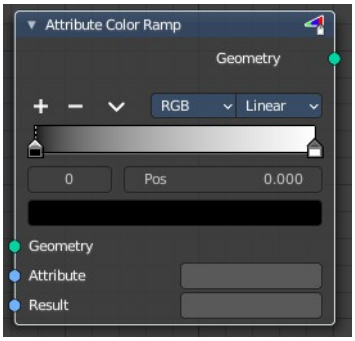
What clamp operation to use.

Outputs

Geometry

Standard geometry output.

Attribute Color Ramp



Uses a color ramp ot map values from a float attribute to a color attribute of the target geometry.

Inputs

Geometry

Standard geometry input.

Attribute

Name of the attribute that is used as input. It should be a float attribute with values between zero and one.

Result

Name of the attribute where the output is stored. If the attribute does not exist yet, it is created.

Properties

Color Ramp

Color Ramps enables the user to specify a range of colors based on color stops. The color between the color

stops gets interpolated.

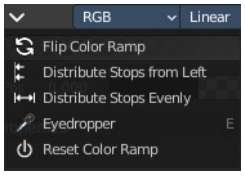
Controls

+

Add a stop to your color ramp. The stop will be added after the selected one, in the middle to the next one.

-

Deletes the selected color stop from the list.



Tools menu

Flip Color Ramp

Flips the gradient, inverting the values of the color ramp.

Distribute Stops from Left

Rearrange the stops so that every step has the same space to the right.

Distribute Stops Evenly

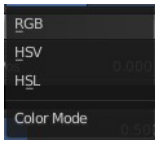
Space between all neighboring stops becomes equal.

Eyedropper (pipette icon) E

An Eyedropper to sample a color or gradient from the interface to be used in the color ramp.

Reset Color Ramp

Resets the color ramp to its default state.



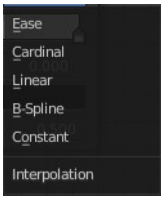
Color Mode

RGB

Blends color by mixing each color channel and combining.

HSV/HSL

Blends colors by first converting to HSV or HSL, mixing, then combining again. This has the advantage of maintaining saturation between different hues, where RGB would de-saturate, this allows for a richer gradient.



Interpolation

Ease

Uses an Ease Interpolation for the color stops.

Cardinal

Uses a Cardinal Interpolation for the color stops.

Linear

Uses a Linear Interpolation for the color stops.

B-Spline

Uses a B-Spline Interpolation for the color stops.

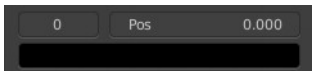
Constant

Uses a Constant Interpolation for the color stops.

Color Ramp

The color band. A click at one of the color stops makes it the active one. You can move the color stops by clicking at them and dragging them around.

Active Color Stop elements



Adjust the active color stop.

Choose active color stop

Choose the color stop by index.

Pos

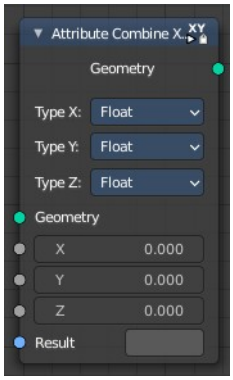
The position of the active color stop. The range goes from 0.000 to 1.000

Outputs

Geometry

Standard geometry output.

Attribute Combine XYZ



The Attribute Combine XYZ Node combines a vector attribute from its individual components.

Inputs

Geometry

Standard geometry input.

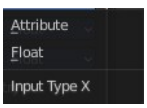
X / Y / Z

The single input components of the vector.

Result

Name of the attribute where the computed result it stored. If an attribute with this name does not exist yet, a new attribute with a Boolean data type is added. If it does exist, the values of the existing attribute are overridden.

Properties



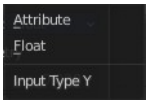
Type X

What type the X value of the vector is.

Attribute

The input is a text field that expects an attribute name.

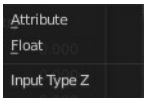
Float
The input is a number field.



Type Y
What type the Y value of the vector is.

Attribute
The input is a text field that expects an attribute name.

Float
The input is a number field.



Type Z
What type the Z value of the vector is.

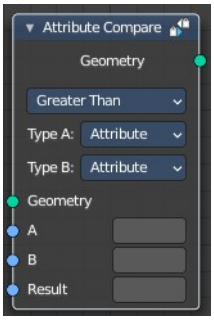
Attribute
The input is a text field that expects an attribute name.

Float
The input is a number field.

Output

Geometry
Standard geometry output.

Attribute Compare



This node reads two input attributes as floats and allows for basic element-wise comparison operations. Like the Attribute Math node, it is also possible to switch to using single values for inputs. This node can be combined with the Point Separate node for more flexibility for which points to separate to the second output geometry.

Inputs

Geometry
Standard geometry input.

A, B
The first and second input to the math operation. Depending on the Type input, this is either an attribute name or an input of the specified data type.

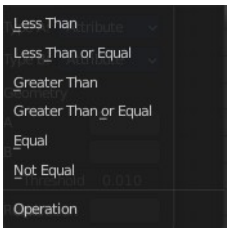
Threshold
Shows with method Equal and Not Equal. This value is used as a threshold for still considering the two inputs

as equal.

Result

Name of the attribute where the computed result it stored. If an attribute with this name does not exist yet, a new attribute with a Boolean data type is added. If it does exist, the values of the existing attribute are overridden.

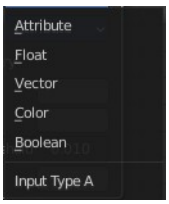
Properties



Operation

The math function to use.

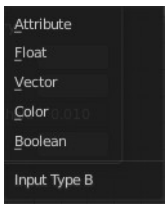
Note! For operations besides Equal and Not Equal, the input attributes are converted implicitly to the float data type. For the equality operations on vectors, the distance between the vector inputs is used.



A

Input type A for the corresponding socket.

B



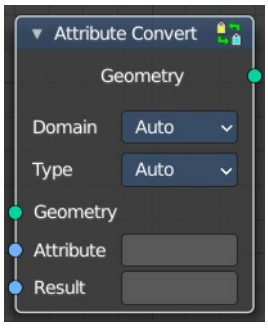
Input type B for the corresponding socket.

Output

Geometry

Standard geometry output.

Attribute Convert



Reads one input attribute and converts the data type and domain to the result attribute. The data type conversion is determined by a set of built-in implicit conversion rules. These rules are also used when connecting sockets with different data types. Additional information can be found in the Node Socket section of the manual.

Note that the data conversion rules are not editable. When converting a vector to a float, the implicit rule may not be desired. In this case it is recommended to use Attribute Math nodes together with Attribute Combine and Attribute Separate nodes to achieve the desired result.

Inputs

Geometry

Standard geometry input.

Attribute

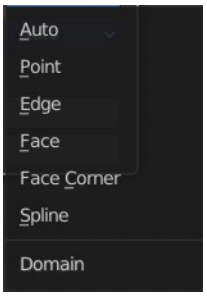
Name of the attribute that is to be converted.

Result

Name of the attribute where the computed result it stored. If an attribute with this name does not exist yet, a new attribute is added. If it does exist, the values of the attribute are overridden.

Properties

Domain



What domain to use to save the result attribute. Where the source attribute resides on a different domain, the data is interpolated.

Auto

Chooses the domain based on the following rules.

If the result attribute already exists, use that domain. If the result attribute doesn’t exist, use the source attribute domain. Otherwise use the default domain (points).

Point

Store the resulting attribute per point.

Edge

Store the resulting attribute per edge.

Face

Store the resulting attribute per face.

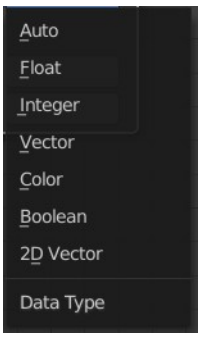
Face Corner

Store the resulting attribute per face corner.

Spline

Store the resulting attribute per spline.

Data Type



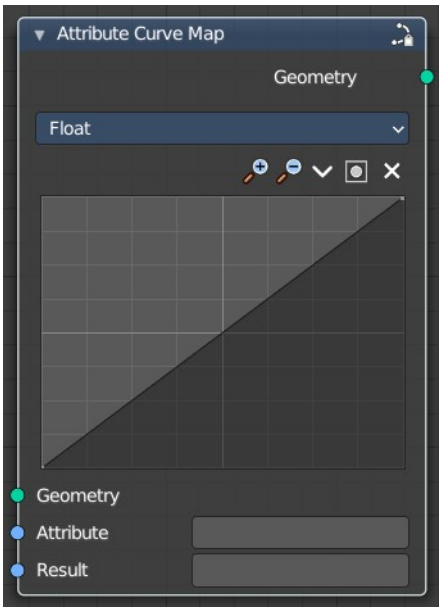
The data type of the result attribute.

Output

Geometry

Standard geometry output.

Attribute Curve Map



Lets you map an attribute through a curves panel.

Inputs

Geometry

Standard geometry input.

Attribute

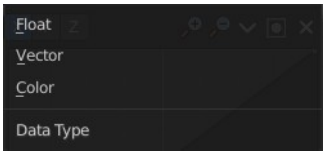
Name of the attribute that is to be converted.

Result

Name of the attribute where the computed result it stored. If an attribute with this name does not exist yet, a new attribute is added. If it does exist, the values of the attribute are overridden.

Properties

Data Type

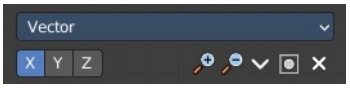


What data type to work with.

Float

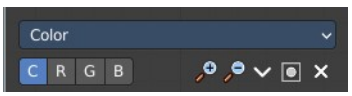
Work with float values.

Vector



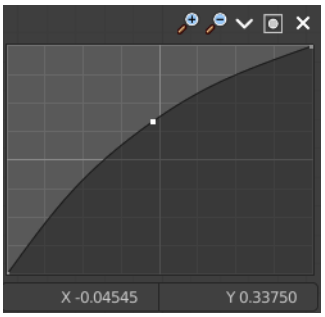
Work with Vector 3 values. You can choose which value of the vector to use. X, Y or Z.

Color



Work with color values. You can choose which value of the color to use.

Curve Widget



Navigation elements

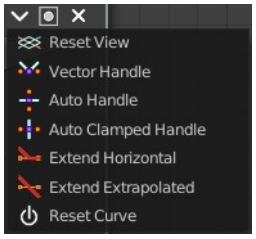
The navigation elements at the top are described from left to right.

Zoom in and out

The two buttons with the magnifying glass at it zooms in and out in the curve window.

Tools

Tools is a menu where you can find some curve related tools.



Reset View

Resets the curve windows zoom.

Vector Handle

Set handle type to Vector.

Auto Handle

Set handle type to Auto.

Auto Clamped Handle

Set handle type to Auto Clamped.

Extend Horizontal

Extends the curve before the last point and after the last point horizontally.

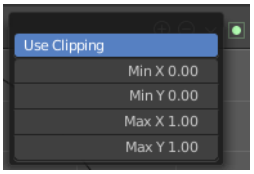
Extend Extrapolation

Extends the curve before the last point and after the last point extrapolated.

Reset Curve

Resets the curve to the initial shape.

Use Clipping

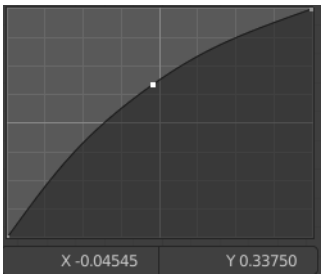


Clipping options. Set up clipping for the stroke.

Delete Points

Deletes selected curve point.

Curve window



Tweak and adjust the falloff curve by clicking at a curve point and dragging it around.

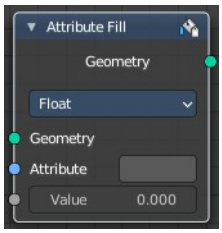
Double click adds a new point.

Holding down ctrl activates temporary snapping.

Holding down shift enables slower movement, which allows more accurate setting.

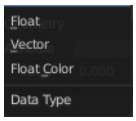
X / Y values
The x and y value of the currently selected point.

Attribute Fill



The Attribute Fill node sets the value for every element of the attribute with the input name to the input value. If the attribute doesn't exist yet, it will be created.

Properties



Data Type

The type of data to fill the attribute with.

Inputs

Geometry

The geometry that is modified.

Attribute

The name of the attribute to fill with the value.

Value

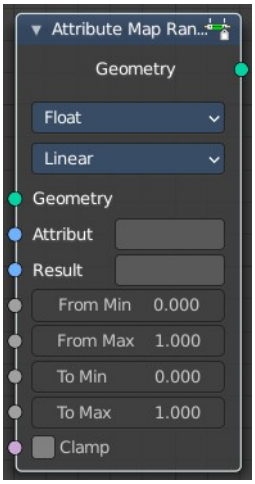
A value of the data type to fill the attribute with.

Output

Geometry

The same geometry as the input with a modified attribute.

Attribute Map Range



Clamps the values of an attribute between a min and a max value range.

Inputs

Geometry

Standard geometry input.

Attribute

Name of the attribute that is used as input. It should be a float attribute with values between zero and one.

Result

Name of the attribute where the output is stored. If the attribute does not exist yet, it is created.

From Min

The lowest minimum value.

From Max

The highest minimum value.

To Min

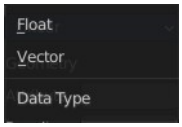
The lowest maximum value.

To Max

The highest maximum value.

Properties

Data Type



What data type to clamp.

Interpolation type

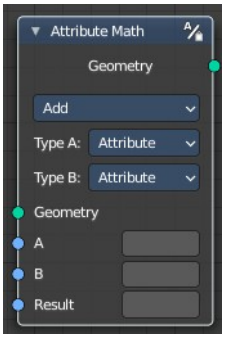
What interpolation type to use.

Outputs

Geometry

Standard geometry output.

Attribute Math



Modify an attribute with a math operation.

Inputs

Geometry

Standard geometry input.

Attribute A

The first input to the math operation. This can be either an attribute name or numeric value.

Attribute B

The second input to the math operation. This can be either an attribute name or numeric value.

Result

Name of the attribute where the computed result it stored. A new attribute with that name is added, if it does not exist yet. If it does exist, the existing attribute is overridden.

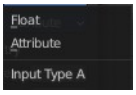
Properties

Operation

The math function to perform.

Note! Attributes are converted implicitly to the float data type.

Type A



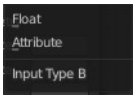
Attribute

The input is a text field that expects an attribute name.

Float

The input is a number field.

Type B



Attribute

The input is a text field that expects an attribute name.

Float

The input is a number field.

Output

Geometry

Standard geometry output.

Attribute Mix

Mix attributes to creates to create a new attribute.

Inputs

Geometry

Standard geometry input.

A

The first input to the mix operation. This can be an attribute name or a value.

Result

B

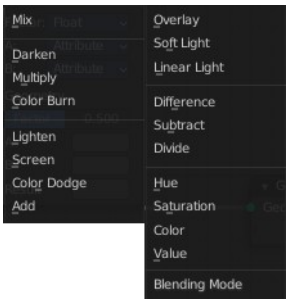
The second input to the mix operation. This can be an attribute name or a value.

Result

Name of the attribute where the computed result is stored. The output attribute type is Color by default. When the result attribute exists already, its type is not changed.

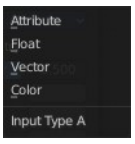
Properties

Blending Mode



Operation that is performed on the inputs.

A



Input type A for the corresponding socket.

B

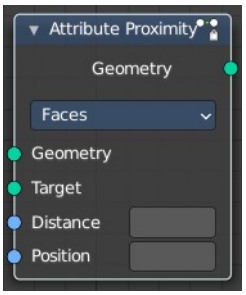
Input type B for the corresponding socket.

Output

Geometry

Standard geometry output.

Attribute Proximity



This node finds the closest position on the target for each point in the input geometry.

Both, position and distance to them can be stored in attributes.

Inputs

Geometry

Standard geometry input.

Target

Name of the attribute to fill with random values. If there is no attribute with the given name, a new one is created.

Result

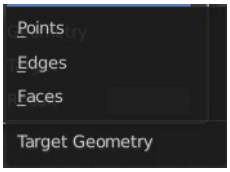
Name of the attribute where the output is stored. If the attribute does not exist yet, it is created.

Position

The name of the attribute where the computed location is stored.

A new attribute with that name is added if it does not exist yet. If it does exist, the values of the existing attribute are overridden.

Properties



Target Geometry

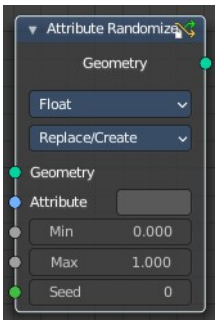
The element of the target geometry to calculate the distance from.

Outputs

Geometry

Standard geometry output.

Attribute Randomize



The Attribute Randomize node replaces the values in an attribute with random values within the given range.

Inputs

Geometry

Standard geometry input.

Attribute

Name of the attribute to fill with random values. If there is no attribute with the given name, a new one is created.

Min

The random value will be at least those values.

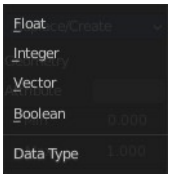
Max

The random values will be no more than those values.

Seed

Seed to change the random sequence.

Properties



Data Type

Type of data stored in the attribute.

Float

Single (floating-point) value.

Integer

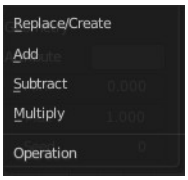
A integer value.

Vector

Array of three (floating-point) values.

Boolean

A true or false value.



Operation

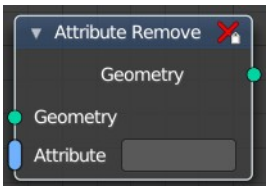
What operation method to use.

Outputs

Geometry

Standard geometry output.

Attribute Remove



For more complicated node setups you can often accumulate many temporary attributes. This node is able to remove them.

Inputs

Geometry

Standard geometry input.

Attribute

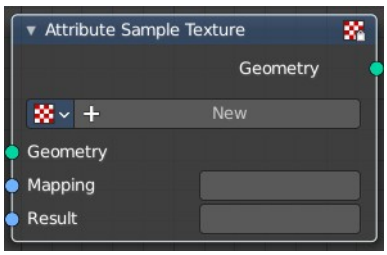
The attribute that you want to remove.

Output

Geometry

Standard geometry output.

Attribute Sample texture



The Attribute Sample Texture node evaluates a texture for every point, and stores the resulting colors in a new attribute. The mapping attribute can be anything that can be converted to a 3D vector. For example the name of a uv map or the position attribute is used.

Note that UV maps can only be accessed after a Point Distribute node currently. This is a limitation that will be resolved.

Inputs

Geometry

Standard geometry input.

Mapping

Name of the attribute that is used as input. It should be a float attribute with values between zero and one.

Result

Name of the attribute where the output is stored. If the attribute does not exist yet, it is created.

Properties

Texture property

The texture to use.

Texture Browser
A list of the available textures.

Edit Box
The name of the current active texture. Click to edit.

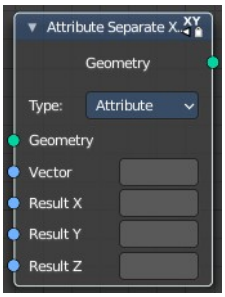
Fake User
Assign a fake user to this texture so that it is not removed when closing Bforartists.

New Texture
Add a new texture.

Remove
Remove the texture. This sets the texture inactive. It is still in the texture list.

Outputs

Geometry
Standard geometry output.



Attribute Separate XYZ

The Attribute Separate XYZ Node separates a vector attribute into its individual components.

Inputs

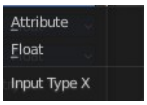
Geometry
Standard geometry input.

Vector
Attribute Vector input

Result X / Y / Z
The single input components of a vector.

Result
Name of the attribute where the computed result it stored. If an attribute with this name does not exist yet, a new attribute with a Boolean data type is added. If it does exist, the values of the existing attribute are overridden.

Properties



Type
What type the value of the vector is.

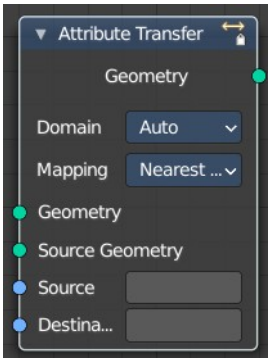
Attribute
The input is a text field that expects an attribute name.

Float
The input is a number field.

Output

Geometry
Standard geometry output.

Attribute Transfer



Transfers several types of data from one mesh to another. Data types include vertex groups, UV maps, vertex colors, and custom normals.

Inputs

Geometry

Standard geometry input.

Source Geometry

Source geometry input.

Source

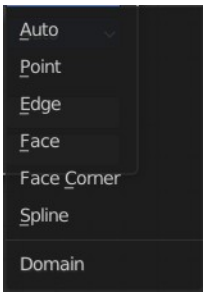
Source attribute

Destination

Destination attribute.

Properties

Domain



What domain to use to save the result attribute. Where the source attribute resides on a different domain, the data is interpolated.

Auto

Chooses the domain based on the following rules.

If the result attribute already exists, use that domain. If the result attribute doesn’t exist, use the source attribute domain. Otherwise use the default domain (points).

Point

Store the resulting attribute per point.

Edge

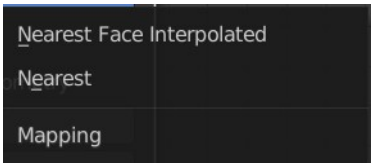
Store the resulting attribute per edge.

Face
Store the resulting attribute per face.

Face Corner
Store the resulting attribute per face corner.

Spline
Store the resulting attribute per spline.

Mapping

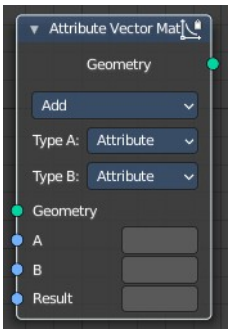


How to map the data.

Output

Geometry
Standard geometry output.

Attribute Vector Math



Modify an attribute with a math operation.

Inputs

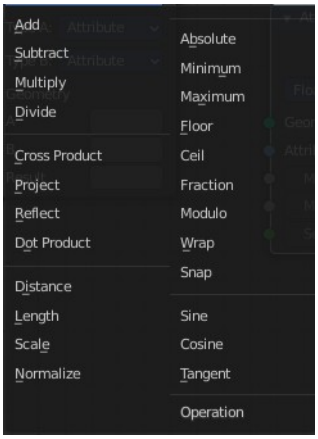
Geometry
Standard geometry input.

A, B, C
The inputs to the math operations. Depending on the operation one, two, or all three of the inputs will be used. The attribute types are all vectors of three values, except for the Scale operation, where the second input uses a float type.

Result
The name of the attribute where the computed result it stored. A new attribute with that name is added if it does not exist yet. If it does exist, the values of the existing attribute are overridden.

Properties

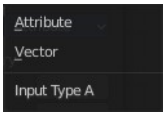
Operation



The available vector math operations. The methods should be self explaining.

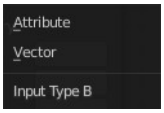
Note that attributes are converted implicitly to the input data type.

Type A



Input type A for the corresponding socket.

Type B



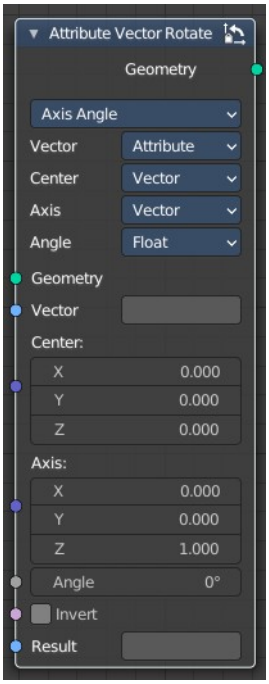
Input type B for the corresponding socket.

Output

Geometry

Standard geometry output.

Attribute Vector Rotate



Rotates the vector values.

Inputs

Geometry

Standard geometry input.

Vector

The attribute name of the vector.

Center

The center of the vector

Axis

The axis orientation and rotation of the vector.

Invert

Invert the vector values.

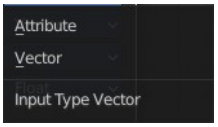
Result

The name of the attribute where the computed result it stored. A new attribute with that name is added if it does not exist yet. If it does exist, the values of the existing attribute are overridden.

Properties

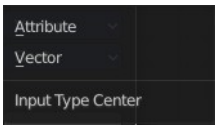
Mode

How to modify the vector values.



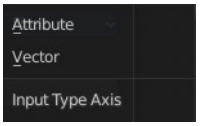
Input Type Vector

The input type.



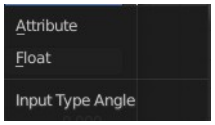
Input Type Center

The center type.



Input Type Axis

The axis type.



Input Type Angle

The angle type.

Output

Geometry

Standard geometry output.