11.8 Compositing - Vector nodes

Vector Nodes

These nodes can be used to manipulate various types of vectors, such as surface normals and speed vectors.

- Normal Node
- Map Value Node
- Map Range Node
- Normalize
- Vector Curves Node

Normal Node

Normal Node

The Normal node generates a normal vector and a dot product. Click and Drag on the sphere to set the direction of the normal.

This node can be used to input a new normal vector into the mix. For example, use this node as an input to a Color Mix node. Use an Image input as the other input to the Mixer. The resulting colorized output can be easily varied by moving the light source (click and dragging the sphere).

Map Value Node

Map Value Node

Map Value node is used to scale, offset and clamp values (value refers to each vector in the set). The formula for how this node works is:

Offs
: will add a number to the input value

Size
: will scale (multiply) that value by a number

Min/Max

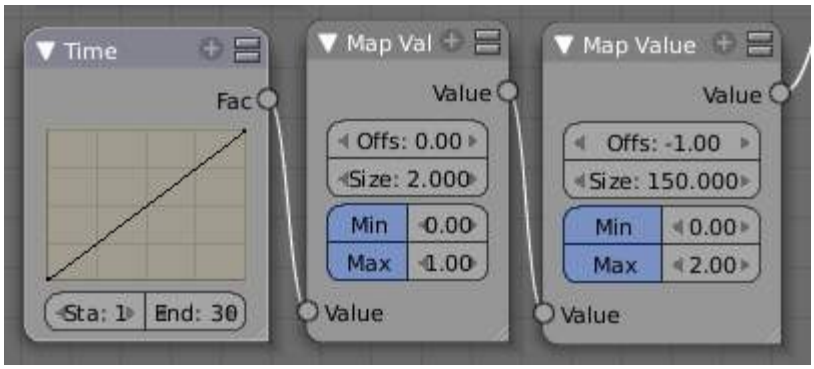
: you can set the minimum and maximum numbers to clamp (cut off) the value too. *Min* and *Max* must be individually enabled by `LMB` clicking on the label for them to clamp. `Shift-LMB` on the value to change it.

- If *Min* is enabled and the value is less than *Min*, set the output value to *Min*.
- If *Max* is enabled and the input value is greater than *Max*, set the output value to *Max*.

This is particularly useful in achieving a depth-of-field effect, where you can use the Map Value node to map a Z value (which can be 20 or 30 or even 500 depending on the scene) to to range between 0-1, suitable for connecting to a Blur node.

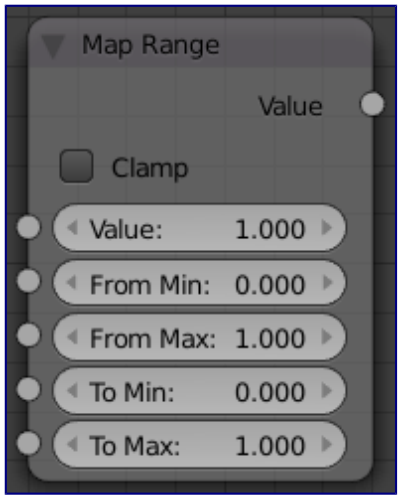
Using Map Value to Multiply values

You can also use the map value node to multiply values to achieve an output number that you desire. In the mini-map to the right, the Time node outputs a value between 0.0 and 1. 00 evenly scaled over 30 frames. The *first* Map Value node multiplies the input by 2, resulting in an output value that scales from 0.0 to 2.0 over 30 frames. The *second* Map Value node subtracts 1 from the input, giving working values between -1.00 and 1.0, and multiplies that by 150, resulting in an output value between -150 and 150 over a 30-frame sequence.



Using Map Value to multiply

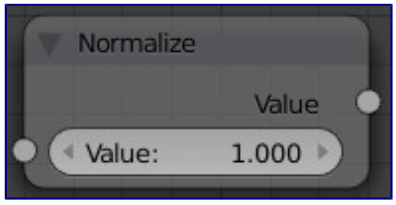
Map Range Node



Map Range Node

TODO - see: https://developer.blender.org/T43469

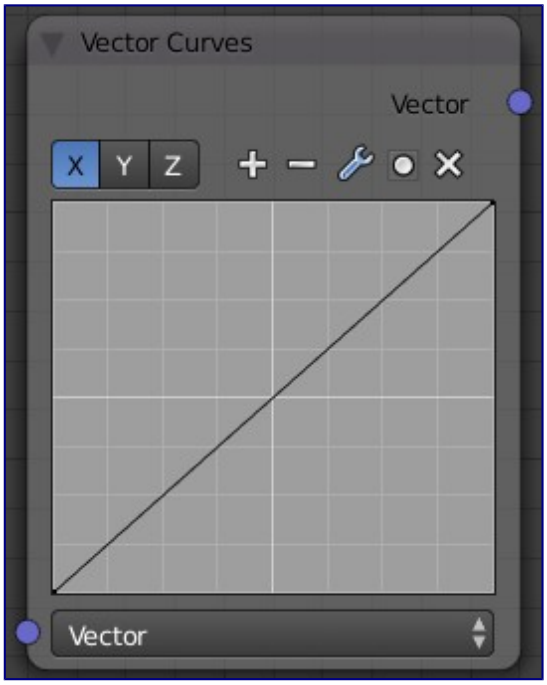
Normalize



Normalize Node

Normalizing a vector scales its magnitude, or length, to a value of 1, but keeps its direction intact.

Vector Curves Node



Vector Curves Node

The Vector Curves node maps an input vector image's x, y, and z components to a diagonal curve. The three channels are accessed via the X, Y, and Z buttons at the top of the node. Add points to the curve by clicking on it.

Note that dragging a point across another will switch the order of the two points (e.g. if point A is dragged across point B, then point B will become point A and point A will become point B).

Use this curve to slow things down or speed them up from the original scene.