



## 10.1.6 Editors - Geometry Node Editor - Header - Add Menu - Attribute

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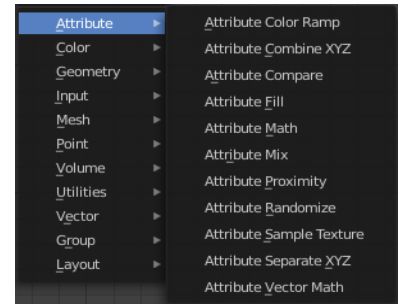
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## Add menu

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



## Attribute Color Ramp

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

### Inputs

#### **Geometry**

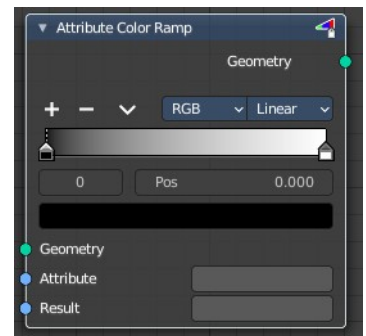
Standard geometry input.

#### **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.

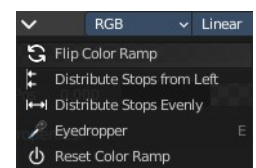
-

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.

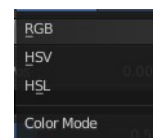
### **Color Mode**

#### **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**

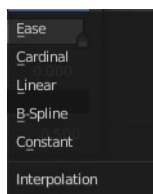
Uses a Linear Interpolation for the color stops.

#### **B-Spline**

Uses a B-Spline Interpolation for the color stops.

#### **Constant**

Uses a Constant Interpolation for the color stops.



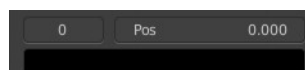
### **Color Ramp**

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.

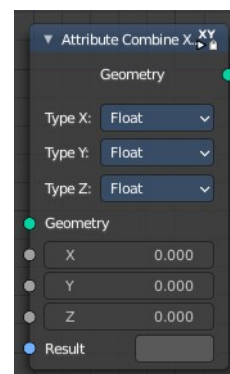
## Attribute Combine X Y Z

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.

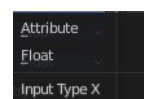
### Result

Name of the attribute where the computed result is 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

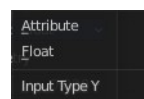
The input is a text field that expects an attribute name.

### Float

The input is a number field.

### Type Y

What type the Y value of the vector is.



### Attribute

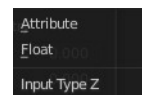
The input is a text field that expects an attribute name.

### 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.

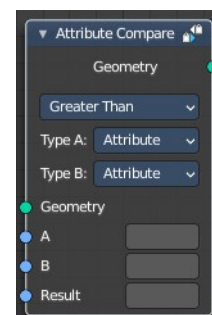
## Output

## 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 is 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.

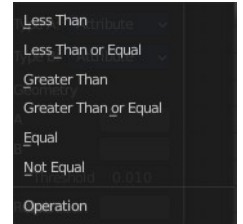


## Properties

### Operation

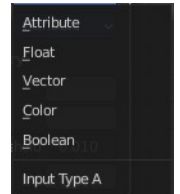
The math function to use.

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.



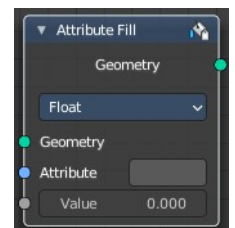
## Output

### Geometry

Standard geometry output.

## Attribute Fill

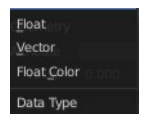
The Attribute Fill node sets the value for every element of the attribute with the input name to the input value. If the attribute doesn't exist yet, it will be created.



## 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 Math

Modify an attribute with a math operation.

## Inputs

### **Geometry**

Standard geometry input.

### **Attribute A**

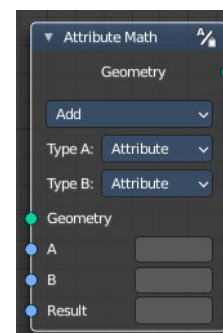
The first input to the math operation. This can be either an attribute name or numeric value.

### **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 is stored. A new attribute with that name is added, if it does not exist yet. If it does exist, the existing attribute is overridden.

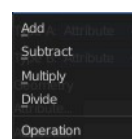


## Properties

### **Operation**

The math function to perform.

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



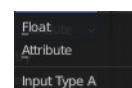
### **Type A**

#### **Attribute**

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

#### **Float**

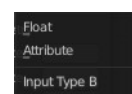
The input is a number field.



### **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 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.

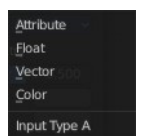
## Properties

### *Blending Mode*

Operation that is performed on the inputs.

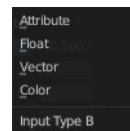
### *A*

Input type A for the corresponding socket.



## **B**

Input type B for the corresponding socket.



## **Output**

### **Geometry**

Standard geometry output.

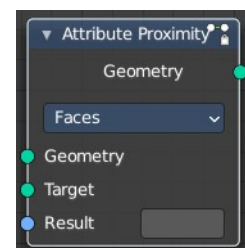
## **Attribute Proximity**

Not documented yet.

## **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.

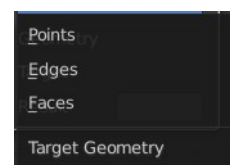
### **Result**

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

## **Properties**

### **Target Geometry**

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



## **Outputs**

### **Geometry**

Standard geometry output.

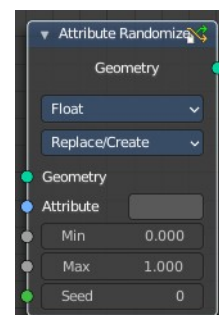
## **Attribute Randomize**

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**

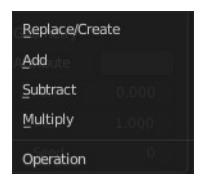
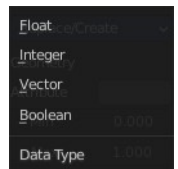
Array of three (floating-point) values.

### **Boolean**

A true or false value.

### ***Operation***

What operation method to use.



## **Outputs**

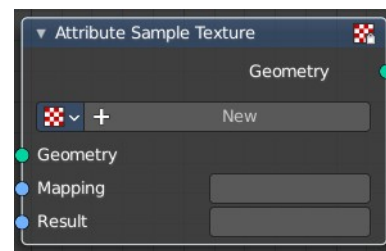
### ***Geometry***

Standard geometry output.

## Attribute 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.

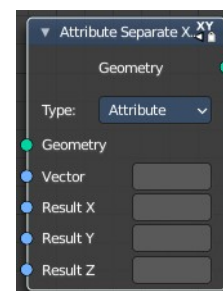
### Outputs

#### **Geometry**

Standard geometry output.

## Attribute Separate X Y Z

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 is 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.

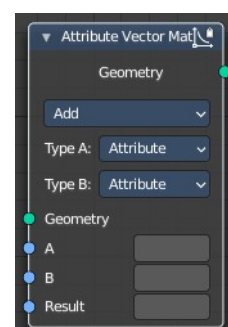
### Output

#### Geometry

Standard geometry output.

## Attribute 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

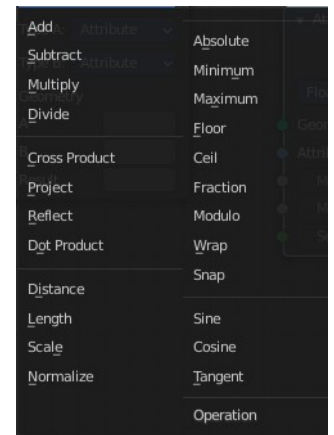
The name of the attribute where the computed result is stored. A new attribute with that name is added if it does not exist yet. If it does exist, the values of the existing attribute are overridden.

### Properties

### Operation

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

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

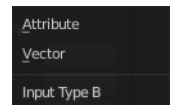
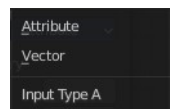


### Type A

Input type A for the corresponding socket.

### Type B

Input type B for the corresponding socket.



## Output

### Geometry

Standard geometry output.