



## 13.1.12 Editors - Shader Editor - Header - Add Menu - Converter

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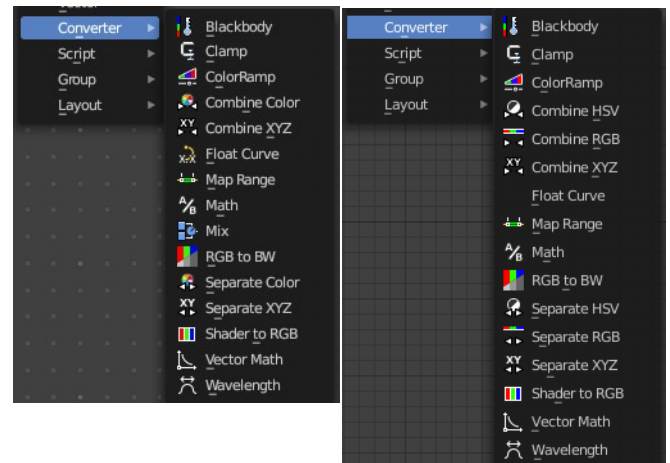
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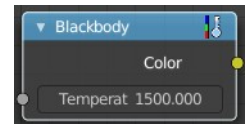
## Add menu - Converter

Here you find mainly nodes to convert data to another data.



### Blackbody

The Blackbody node converts a blackbody temperature to RGB value. This can be useful for materials that emit light at natural occurring frequencies.



### Inputs

#### Temperature

The temperature in Kelvin.

### Outputs

#### Color

RGB color output.

### Clamp

The Clamp node clamps a value between a minimum and a maximum.

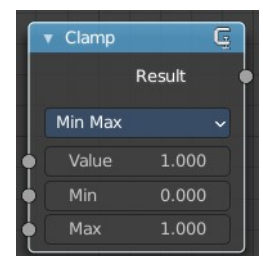
### Inputs

#### 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.



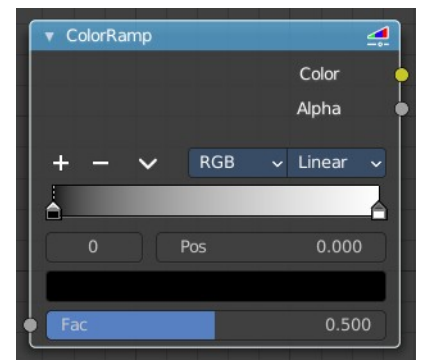
## **Color Ramp**

The Color Ramp Node is used for mapping values to colors with the use of a gradient.

## **Inputs**

### **Factor**

The Factor input is used as an index for the color ramp.



## **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.

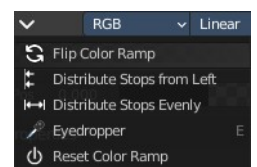
-

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.

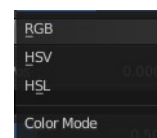
## Color Mode

### 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

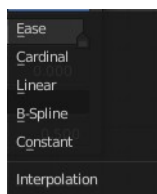
Uses a Linear Interpolation for the color stops.

### B-Spline

Uses a B-Spline Interpolation for the color stops.

### Constant

Uses a Constant Interpolation for the color stops.



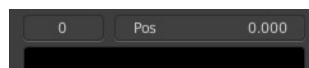
## Color Ramp

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

### *Image*

Standard image output.

### *Alpha*

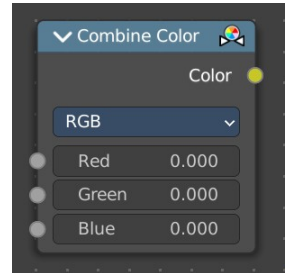
## Combine Color

Combine the single RGB channels into a single image.

### Input

#### *Mode*

- **RGB** colour processing
- **HSV** colour processing
- **HSL** colour processing



### *R, G and B*

The red, green and blue channels of an image.

### Input – RGB mode

#### *R, G and B*

The red, green and blue channels of an image.

### Input – HSV mode

#### *H , S and V*

The Hue, Saturation and Value channels of an image.

### Input – HSL mode

#### *H , S and L*

The Hue, Saturation and Luminescence channels of an image.

## Combine XYZ

Same as with Combine RGB node. It combines color values. But instead combining rgb values, which are in the range of 0 to 255, it uses values in the range from 0 to 1.





## Input

### *X Y and Z*

X, Y and Z values.

## Output

### *Color*

Color output.

## Float Curve

Generates a curve. This curve can then be used for profiles for example.

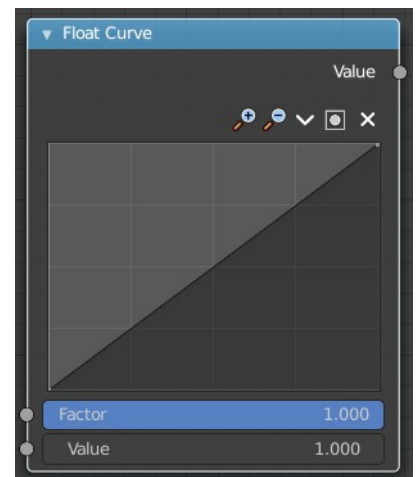
## Inputs

### *Factor*

The input factor.

### *Attribute*

The input value.



## Properties

### *Curve Widget*

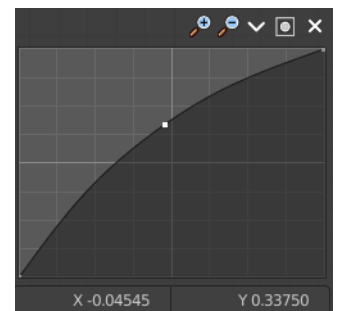
#### Navigation elements

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

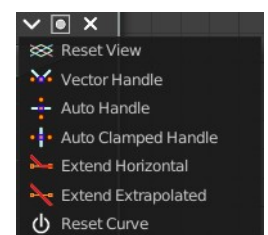
Resets the curve windows zoom.

#### 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.

## Map Range

The Map Range node remaps a value from a range to a target range.

### Inputs

***Value***

The input value to be remapped.

***From Min***

The lower bound of the range to remap from.

***From Max***

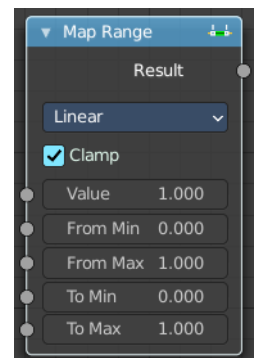
The higher bound of the range to remap from.

***To Min***

The lower bound of the target range.

***To Max***

The higher bound of the target range.



### Properties

***Interpolation Type*****Linear**

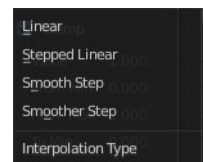
Linear interpolation between From Min and From Max values.

**Stepped Linear**

Stepped linear interpolation between From Min and From Max values.

**Smooth Step**

Smooth Hermite edge interpolation between From Min and From Max values.



## Smoother Step

Smoother Hermite edge interpolation between From Min and From Max values.

## Clamp

If enabled, the output is clamped to the target range.

## Outputs

### Result

The input value after remapping.

## Math

The Math Node performs math operations.

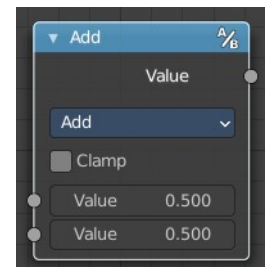
## Inputs

### Value

First numerical value. The trigonometric functions accept values in radians.

### Value

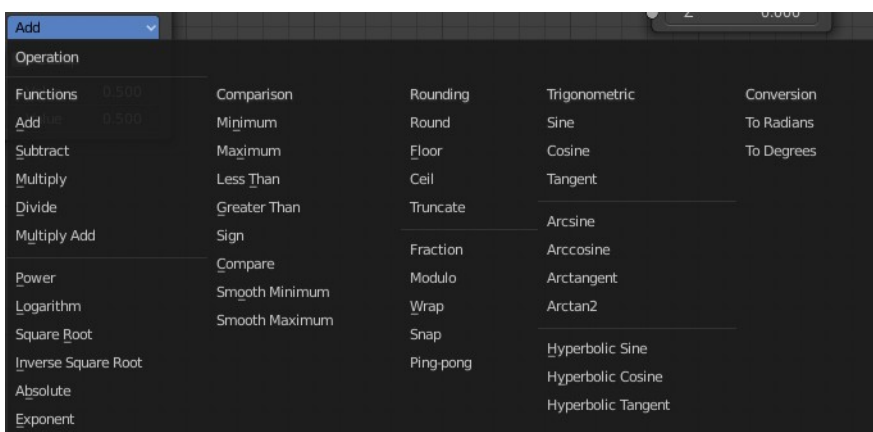
Second numerical value. This value is not used in functions that accept only one parameter like the trigonometric functions, Round and Absolute.



## Properties

### Operation

Here you can choose what mathematical operation to perform.



## Clamp

Limits the output to the range (0 to 1). See clamp.

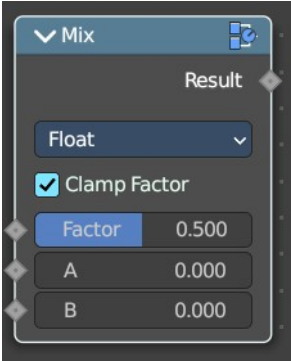
# Outputs

## Value

Numerical value output.

## Mix

Allows to mix values and vectors in various ways. The node has three different modes. Float, Vector and Color



## Input

### Float

#### Factor

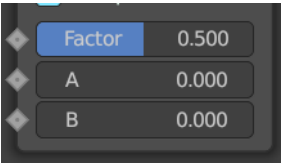
The mix factor.

#### A

Float value A input.

#### B

Float value B input.



### Vector

#### Factor mode Uniform

##### Factor

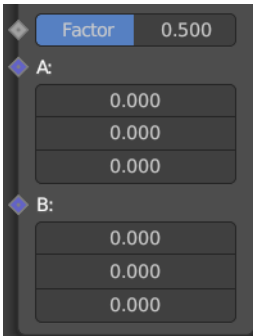
The mix factor.

##### A

Vector A input.

##### B

Vector B input.



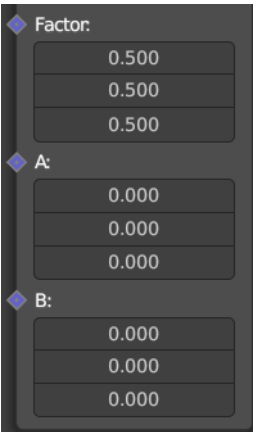
#### Factor mode Non Uniform

##### Factor

The vector mix factor.

##### A

Vector A input.



**B**

Vector B input.

**Color**

**Factor**

The mix factor.



**A**

Color A input.

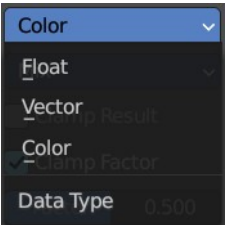
**B**

Color B input.

**Properties**

**Data Type**

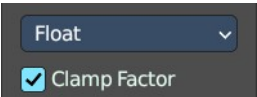
Which mode to use.



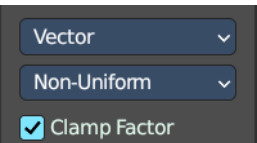
**Float mode**

**Clamp Factor**

Clamp the factor to 0-1 range.

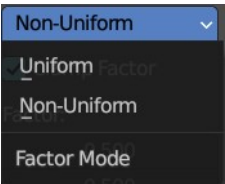


**Vector mode**



**Factor mode**

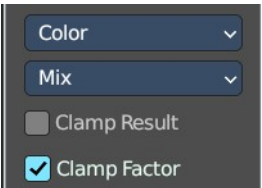
Uniform or non uniform factor.



**Clamp Factor**

Clamp the factor to 0-1 range.

**Color mode**



**Blending mode**

What blending mode to use for the color.

### ***Clamp Result***

Clamp the result to 0-1 range.

### ***Clamp Factor***

Clamp the input factor to 0-1 range.

## **Output**

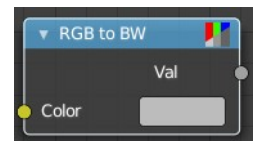
### ***Result***

The output value or vector.

---

## **RGB to BW**

The RGB to BW Node converts an RGB color image to a gray-scale image based at its luminance.



## **Inputs**

### ***Image***

Color image input.

## **Outputs**

### ***Value***

Gray-scale value output.

---

## **Separate Color**

Separates the single RGB channels from a single image.

## **Input**

### ***Mode***

- **RGB** colour processing
- **HSV** colour processing
- **HSL** colour processing

### ***R, G and B***

### ***Image***

The image input.



## Output – RGB mode

### *R, G and B*

The red, green and blue channels of an image.

## Output – HSV mode

### *H, S and V*

The Hue, Saturation and Value channels of an image.

## Output – HSL mode

### *H, S and L*

The Hue, Saturation and Luminescence channels of an image.

## Separate XYZ

Same as with Separate RGB node. It separates color values. But instead separating rgb values, which are in the range of 0 to 255, it uses a vector with the values in the range from 0 to 1.

## Input

### *Vector*

The Input vector.

## Output

### *X, Y and Z*

The output vectors for X, Y and Z



## Shader To RGB

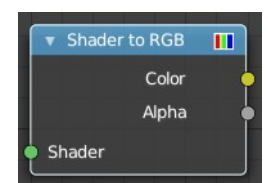
### *Eevee Only*

Converts a shader input to rgba values.

The Shader to RGB node is typically used for non-photo realistic rendering, to apply additional effects on the output of BSDFs. For example, a color ramp on the output of a diffuse BSDF can be used to create a flexible toon shader.

Using this conversion breaks the PBR pipeline and thus makes the result unpredictable when used in combination with effects such as ambient occlusion, contact shadows, soft shadows and screen space refraction.

Some effects require multiple samples to converge, and applying arbitrary changes to noisy input may not



convert to a smooth result.

Warning! If a Shader to RGB node is used, any upstream BSDF will be invisible to the following effects:  
Screen Space Reflection, Subsurface Scattering

## Inputs

### *Shader*

Any shader such as a BSDF or Emission node can be linked here.

## Outputs

### *Color*

Surface color computed from BSDFs and lighting.

### *Alpha*

Alpha transparency from any Transparent BSDFs in the input.

---

## Vector Math

The Vector Math node performs the selected math operation on the input vectors.

## Inputs

The inputs of the node are dynamic. Some inputs are only available in certain operations. For instance, the Scale input is only available in the Scale operator.

### *Vector*

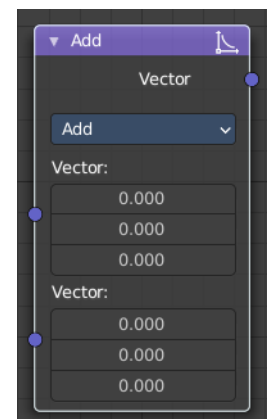
Input vector A.

### *Vector*

Input vector B.

### *Scale*

Input Scale.





## Properties

### Operation

The vector math operator to be applied on the input vectors.



### Outputs

The output of the node is dynamic. It is either a vector or a scalar depending on the operator. For instance, the Length operator have a scalar output while the Add operator have a vector output.

### Vector

Output vector.

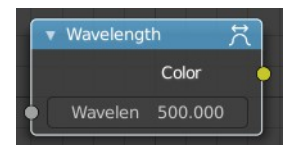
### Value

Output value.

## Wavelength

### Cycles Only

The Wavelength node converts a wavelength value to an RGB value. This can be used to achieve a specific color on the light spectrum.



### Inputs

#### Wavelength

The color wavelength from 380 to 780 nanometers.

### Outputs

#### Color

RGB color output.