



## 7.1.1 Editors - 3D Viewport - Header tools and Options

### Table of content

Detailed Table of content.....	1
Introduction.....	14
Mode Drop-down Box.....	14
Mesh Object Sub Modes.....	15
Grease Pencil Sub Modes.....	18
Geometry Node Group Tools.....	23
Object settings.....	24
Selectability & Visibility.....	29
Viewport Gizmo.....	29
Mesh Object - Sculpt Paint mode.....	32
Mesh Object - Vertex Paint mode.....	36
Mesh Object - Weight Paint mode.....	38
Mesh Object - Texture Paint mode.....	40
Viewport Overlays - all modes.....	44
Viewport Overlays - Mesh Object - Edit Mode.....	49
Viewport Overlays - Mesh Object - Sculpt Mode.....	53
Viewport Overlays - Mesh Object - Vertex Paint Mode.....	53
Viewport Overlays - Mesh Object - Weight Paint Mode.....	54
Viewport Overlays - Mesh Object - Texture Paint Mode.....	55
Viewport Overlays - Hair Object - Sculpt Mode.....	55
Viewport Overlays - Pose Mode.....	55
Viewport Overlays - Grease Pencil.....	55
Viewport Shading.....	61
Align View Buttons.....	77
Grease Pencil - all modes - Layer Panel.....	77
Grease Pencil - Edit mode - Options Panel.....	79
Grease Pencil - Sculpt mode - Auto-masking Panel.....	79

### Detailed Table of content

#### Detailed table of content

Detailed Table of content.....	1
Introduction.....	14
Mode Drop-down Box.....	14
Object Mode.....	14
Edit Mode.....	14
Sculpt Mode.....	14
Vertex Paint.....	14
Weight Paint.....	15
Texture Paint.....	15
Edit Strokes.....	15
Particle Edit.....	15
Draw.....	15
Mesh Object Sub Modes.....	15

Edit Mode - Mesh Select Modes.....	15
Vertex Paint - Mask and Vertex Selection.....	16
Paint Mask.....	16
Vertex Selection.....	16
Weight Paint - Mask and Vertex Selection.....	17
Paint Mask.....	17
Vertex Selection.....	17
Texture Paint - Mask Selection.....	17
Paint Mask.....	18
Particle Edit - Select Modes.....	18
Mesh Object with a particle system. You can just have one method active at a time.....	18
Path.....	18
Point.....	18
Tip.....	18
Grease Pencil Sub Modes.....	18
Edit Mode.....	19
Select Modes.....	19
Select Only Points.....	19
Select all Stroke Points.....	19
Select all Stroke Points between other strokes.....	19
Curve Editing.....	19
Curve Editing panel.....	19
Curve Resolution.....	19
Threshold.....	19
Corner Angle.....	19
Adaptive Resolution.....	19
Multi frame.....	19
Use Falloff.....	20
Sculpt Mode.....	20
Selection Mask.....	20
Multi frame.....	20
Use Falloff.....	20
View.....	20
Draw Mode.....	20
Multi frame.....	20
Origin.....	20
View.....	21
Use Guides.....	21
Circular.....	21
Radial.....	21
Angle.....	21
Parallel.....	21
Grid.....	21
Isometric.....	21
Use Snapping.....	21
Spacing.....	21
Reference Point.....	21
Draw Strokes on Back.....	21
Add Weight Data for new strokes.....	21
Use Additive Drawing.....	22
Automerge.....	22
Weight Paint Mode.....	22
Multi frame.....	22

Use Falloff.....	22
Vertex Paint Mode.....	22
Select Modes.....	22
Select Only Points.....	22
Select all Stroke Points.....	22
Select all Stroke Points between other strokes.....	22
Multi frame.....	22
Use Falloff.....	22
Geometry Node Group Tools.....	23
Marked Assets.....	23
Unmarked Assets.....	23
Marked Assets with assigned Asset Browser Category.....	23
Object settings.....	24
Transform Orientations.....	24
View.....	24
Gimbal.....	24
Normal.....	24
Local.....	24
Global.....	25
Cursor.....	25
Parent.....	25
Create Orientation.....	25
Last Operator Create Orientation.....	25
Name.....	25
Use View.....	25
Use after creation.....	25
Overwrite Previous.....	25
Pivot Point.....	25
Only Origins.....	25
Snapping.....	26
Multiple Snap Targets.....	26
Snap With.....	26
Closest.....	26
Center.....	26
Median.....	26
Active.....	27
Snap to.....	27
Increment.....	27
Vertex.....	27
Edge.....	27
Face.....	27
Volume.....	27
Edge Center.....	27
Edge Perpendicular.....	27
Snap Individual Elements to.....	27
Face Project.....	27
Face Nearest.....	27
Absolute Grid Snap.....	27
Snap Peel Object.....	28
Back face Culling.....	28
Align Rotation to Target.....	28
Affect.....	28
Rotation Increment.....	28

Proportional Editing.....	28
Settings.....	28
Proportional Size.....	28
Last Operator Proportional Editing.....	29
Proportional Editing.....	29
Proportional Falloff.....	29
Proportional Size.....	29
Connected.....	29
Projected(2D).....	29
Selectability & Visibility.....	29
Viewport Gizmo.....	29
Show Gizmo.....	29
Gizmo Options.....	30
Viewport Gizmos.....	30
Navigate.....	30
Navigation Controls.....	30
3D Viewport Axis.....	30
Off.....	30
Simple Axis.....	30
Interactive Navigation.....	30
Active Tools.....	30
Active Object.....	30
Object Gizmos.....	31
Transformation Orientation.....	31
Move.....	31
Rotate.....	31
Scale.....	31
Empty.....	31
Image.....	31
Force Field.....	31
Light.....	32
Size.....	32
Look At.....	32
Camera.....	32
Lens.....	32
Focus Distance.....	32
Mesh Object - Sculpt Paint mode.....	32
Color Attributes panel.....	32
Auto Masking.....	32
Topology.....	33
Face Sets.....	33
Mesh Boundary.....	33
Face Sets Boundary.....	33
Steps.....	33
Cavity.....	33
Cavity (Inverted).....	33
Create Mask.....	34
Factor.....	34
Blur.....	34
Custom Curve.....	34
Selecting Points.....	34
Adding Points.....	34
Navigation elements.....	34

Zoom in and out.....	34
Clipping Options.....	34
Use Clipping.....	34
Min and Max X Y.....	35
Tools.....	35
Reset View.....	35
Extend horizontal.....	35
Extend extrapolated.....	35
Reset Curve.....	35
Handle Types.....	35
X Y Position.....	35
Delete Points.....	35
View Normal.....	35
Occlusion.....	35
Limit.....	35
Falloff.....	36
Area Normal.....	36
Limit.....	36
Falloff.....	36
Mesh Object - Vertex Paint mode.....	36
Color Attributes panel.....	36
Active Color Index.....	36
Color index name.....	36
Active Render.....	36
Drag Handler.....	36
Search Field.....	36
Invert.....	37
Sort by Name.....	37
Add +.....	37
Add Color Attribute Popup.....	37
Name.....	37
Domain.....	37
Data Type.....	37
Color.....	37
Ok.....	37
Remove -.....	37
Adjust last operator Add Color Attribute.....	37
Specials menu.....	38
Duplicate Color Attribute.....	38
Convert Color Attribute.....	38
Mesh Object - Weight Paint mode.....	38
Vertex Groups.....	38
Active Vertex Group list.....	38
Group name.....	38
Lock.....	38
Drag Handler.....	38
Search Field.....	38
Invert.....	39
Sort by Name.....	39
Add +.....	39
Remove -.....	39
Specials menu.....	39
Sort by Name.....	39

Sort by Bone Hierarchy.....	39
Duplicate Vertex Group.....	39
Copy Vertex Group to Selected.....	39
Mirror Vertex Group.....	39
Mirror Vertex Group (Topology).....	39
Remove from All Groups.....	39
Clear Active Group.....	40
Delete All Unlocked Groups.....	40
Delete All Groups.....	40
Lock All.....	40
Unlock All.....	40
Lock Invert All.....	40
Move Vertex Group Up / Down.....	40
Mesh Object - Texture Paint mode.....	40
Texture Slots.....	40
Mode.....	41
Add Texture Paint Slot.....	41
Paint Slot with mode Material.....	41
Material Paint Slot.....	41
Add Texture Paint Slot.....	41
Paint Slot with Mode Single Image.....	42
Image List.....	42
New/Open.....	42
Edit Box.....	42
Fake User.....	42
New Image.....	42
Open Image.....	42
Unlink Data Block.....	42
UV Map.....	42
Interpolation.....	42
Save all Images.....	42
Stencil Mask.....	43
Activate Stencil map.....	43
Stencil Image.....	43
Texture browser.....	43
Edit Box.....	43
UV Layer.....	43
Display Color.....	43
Invert the stencil color.....	43
Cavity Mask.....	43
Activate Cavity mask.....	44
Navigation elements.....	44
Zoom in and out.....	44
Zoom in and out.....	44
Tools.....	44
Reset View.....	44
Vector Handle.....	44
Auto Handle.....	44
Auto Clamped Handle.....	44
Reset Curve.....	44
Use Clipping.....	44
Delete Points.....	44
Viewport Overlays - all modes.....	44

Guides.....	45
Grid.....	45
Floor.....	45
Axes.....	45
Scale.....	45
Subdivisions.....	45
Options.....	45
Text Info.....	45
Annotations.....	45
Statistics.....	46
3D Cursor.....	46
Objects.....	46
Extras.....	46
Light Colors.....	46
Relationship Lines.....	46
Outline Selected.....	46
Bones.....	46
Motion Paths.....	46
Origins.....	47
Origins(All).....	47
Geometry.....	47
Wire frame.....	47
Wireframe Threshold.....	47
Opacity.....	47
Face Orientation.....	47
Fade inactive Geometry.....	47
Viewer Node.....	48
Color Overlay.....	48
Opacity.....	48
Text Overlay.....	48
Motion Tracking.....	48
Camera Path.....	48
Marker Names.....	48
Track display type.....	48
Track size.....	48
Viewport Overlays - Mesh Object - Edit Mode.....	49
Mesh Edit Mode.....	49
Faces.....	49
Center.....	49
Creases.....	49
Sharp.....	49
Bevel.....	49
Seams.....	49
Developer.....	50
Indices.....	50
Shading.....	50
Retopology.....	50
Vertex Groups Weights.....	50
Zero Weights.....	50
None.....	50
Active.....	50
All.....	50
Mesh Analysis.....	50

Type.....	50
Overhang.....	51
Minimum/Maximum.....	51
Axis.....	51
Thickness.....	51
Minimum/Maximum.....	51
Samples.....	51
Intersections.....	51
Distortion.....	51
Minimum/Maximum.....	51
Sharp Edges.....	52
Minimum/Maximum.....	52
Measurement.....	52
Edge Length.....	52
Edge Angle.....	52
Face Area.....	52
Face Angle.....	52
Normals.....	52
Display vertex normals.....	52
Display split normals.....	53
Display normals.....	53
Constant Screen Size Normals.....	53
Size.....	53
Freestyle.....	53
Edge Marks.....	53
Face Marks.....	53
Viewport Overlays - Mesh Object - Sculpt Mode.....	53
Show Mask.....	53
Show Face Sets.....	53
Viewport Overlays - Mesh Object - Vertex Paint Mode.....	53
Opacity.....	54
Show Wire.....	54
Viewport Overlays - Mesh Object - Weight Paint Mode.....	54
Opacity.....	54
Zero Weights.....	54
None.....	54
Active.....	54
All.....	54
Show Weight Contours.....	54
Show Wire.....	54
Show Bone X Ray.....	54
Viewport Overlays - Mesh Object - Texture Paint Mode.....	55
Stencil Opacity.....	55
Viewport Overlays - Hair Object - Sculpt Mode.....	55
Selection Opacity.....	55
Curves Cage.....	55
Cage Opacity.....	55
Viewport Overlays - Pose Mode.....	55
Show Bone X Ray.....	55
Opacity.....	55
Viewport Overlays - Grease Pencil.....	55
In Object Mode.....	55
Onion Skin.....	55



Canvas.....	56
Canvas X Ray.....	56
Fade Layers.....	56
Fade Objects.....	56
Fade Grease Pencil Objects.....	56
In Edit Mode.....	56
Onion Skin.....	56
Canvas.....	56
Canvas X Ray.....	56
Fade Layers.....	57
Fade Objects.....	57
Fade Grease Pencil Objects.....	57
Edit Lines.....	57
Stroke Direction.....	57
Only in multi frame.....	57
Material Name.....	57
Vertex Opacity.....	57
Handles.....	57
None.....	57
Selected.....	57
All.....	58
In Sculpt and Weight paint Mode.....	58
Onion Skin.....	58
Canvas.....	58
Canvas X Ray.....	58
Fade Layers.....	58
Fade Objects.....	58
Fade Grease Pencil Objects.....	58
Edit Lines.....	58
Only in multi frame.....	58
Vertex Opacity.....	59
In Draw Mode.....	59
Onion Skin.....	59
Canvas.....	59
Canvas X Ray.....	59
Fade Layers.....	59
Fade Objects.....	59
Fade Grease Pencil Objects.....	59
Vertex Opacity.....	59
In Vertex Paint mode.....	60
Onion Skin.....	60
Use Grid.....	60
Canvas X Ray.....	60
Fade Layers.....	60
Fade Objects.....	60
Fade Grease Pencil Objects.....	60
Edit Lines.....	60
Only in multi frame.....	60
Vertex Opacity.....	60
Opacity.....	60
Viewport Shading.....	61
Show X Ray.....	61
Viewport Shading.....	61

Wire frame.....	61
Solid.....	61
Material.....	61
Rendered.....	61
Viewport Shading Settings.....	61
Viewport Shading Settings with Wire frame.....	61
Color.....	61
Single.....	62
Object.....	62
Random.....	62
Background.....	62
Theme.....	62
World.....	62
Viewport.....	62
Options.....	62
Show X Ray.....	62
X Ray Alpha.....	62
Outline.....	62
Outline Color.....	62
Viewport shading Settings with Solid.....	63
Lighting.....	63
Studio.....	63
World Space Lighting.....	63
Rotation.....	63
Show Light Preferences.....	63
Wire Color.....	64
Theme.....	64
Object.....	64
Random.....	64
Color.....	64
Material.....	64
Object.....	64
Vertex.....	64
Single.....	64
Random.....	64
Texture.....	64
Background.....	65
Theme.....	65
World.....	65
Viewport.....	65
Options.....	65
Back face Culling.....	65
Show X Ray.....	65
X Ray Alpha.....	65
Shadow.....	65
Shadow Intensity.....	65
Light Settings.....	65
Light Direction.....	65
Shadow Shift.....	66
Shadow Focus.....	66
Cavity.....	66
Type.....	66
World.....	66

World Space / Ridge Valley.....	66
Shading Options.....	66
Screen.....	66
Screen Space / Ridge Valley.....	66
Both.....	66
Depth of Field.....	66
Outline.....	66
Outline Color.....	66
Specular Lighting.....	67
Matcap.....	67
Show Light Preferences.....	67
Flip Matcap.....	67
Color.....	67
Material.....	67
Object.....	67
Vertex.....	67
Single.....	68
Random.....	68
Texture.....	68
Background.....	68
Theme.....	68
World.....	68
Viewport.....	68
Options.....	68
Back face Culling.....	68
Show X Ray.....	68
X Ray Alpha.....	68
Shadow.....	69
Shadow Intensity.....	69
Light Settings.....	69
Light Direction.....	69
Shadow Shift.....	69
Shadow Focus.....	69
Cavity.....	69
Type.....	69
World.....	69
World Space / Ridge Valley.....	69
Shading Options.....	69
Screen.....	69
Screen Space / Ridge Valley.....	69
Both.....	69
Outline.....	70
Outline Color.....	70
Specular Lighting.....	70
Flat.....	70
Color.....	70
Material.....	70
Object.....	70
Vertex.....	70
Single.....	70
Random.....	70
Texture.....	70
Background.....	70

Theme.....	70
World.....	70
Viewport.....	71
Options.....	71
Back face Culling.....	71
Show X Ray.....	71
X Ray Alpha.....	71
Shadow.....	71
Shadow Intensity.....	71
Light Settings.....	71
Light Direction.....	71
Shadow Shift.....	71
Shadow Focus.....	71
Cavity.....	71
Type.....	72
World.....	72
World Space / Ridge Valley.....	72
Shading Options.....	72
Screen.....	72
Screen Space / Ridge Valley.....	72
Both.....	72
Outline.....	72
Outline Color.....	72
Specular Lighting.....	72
Viewport Shading with Material Preview.....	73
Lighting.....	73
Scene Lights.....	73
Scene World.....	73
hdr file browser.....	73
Show light preferences.....	73
World Space Lighting.....	73
Rotation.....	73
Background.....	73
World Opacity.....	73
Blur.....	74
Wire Color.....	74
Theme.....	74
Object.....	74
Random.....	74
Render Pass.....	74
Compositor.....	74
Disabled.....	74
Camera.....	74
Always.....	75
Viewport Shading with Rendered.....	75
Lighting.....	75
Scene Lights.....	75
Scene World.....	75
Studiolight Preview.....	75
Show Light preferences.....	75
Rotation.....	75
Strength.....	75
World Opacity.....	75

Blur.....	75
Wire Color.....	76
Theme.....	76
Object.....	76
Random.....	76
Render Pass.....	76
Compositor.....	76
Disabled.....	76
Camera.....	76
Always.....	76
Pause Preview.....	77
Align View Buttons.....	77
Grease Pencil - all modes - Layer Panel.....	77
Layer list.....	77
Layer name.....	77
Mask Layer.....	77
Onion Skinning.....	77
Viewport/Render Visibility.....	78
Lock.....	78
Search Field.....	78
Add new layer.....	78
Remove layer.....	78
Layer Specials.....	78
Duplicate Layer.....	78
Duplicate Empty Keyframes.....	78
Show All.....	78
Hide Others.....	78
Lock All.....	78
Unlock All.....	78
Autolock inactive layer.....	78
Merge Down.....	79
Copy Layer to Object.....	79
Isolate Layer.....	79
Isolate Layer.....	79
Blend.....	79
Opacity.....	79
Use Lights.....	79
Grease Pencil - Edit mode - Options Panel.....	79
Scale Stroke Thickness.....	79
Grease Pencil - Sculpt mode - Auto-masking Panel.....	79
Stroke.....	79
Layer.....	80
Material.....	80
Active Layer.....	80
Active material.....	80

## Introduction

The header in the 3D view contains various menus and tools. This chapter here is about the tools, modes and options elements in the header.

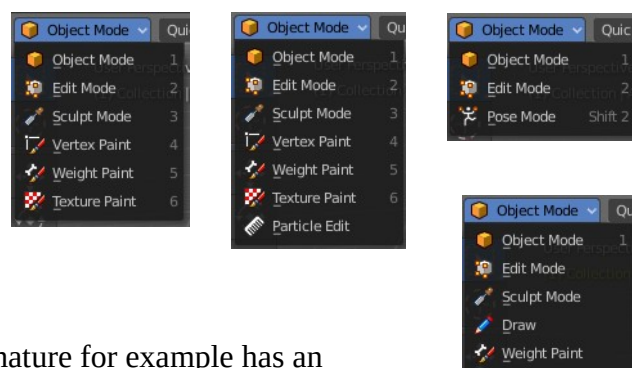
The text menus are covered in a own chapter each. They vary too much, dependent of mode and object type.

## Mode Drop-down Box

The Mode drop-down box allows you to switch between the different modes.

Modes are object states that allows you to edit and manipulate objects at different levels with different tool sets and goals. The sculpt mode for example allows you to sculpt a mesh object. Edit Mode allows to manipulate the mesh of the object, and so on.

The available modes can differ from object to object. An armature for example has an additional pose mode. And when you work with a grease pencil object, then several grease pencil modes becomes available.



## Object Mode

This mode allows to manipulate objects at Object level. Like move it around, rotate it, etc. This mode is available for all object types.

## Edit Mode

The edit mode allows to edit the object. With a mesh object this means that you are able to modify and to change the geometry. With an armature you build your skeleton. And with a text object you can type in text, and choose the font etc.

Not all objects has an edit mode.

## Sculpt Mode

In this mode you can sculpt the mesh. This mode is available for mesh and grease pencil objects.

## Vertex Paint

Vertex Paint is a mesh object only mode. In this mode you can paint vertices with colors.

## Weight Paint

In this mode you can adjust weight painting for an armature for example. But Weight Painted mesh objects can also be used in conjunction with particles. Also a grease pencil stroke can be weight painted.

## Texture Paint

Weight Paint is a mesh object only mode. In this mode you can paint at the texture of a mesh directly. This mode requires to have a working UV mapping and a texture at the mesh object.

## Edit Strokes

Edit Strokes is a Grease Pencil only mode. It allows to manipulate the curves at a mesh level.

## Particle Edit

Particle edit is a Particle System mode only. When you apply a particle system to a mesh object then this mode becomes available. It allows you to manipulate the particle system at a mesh level. You can comb hair particles for example.

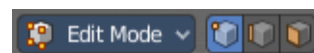
## Draw

Draw is a grease pencil object only mode. In this mode you draw grease pencil strokes.

## Mesh Object Sub Modes

The different modes can have some sub modes. For example different selection methods in mesh edit mode. Or a mask mode for texture painting. The sub mode settings can be found right from the Modes drop down box.

### Edit Mode - Mesh Select Modes



When you enter the edit mode with a mesh object then you will see the mesh select modes. They allows you to switch between the three available selection modes Vertice select, Edge Select and Face Select.

Vertex Select allows you to select vertices.

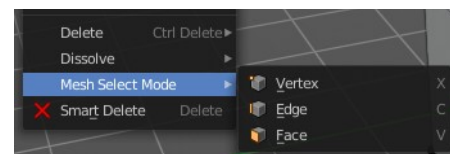
Edge Select allows you to select edges.

Face select allows you to select faces.

The mesh display changes, dependent of the mode. When you have for example select vertices active, then the vertices highlights at the mesh.

You can have more than one mode active by shift clicking at the other mesh select modes.

The standard Bforartists has hotkeys to switch between the modes. X, C and V. You cannot see or edit them at the header element. There is however a sub menu in the mesh menu, called Mesh Select Mode. Here you can see and edit the hotkeys.



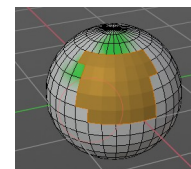
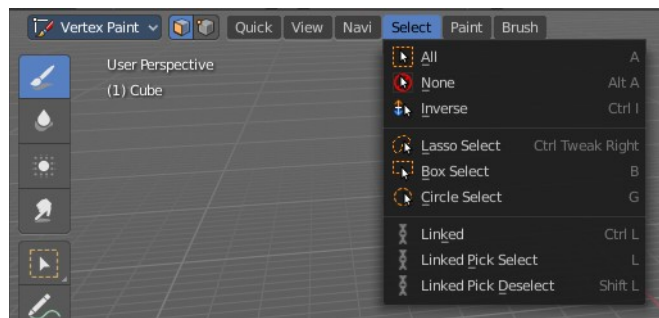
## Vertex Paint - Mask and Vertex Selection



### Paint Mask

When you activate this tool then you reveal a Select menu in the header. And you can select the mesh parts that you want to manipulate. Note that you may first want to deselect all. By default everything is selected ...

The select menu is explained in the chapter Vertex Paint modes. The menu items should be pretty self explaining though.



When you have selected a part of the mesh, then you can just paint the faces at this selected part. The edges are the border.

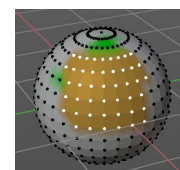
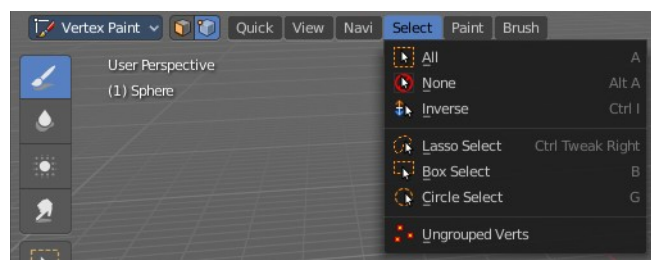
### Vertex Selection

When you activate this tool then you reveal a Select menu in the header. And you can select the mesh parts that you want to manipulate. This tool is meant for Weight Painting. And so the mesh displays the vertices too.

Note that you may first want to deselect all. By default everything is selected ...

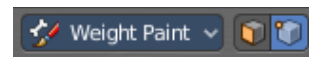
The select menu is explained in the chapter Vertex Paint modes. The menu items should be pretty self explaining though.

When you have selected a part of the mesh, then you can just paint the vertices at this selected part. The difference to the Paint mask method is that here the edges are not the border of the color. But there is a gradient between the vertices.





## Weight Paint - Mask and Vertex Selection



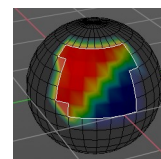
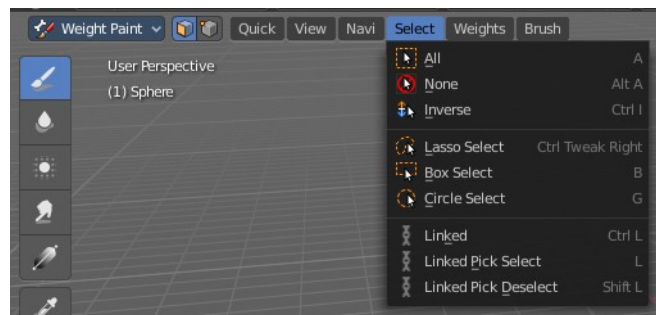
### Paint Mask

Mesh Object.

When you activate this tool then you reveal a Select menu in the header. And you can select the mesh parts that you want to manipulate. Note that you may first want to deselect all. By default everything is selected ...

The select menu is explained in the chapter Vertex Paint modes. The menu items should be pretty self explaining though.

When you have selected a part of the mesh, then you can just paint the faces at this selected part. The edges are the border.



### Vertex Selection

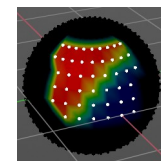
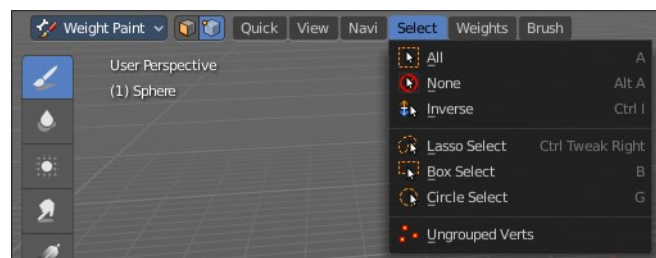
Mesh Object.

When you activate this tool then you reveal a Select menu in the header. And you can select the mesh parts that you want to manipulate. This tool is meant for Weight Painting. And so the mesh displays the vertices too.

Note that you may first want to deselect all. By default everything is selected ...

The select menu is explained in the chapter Vertex Paint modes. The menu items should be pretty self explaining though.

When you have selected a part of the mesh, then you can just paint the vertices at this selected part. There is no real difference to the faces method. The selection is the same.



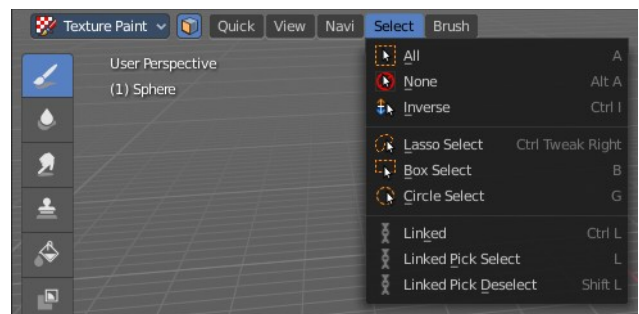
## Texture Paint - Mask Selection



## Paint Mask

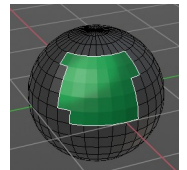
Mesh Object.

When you activate this tool then you reveal a Select menu in the header. And you can select the mesh parts that you want to manipulate. Note that you may first want to deselect all. By default everything is selected ...



The select menu is explained in the chapter Vertex Paint modes. The menu items should be pretty self explaining though.

When you have selected a part of the mesh, then you can just paint the faces at this selected part. The edges are the border.



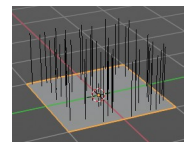
## Particle Edit - Select Modes



Mesh Object with a particle system. You can just have one method active at a time.

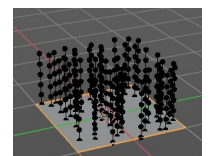
### Path

No key points are visible, you can select/deselect only all particles.



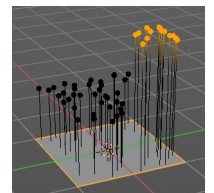
### Point

You can see, select and edit all key points of the particle paths.



### Tip

You can only see, select and edit the tip of the particles. This includes the brushes. The comb brush is a special case here. The other path key points bends of course still in this mode. But affected by the brush is just the tip key.



## Grease Pencil Sub Modes

The different modes can have some sub modes. For example different selection methods in mesh edit mode. Or a mask mode for texture painting. The sub mode settings can be found right from the Modes drop down box.

## Edit Mode

The edit mode allows you to edit the grease pencil strokes.



### Select Modes

You can only have one method active at a time.

#### Select Only Points

When you for example border select some points of the stroke, then just this points gets selected.



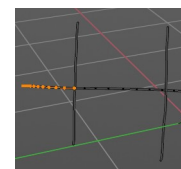
#### Select all Stroke Points

When you for example border select some points of the stroke, then the whole stroke gets selected.



#### Select all Stroke Points between other strokes

When you for example border select some points of the stroke, and this stroke crosses another stroke, then the part of the stroke up to the crossing point gets selected.

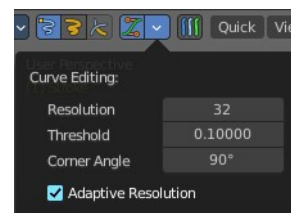


## Curve Editing

Edit Strokes by using Curve handles.

### Curve Editing panel

The settings for Curve Editing.



### Curve Resolution

Number of segments generated between control points

### Threshold

The curve conversion error threshold

### Corner Angle

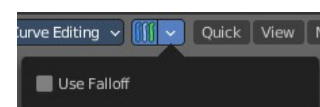
Angle threshold to be treated as corners. The resolution is the number of points generated per unit distance.

### Adaptive Resolution

Set the resolution for each segment dynamically based on its length.

## Multi frame

When this mode is active, then you can edit strokes from multiple grease pencil frames at once. The key frames must be selected to be included.



## ***Use Falloff***

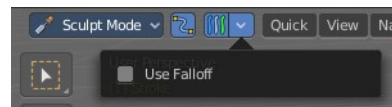
Multi frame has a setting, which becomes visible when the mode is active.

Use Falloff when edit in Multi frame mode to compute brush effect by frame.

---

## **Sculpt Mode**

The sculpt mode allows you to sculpt the grease pencil strokes.



## ***Selection Mask***

When you activate this mode, then just the selected parts gets sculpted.

## **Multi frame**

When this mode is active, then you can edit strokes from multiple grease pencil frames at once. The key frames must be selected to be included.

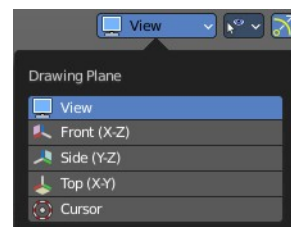
## ***Use Falloff***

Multi frame has a setting, which becomes visible when the mode is active.

Use Falloff when edit in Multi frame mode to compute brush effect by frame.

## **View**

Relative to which plane to draw the strokes. Default orientation is view.



## **Draw Mode**

The draw mode is the mode in which you draw the grease pencil strokes.

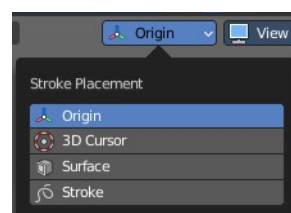


## **Multi frame**

When this mode is active, then you can edit strokes from multiple grease pencil frames at once. The key frames must be selected to be included.

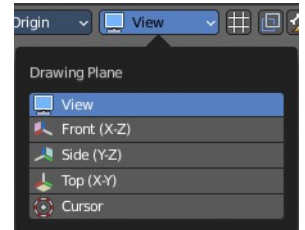
## **Origin**

Where the stroke is placed.



## View

Relative to which plane to draw the strokes. Default orientation is view.



## Use Guides

Guides allows you to draw geometric shapes with the grease pencil.

### *Circular*

Draw a circle around the origin.

### *Radial*

Draw a straight line through the origin.

### *Angle*

Doesn't do anything.

### *Parallel*

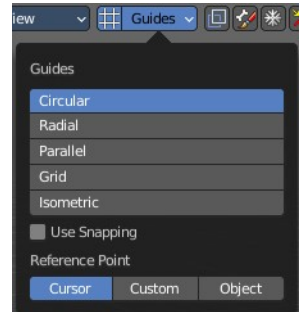
Draw parallel horizontal lines.

### *Grid*

Draw parallel horizontal and vertical lines.

### *Isometric*

Draw parallel lines in an specific angle.

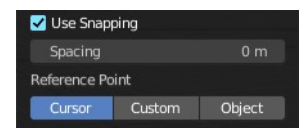


## Use Snapping

Enable snapping to guides angles or spacing options.

### Spacing

The guide spacing. This is the distance between the strokes.



### Reference Point

What point to use as the reference for the strokes.

## Draw Strokes on Back

Usually a new stroke is drawn on top of existing strokes. Draw Strokes on Back adds the new strokes below the existing strokes.

## Add Weight Data for new strokes

Add Weight data for new strokes, according to the current vertex group and weight. When no vertex group is selected, then no weight is added.

## Use Additive Drawing

When creating new frames, then the strokes from the previous or active frame gets included as the base for the new stroke.

## Automerge

Join last drawn strokes by distance with previous strokes in the active layer.

## Weight Paint Mode

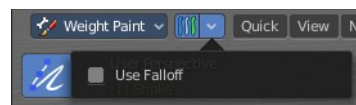
### Multi frame

When this mode is active, then you can edit strokes from multiple grease pencil frames at once. The key frames must be selected to be included.

### Use Falloff

Multi frame has a setting, which becomes visible when the mode is active.

Use Falloff when edit in Multi frame mode to compute brush effect by frame.



## Vertex Paint Mode

### Select Modes

You can only have one method active at a time.

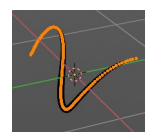
### Select Only Points

When you for example border select some points of the stroke, then just this points gets selected.



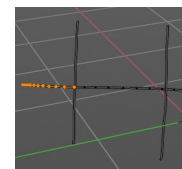
### Select all Stroke Points

When you for example border select some points of the stroke, then the whole stroke gets selected.



### Select all Stroke Points between other strokes

When you for example border select some points of the stroke, and this stroke crosses another stroke, then the part of the stroke up to the crossing point gets selected.



### Multi frame

When this mode is active, then you can edit strokes from multiple grease pencil frames at once. The key frames must be selected to be included.

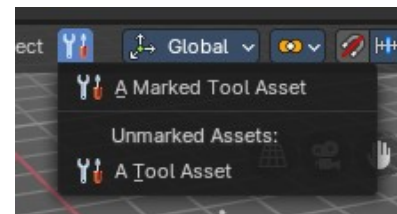
### Use Falloff

Multi frame has a setting, which becomes visible when the mode is active.

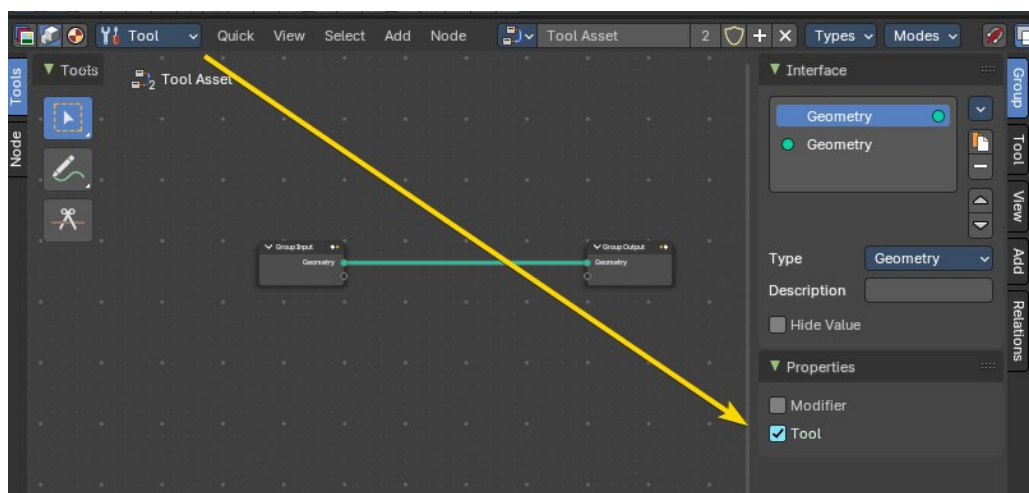
Use Falloff when edit in Multi frame mode to compute brush effect by frame.

## Geometry Node Group Tools

This header button menu with the tool icon is a container for Geometry Node Groups that have been set as “Tools” in the Geometry Nodes editor. These are act-once operators that now can be placed in the Geometry Node Group Tools or in custom entries in the 3D View header entries.

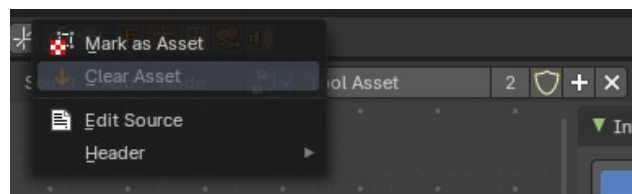


**Example:** here the Geometry Nodes has been switched to the Tool mode, and the node group Properties have been set to Tool. This node group will now show in the Geometry Node Group Tools header menu.



## Marked Assets

A marked Geometry Nodes node group set as an asset and a tool will display here. To mark, right click on the geometry node selector in the Geometry Nodes editor, and mark as asset.



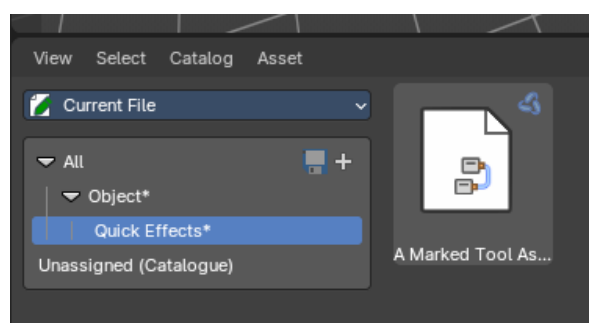
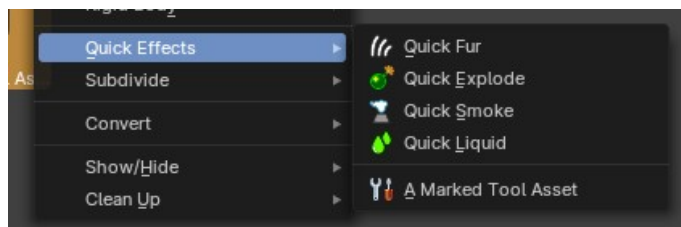
## Unmarked Assets

A local unmarked Geometry Nodes node group set as a tool will display under the “Unmarked Assets:” label.

## Marked Assets with assigned Asset Browser Category

A marked node group set as a tool and as an asset and assigned to an Asset Browser category with the same category structure as the menu entry names will display as nested act-once operators.

**Example:** This is a marked-as-asset geometry node group with the name “A Marked Tool Asset” in the category “Object” then sub-category “Quick Effects”.

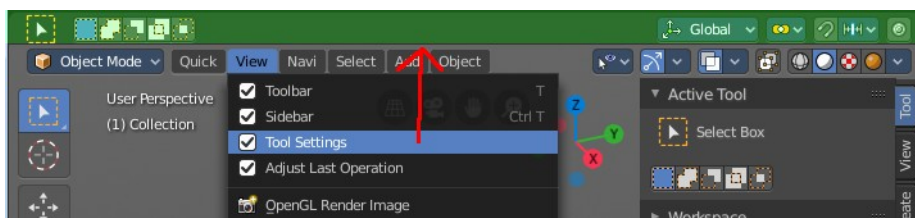




## Object settings

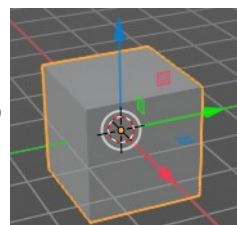


The object settings just appears when the Tool Settings are hidden. This can be done in the View menu. Parts of the object settings are just visible in Object and Edit Mode. Parts in other modes.



## Transform Orientations

You can display Transform Manipulators at your object or selection by activating them in the tool shelf. They allow you to scale, rotate or move objects by grabbing their controls, and moving your mouse in the corresponding axis. The widget can be oriented in different ways by using another method in this drop down box. The names should be self explaining.



### **View**

The transform orientation aligns to the current view.

### **Gimbal**

Aligns each axis to the Euler rotation axis as used for input.

### **Normal**

This is of interest for bones for example. Aligns the transformation axis to average normal of the selected elements. Bone Y axis for Pose mode.

### **Local**

Uses the local orientation of the selected elements.



## ***Global***

Uses the global orientation for the selected elements.

## ***Cursor***

Uses the orientation of the 3D cursor.

## ***Parent***

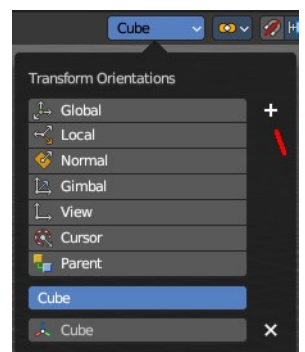
Uses the orientation of the parent object.

## **Create Orientation**

The create orientation button at the right adds a new orientation from the current mode and view. You can rename it.

This view is scene specific only. It does save and load with the current scene. But you cannot transfer it into another scene. When you create a new scene then this custom orientation is gone.

You can create more than one user orientation.



## ***Last Operator Create Orientation***

Create Orientation has some settings.

### **Name**

Rename the orientation.

### **Use View**

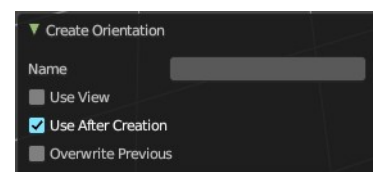
Use the current view instead of the active object to create the new orientation.

### **Use after creation**

Use this orientation after creation.

### **Overwrite Previous**

Overwrite previous created orientation in case it has the same name.



## **Pivot Point**

The Pivot Point is the center of your object or your selection. When you rotate or scale an object, or a group of vertices/edges/faces, you may want to shift the pivot point in 3D space. The names should be self explaining.

## **Only Origins**

When this option is enabled, then the transformation will change the positions of the object's origins, but will not affect the object itself.

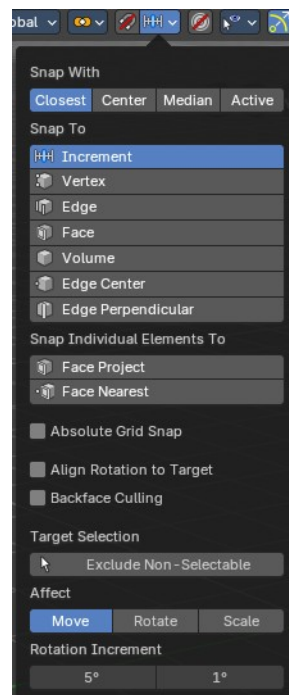


## Snapping

Activate snapping when transforming an element.

Snapping can be temporarily activated by holding CTRL key. So no need to turn snapping on and off all the time.

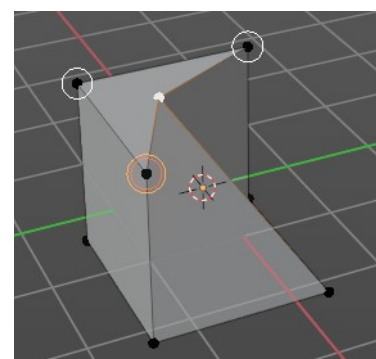
You can snap to various scene elements in Object, Edit and Pose mode. And you can activate more than one snapping method by holding down CTRL and clicking at the next snapping element.



## Multiple Snap Targets

When you move the mouse with snapping on and the element to snap selected (This does not work with holding Ctrl), then you can press hotkey A to mark the current snapping point, then proceed to mark as many other snapping points as you wish. And the element that you want to snap will then be in the center of these marked snapping points. Marked snapping points will have a circle around.

Marking a point more than once will give it more weight in the averaged location.



## Snap With

Which part to snap onto the target.

### **Closest**

Snap closest point onto the target.

### **Center**

Snap transformation center onto the target.

### **Median**

Snap median onto the target.



## ***Active***

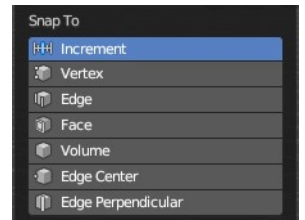
Snap active onto the target.

## **Snap to**

To which part of the target to snap.

## ***Increment***

Incremental grid snapping. In Orthographic view the snapping increment changes depending on zoom level.



## ***Vertex***

Snap to a vertice.

## ***Edge***

Snap to an edge.

## ***Face***

Snap to a face.

## ***Volume***

Snaps to regions within the volume of the first object found below the mouse cursor.

## ***Edge Center***

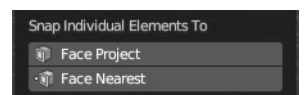
Snaps to the center of an edge.

## ***Edge Perpendicular***

Snap to the nearest point of an edge.

## **Sbap Individual Elements to**

Type of element for individual transformed elements to snap to.



## ***Face Project***

Snap by projecting onto faces.

## ***Face Nearest***

Snap to nearest point on faces.

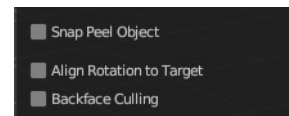
## **Absolute Grid Snap**

Only available with the Snap to Method Increment. Snap to the world grid, instead of snapping in increments relative to the current location.



## Snap Peel Object

Only available with the Snap to Method Volume. Consider objects as whole when finding a volume center.



## Back face Culling

Exclude back facing geometry from snapping.

## Align Rotation to Target

Align rotation with the snapping target.

## Affect

Adjust what transform methods should be affected by snapping.

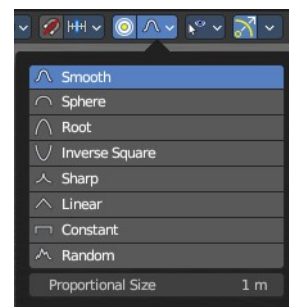
## Rotation Increment

Snap in adjustable incremental steps.

## Proportional Editing

Enables proportional editing.

Proportional Editing is a way of transforming selected elements (such as vertices) while having that transformation affect other nearby elements with a falloff. For example, moving a single vertex will move unselected vertices within a given range. And the falloff means that selected vertices that are closer to the selected vertex will move more than those farther from it.



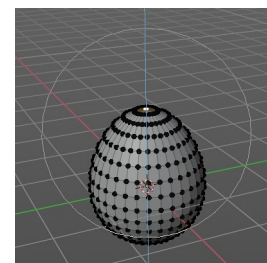
## Settings

The settings appears when you activate Proportional Editing. Choose between different falloff methods for the proportional editing.

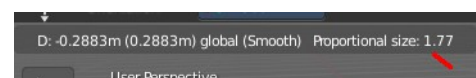
## Proportional Size

The influence of the proportional editing is defined by a radius. It is by default one standard unit.

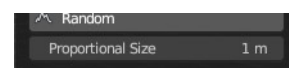
You can change the influence radius for proportional editing with the mouse wheel or the Page up Page down arrows **while keeping the mouse button pressed down** and do the translation.



The exact radius value can be read in the header while transformation.



And it can also be read and edited at the Proportional Size slider in the Proportional Editing panel.



## Last Operator Proportional Editing

When you translate an object, move it around or rotate or scale it, then the last operator contains also proportional editing settings.

### Proportional Editing

Enable proportional editing.

### Proportional Falloff

Adjust the falloff methods again.

### Proportional Size

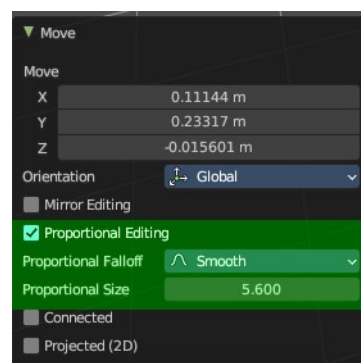
Adjust the falloff radius. Note that the white circle is not displayed when using this slider.

### Connected

The proportional falloff gets calculated for connected parts only.

### Projected(2D)

In depth direction along the view the radius is ignored. It selects as deep as there is something to select.

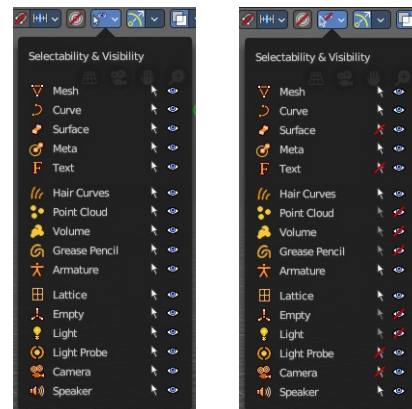


## Selectability & Visibility

In this drop down box you can set specific elements in the scene to either not selectable or invisible.

When the elements are invisible then they are also not selectable.

When you have set some objects to not selectable or invisible, then the icon in the menu header changes.

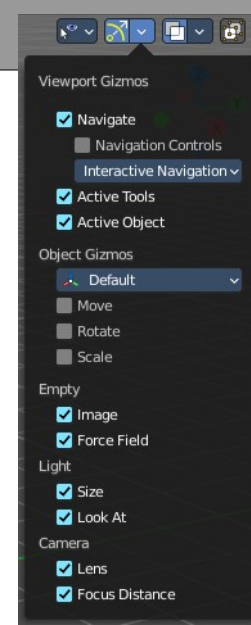


## Viewport Gizmo

This menu allows you to adjust what gizmos shows. The button at the left turns off or on all of them.

### Show Gizmo

Shows or hides all available gizmos at once.



## Gizmo Options

Turn on or off specific widgets.

### Viewport Gizmos

#### *Navigate*

Turn on or off the navigate widget. The navigate gizmo is the block of buttons and the widget up right.



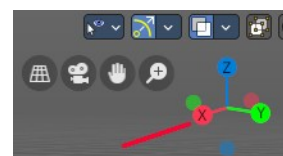
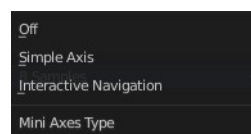
#### Navigation Controls

Display the navigation controls in the 3D view.



#### 3D Viewport Axis

Adjust the appearance of the 3D Viewport mini axis widget.



#### *Off*

Hides the Mini axis widget.

#### *Simple Axis*

Shows simple axis. This widget type is not interactive. It just shows the state of the viewport rotation.

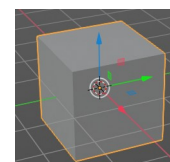


#### *Interactive Navigation*

The default mini axis widget. This widget is interactive. Clicking and dragging will rotate the viewport. Clicking at one of the colored spots at the end of the axis will snap to the nearest orthographic view.

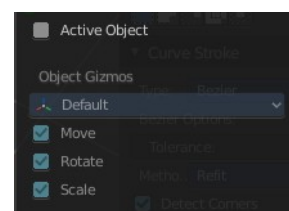
### Active Tools

Turn on or off the active tool widget. When you activate one of the transformation buttons in the tool shelf, then a gizmo will appear at the object.



### Active Object

Turn on or off the Object Gizmos. The Object Gizmos is an extra set of translate gizmos, similar to the active tool widget that shows when you activate one of the transform buttons in the tool shelf. But it shows permanent as long as you don't have another tool selected that overrides this widget.

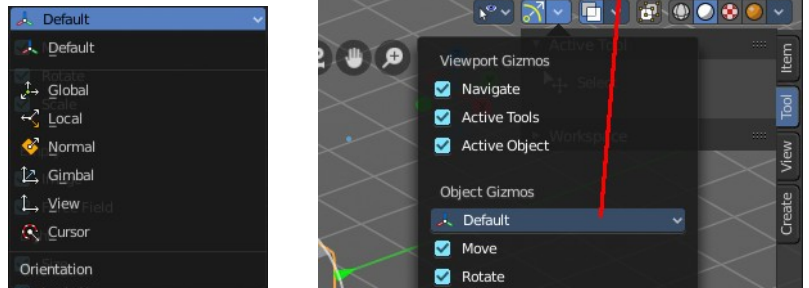


## Object Gizmos

### **Transformation Orientation**

Adjust the orientation of the widget. By default it uses the transform orientation from the viewport. This set can override the transform orientation.

You can have all transform methods on at once.



### **Move**

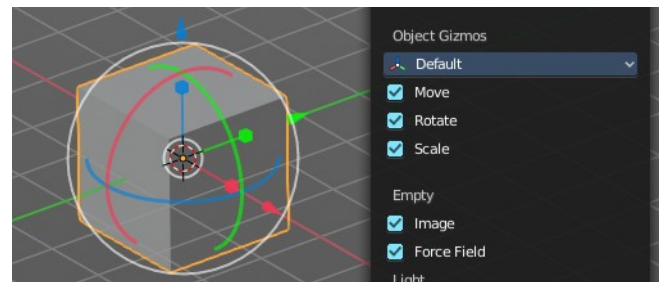
Shows the move part of the widget.

### **Rotate**

Shows the rotate part of the widget.

### **Scale**

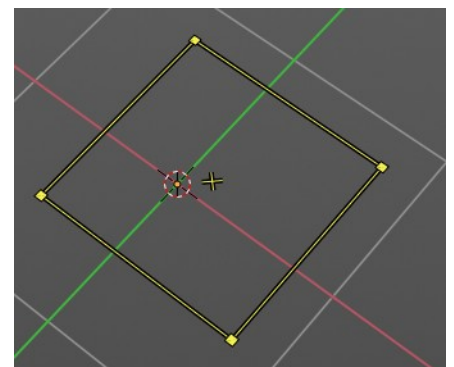
Shows the scale part of the widget.



## Empty

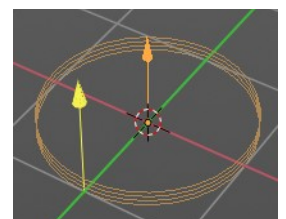
### **Image**

Shows the transform gizmo at an empty of type Image. You need to hover with the mouse over the object to reveal the yellow gizmo.



### **Force Field**

Some force field types have a gizmo. Shows the transform gizmo at a force field.





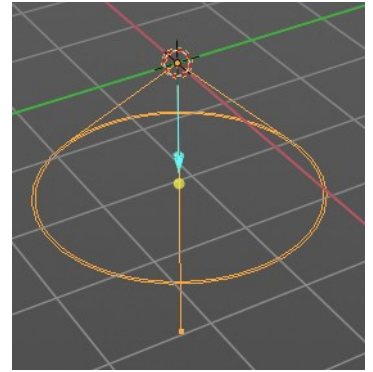
## Light

### Size

Show the gizmo to adjust the size of lights. That's the blue arrow here.

### Look At

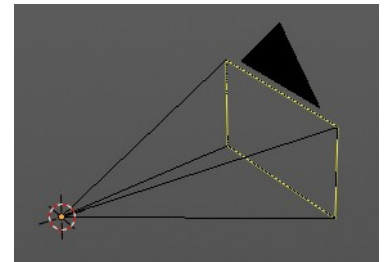
Show the gizmo to adjust the direction of the light. That's the yellow dot in the middle of the circle.



## Camera

### Lens

Show the gizmo to adjust the lens and orthographic size. The yellow square.

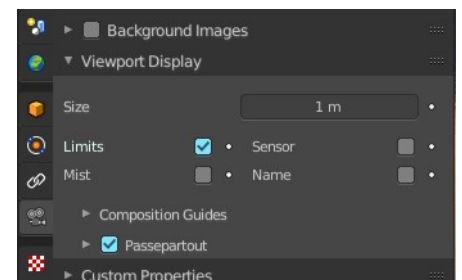


### Focus Distance

Show to gizmo to adjust the focus distance.

You first need to turn on the Limits gizmo in the camera settings in the Viewport Display panel. Then you can turn off the focus distance gizmo part with Focus Distance.

**Note that this feature is currently broken!**

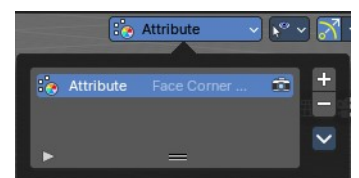


## Mesh Object - Sculpt Paint mode

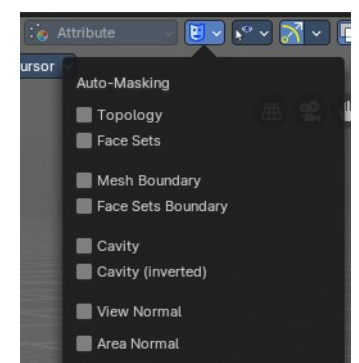
### Color Attributes panel

This panel also exists in the properties editor.

Currently this panel is greyed out and dysfunctional in Sculpt mode. It is WIP.



### Auto Masking





## Topology

Affect only vertices that are connected to the current active vertex under the brush.

## Face Sets

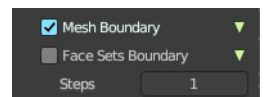
Affect only vertices that share face sets with the active vertex.

---

### Mesh Boundary

Do not affect non manifold boundary edges.

The setting that appears on activation and is valid for both, Mesh Boundary and Face Sets Boundary.



### Face Sets Boundary

Do not affect vertices that belong to a face set boundary.

The setting that appears on activation and is valid for both, Mesh Boundary and Face Sets Boundary.

### Steps

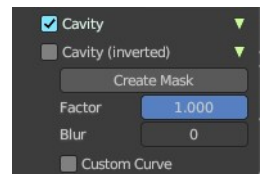
Distance where boundary edge automasking is going to protect vertices from the fully masked edge.

---

### Cavity

Do not affect vertices on peaks. This feature is based on the surface curvature.

The setting that appears on activation and is valid for both, Cavity, and Cavity (Inverted).



### Cavity (Inverted)

Do not affect vertices in valleys. This feature is based on the surface curvature.

The setting that appears on activation and is valid for both, Cavity, and Cavity (Inverted).

## Create Mask

Creates a mask based on the curvature of the surface.

## Factor

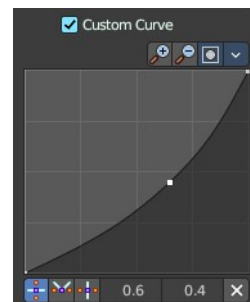
The contrast of the cavity mask.

## Blur

The number of times the cavity mask is blurred

## Custom Curve

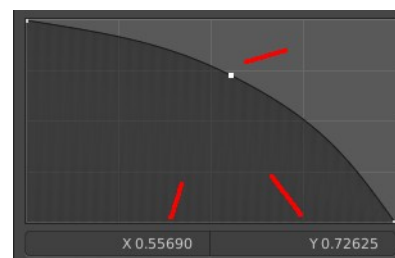
Use a custom falloff curve for the cavity mask.



## Selecting Points

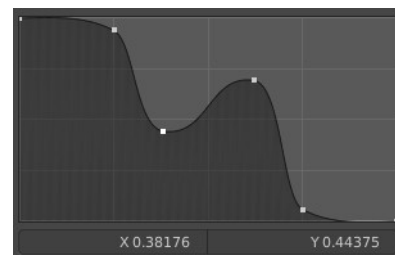
You can select curve points. This reveals two edit boxes for the x and y coordinate of this point.

Selected points can be moved around. Left click at them, hold the mouse button down and move them to a new location.



## Adding Points

You can add new curve points by simply left clicking at the curve. Move the mouse to position them where you need it.



## Navigation elements

The navigation elements at the top are described from left to right.



## Zoom in and out

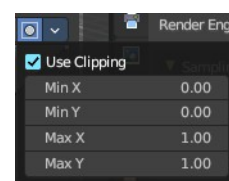
The two buttons with the magnifying glass at it zooms in and out in the curve window.

## Clipping Options

Set up clipping for the stroke.

### *Use Clipping*

Turns clipping on or off.



## Min and Max X Y

The values for the clipping area.

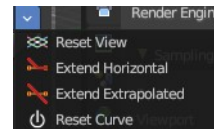
---

## Tools

Tools is a menu where you can find some curve related tools.

### ***Reset View***

Resets the curve windows zoom.



### ***Extend horizontal***

Extends the curve before the first curve point and after the last curve point horizontally.

### ***Extend extrapolated***

Extends the curve before the first curve point and after the last curve point extrapolated.

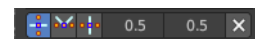
### ***Reset Curve***

Resets the curve to the initial shape.

---

## Handle Types

Sets the handle type for the current selected curve point.



## X Y Position

The position of the current active curve point.

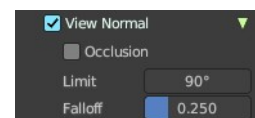
### ***Delete Points***

Deletes the current active curve point.

---

## View Normal

Affect only vertices with a normal that faces the viewer.



## Occlusion

Only affect vertices that are not occluded by other faces. With Occlusion on the Limit and Falloff options are not available.

## Limit

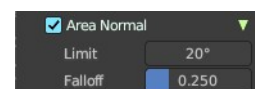
View normal limit. The range of angles that will be affected.

## Falloff

Extend the angular range with a falloff gradient.

## Area Normal

Affect only vertices with a similar normal to where the stroke starts.



## Limit

Area normal limit. The range of angles that will be affected.

## Falloff

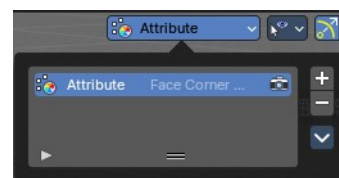
Extend the angular range with a falloff gradient.

# Mesh Object - Vertex Paint mode

## Color Attributes panel

This panel also exists in the properties editor.

In vertex paint mode and sculpt mode you can paint vertices of a mesh with a color. This will create a vertex color index. You can see and manage this vertex color indexes in the Vertex Colors panel.



Vertex colors can for example be used to mix shaders together. Or also directly render them. In the shader editor color attributes can be used by the Attribute node.

A mesh can have more than one vertex color index and type. But just one index can be the active one.

## Active Color Index

A List of the vertex color indexes for this mesh.

### *Color index name*

The name of the vertex color index. It can be renamed by double clicking at it.

### *Active Render*

Set this vertex color index as the one to render. Just one vertex color index can be active at a time. But you can use another vertex color index in a material.

### *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 vertex color index.

## Add Color Attribute Popup

### Name

The name of the color attribute index.

### Domain

The domain of the color attribute.

- **Vertex** stores the color attribute data in the vertices of the mesh data
- **Face Corner** stores the color attribute data in the face corners of the mesh data

### Data Type

The the color attribute type.

- **Color** stores RGBA color 32-bit floating point values
- **Byte Color** stores RGBA color 32-bit positive integer values

### Color

The Default fill colour

### Ok

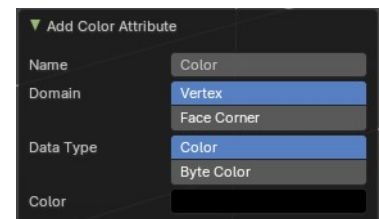
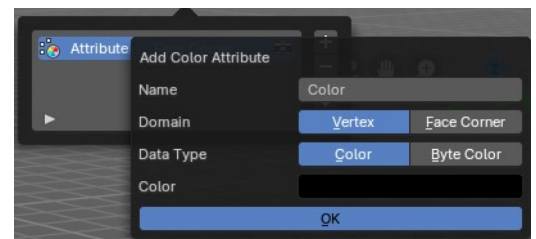
Confirm to apply

## Remove -

Delete the selected vertex color index.

## Adjust last operator Add Color Attribute

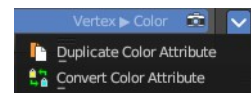
This is basically the same content as above. Minus the OK button.



## Specials menu

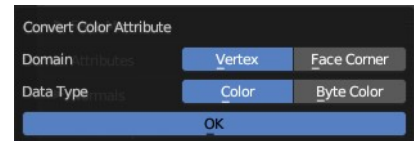
### Duplicate Color Attribute

Duplicates the selected color attribute



### Convert Color Attribute

Convert a color attribute domain and data type. This tool calls a popup where you can choose what to convert.

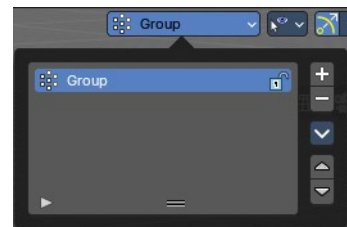


## Mesh Object - Weight Paint mode

### Vertex Groups

This panel also exists in the properties editor.

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.

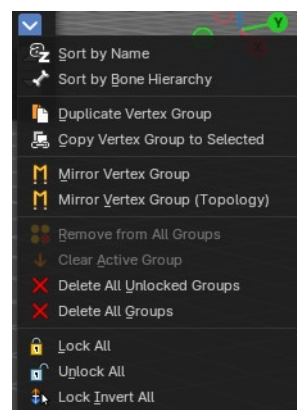
## Specials menu

### *Sort by Name*

Sorts the vertex groups alphabetically by name.

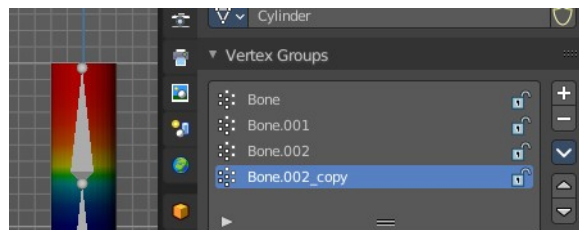
### *Sort by Bone Hierarchy*

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



### *Duplicate 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 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

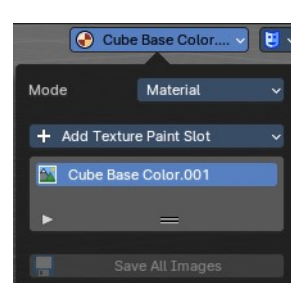
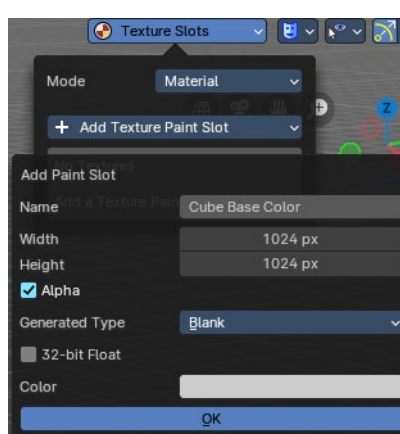
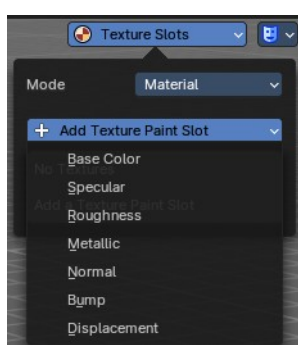
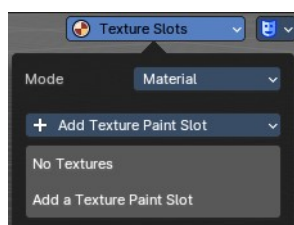
Moves the selected vertex group up or down in the list.



# Mesh Object - Texture Paint mode

## Texture Slots

The texture slots panel allows you to manage the textures that you use for texture painting. When the mesh doesn't have a texture yet to paint at, then you get a hint about a missing texture. No Textures. The Add Texture Paint Slot button allows you to add one. Base Color allows you to create a diffuse map.

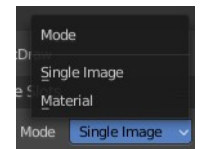




## Mode

Choose in which mode you want to paint. Single Image just works with a single image, without any material.

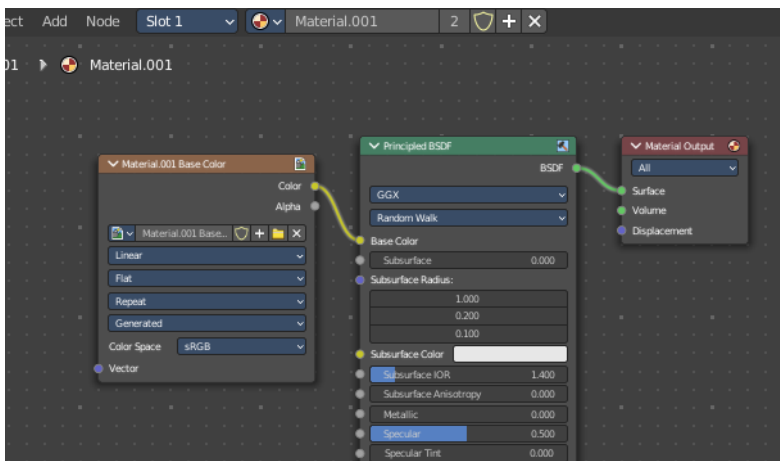
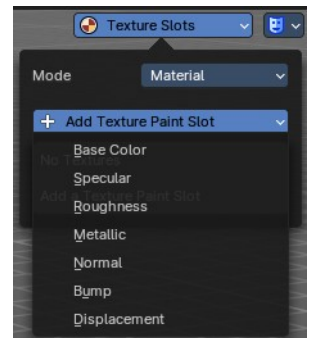
Material works with a material and a texture. The texture is here part of the material.



## Add Texture Paint Slot

Here you can choose what type of texture you want to add for texture painting.

The texture gets added to the shader, and connected to the correct node. A base color is meant for diffuse, and so it connects with the base color slot.



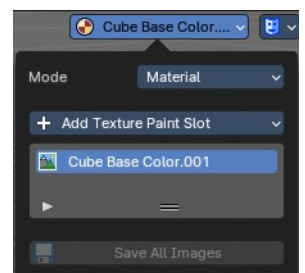
## Paint Slot with mode Material

### Material Paint Slot

A list of the available paint slot materials.

### Add Texture Paint Slot

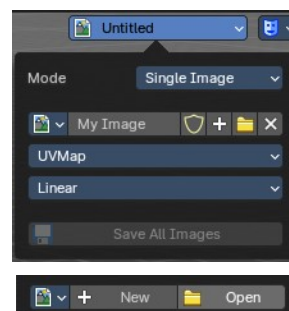
The + button at the right. Add more materials to the Material Paint Slot.



## Paint Slot with Mode Single Image

### Image List

A list of the available images, which allows you choose one in case one exists.

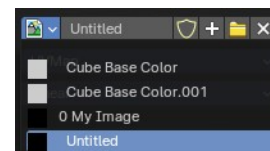


### New/Open

When no image is loaded then you can create a new image here, or load a new image.

### Edit Box

See the name of the image, and edit the name.



### Fake User

When enabled then this image will be stored internally. But not the painted changes at it!!

### New Image

Create a new image.

### Open Image

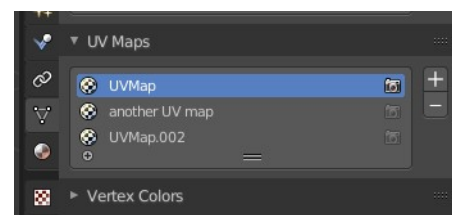
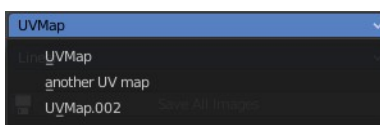
Open an image

### Unlink Data Block

Delete the Image when saving the scene, closing and reopening Bforartists. Note that the number of Users must be zero. Or the image comes back.

### UV Map

Choose a UV map to work with. Usually there is just one. But there can be more than one UV map. You can add and manage more in the Object data tab in the UV Map panel.

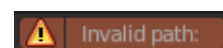


### Interpolation

Set the interpolation type. Linear or Closest.

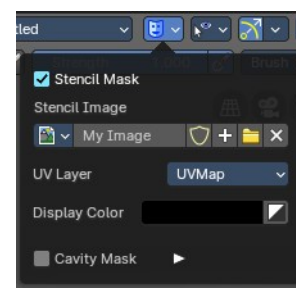
## Save all Images

Saves all images. Internal images needs to be saved manually first. They don't have a path yet to which they could be saved. You will get an invalid path warning.



## Stencil Mask

Stencil mask allows mask painting with a stencil map. It is a sub menu tab. In



expanded state it shows the falloff curve, which can be edited.

## Activate Stencil map

Activates the stencil map.

## Stencil Image

Choose or load your stencil texture.

### Texture browser

Here you will find a list of currently loaded textures.

### Edit Box

The currently active stencil texture.

**The number** right of it, **in this case 2**, indicates how much number of users ( internally ) this brush uses. This means that this data block (the brush) shares currently settings with at least one other object. Most probably the parent brush where we have created it from. Click at the value to make this brush a single user. The button will vanish then.

**The shield icon button** set the brush to have a fake user. Zero user data-blocks are normally not saved. But sometimes you want to force the data to be kept even when the data block has no user.

**The + button** allows you to add a new pencil with the current settings. Note that the brushes are NOT saved when you close Bforartists. You can save them into the current blend file. Or you can save the startup file. But be careful here. This saves everything else of the current state of Bforartists too.

**The X button** deletes the brush as the active one. It does NOT delete it from the brushes list.

## UV Layer

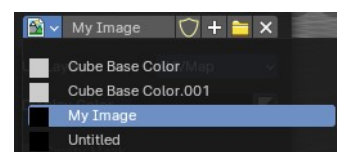
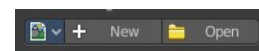
At which UV map the stencil texture is active.

## Display Color

The stencil color in the viewport.

### Invert the stencil color

Inverts the stencil color.

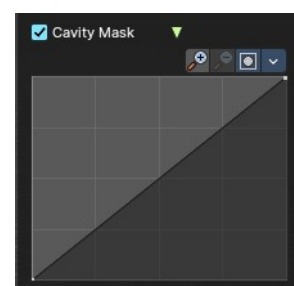


## Cavity Mask

Cavity mask allows mask painting according to mesh geometry cavity. It is a sub menu tab. In expanded state it shows the falloff curve, which can be edited.

### Activate Cavity mask

Activates the Cavity mask.



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.

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

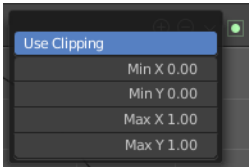
Set handle type to Auto Clamped.

Reset Curve

Resets the curve to the initial shape.

Use Clipping

Clipping options. Set up clipping for the stroke.

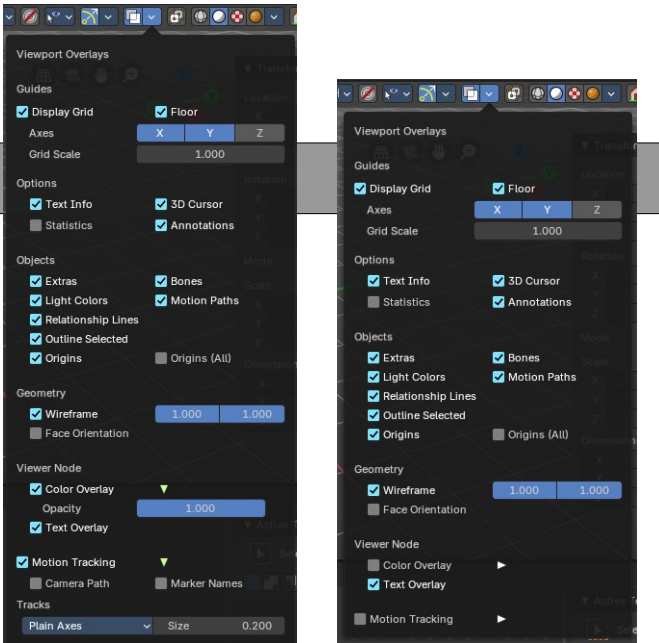


Delete Points

Deletes selected curve points.

Viewport Overlays - all modes

Turn on or off all overlays. This includes the ground grid, things like relationship lines, and several other elements in the viewport. Some content is available in all modes. Some content is changing, dependent of the mode you are in. In Edit mode with a mesh object you will get some normal



functionality for example.

## Guides

### Grid

Show the whole ground grid, including axes. You can also show the grid in orthographic mode of the viewport.

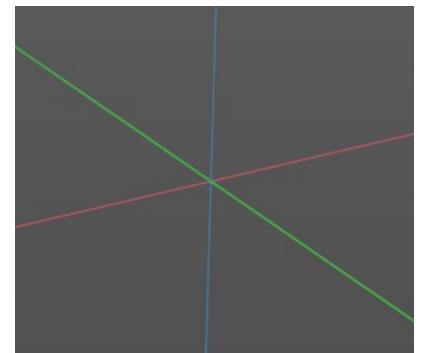
### Floor

Show the ground grid, the white part of it.

### Axes

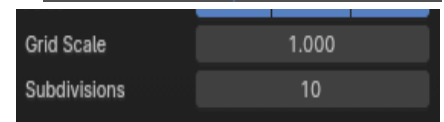
Show the colored axis lines in the 3d view

( now works in both perspective / orthographic Views).



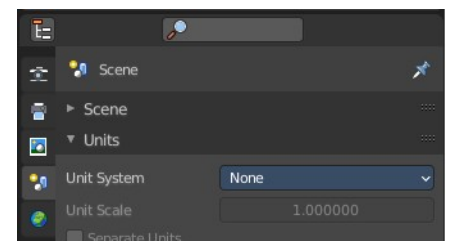
### Scale

Scale the ground grid. This works in perspective and orthographic view.



### Subdivisions

Subdivisions just shows with a Unit system of None. It allows you to subdivide the ground grid.



## Options

### Text Info

In the upper left corner of the 3D view there is a text info string, which can be hidden here. It tells you in what view you are, what is selected, and things like frames per second when you play an animation



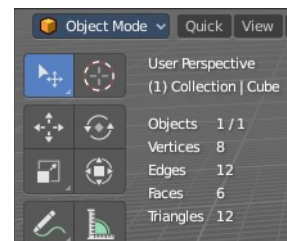
### Annotations

Show or hide annotations. Annotations can be drawn at the 3D View with the annotation tool in the tool shelf.



## Statistics

Displays statistical informations in the upper left corner of the 3d viewport. Object count, vertices, and so on.



## 3D Cursor

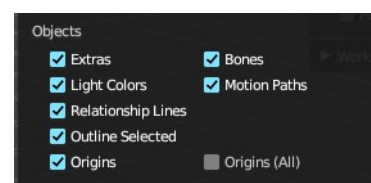
Show or hide the 3D cursor. That's the white red circle in the center of the viewport.



## Objects

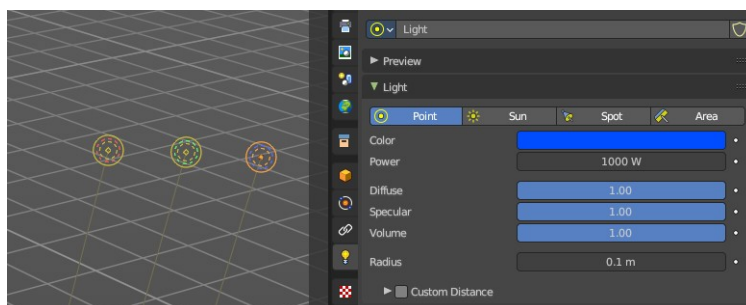
### Extras

Show or hide object details. Including things like empty wires like lights, cameras, and other visual guides.



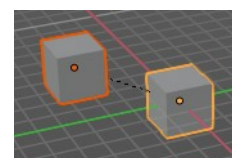
### Light Colors

Displays the light widget in the color of the light.



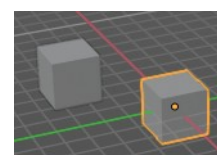
### Relationship Lines

Show or hide relationship lines. When you for example parent one object to another then you will see a dotted line. The relationship line.



### Outline Selected

Show the selected object with an outline

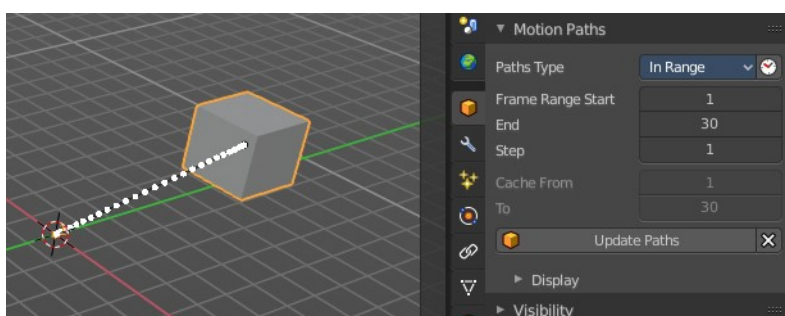


### Bones

Show or hide bones.

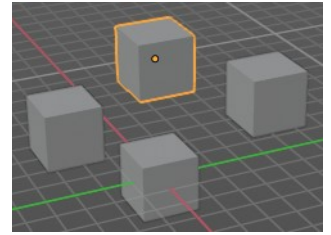
### Motion Paths

Show or hide motion paths. Motion paths can be calculated in the Motion Paths panel. You need an animation for that.



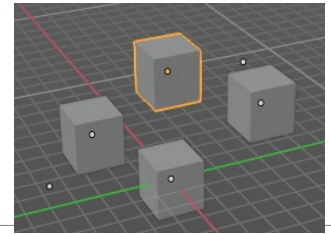
## Origins

Show or hide the origin of the selected object. The origin is the center point of the object, and represented by an orange dot.



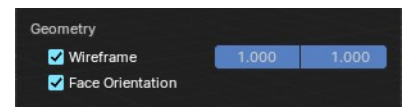
## Origins(All)

Show or hide the origin of all objects. Even from hidden ones. The not selected objects shows the center point with a white dot.



## Geometry

Geometry related settings.

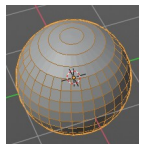


## Wire frame

Show the wire frame in object mode.

### Wireframe Threshold

With a wire frame value of 1 all edges are drawn. The lower the value, the more edges will disappear.

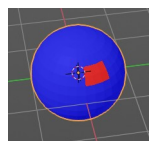


## Opacity

The opacity of the displayed edges.

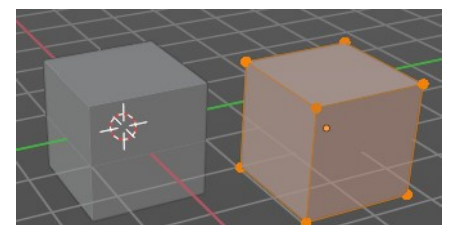
## Face Orientation

This mode allows to check for faces with flipped normals, which cannot be seen with the defaults. Blue is pointing outwards, red is pointing inwards.



## Fade inactive Geometry

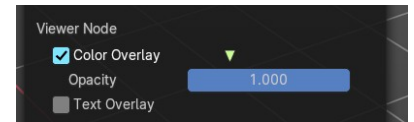
Edit mode feature, does not show in other modes. Fades the not active geometry, the not selected scene objects, towards a plain grey. In Object mode this setting has no effect.





## Viewer Node

Viewer node related settings.



### Color Overlay

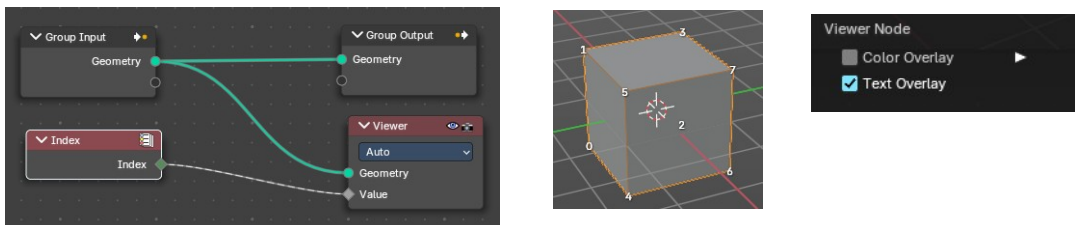
Enable color overlay in viewport for geometry attributes that are connected to an enabled Geometry Nodes' viewer node.

### Opacity

The opacity of the color overlay mentioned above.

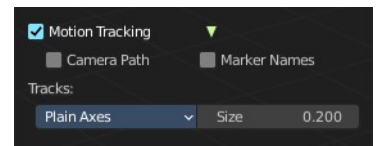
### Text Overlay

Show geometry attribute values that are connected to an enabled Geometry Nodes' viewer node as text in viewport. This option just shows when you have geometry nodes at the object, and there is a viewer node in the tree. Example with index values:



## Motion Tracking

Motion tracking related settings. When you turn it on, then some further options appears. These features just shows before you bake the solution. Not with the resolved solution.



### Camera Path

Shows the camera path.

### Marker Names

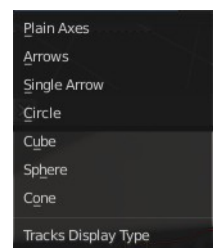
Shows the marker names.

### Track display type

How to display the tracks.

### Track size

Adjust the display size of the tracks of reconstructed data.





## Viewport Overlays - Mesh Object - Edit Mode

The Viewport Overlays panel shows different content, dependent of mode and object type. This is with mesh object in edit mode.

### Mesh Edit Mode

#### Faces

Highlight faces by using a face overlay that applies to both selected and unselected faces.

This affects all selection modes.

#### Center

Show face-center points in solid shading modes. This is disabled in wireframe and xray mode.

Only affects face-select mode.

#### Creases

Display edges marked with a crease for the Subdivision Surface Modifier.

#### Sharp

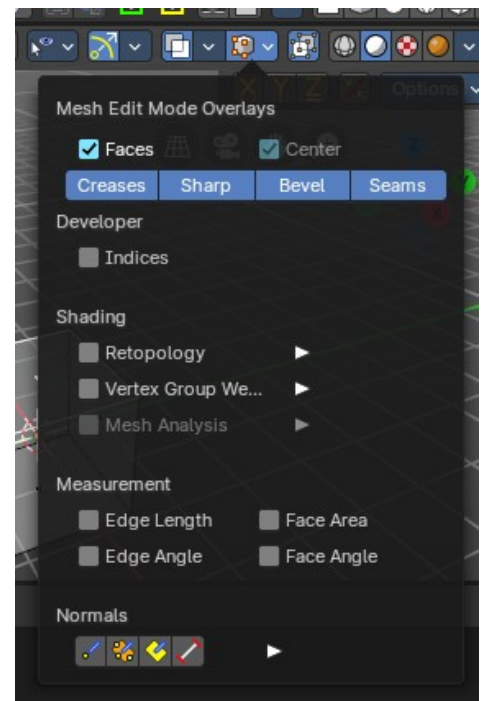
Display sharp edges, used with the edge split modifier.

#### Bevel

Display weights created for the Bevel Modifier.

#### Seams

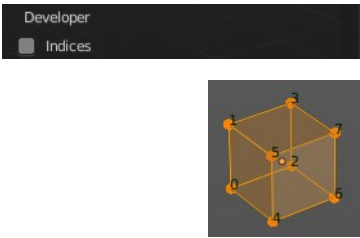
Display the UV unwrapping seams.



# Developer

## Indices

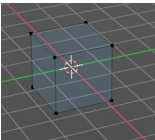
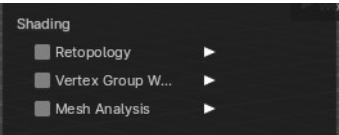
Display the indices of selected vertices, edges and faces at the mesh.



# Shading

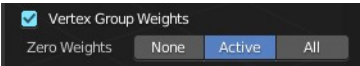
## Retopology

Hides the solid mesh and offset the overlay towards the view to make retopology easier. The selection is occluded by inactive geometry. You have to enable X-ray.



## Vertex Groups Weights

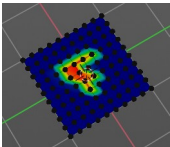
Display weights in Edit Mode. When you activate this feature then further options appears.



### Zero Weights

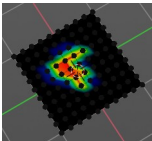
#### None

Don't show the vertices with zero weights with a specific color. They appear blue like vertices with a very low weighting.



#### Active

Zero weights vertices are shown with a black color in the active vertex group.

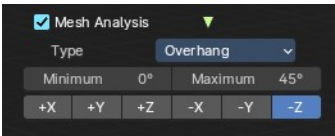


#### All

Zero weights vertices are shown with a black color in all vertex groups of the mesh.

## Mesh Analysis

Show the mesh analysis overlay and settings. Note that editing may be slow with mesh analysis tools on. And modifiers can make trouble.



### Type

The mesh analysis type.



## Overhang

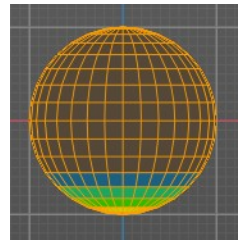
Extrusion 3D printers have a physical limit to the overhang that can be printed. The Overhang type shows the overhang in different ways. Angle and axis can be adjusted.

### Minimum/Maximum

Minimum/Maximum angle to display.

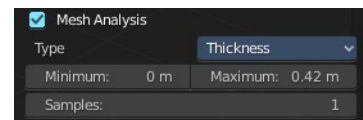
### Axis

Choose which angle to calculate.



## Thickness

3D Printers have a limited wall-thickness. Too thin areas cannot be printed. This mode displays thin areas as red.

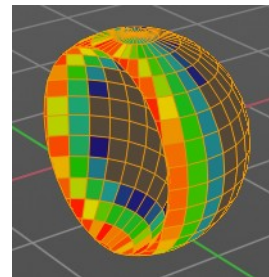


### Minimum/Maximum

Minimum/Maximum thickness to display.

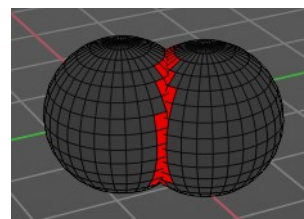
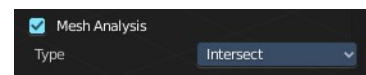
### Samples

The number of samples to use to calculate the thickness.



## Intersections

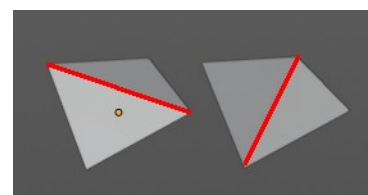
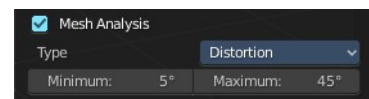
A mesh can be made of more than one closed sub mesh. Join two spheres and you have one mesh with two closed sub meshes. Such intersections can be a problem with printing. Intersect marks intersecting areas with red.



## Distortion

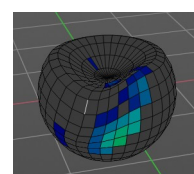
Marks distorted faces.

Distorted geometry, means uneven quads or N-gons, can cause problems with printing. Since the triangulation of a distorted quad or N-gon is undefined. And printing works with tris. With a quad there are already two solutions in which direction the edge to triangulate the face can point.



### Minimum/Maximum

Adjust the minimum and maximum values after which a face gets displayed as distorted.

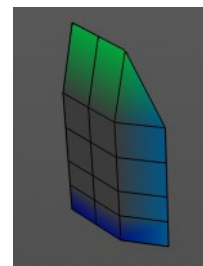
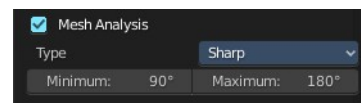


## Sharp Edges

Similar to wall-thickness, sharp edges can be too thin to be able to print.

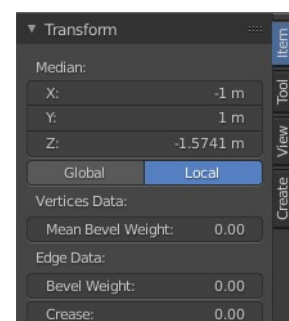
### Minimum/Maximum

Adjust the minimum and maximum values after which an edge gets displayed as sharp.



## Measurement

Shows measure values at the selected elements. The units are displayed as chosen in the preferences. These values respects global/ local in the transform panel. And so the values can differ when you have scaled the mesh in object mode, and the scaling is not applied yet. Use Global to take the object scale into account.



## Edge Length

Shows the length of selected edges.

## Edge Angle

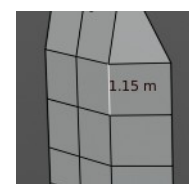
Shows the angle of selected edges between two faces.

## Face Area

Show the area of selected faces.

## Face Angle

Show the angle of selected face corners.

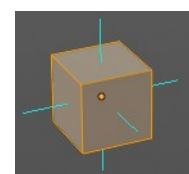
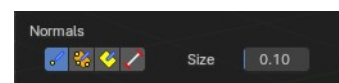


## Normals

Show the normals for the chosen elements. They will be displayed as lines.

### Display vertex normals

Displays the normals of the vertices



## Display split normals

Displays the per vertex face normals

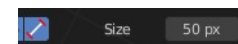
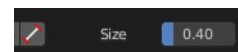
## Display normals

Displays the face normals.

## Constant Screen Size Normals

Display the normals either in size relative to the object. Or constant to the screen size.

Relative to the object is measured in object units. Absolute to the screen size is measured in pixels.



## Size

Adjust the length of the line that represents the normal.

## Freestyle

Freestyle is the line renderer integrated into Bforartists. For freestyle you can mark edges and faces.



## Edge Marks

Display Freestyle edge marks, used with the Freestyle renderer.

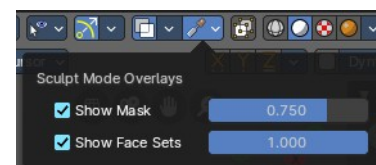
## Face Marks

Display Freestyle face marks, used with the Freestyle renderer.

## Viewport Overlays - Mesh Object - Sculpt Mode

### Show Mask

Show mask as overlay on object. The opacity of the overlay can be controlled by the slider.



### Show Face Sets

Show face sets as overlay on object. The opacity of the overlay can be controlled by the slider.

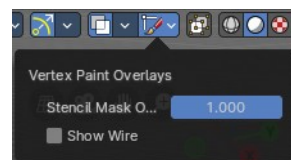
## Viewport Overlays - Mesh Object - Vertex Paint Mode

## Opacity

How strong the painted color gets shown.

## Show Wire

Display the wire at the mesh. Normally the wire is hidden.



# Viewport Overlays - Mesh Object - Weight Paint Mode

## Opacity

The opacity of the color overlay.

## Zero Weights

### None

Don't show the vertices with zero weights with a specific color. They appear blue like vertices with a very low weighting.

### Active

Zero weights vertices are shown with a black color in the active vertex group.

### All

Zero weights vertices are shown with a black color in all vertex groups of the mesh.

## Show Weight Contours

Show contour lines formed by points with the same interpolated weight.

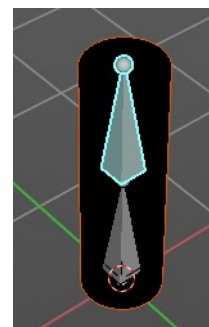
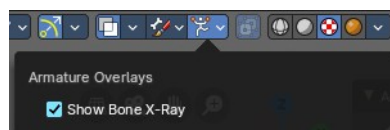
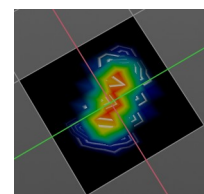
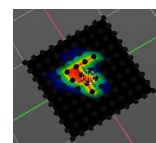
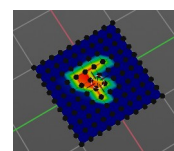
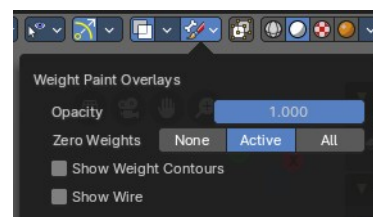
## Show Wire

Display the wire at the mesh. Normally the wire is hidden.

## Show Bone X Ray

This prop just shows when you have both, the bone and the mesh object selected by holding down shift, and switch to weight paint.

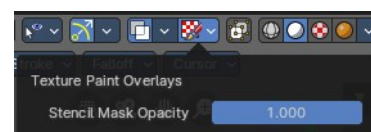
This has in general the same effect than draw in front. It shows the bones on top of the mesh geometry.



## Viewport Overlays - Mesh Object - Texture Paint Mode

### Stencil Opacity

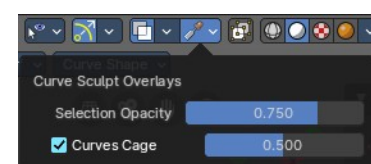
How strong the painted color gets shown.



## Viewport Overlays - Hair Object - Sculpt Mode

### Selection Opacity

How solid not selected curves are displayed. Note that you can't make them fully transparent.



### Curves Cage

Highlight the selected curves.

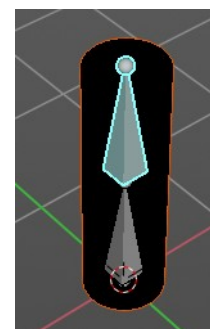
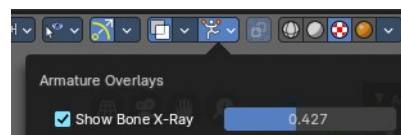
### Cage Opacity

How strong selected curves are highlighted.

## Viewport Overlays - Pose Mode

### Show Bone X Ray

This has in general nearly the same effect than draw in front. It shows the bones on top of the mesh geometry. But you can fade the mesh geometry to black.



### Opacity

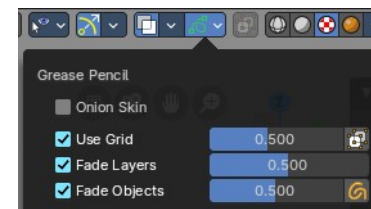
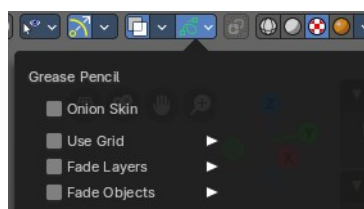
The opacity of the object in the background.

## Viewport Overlays - Grease Pencil

### In Object Mode

#### Onion Skin

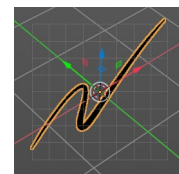
Show ghosts of the key frames before and after the current frame.





## Canvas

Display a grid over Grease Pencil drawing plane. The opacity of the grid can be controlled with a slider.



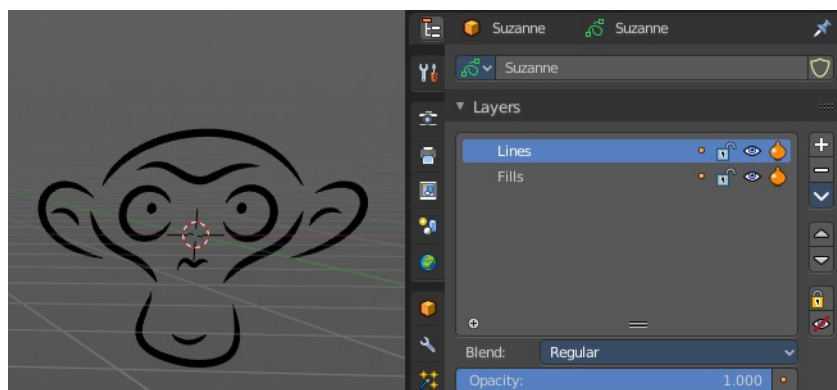
## Canvas X Ray

Show the grid in front of the stroke.

## Fade Layers

Controls the opacity of the not selected layers in the current grease pencil object.

I have set the fade layers opacity to 1 here. When you select the other layer, then the inner part becomes visible again, and the black outlines hides.



## Fade Objects

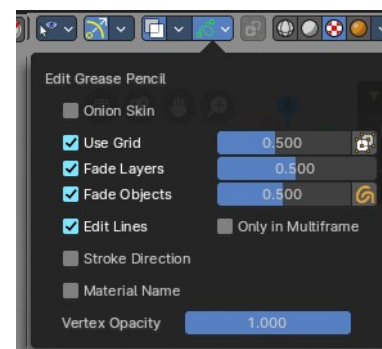
Fades everything in the viewport but the grease pencil color to black.



## Fade Grease Pencil Objects

Fades the not active grease pencil objects to black too.

## In Edit Mode

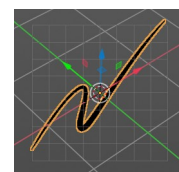


## Onion Skin

Show ghosts of the key frames before and after the current frame.

## Canvas

Display a grid over Grease Pencil drawing plane. The opacity of the grid can be controlled with a slider.



## Canvas X Ray

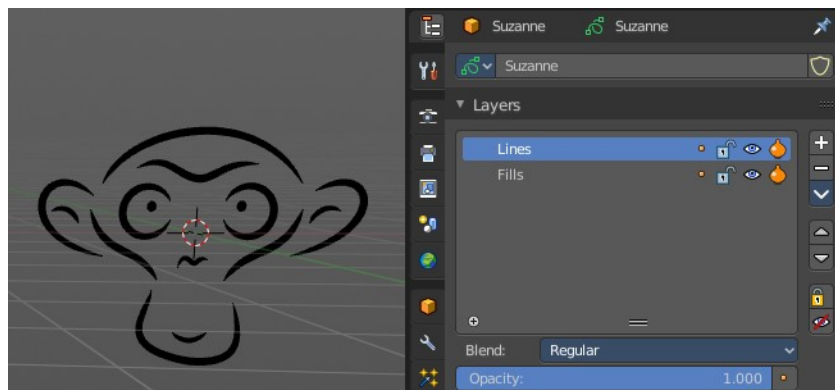
Show the grid in front of the stroke.



## Fade Layers

Control the opacity of the not selected layers in the current grease pencil object.

I have set the fade layers opacity to 1 here. When you select the other layer, then the inner part becomes visible again, and the black outlines hides.



## Fade Objects

Fades everything in the viewport but the grease pencil color to black.



## Fade Grease Pencil Objects

Fades the not active grease pencil objects to black too.

## Edit Lines

Show the edges of the curve when editing strokes.

## Stroke Direction

Shows a red and a green dot at the end of the stroke. Green dot is start. Red dot is end.



## Only in multi frame

Only show edges of the curve while in multi frame edition.

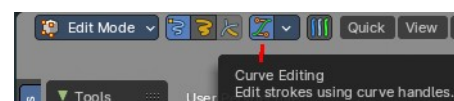
## Material Name

Displays the material name at the start of the stroke.



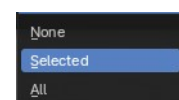
## Vertex Opacity

With Curve Editing off. How strong the selected vertices of the stroke shows.



## Handles

With Curve Editing on. Limit the display of curve handles in edit mode.



### None

Don't limit the handles.

### Selected

Just limit the selected handles.

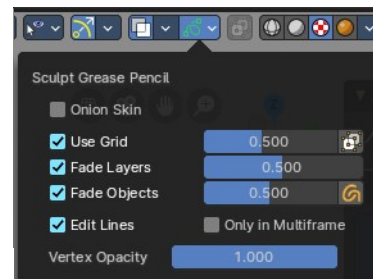
## All

Limit all handles.

## In Sculpt and Weight paint Mode

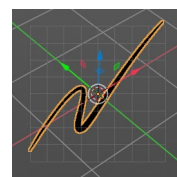
### Onion Skin

Show ghosts of the key frames before and after the current frame.



### Canvas

Display a grid over Grease Pencil drawing plane. The opacity of the grid can be controlled with a slider.



### Canvas X Ray

Show the grid in front of the stroke.

### Fade Layers

Control the opacity of the not selected layers in the current grease pencil object.

I have set the fade layers opacity to 1 here. When you select the other layer, then the inner part becomes visible again, and the black outlines hides.



### Fade Objects

Fades everything in the viewport but the grease pencil color to black.



### Fade Grease Pencil Objects

Fades the not active grease pencil objects to black too.

### Edit Lines

Show the edges of the curve when editing strokes.

### Only in multi frame

Only show edges of the curve while in multi frame edition.

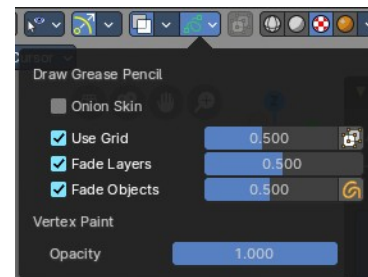
## Vertex Opacity

Sculpt mode only. How strong the selected vertices of the stroke shows.

## In Draw Mode

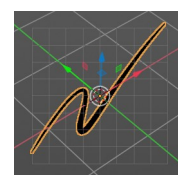
### Onion Skin

Show ghosts of the key frames before and after the current frame.



### Canvas

Display a grid over Grease Pencil drawing plane. The opacity of the grid can be controlled with a slider.



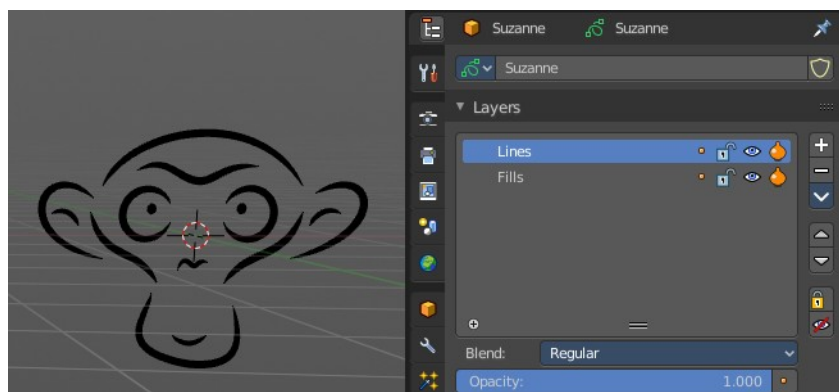
### Canvas X Ray

Show the grid in front of the stroke.

### Fade Layers

Control the opacity of the not selected layers in the current grease pencil object.

I have set the fade layers opacity to 1 here. When you select the other layer, then the inner part becomes visible again, and the black outlines hides.



### Fade Objects

Fades everything in the viewport but the grease pencil color to black.



### Fade Grease Pencil Objects

Fades the not active grease pencil objects to black too.

### Vertex Opacity

How strong the selected vertices of the stroke shows.

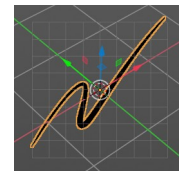
## In Vertex Paint mode

### Onion Skin

Show ghosts of the key frames before and after the current frame.

### Use Grid

Display a grid over Grease Pencil drawing plane. The opacity of the grid can be controlled with a slider.



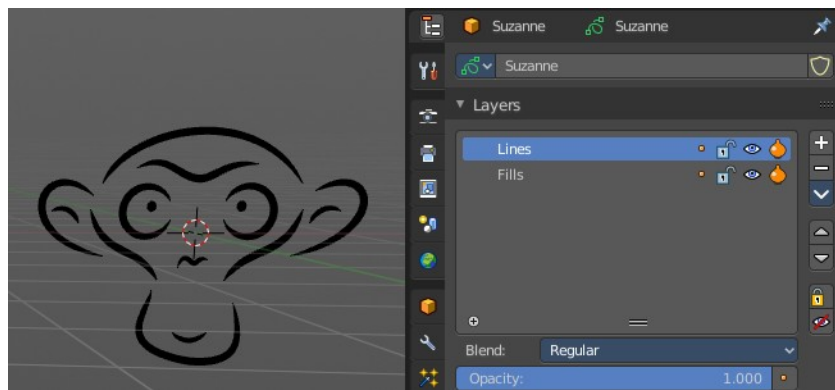
### Canvas X Ray

Show the grid in front of the stroke.

### Fade Layers

Control the opacity of the not selected layers in the current grease pencil object.

I have set the fade layers opacity to 1 here. When you select the other layer, then the inner part becomes visible again, and the black outlines hides.



### Fade Objects

Fades everything in the viewport but the grease pencil color to black.



### Fade Grease Pencil Objects

Fades the not active grease pencil objects to black too.

### Edit Lines

Show the edges of the curve when editing strokes.

### Only in multi frame

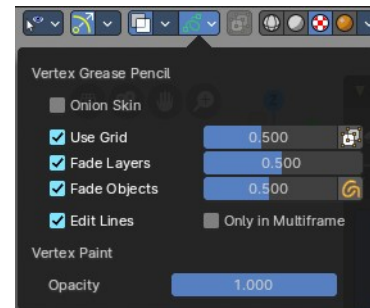
Only show edges of the curve while in multi frame edition.

### Vertex Opacity

How strong the selected vertices of the stroke shows.

### Opacity

The vertex paint opacity.



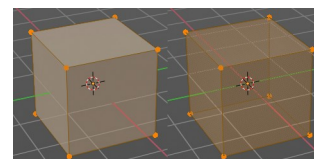
## Viewport Shading

At the very right of the header you can find the viewport shading settings. Here you adjust the display of the viewport. The order goes from left to right.



### Show X Ray

This viewport setting is connected with the viewport shading. It allows you to show and edit the back geometry. Or hide it, so that you can just edit the geometry that points forwards.



## Viewport Shading

Defines how geometry gets displayed in the viewport.

### Wire frame

Displays the content in the viewport as Wire frame.

### Solid

Displays the content in the viewport with a solid white color.

### Material

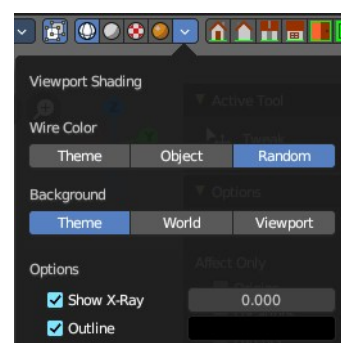
Displays the content in the viewport with all material settings and with OpenGL rendering. Note that this does not exist when you choose the Workbench renderer.

### Rendered

Displays the content in the viewport like you would have rendered it. This mode is dependent of what render engine you have currently active.

## Viewport Shading Settings

The viewport shading panel. Its settings changes, dependent of which viewport shading mode you have activated. And provides you with further settings for it.

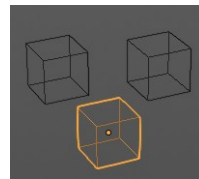


## Viewport Shading Settings with Wire frame

### ***Color***

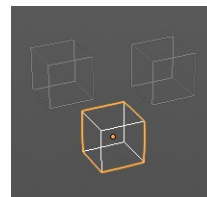
#### **Single**

The selected object gets highlighted. The wire frame is the color of the selection outline. The not selected objects shows a black wire frame.



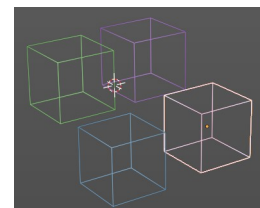
#### **Object**

The selected object gets highlighted. The wire frame is white. The not selected objects shows a Grey wire frame.



#### **Random**

The selected object gets highlighted. The wire frame is a random wire frame color. The not selected objects shows a random wire frame color. You cannot influence this random color. It is random.



### ***Background***

#### **Theme**

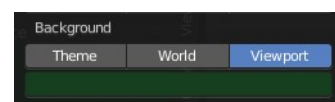
Uses the viewport background color as defined in the theme.

#### **World**

Uses the world background color as the viewport background color.

#### **Viewport**

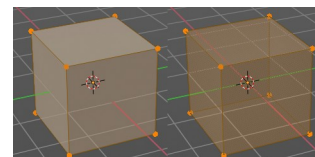
Defines a custom color for the viewport background color.



### ***Options***

#### **Show X Ray**

This viewport setting is connected with the viewport shading. It allows you to show and edit the back geometry. Or hide it, so that you can just edit the geometry that points forwards.



#### **X Ray Alpha**

Adjust the amount of transparency.

#### **Outline**

Show the not selected objects with an outline.

#### **Outline Color**

Defines the color of the outline for not selected objects.

## Viewport shading Settings with Solid

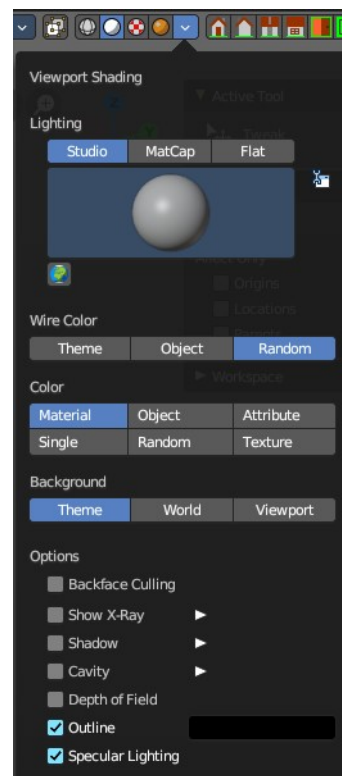
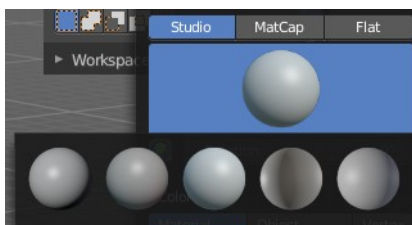
### Lighting

Choose between different lighting methods.

Note that this methods are not for rendering the scene. This lighting methods are meant to light the viewport.

### Studio

Uses a studio setup lighting. You can choose between several studio light setups in the library menu below. This library menu is a box with a preview of the currently active light setup.



### World Space Lighting

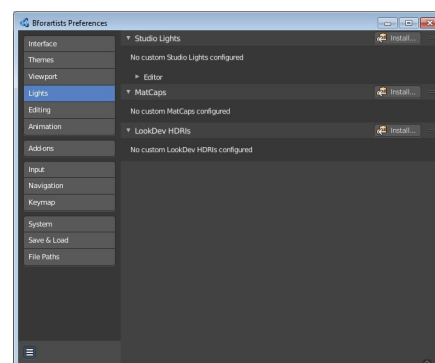
Make the lighting fixed to the world. And not follow the camera when you rotate around the scene.

### Rotation

The rotation of the light setup. This edit box is just active when you use World Space Lighting.

### Show Light Preferences

At the right of the drop down box you will see a tiny button. It will open the preferences, where you can edit the existing studio light setups, or add new Studio light setups. This chapter is explained in the preferences manual part.





Wire Color

Allows you to display the wire color in different colors. Note that you need to have Wireframe display activated in the Viewport Overlays to see this effect.

Theme

Displays the wireframe color as defined in the theme.

Object

Displays the wireframe color object based.

Random

Displays the wireframe color in a random color.

Color

Influence how the objects in the scene are colored. Just one setting can be active at one time.

Material

Uses the color of the material, in case a material is assigned to the object(s).

Object

Uses the Object color.

Vertex

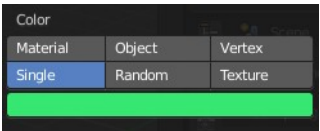
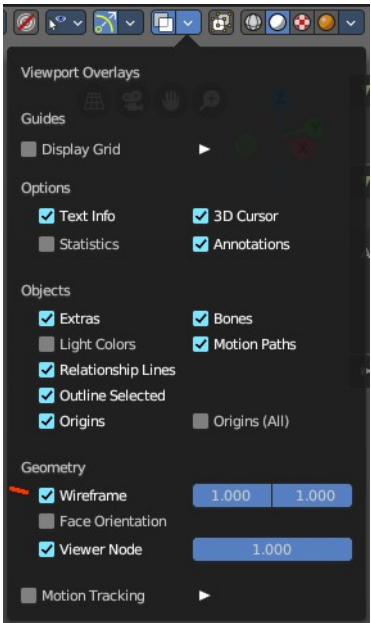
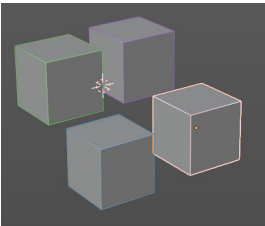
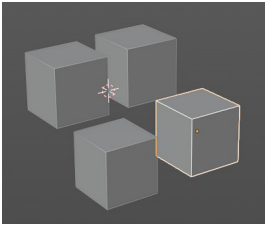
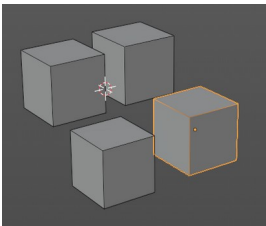
Shows the vertex colors in case vertex colors exists.

Single

Define a custom color. A color picker box appears when you activate single.

Random

Colors the objects with a random color





## Texture

Shows the texture in case a material with a texture is assigned to the object(s).

## Background

Define the look of the viewport background

### Theme

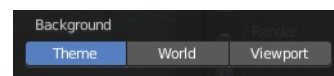
Uses the background as defined in the theme.

### World

Uses the background as defined in the world settings of the scene.

### Viewport

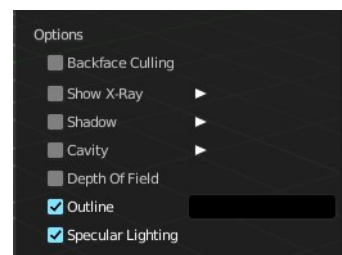
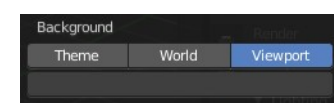
Use a custom color. When you activate this setting, then a color picker field appears, adjust a custom color.



## Options

### Back face Culling

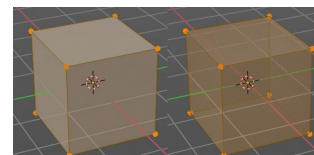
Use back face culling to hide backsides of faces.



### Show X Ray

This viewport setting is connected with the viewport shading. It allows you to show and edit the back geometry. Or hide it, so that you can just see and edit the geometry that points forwards.

Note that you can either have Show X Ray active. Or Shadow and Cavity.

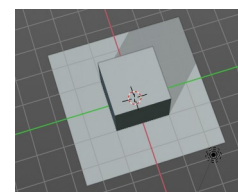


### X Ray Alpha

Adjust the strength of the transparency effect.

### Shadow

Cast a shadow. Note that the shadow casting light is not part of the chosen studio light. It is an independent light.



### Shadow Intensity

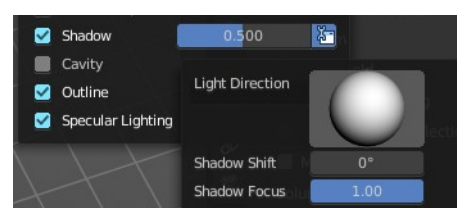
Here you adjust the strength of the shadow. Higher value means darker shadow.

## Light Settings

Adjust some settings of the light.

### Light Direction

Click into the field and drag the mouse to change the direction of the light that casts the shadow.



## Shadow Shift

The shadow termination angle. This can be used to minimize self shadowing artifacts.

## Shadow Focus

The shadow hardness. It controls the falloff near the edge of the shadow.

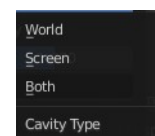
## Cavity

Show Cavity. Cavity highlights ridges and valleys in the scene geometry. When you activate this setting, then further settings appears.



### Type

The method how to calculate the cavity. In worlds pace, in screen space. Or in both.



### World

Draw the cavity shading in world space.

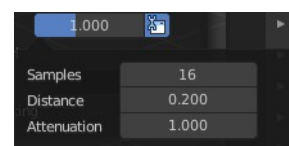


### World Space / Ridge Valley

Factor for the cavity ridges and valleys.

### Shading Options

Adjust samples, distance and attenuation for the cavity ridges and valleys.



### Screen

Draw the cavity shading in Screen space.



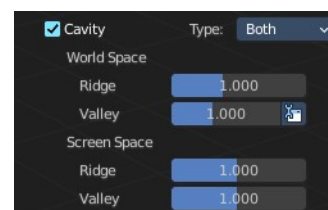
### Screen Space / Ridge Valley

Factor for the curvature ridges and valleys.

### Both

Draw the cavity shading in both, World Space and Screen space.

Settings see above.



## Depth of Field

Use depth of field for the viewport. It uses the values from the active camera.

## Outline

Show the not selected objects with an outline.

### Outline Color

Define the color of the outline for not selected objects.

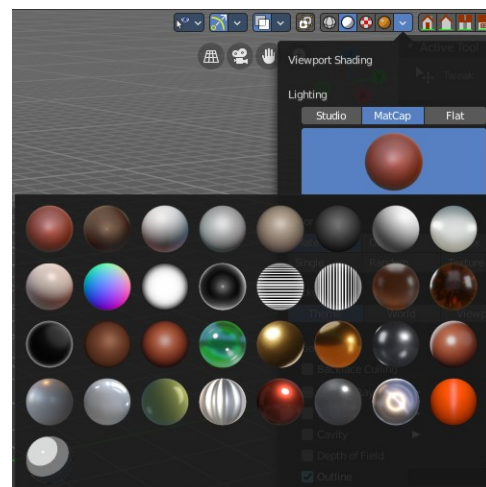
## Specular Lighting

Render specular highlights.

## Matcap

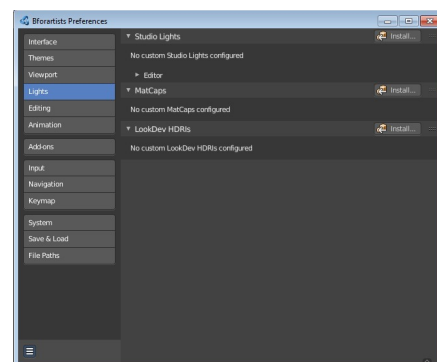
Matcap stands for material capture. With Matcap you use a special matcap shader at the mesh. This shader is usually something colorful, which makes for example sculpting easier.

You can choose between several matcap setups in the library menu below. This library menu is a box with a preview of the currently active matcap setup.



## Show Light Preferences

At the right of the library menu box you will see a tiny button. It will open the preferences, where you can edit the existing studio light setups, or add new Studio light setups. This chapter is explained in the preferences manual part.



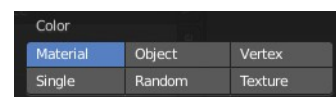
## Flip Matcap

Some matcaps have a direction from which the light comes. With Flip Matcap you can flip this direction.



## Color

Influence how the objects in the scene are colored. Just one setting can be active at one time.



## Material

Uses the color of the material, in case a material is assigned to the object(s).

## Object

Uses the Object color.

## Vertex

Shows the vertex colors in case vertex colors exists.

## Single

Define a custom color. A color picker box appears when you activate single.

## Random

Colors the objects with a random color

## Texture

Shows the texture in case a material with a texture is assigned to the object(s).



## Background

This defines the look of the viewport background

### Theme

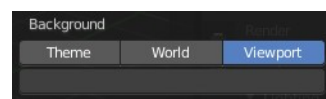
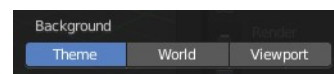
Uses the background as defined in the theme.

### World

Uses the background as defined in the world settings of the scene.

### Viewport

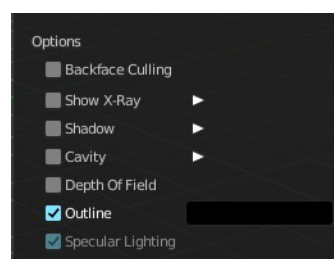
Use a custom color. When you activate this setting, then a color picker field appears, adjust a custom color.



## Options

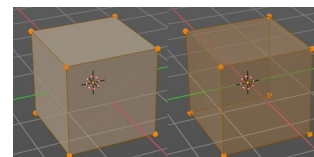
### Back face Culling

Use back face culling to hide backsides of faces.

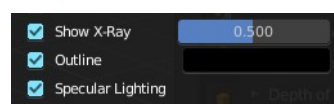


### Show X Ray

This viewport setting is connected with the viewport shading. It allows you to show and edit the back geometry. Or hide it, so that you can just see and edit the geometry that points forwards.



Note that you can either have Show X Ray active. Or Shadow and Cavity. When activating Show X Ray, the other two options will be hidden.

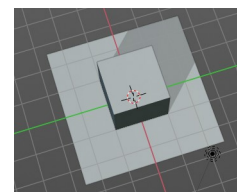


### X Ray Alpha

Adjust the strength of the transparency effect.

## Shadow

Cast a shadow. Note that the shadow casting light is not part of the chosen studio light. It is an independent light.



## Shadow Intensity

Here you adjust the strength of the shadow. Higher value means darker shadow.

## Light Settings

Adjust some settings of the light.

## Light Direction

Click into the field and drag the mouse to change the direction of the light that casts the shadow.



## Shadow Shift

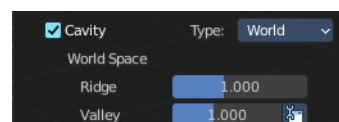
The shadow termination angle. This can be used to minimize self shadowing artifacts.

## Shadow Focus

The shadow hardness. It controls the falloff near the edge of the shadow.

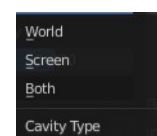
## Cavity

Show Cavity. Cavity highlights ridges and valleys in the scene geometry. When you activate this setting, then further settings appears.



## Type

The method how to calculate the cavity. In worlds pace, in screen space. Or in both.



## World

Draw the cavity shading in world space.

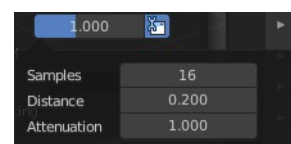


## World Space / Ridge Valley

Factor for the cavity ridges and valleys.

## Shading Options

Adjust samples, distance and attenuation for the cavity ridges and valleys.



## Screen

Draw the cavity shading in Screen space.



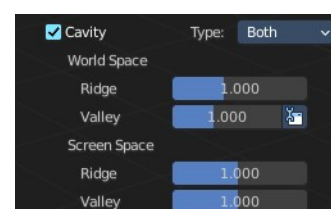
## Screen Space / Ridge Valley

Factor for the curvature ridges and valleys.

## Both

Draw the cavity shading in both, World Space and Screen space.

Settings see above.



## Outline

Show the not selected objects with an outline.

### Outline Color

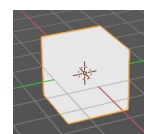
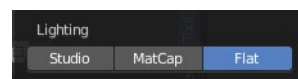
Define the color of the outline for not selected objects.

## Specular Lighting

Render specular highlights.

## Flat

Lights the objects plain white.



## Color

Influence how the objects in the scene are colored. Just one setting can be active at one time.

### Material

Uses the color of the material, in case a material is assigned to the object(s).

### Object

Uses the Object color.

### Vertex

Shows the vertex colors in case vertex colors exists.

### Single

Define a custom color. A color picker box appears when you activate single.

### Random

Colors the objects with a random color

### Texture

Shows the texture in case a material with a texture is assigned to the object(s).



## Background

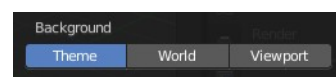
Define the look of the viewport background.

### Theme

Uses the background as defined in the theme.

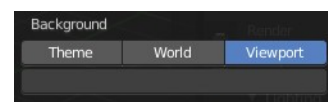
### World

Uses the background as defined in the world settings of the scene.



## Viewport

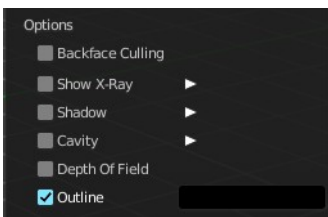
Use a custom color. When you activate this setting, then a color picker field appears, adjust a custom color.



## Options

### Back face Culling

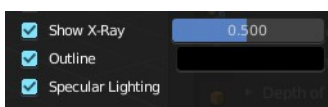
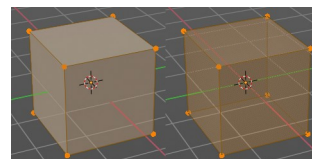
Use back face culling to hide backsides of faces.



### Show X Ray

This viewport setting is connected with the viewport shading. It allows you to show and edit the back geometry. Or hide it, so that you can just see and edit the geometry that points forwards.

Note that you can either have Show X Ray active. Or Shadow and Cavity. When activating Show X Ray, the other two options will be hidden.

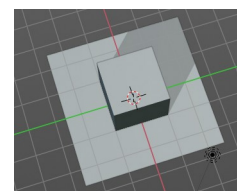


### X Ray Alpha

Adjust the strength of the transparency effect.

### Shadow

Cast a shadow. Note that the shadow casting light is not part of the chosen studio light. It is an independent light.



### Shadow Intensity

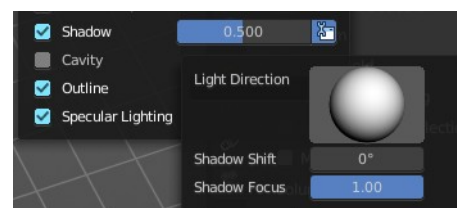
Here you adjust the strength of the shadow. Higher value means darker shadow.

### Light Settings

Adjust some settings of the light.

### Light Direction

Click into the field and drag the mouse to change the direction of the light that casts the shadow.



### Shadow Shift

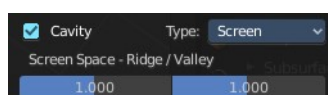
The shadow termination angle. This can be used to minimize self shadowing artifacts.

### Shadow Focus

The shadow hardness. It controls the falloff near the edge of the shadow.

### Cavity

Show Cavity. Cavity highlights ridges and valleys in the scene geometry. When

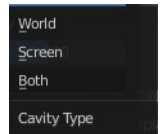




you activate this setting, then further settings appears.

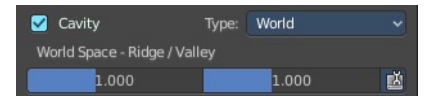
### **Type**

The method how to calculate the cavity. In worlds pace, in screen space. Or in both.



### **World**

Draw the cavity shading in world space.

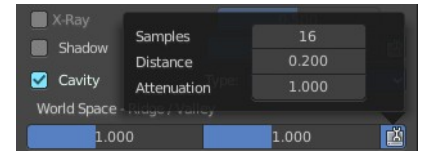


### **World Space / Ridge Valley**

Factor for the cavity ridges and valleys.

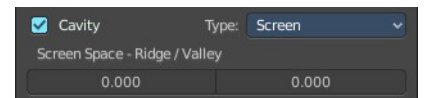
### **Shading Options**

Adjust samples, distance and attenuation for the cavity ridges and valleys.



### **Screen**

Draw the cavity shading in Screen space.



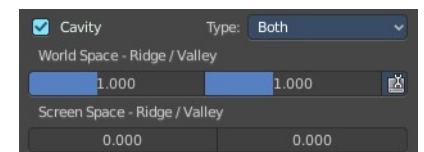
### **Screen Space / Ridge Valley**

Factor for the curvature ridges and valleys.

### **Both**

Draw the cavity shading in both, World Space and Screen space.

Settings see above.



---

### **Outline**

Show the not selected objects with an outline.

### **Outline Color**

This defines the color of the outline for not selected objects.

### **Specular Lighting**

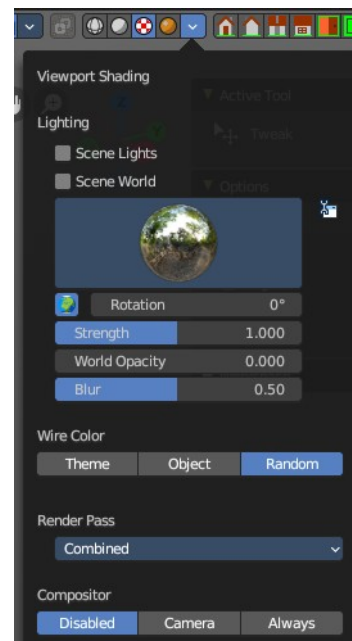
Render specular highlights.



## Viewport Shading with Material Preview

In this mode you can use a hdr file to light the scene.

This mode is just available with Cycles and Eevee renderer. Workspace renderer does not have this mode.



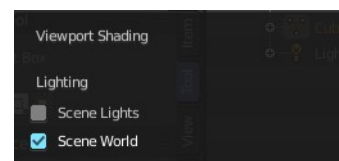
## Lighting

### Scene Lights

Use the scene lights instead of the hdr to light the scene.

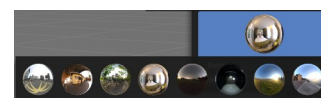
### Scene World

Use the scene world to light the scene. This turns off the hdr. And the further options are not longer available.



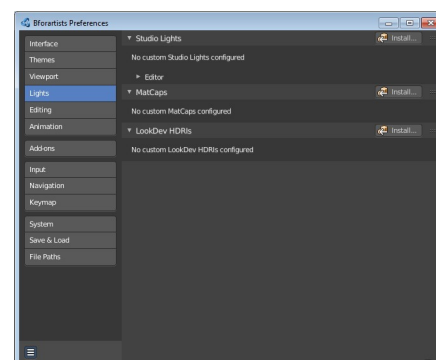
### hdr file browser

Pick a hdr file to light the world with.



### Show light preferences

At the right of the library menu box you will see a tiny button. It will open the preferences, where you can edit the existing studio light setups, or add new Studio light setups. This chapter is explained in the preferences manual part.



### World Space Lighting

Make the hdr rotation fixed, and not follow the camera.

### Rotation

The rotation of the hdr file.

### Background

Show the studio light in the background. The higher the value the more the studio light gets mixed into the hdr.

### World Opacity

Show the studio light in the background

**Blur**

The blur factor.

**Wire Color**

Allows you to display the wire color in different colors. Note that you need to have Wireframe display activated in the Viewport Overlays to see this effect.

**Theme**

Displays the wireframe color as defined in the theme.

**Object**

Displays the wireframe color object based.

**Random**

Displays the wireframe color in a random color.

**Render Pass**

Choose what render passes to calculate.

**Compositor**

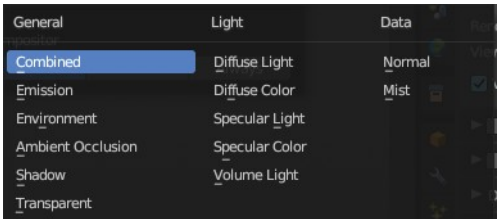
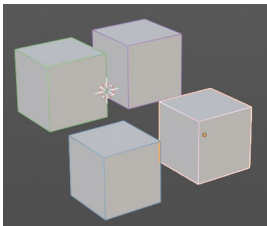
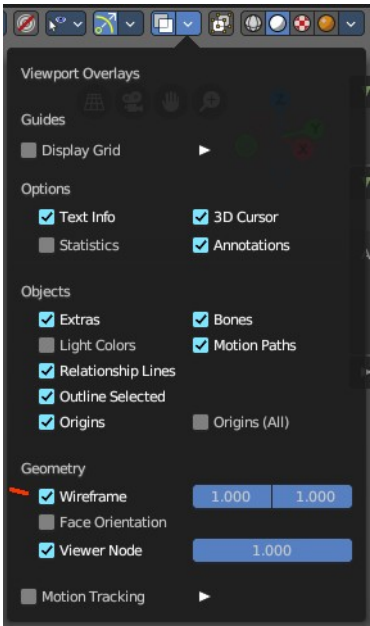
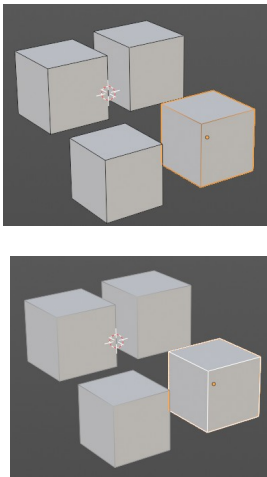
Allows you to display the compositor result in the viewport. Note that you need to have a active compositor node setup for this to work.

**Disabled**

To display the compositor result in the viewport is disabled.

**Camera**

Displays the compositor result when you are in camera view.



## Always

Always displays the compositor result.

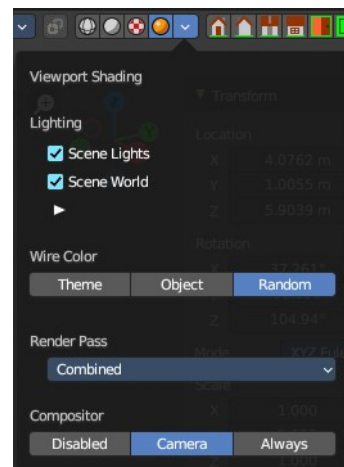
## Viewport Shading with Rendered

With rendered shading the viewport uses the renderer settings of the chosen render engine. Workbench has no specific shading settings here. And the panel is empty. Cycles and Eevee have some further settings.

## Lighting

### Scene Lights

Render lights and light probes in the scene.

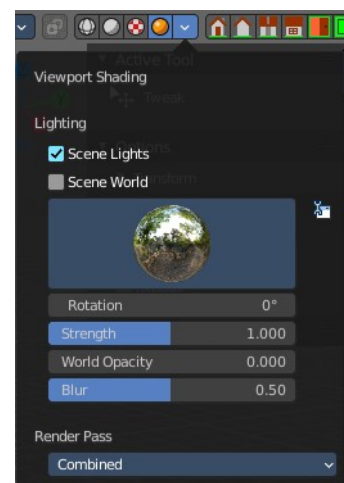
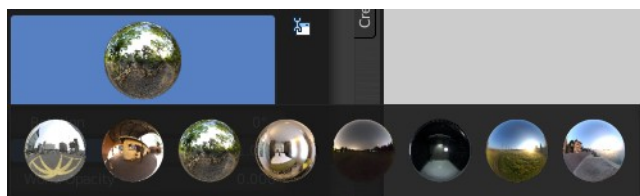


### Scene World

Use scene world for lighting. When you turn off Scene World then you reveal further settings.

## Studiolight Preview

Displays the current active hdri file to light the scene. A click at the display allows you to pick another hdri file.



## Show Light preferences

Opens the light preferences in the preferences where you can pick more hdri files.

## Rotation

The rotation of the studio light.

## Strength

The strength of the studio light.

## World Opacity

The opacity of the hdri.

## Blur

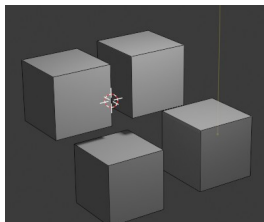
Eevee. Blur the studiolight in the background.

## Wire Color

Allows you to display the wire color in different colors. Note that you need to have Wireframe display activated in the Viewport Overlays to see this effect.

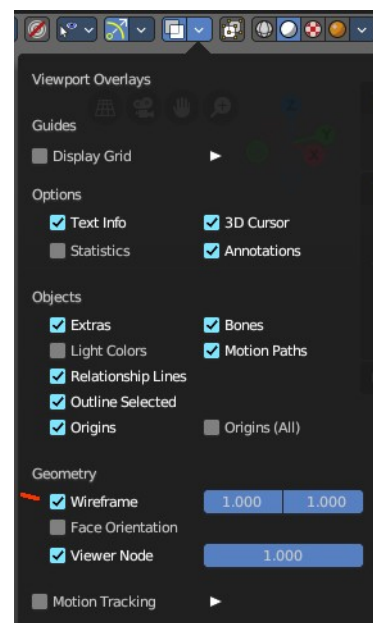
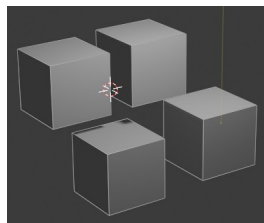
## Theme

Displays the wireframe color as defined in the theme.



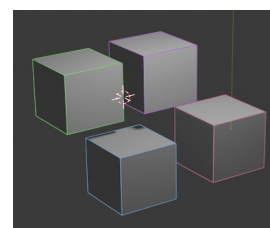
## Object

Displays the wireframe color object based.



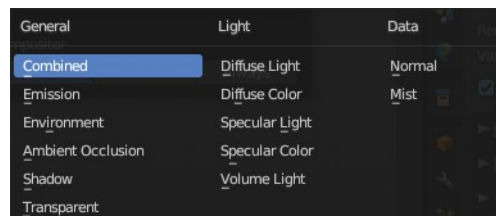
## Random

Displays the wireframe color in a random color.



## Render Pass

Choose what render passes to calculate.



## Compositor

Allows you to display the compositor result in the viewport. Note that you need to have a active compositor node setup for this to work.

## Disabled

To display the compositor result in the viewport is disabled.

## Camera

Displays the compositor result when you are in camera view.

## Always

Always displays the compositor result.

## Pause Preview

When you choose the Cycles renderer and set the viewport shading mode to rendered, then it reveals one more button at the right. Pause Preview pauses the rendering in the viewport when Cycles is chosen as the viewport renderer.

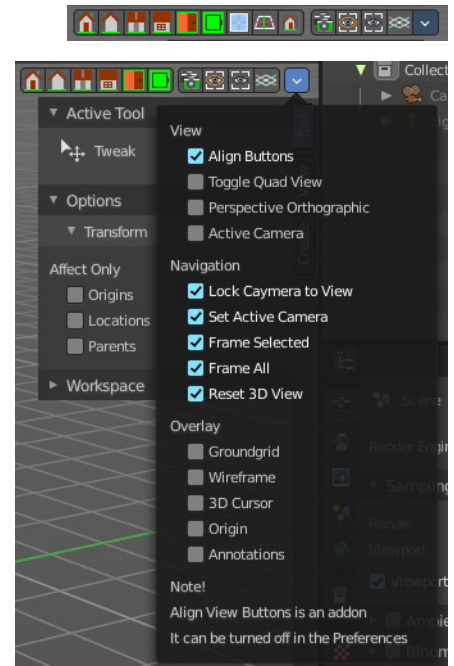


## Align View Buttons

Align View Buttons is an addon. The buttons allows you to align the view to the orthographic views. And brings further functionality from the View menu and other hard to reach locations.

The content is all a double entry by purpose, to have these buttons at the top hierarchical position for quick access. And it is already described at the original UI position. So we won't go into detail here.

This addon can be turned off in the Preferences.



## Grease Pencil - all modes - Layer Panel

This panel shows in most of the modes. It is the same content than the Layers panel in the Object Data Properties.

### Layer list

#### Layer name

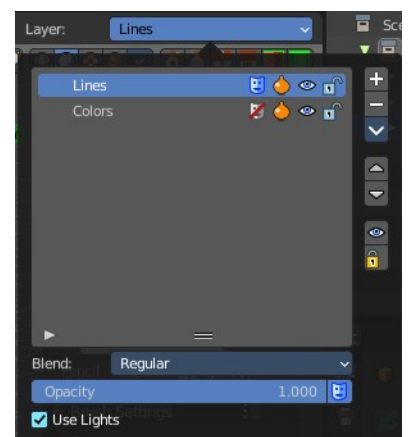
The name of the layer.

#### Mask Layer

Toggle the Masks visibility in the layer.

### Onion Skinning

Toggle the use the layer for Onion Skinning.



## Viewport/Render Visibility

Toggle layer visibility in the viewport and in render.

### Lock

Toggle layer from being editable.

## 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.



## Add new layer

Adds a new layer.

## Remove layer

Removes the selected layer.

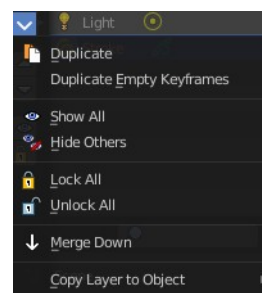
## Layer Specials

### Duplicate Layer

Makes an exact copy of the selected layer appending a number to differentiate its name.

### Duplicate Empty Keyframes

Makes a copy of the active grease pencil layer.



### Show All

Turns on the visibility of every layer in the list.

### Hide Others

Turns off the visibility of every layer in the list except the active one.

### Lock All

Locks edition of all the layers in the list

### Unlock All

Unlocks edition of all the layers in the list.

## Autolock inactive layer

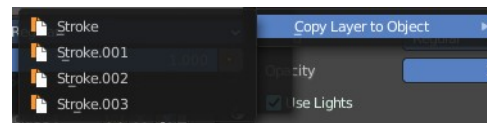
Locks automatically the edition of every layer in the list except the active one. This way you avoid to make unwanted changes in other layers without the need to lock them every time.

## Merge Down

Merge the selected layer with the layer below, the new layer keeps the name of the lower layer.

## Copy Layer to Object

Makes a copy of the layer and move it to the selected Grease Pencil object.



## Isolate Layer

Hide and lock the layer.

## Isolate Layer

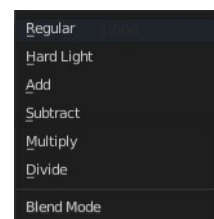
Lock the layer.

## Blend

The layer blending operation to perform. See Color Blend Modes.

## Opacity

Used to set the opacity of the layer.



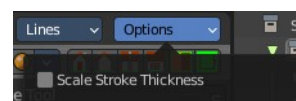
## Use Lights

When enabled, the layer is affected by lights.

## Grease Pencil - Edit mode - Options Panel

### Scale Stroke Thickness

Scale the stroke thickness when transforming strokes.

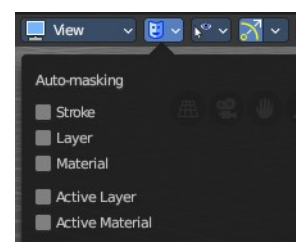


## Grease Pencil - Sculpt mode - Auto-masking Panel

Automasking settings.

### Stroke

Affect only strokes below the cursor that are the same stroke.



## **Layer**

Affect only strokes below the cursor that are at the same layer.

## **Material**

Affect only strokes below the cursor that have the same material.

## **Active Layer**

Affect only the active layer.

## **Active material**

Affect only strokes with the active material.