26.9.1 Editors - Properties Editor - Modifiers Properties Tab - Mesh - Modify modifiers

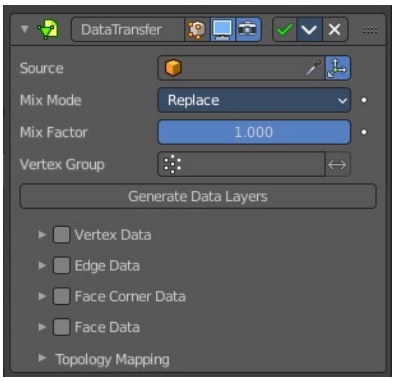
Table of content

Detailed table of content

Detailed table of content

Mesh - Modify modifiers

Data Transfer



The Data Transfer modifier transfers several types of data from one mesh to another. Data types include vertex groups, UV maps, vertex colors, custom normals…

Transfer works by generating a mapping between source mesh's items (vertices, edges, etc.) and destination ones, either on a one-to-one basis, or mapping several source items to a single destination one, using interpolation.

Usage

Using this modifier will not create destination data layers. Use the Generate Data Layers button for this purpose when you are done with selecting the set of source data to transfer.

Creating those data layers on destination mesh is not part of the modifier stack. This means that they will remain. Even once the modifier is deleted, or if the source data selection is modified.

Source Object

Mesh object to copy the data from.

Object transform

Evaluate the source and destination objects in global space instead of local space.

Mix Mode

How to mix the destination elements with the source elements.

Mix Factor

How much of the transferred data gets mixed into existing one (not supported by all data types).

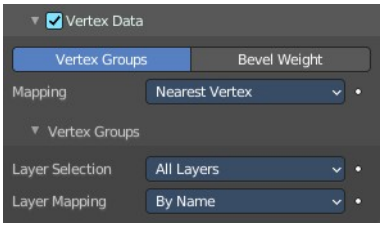
Vertex Group

Allows per-item fine control of the mix factor. Vertex group influence can be reverted using the small “arrow” button to the right.

Generate Data Layers

This modifier cannot generate needed data layers itself. Adjust the settings to your needs, then press this button to generate matching destination layers, if needed.

Vertex data

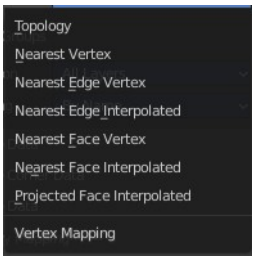


Activate this group when you want to transfer vertex data.

Vertex Groups / Bevel Weight

Which vertex data layers to transfer. Vertex groups or Bevel weight.

Mapping

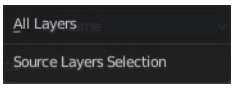


The vertex mapping method to use.

Vertex Groups

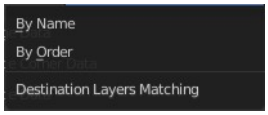
Just active with data layer Vertex groups.

Layer Selection



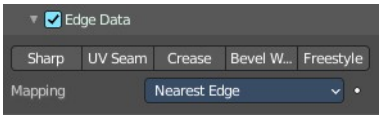
What layer from the source object gets selected.

Layer Mapping



How to match the destination layer.

Edge Data

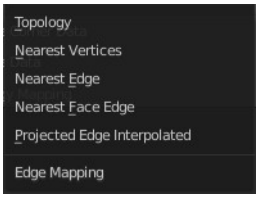


Activate this group when you want to transfer edge data.

Sharp, UV Seam, etc.

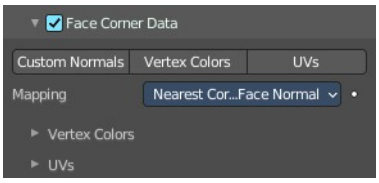
Which edge data layers to transfer. You can just use one method.

Mapping



The edge mapping method to use.

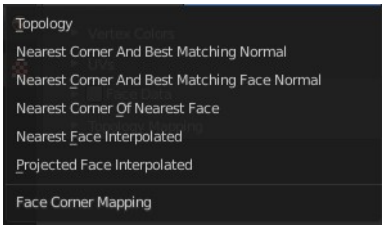
Face Corner Data



Custom normals, Vertex Colors, UV's

Which face corner data to transfer. You can just use one method.

Mapping

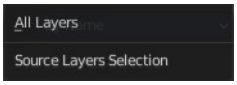


The face corner data mapping method to use.

Vertex Colors

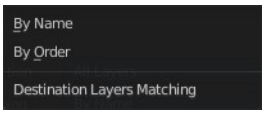
Further settings for when you choose Vertex colors.

Layer Selection



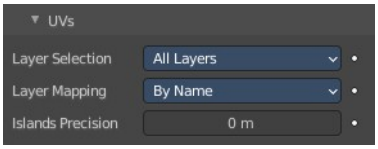
Source Layer Selection.

Layer Mapping



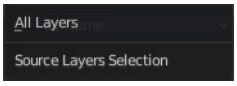
Destination layer mapping.

UV's



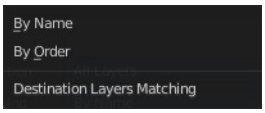
Further settings for when you choose UV's.

Layer Selection



Source Layer Selection.

Layer Mapping

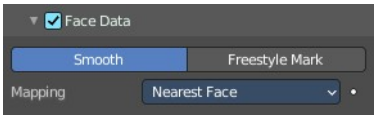


Destination layer mapping.

Island Precision

The factor to control the island handling. A value of 0.0 means no island handling. A value of 0.02 is a good starting point.

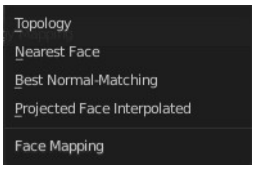
Face Data



Smooth / Freestyle Mark

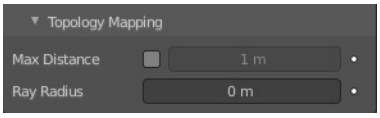
Which poly data layers to transfer.

Mapping



The face mapping method.

Topology Mapping



Max Distance

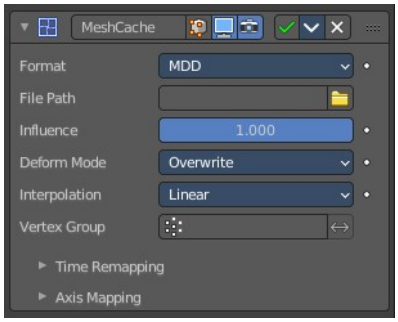
Only Neighbor Geometry

For non topology mapping, the source elements must be closer than the value in the edit box.

Ray Radius

The width of rays.

Mesh Cache

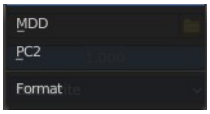


The Mesh Cache modifier allows you to apply animated mesh data to a mesh. And deform it when playing back.

This works in a similar way to shape keys. But uses external files, and allows to interchange between applications.

Tip! Both MDD and PC2 depend on the vertex order on the mesh remaining unchanged. This is a limitation of this method, so take care not to add/remove/reorder vertices once this modifier is used.

Format



The input file format (currently .mdd and .pc2 are supported).

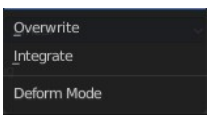
File Path

Path to the cache file.

Influence

Factor to adjust the influence of the modifier's deformation.

Deform Mode

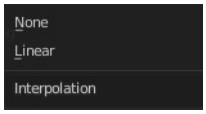


This setting defaults to Overwrite which will replace the vertex locations with those in the cache file.

When you want to mix a mesh cache file with shape keys, then you can select the Deform option which integrates deformations with the mesh cache result.

Note that this feature is limited to making smaller, isolated edits and will not work for larger changes such as re-posing limbs.

Interpolation



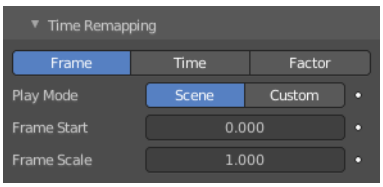
The blend mode between frames. Use linear when the frames in the cache file do not match

up exactly with the frames in the blend-file.

Vertex Group

Which vertex group determines the influence of the modifier per point.

Time Remapping



Frame / Time / Factor

How time is calculated.

Play Mode

How playback operates.

Frame Start

Play the cache starting from this frame.

Frame Scale

Scale time by this factor (applied after the start value).

Axis Mapping

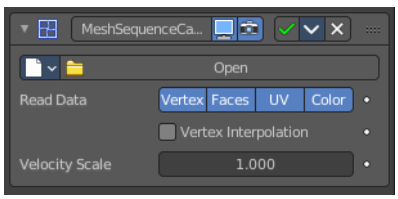
Forward/Up Axis

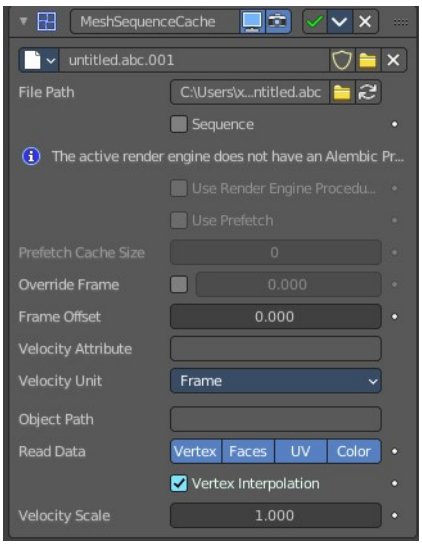
The axis for forward and up used in the source file.

Flip Axis

Allows you to flip the coordinates on an axis.

Mesh Sequence Cache





The Mesh Sequence Cache modifier loads data from Alembic files. It supports static meshes, but is mostly used to load animated meshes. Despite its name, this modifier also supports curves. It also handles file sequences, as well as meshes and curves with varying topology (like the result of fluid simulations).

When importing an Alembic file, Mesh Sequence Cache modifiers are automatically added to time-varying meshes. For time-varying object transforms (so animation of rotation, location, or scale), the Transform Cache Constraint is used.

Data property

Data browser

List of available Alembic files.

Name

The name of the current active alembic file.

Fake User

Keep this file in the scene even when it has no user anymore.

Open Cache File

Open an alembic file.

Remove

Remove the alembic file.

File Path

Path to the Alembic file.

Load File

Open an alembic file.

Refresh Active

Update the files and paths.

Sequence

Whether or not the cache is separated in a series of files.

Use Render Engine Procedural

This feature is just available for Cycles, and just in an experimental state.

Display boxes as placeholders in the viewport.

Use Prefetch

This feature is just available for Cycles, and just in an experimental state.

When enabled, the Cycles procedural will preload animation data for faster update.

Prefetch Cache Size

This feature is just available for Cycles, and just in an experimental state.

Memory usage limit for the cache. If the data size does not fit the renderer is aborted. 0 disables the feature.

Override Frame

Whether to use a custom frame for looking up data in the cache file, instead of using the current scene frame.

Frame

The time to use for looking up the data in the cache file, or to determine which to use in a file sequence.

Frame Offset

Define a frame offset to the current frame.

Velocity Attribute

Name of the Alembic Attribute used for generating motion blur data.

Velocity Unit

Define how velocity vectors are interpreted regarding time.

Read Data

Type of data to read for a mesh object. Vertices, polygons, UV maps and Vertex Color layers.

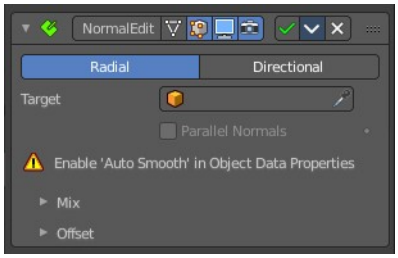
Vertex Interpolation

Allow interpolation of vertex positions.

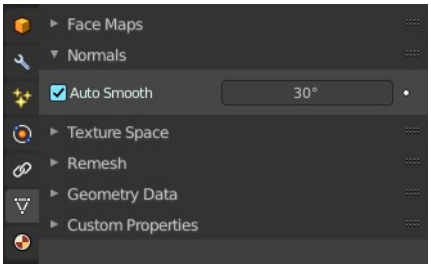
Velocity Scale

Multiplier used to control the magnitude of the velocity for time effects.

Normal Edit



The Normal Edit modifier affects (or generates) custom normals. It uses a few simple parametric methods to compute them, and mixes back those generated normals with existing ones.



Note! This modifier requires custom normals to be enabled, which can be done by enabling Auto Smooth in the Properties.

Tip. More complex normal manipulations can be achieved by copying normals from one mesh to another, see the Data Transfer Modifier. Some shading effects can also make use of the Weighted Normals modifier.

Mode

Radial

Aligns normals with the (origin, vertex_coordinates) vector, in other words all normals seems to radiate from the given center point, as if they were emitted from an ellipsoid surface.

Directional

Makes all normals point (converge) towards a given target object.

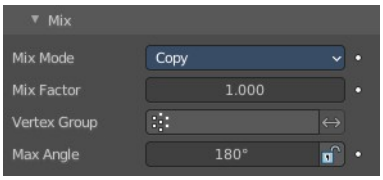
Target

Uses this object's origin as reference point when generating normals. A Target object is optional in Radial mode, but mandatory in Directional mode.

Parallel Normals

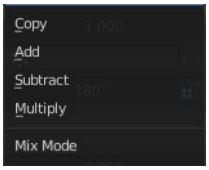
Only relevant in Directional mode. Makes all normals parallel to the line between both objects' origins, instead of converging towards target's origin.

Mix



Mix Mode

How to affect existing normals with newly generated ones.



Note that the Multiply option is not a cross product, but a mere component-by-component multiplication.

Mix Factor

How much of the generated normals get mixed into existing ones.

Vertex Group

Allows per-item fine control of the mix factor. The vertex group influence can be reverted by using the small "arrow" button to the right.

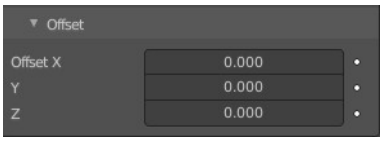
Max Angle

Forbids new generated normals to have an angle to the original normal above that given threshold. This is useful to prevent extreme changes, that can even lead to inverting the front/back sides of a face, and consequently to ugly shading artifacts.

Lock Polygon Normals

Prevents flipping (reversing front/back sides) of polygons which normal does not match anymore the side to which point its corners' custom normals. Can also help avoiding shading issues.

Offset

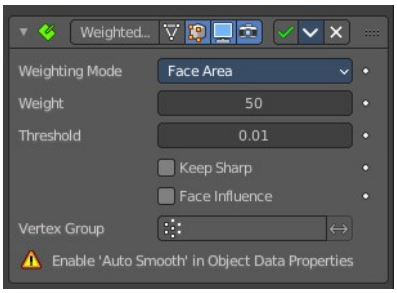


Gives the origin of the modified object an offset before using it to generate normals.

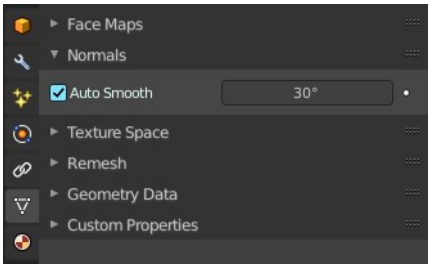
Offset is only relevant in Radial mode if no Target Object is set, and in Directional mode when Parallel Normals is set.

Weighted Normal

This modifier allows you to change the custom normals of a mesh. This can be useful to make some faces appear very flat during shading, among other effects.



Note! This modifier requires custom normals to be enabled, which can be done by enabling Auto Smooth in the Properties.



Weighting Mode

The normals around a vertex will be combined to create a custom (per face corner) normal using various weights for each. The Weighting Mode defines how to compute the weights.

Face Area

Weight according to the area of the face that the normal originates. A larger area means that the normal from that face will get a higher weight in final result.

Corner Angle

Weight according to the angle each face forms at the vertex.

Face Area and Angle

Weights are obtained by multiplying the face area and corner angle ones.

Weight

Determines how strongly the weights are biased according to the face areas and/or corner angles, a bit like a contrast setting for a picture.

A value of 50 means all faces are weighted uniformly.

More than 50 means faces with higher area or angles are given even more weight (more “contrast”).

Less than 50 means faces with higher area or angles are given lesser weights (less “contrast”).

Threshold

A weight-rounding threshold which means that, if two angles or areas differ by less than that threshold, they will get equal weights.

Keep Sharp

Preserve sharp edges, though smoothing will still happen if there are multiple faces between any two sharp edges.

Face Influence

Use face weights as assigned by the Set Strength tool or by the Set Strength mode of a Bevel modifier.

For example, if three faces meet at a vertex and have the face weights weak, medium, and strong, then only the normal associated with the strong face will be used to set the final result.

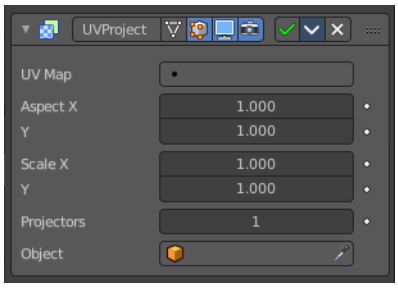
Vertex Group

If a vertex group is specified, the modifier will only affect those vertices.

Invert

Invert the selection (only affect the vertices not in the vertex group).

UV Project



The UV Project modifier acts like a slide projector. It emits a UV map from the negative Z axis of a controller object (such as an empty object), and applies it to the object as the “light” hits it.

UV Project is great for making spotlights more diverse, and also for creating decals to break up repetition.

Usually, an Image Texture node mapped to the UV map that the modifier targets is added to the object’s material.

UV Map

Which UV map to modify. Defaults to the active rendering layer.

Aspect X/Y and Scale X/Y

Aspect and scale manipulation of the image. Only apply when a camera is used as projector object.

Projectors

Up to ten projector objects are supported. Each face will choose the closest and aligned projector with its

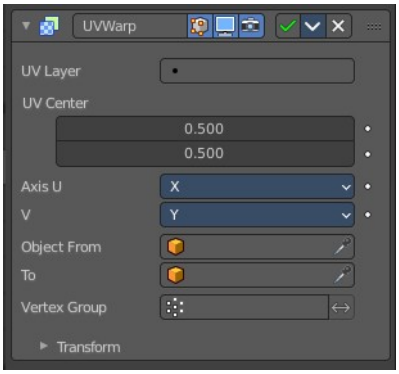
surface normal. Projections emit from the negative Z axis (i.e. straight down a camera or light). If the projector is a camera, the projection will adhere to its perspective/orthographic setting.

Objects

Specify the projector object(s).

UV Warp

The UV Warp modifier transforms an object's UV map based on values or two objects. Its purpose is to give you direct control over the object's UV's in the 3D Viewport, allowing you to directly move, rotate, and scale existing UV coordinates using defined values or a controller object or bone.



Usage

How the UV's are warped is determined by the difference between the transforms (location, rotation and scale) of the from and to objects.

If the to object has the same transforms as the from object, the UV's will not be changed.

Assuming the UV Axis of the modifier is X/Y and the scale of the objects is (1, 1, 1), if the to object is one unit away from the from object on the X axis, the UV's will be transformed on the U axis (horizontally) by one full UV space (the entire width of the image).

UV Layer

Which UV map to modify. Defaults to the active rendering layer.

UV Center

The center point of the UV map to use when applying scale or rotation. With (0, 0) at the bottom left and (1, 1) at the top right.

Axis U / V

The axes to use when mapping the 3D coordinates into 2D.

Object From, To

The two objects used to define the transformation.

Vertex Group

The vertex group can be used to scale the influence of the transformation per vertex.

Invert

Invert the selection (only affect the vertices not in the vertex group).

Transform

Offset

2D Offset for the warp.

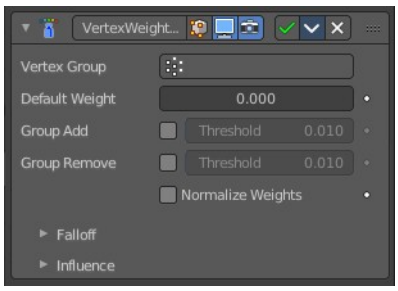
Scale

2D Scale for the warp.

Rotation

2D Rotation for the warp.

Vertex Weight Edit



This modifier is intended to edit the weights of a vertex group.

The general process is the following, for each vertex:

(Optional) It does the mapping, either through one of the predefined functions, or a custom mapping curve.

It applies the influence factor, and optionally the vertex group or texture mask (0.0 means original weight, 1.0 means fully mapped weight).

It applies back the weight to the vertex, and/or it might optionally remove the vertex from the group if its weight is below a given threshold, or add it if it is above a given threshold.

Important! This modifier does implicit clamping of weight values in the standard (0.0 to 1.0) range. All values below 0.0 will be set to 0.0, and all values above 1.0 will be set to 1.0.

Note! You can view the modified weights in Weight Paint Mode. This also implies that you will have to disable the Vertex Weight Edit modifier if you want to see the original weights of the vertex group you are editing.

Vertex Group

The vertex group to affect.

Default Weight

The default weight to assign to all vertices not in the given vertex group.

Group Add

Adds vertices with a final weight over Add Threshold to the vertex group.

Group Remove

Removes vertices with a final weight below Remove Threshold from the vertex group.

Falloff

Type

How weights are mapped to their new values.

Linear

No mapping.

Custom Curve

Allows the user to manually define the mapping using a curve.

Sharp, Smooth, Root and Sphere

These are classical mapping functions, from spikiest to roundest.

Random

Uses a random value for each vertex.

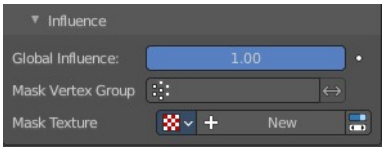
Median Step

Creates binary weights (0.0 or 1.0), with 0.5 as cutting value.

Invert

Inverts the falloff.

Influence



Global Influence

The overall influence of the modifier (0.0 will leave the vertex group's weights untouched, 1.0 is standard influence).

Important! Influence only affects weights, adding/removing of vertices to/from vertex group is not prevented by setting this value to 0.0. In addition, a per-vertex fine control of the effect is possible using either a vertex group or a texture (both are mutually exclusive). The per-vertex values from those will be multiplied with the Global Influence.

Mask Vertex Group

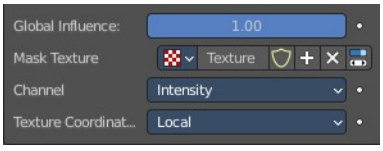
Choose a vertex group for masking.

Invert

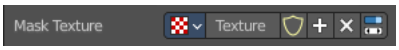
Invert vertex group mask influence.

Mask Texture

Choose a texture for masking. Note that using a mask texture will remove the mask vertex group.



Texture Property



Texture Browser

A list of the available textures in the scene.

Name

The name of the currently active texture. You can rename the texture here by clicking at the edit box.

Fake User

Keep this texture in the scene even if it has no user.

New Texture

Add a new texture.

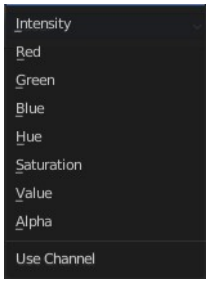
Remove

Remove the texture.

Show Texture in Texture Tab

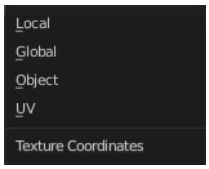
Jumps to the texture tab where you can edit your texture.

Channel



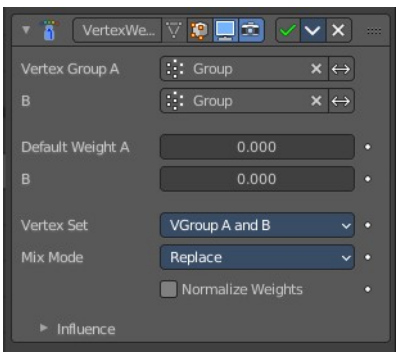
Which channel of the texture to use for masking.

Texture Coordinates



Which texture coordinates of the texture to use for masking.

Vertex Weight Mix



Vertex Weight Mix Modifier

This modifier mixes a second vertex group (or a simple value) into the affected vertex group, using different operations.

Important! This modifier does implicit clamping of weight values in the standard (0.0 to 1.0) range. All values below 0.0 will be set to 0.0, and all values above 1.0 will be set to 1.0.

Note! You can view the modified weights in Weight Paint Mode. This also implies that you will have to disable the Vertex Weight Mix modifier if you want to see the original weights of the vertex group you are editing.

Vertex Group A

The vertex group to affect.

Vertex Group B

The second vertex group to mix into the affected one. Leave it empty if you only want to mix in a simple value.

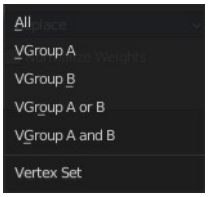
Default Weight A

The default weight to assign to all vertices not in the given vertex group.

Default Weight B

The default weight to assign to all vertices not in the given second vertex group.

Vertex Set



Which vertices should be affected.

Important! When using All vertices, Vertices from group B or Vertices from one group, vertices might be added to the affected vertex group.

All

Affects all vertices, disregarding the vertex groups content.

Vgroup A

Affects only vertices belonging to the affected vertex group.

Vgroup B

Affects only vertices belonging to the second vertex group.

Vgroup A or B

Affects only vertices belonging to at least one of the vertex groups.

Vgroup and B

Affects only vertices belonging to both vertex groups.

Mix Mode

How the vertex group weights are affected by the other vertex group’s weights.

Replace weights

Replaces affected weights with the second group’s weights.

Add to weights

Adds the values of Group B to Group A.

Subtract from weights

Subtracts the values of Group B from Group A.

Multiply weights

Multiplies the values of Group B with Group A.

Divide weights

Divides the values of Group A by Group B.

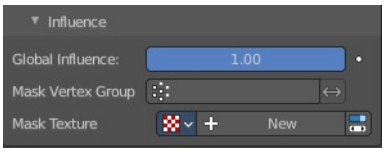
Difference

Subtracts the smaller of the two values from the larger.

Average

Adds the values together, then divides by 2.

Influence



Global Influence

The overall influence of the modifier (0.0 will leave the vertex group's weights untouched, 1.0 is standard influence).

Important! Influence only affects weights, adding/removing of vertices to/from vertex group is not prevented by setting this value to 0.0. In addition, a per-vertex fine control of the effect is possible using either a vertex group or a texture (both are mutually exclusive). The per-vertex values from those will be multiplied with the Global Influence.

Mask Vertex Group

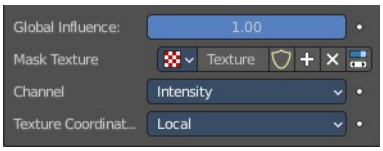
Choose a vertex group for masking.

Invert

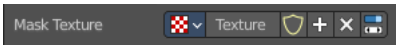
Invert vertex group mask influence.

Mask Texture

Choose a texture for masking. Note that using a mask texture will remove the mask vertex group.



Texture Property



Texture Browser

A list of the available textures in the scene.

Name

The name of the currently active texture. You can rename the texture here by clicking at the edit box.

Fake User

Keep this texture in the scene even if it has no user.

New Texture

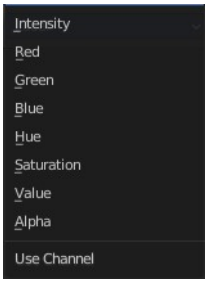
Add a new texture.

Remove

Remove the texture.

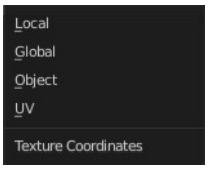
Show Texture in Texture Tab

Jumps to the texture tab where you can edit your texture.



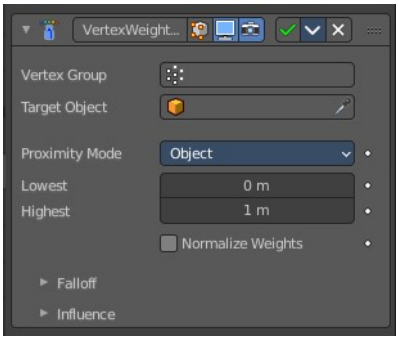
Channel

Which channel of the texture to use for masking.



Texture Coordinates

Which texture coordinates of the texture to use for masking.



Vertex Weight Proximity

This modifier sets the weights of the given vertex group, based on the distance between the object (or its vertices), and another target object (or its geometry).

Warning1 This modifier does implicit clamping of weight values in the standard (0.0 to 1.0) range. All values below 0.0 will be set to 0.0, and all values above 1.0 will be set to 1.0.

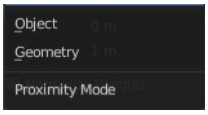
Note! You can view the modified weights in Weight Paint Mode. This also implies that you will have to disable the Vertex Weight Proximity modifier if you want to see the original weights of the vertex group you are editing.

Vertex Group

The vertex group to affect.

Target Object

The object from which to compute distances.



Proximity mode

Object

Use the distance between the modified mesh object and the target object as weight for all vertices in the affected vertex group.

Geometry

Use the distance between each vertex and the target object, or its geometry.

Note! If you enable more than one of them, the shortest distance will be used. If the target object has no geometry (e.g. an empty or camera), it will use the location of the object itself.

Lowest

Distance mapping to 0.0 weight. Tip! Lowest can be set above Highest to reverse the mapping.

Highest

Distance mapping to 1.0 weight.

Normalize Weights

Normalize the resulting weights. Without this option they get only clamped within the 0.0 - 1.0 range.

Falloff

Type

How weights are mapped to their new values.

Linear

No mapping.

Custom Curve

Allows the user to manually define the mapping using a curve.

Sharp, Smooth, Root and Sphere

These are classical mapping functions, from spikiest to roundest.

Random

Uses a random value for each vertex.

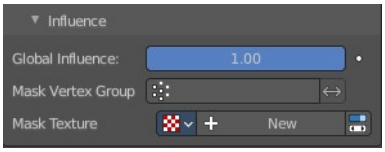
Median Step

Creates binary weights (0.0 or 1.0), with 0.5 as cutting value.

Invert

Inverts the falloff.

Influence



Global Influence

The overall influence of the modifier (0.0 will leave the vertex group's weights untouched, 1.0 is standard influence).

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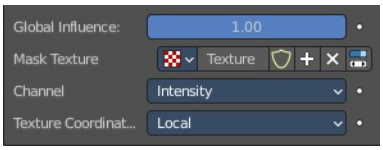
Mask Vertex Group

Choose a vertex group for masking.

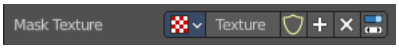
Invert

Invert vertex group mask influence.

Mask Texture



Choose a texture for masking. Note that using a mask texture will remove the mask vertex group.



Texture Property

Texture Browser

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Remove

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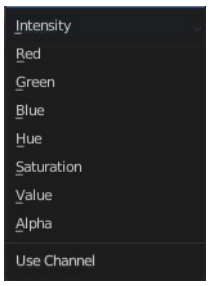
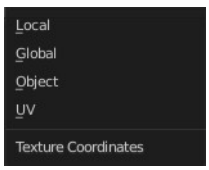
Channel



Which channel of the texture to use for masking.

Texture Coordinates



Which texture coordinates of the texture to use for masking.