

## 25.12.9 Editors - Properties Editor - Object Data Properties Tab - Lattice Object

|                                |   |
|--------------------------------|---|
| Detailed table of content..... | 1 |
| Lattice panel.....             | 3 |
| Workflow.....                  | 3 |
| Resolution U / V / W.....      | 3 |
| Interpolation U / V / W.....   | 3 |
| Outside.....                   | 3 |
| Vertex Group.....              | 3 |
| Vertex groups panel.....       | 4 |
| Active Vertex Group list.....  | 4 |
| Add +.....                     | 4 |
| Remove -.....                  | 4 |
| Specials menu.....             | 5 |
| Shape Keys panel.....          | 6 |
| Workflow.....                  | 7 |
| Active Shape Key Index.....    | 8 |
| Add +.....                     | 8 |
| Remove -.....                  | 8 |
| Specials menu.....             | 8 |
| Relative.....                  | 9 |

### Detailed table of content

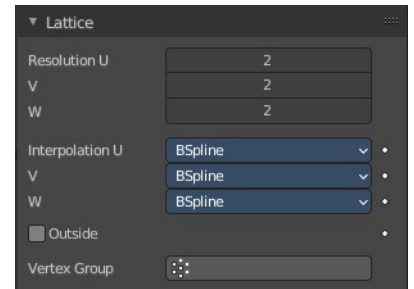
#### Detailed table of content

|                                    |   |
|------------------------------------|---|
| Detailed table of content.....     | 1 |
| Lattice panel.....                 | 3 |
| Workflow.....                      | 3 |
| Resolution U / V / W.....          | 3 |
| Interpolation U / V / W.....       | 3 |
| Outside.....                       | 3 |
| Vertex Group.....                  | 3 |
| Vertex groups panel.....           | 4 |
| Active Vertex Group list.....      | 4 |
| Group name.....                    | 4 |
| Lock.....                          | 4 |
| Drag Handler.....                  | 4 |
| Search Field.....                  | 4 |
| Invert.....                        | 4 |
| Sort by Name.....                  | 4 |
| Add +.....                         | 4 |
| Remove -.....                      | 4 |
| Specials menu.....                 | 5 |
| Sort by Name.....                  | 5 |
| Sort by Bone Hierarchy.....        | 5 |
| Copy Vertex Group.....             | 5 |
| Copy Vertex Groups to Linked.....  | 5 |
| Copy Vertex Group to Selected..... | 5 |
| Mirror Vertex Group.....           | 5 |

|   |    |
|---|----|
| Mirror Vertex Group (Topology).....       | 5  |
| Remove from All Groups.....               | 5  |
| Clear Active Group.....                   | 5  |
| Delete All Unlocked Groups.....           | 5  |
| Delete All Groups.....                    | 6  |
| Lock All.....                             | 6  |
| Unlock All.....                           | 6  |
| Lock Invert All.....                      | 6  |
| Move Vertex Group Up / Down.....          | 6  |
| Assign.....                               | 6  |
| Remove.....                               | 6  |
| Select.....                               | 6  |
| Deselect.....                             | 6  |
| Weight.....                               | 6  |
| Set Active Group.....                     | 6  |
| Shape Keys panel.....                     | 6  |
| Workflow.....                             | 7  |
| Active Shape Key Index.....               | 8  |
| Shape Key name.....                       | 8  |
| Slider value.....                         | 8  |
| Lock.....                                 | 8  |
| Drag Handler.....                         | 8  |
| Search Field.....                         | 8  |
| Invert.....                               | 8  |
| Sort by Name.....                         | 8  |
| Add +.....                                | 8  |
| Remove -.....                             | 8  |
| Specials menu.....                        | 8  |
| New Shape From Mix.....                   | 8  |
| Mirror Shape Key.....                     | 8  |
| Mirror Shape Key (Topology).....          | 9  |
| Join as Shapes (Transfer Mix).....        | 9  |
| Transfer Shape Key.....                   | 9  |
| Delete all Shape Keys.....                | 9  |
| Move to Top.....                          | 9  |
| Move to Bottom.....                       | 9  |
| Move Shape Key Up / Down.....             | 9  |
| Relative.....                             | 9  |
| Relative.....                             | 9  |
| Shape Key Lock (pin icon).....            | 9  |
| Shape Key Edit Mode (edit mode icon)..... | 9  |
| Value.....                                | 10 |
| Range.....                                | 10 |
| Vertex Group.....                         | 10 |
| Relative To.....                          | 10 |
| Absolute.....                             | 10 |
| Shape Key Lock (pin icon).....            | 10 |
| Shape Key Edit Mode (edit mode icon)..... | 10 |
| Re-Time Shape Keys (clock icon).....      | 10 |
| Interpolation.....                        | 10 |
| Evaluation Time.....                      | 10 |

## Lattice panel

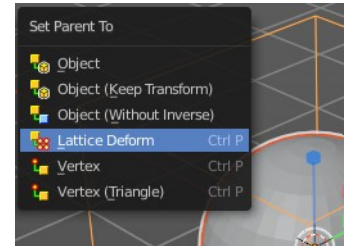
Lattice objects can be used to deform child geometry by the cage of the lattice object.



## Workflow

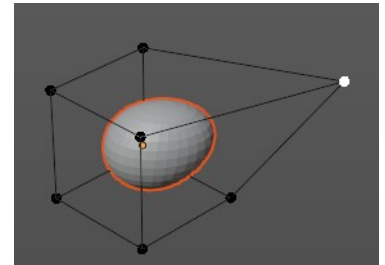
Create a lattice. Create a mesh object like a sphere.

Parent this sphere at the lattice. With method Lattice deform.



Select the lattice object and enter Edit mode.

Pull the vertices of the lattice cage. And the child geometry will deform.

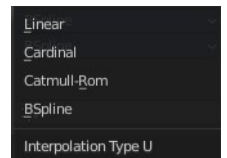


## Resolution U / V / W

The subdivision resolution of the Lattice object. A resolution of 1 makes the lattice one dimensional.

## Interpolation U / V / W

The interpolation selector for each axis. How the Lattice cage influences the child geometry. Each method gives a slightly different result.



## Outside

Takes only the vertices on the surface of the lattice into account.

## Vertex Group

Apply the influence of the lattice to a vertex group instead of a whole mesh

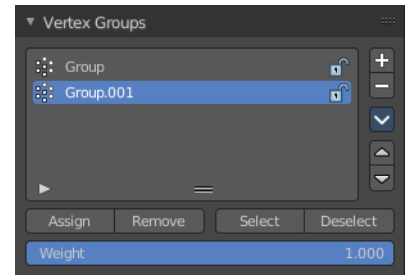
## Vertex groups panel

A Vertex group is a group of vertices, a selection of the mesh. It is for example used to weight a specific mesh part to a bone. Or to control the growth of hair particles.

This panel allows you to manage and edit vertex groups. Weight painting creates vertex groups automatically.

In Edit mode this panel shows some further controls.

Vertex groups exists for mesh and lattice objects.



### Active Vertex Group list

A List of the vertex groups for this mesh.

#### Group name

The name of the group. It can be renamed by double clicking at it.

#### Lock

The lock icon at the end of a group name locks the group from being editable.

#### Drag Handler

The two vertical lines at the end is a handler with which you can expand the list.

#### Search Field

You can expand a search field at the bottom of the list. Type in your term and hit enter to filter for your term.



#### *Invert*

Exclude the search term instead of searching for it.

#### *Sort by Name*

Sort the List by name.

#### **Add +**

Create an empty vertex group.

#### **Remove -**

Deletes the active vertex group.

## Specials menu

### Sort by Name

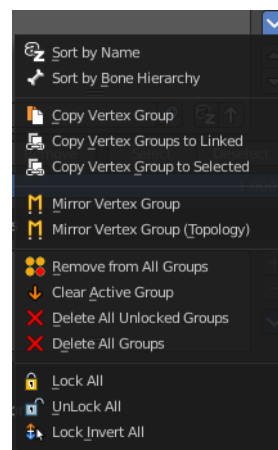
Sorts the vertex groups alphabetically by name.

### Sort by Bone Hierarchy

Sorts the vertex groups by the hierarchy of the assigned bones.

### Copy Vertex Group

Add a copy of the active vertex group as a new group. The new group will be named like the original group with “\_copy” appended at the end of its name. And it will contain associations to exactly the same vertices with the exact same weights as in the source vertex group.



### Copy Vertex Groups to Linked

Copy vertex groups of this mesh to all linked objects which use the same mesh data (all users of the data).

### Copy Vertex Group to Selected

Copy all vertex groups to other selected objects provided they have matching indices (typically this is true for copies of the mesh which are only deformed and not otherwise edited).

### Mirror Vertex Group

Mirrors weights and/or flips group names from one side of a symmetrical mesh to the other.

Only mirroring along local X axis is supported. Vertices that have no corresponding vertex on the other side will not be affected. Note, the weights are not transferred to the corresponding opposite bone weight group.

### Mirror Vertex Group (Topology)

Performs the Mirror Vertex Group with the Topology Mirror option enabled.

### Remove from All Groups

Unassigns the selected vertices from all groups. Even locked.

### Clear Active Group

Remove all assigned vertices from the active group. The group is made empty. Note that the vertices may still be assigned to other vertex groups of the object. This feature does not affect locked groups.

### Delete All Unlocked Groups

Remove all vertex groups from the object that are not locked.

## Delete All Groups

Remove all vertex groups from the object.

## Lock All

Lock all groups.

## Unlock All

Unlock all groups.

## Lock Invert All

Invert group locks.

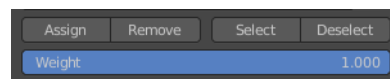
## Move Vertex Group Up / Down

Moves the selected vertex group up or down in the list.



## Assign

Assign the selected vertices to the active vertex group.



## Remove

Remove the selected vertices from the active group.

## Select

Select all vertices in the group.

## Deselect

Deselect all vertices in the group.

## Weight

The weight value that gets assigned to the selected vertices.

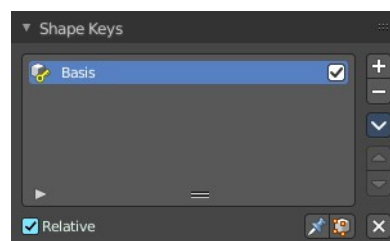
## Set Active Group

Lets you select the group that will become the active one (menu only).

## Shape Keys panel

This panel allows you to see and manage shape keys. A shape key is a vertex animation.

Shape keys are for example used for facial animations, when you don't want to use a face rig with bones. The idea is to model a shape key pose for smiling, one for laughing, one for sad, and so on. And then blend the shape key poses together as needed.

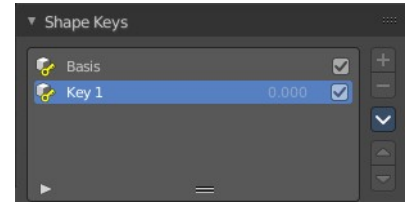


Shape keys are also called morph targets or blend shapes.

## Workflow

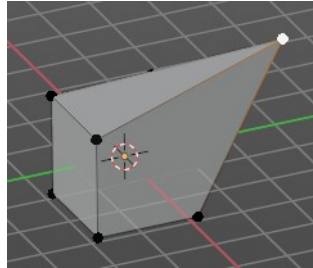
In Object mode add a shape key. This first shape key is called Basis by default. It is the base for the vertex animation. This basis shape key is the base shape for all further shape keys. It cannot be modified or keyframed.

Now add a second shape key. This second shape key will have more controls so that you can modify it in the needed way.



Enter edit mode with this key 1 selected.

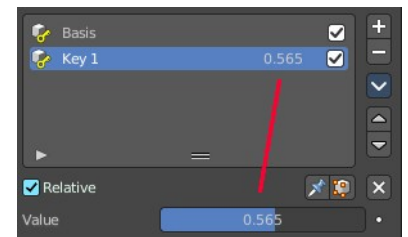
Modify the geometry by moving some vertices around.



Switch back to Object mode.

Have a look at the value slider. This slider defines how the key 1 shape key blends with the Basis shape key.

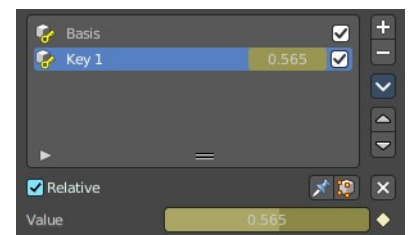
Move it from value 0 to value 1. You will notice that the vertices that you have modified in Key 1 will now start to move to a new position. Dependent of how strong the value is. With a value of 1 it will be at the position of how you modeled it.



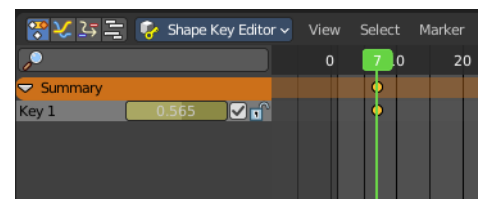
To keyframe this shape click at the Animate property dot behind the slider. The slider will change its color. And the dot will change to a rhombus shape to indicate that there is a keyframe recorded at this frame.

Or you right click at the slider, and choose Insert Keyframe in the menu.

Move to another frame. Change the slider value, and set another keyframe.



Recorded keyframes can be found and further tweaked in the Dope sheet Editor in Shape Key Editor mode. Here you can also record further keyframes under Key / Insert Keyframes. And control the slider values from the channel list.



Add more shape keys and model and animate them as you need them.

## Active Shape Key Index

A List of the shape keys for this mesh.

It contains two types of shape keys. Basis is the base shape. The other type relies at this shape as the base.

## Shape Key name

The name of the shape key. It can be renamed by double clicking at it.

## Slider value

The blend value of this shape key. The Basis shape key does not have such a slider.

## Lock

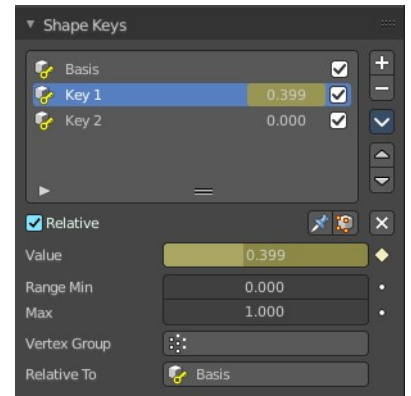
The lock icon at the end of a group name locks the group from being editable.

## Drag Handler

The two vertical lines at the end is a handler with which you can expand the list.

## Search Field

You can expand a search field at the bottom of the list. Type in your term and hit enter to filter for your term.



## *Invert*

Exclude the search term instead of searching for it.

## *Sort by Name*

Sort the List by name.

## Add +

Create a shape key.

## Remove -

Delete the selected shape key.

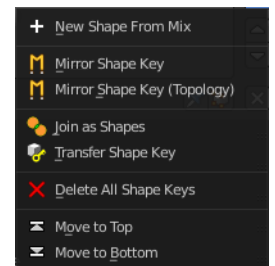
## Specials menu

### New Shape From Mix

Add a new shape key with the current deformed shape of the object.

### Mirror Shape Key

Mirror the shape keys on the X axis. This will not work if the mesh vertices is not fully symmetrical.





## Mirror Shape Key (Topology)

Mirror the shape keys on the X axis. But detects the mirrored vertices based on the topology of the mesh. The mesh vertices do not have to be perfectly symmetrical for this action to work.

## Join as Shapes (Transfer Mix)

Transfer the current resulting shape from a different object.

Select the object to copy, hold down Shift, then the object to copy into. Use this action and a new shape key will be added to the active object with the current mix of the first object.

## Transfer Shape Key

Transfer the active shape key from a different object regardless of its current influence.

Select the object to copy, hold down Shift, then the object to copy into. Use this action and a new shape key will be added to the active object with the active shape of the first object.

## Delete all Shape Keys

Delete all shape keys at this mesh.

## Move to Top

Move the shape key to the top of the list. But not above the Basis shape key.

## Move to Bottom

Move the shape key to the bottom of the list.

## Move Shape Key Up / Down

Moves the selected shape key up or down in the list.

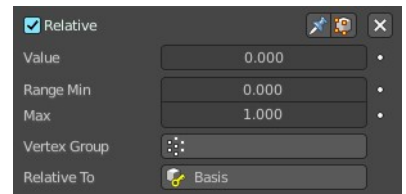


## Relative

Set the shape keys to Relative or Absolute.

### Relative

The shape is defined relative to the Basis or another specified shape key. And can be adjusted in its settings.



### Shape Key Lock (pin icon)

Show the active shape in the 3D Viewport without blending. Shape Key Lock gets automatically enabled while the object is in Edit Mode.

### Shape Key Edit Mode (edit mode icon)

If enabled, when entering Edit Mode the active shape key will not take maximum influence as is default. Instead, the current blend of shape keys will be visible and can be edited from that state.

## **Value**

The weight of the blend between the shape key and its basis key. 0 means no influence, 1 full influence.

## **Range**

Minimum and maximum range for the influence value of the active shape key.

## **Vertex Group**

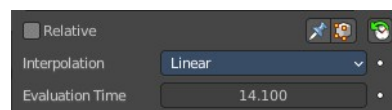
Limit the active shape key deformation to a vertex group.

## **Relative To**

Select the shape key to deform from. It does not need to be the Basis shape key, but can also be another shape key.

## **Absolute**

The shape changes over time, as defined in its settings.



## **Shape Key Lock (pin icon)**

Show the active shape in the 3D Viewport without blending. Shape Key Lock gets automatically enabled while the object is in Edit Mode.

## **Shape Key Edit Mode (edit mode icon)**

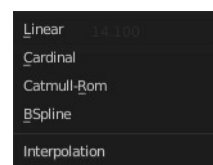
If enabled, when entering Edit Mode the active shape key will not take maximum influence as is default. Instead, the current blend of shape keys will be visible and can be edited from that state.

## **Re-Time Shape Keys (clock icon)**

Absolute shape keys are timed, by order in the list, at a constant interval. This button resets the timing for the keys. Useful if keys were removed or re-ordered.

## **Interpolation**

The interpolation method between shape keys.



## **Evaluation Time**

Evaluate the shape key influence over the defined time. The evaluation starts at influence 0, and reaches 1 at the end of the value of this timer.