Particle Edit Mode

Using *Particle Edit Mode* you can edit the keyed points (keyframes) and paths of Hair, Particle, Cloth, and Soft Body simulations. (You can also edit and style hair before baking.)

Since working in Particle Edit Mode is pretty easy and very similar to working with vertices in the 3D Viewport, we will show how to set up a particle system and then give a reference of the various functions.

> **Important**
>
> Particle Edit Mode, specifically for hair is deprecated; please use the new Empty Hair object with its associated Sculpt Mode instead.

> **Important**
>
> Editing a cached cloth simulation is not currently working, see: blender/blender#77114 for details.
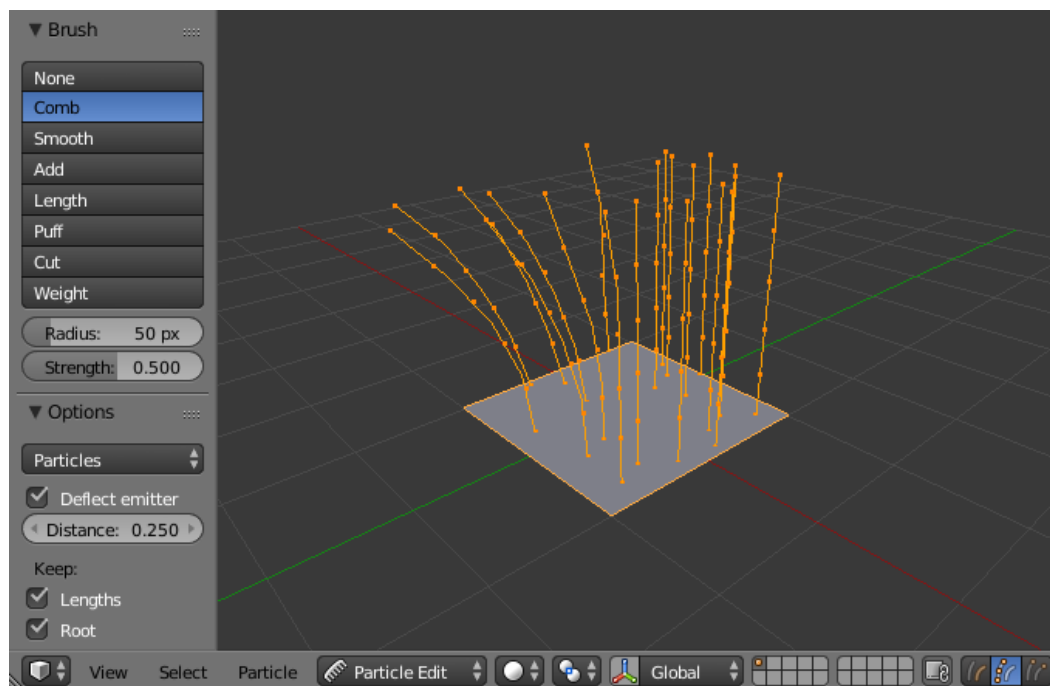
Usage

> **Tip**
>
> Only Frames Baked to Memory are Editable!
>
> If you cannot edit the particles, check that you are not baking to a Disk Cache.

Setup for Hair Particles

1. Create a *Hair* particle system.
2. Give it an initial velocity in the *Normal* direction.
3. Create a simulation.
4. Check the *Hair Dynamics* box.

Editing hair strands in Particle Edit Mode.

Setup for Particle, Cloth, and Soft Body Simulations

1. Use *Emitter* particles, or a cloth/soft body simulation.
2. Create a simulation by setting up objects and or emitters, set your time range (use a small range if you are just starting out and experimenting), set up t

2. Create a simulation by setting up objects and/or emitters, set your time range (use a small range if you are just starting out and experimenting), set up simulation how you want it, using `Alt - A` to preview it.

Bake the Simulation

Once you are happy with the general simulation, bake the simulation from Object Mode. The simulation must be baked to enable editing.

Edit the Simulation

Switch to *Particle Edit* from the *Mode* select menu in the header of the 3D Viewport to edit the particle's paths/Keyframes. You may need to press `T` from within the 3D Viewport to see the *Particle Edit* toolbox. Move to the frame you want to edit and use the various tools to edit your simulation.

Selecting

> Tip
>
> Switch to the *Point select mode* (see below) in the header of the 3D Viewport to be able to see and select the keypoints.

- Select single: `LMB` .
- Add to/remove from selection: `Shift - LMB` .
- All: `A` .
- None: `Alt - A` .
- Invert: `Ctrl - I` .
- Box select: `B` .
- Circle Select: `C` .
- Lasso Select: `Ctrl - Alt - LMB` .
- Select Linked: Move the mouse over a path and press `L` to add all its points to the selection.
- Unselect Linked: Move the mouse over a path and press `Shift - L` to remove all its points from the selection.
- Root/Tips: Select ‣ Roots / Tips.

Select Random

Randomly selects particles.

Percent
Percent of particles to randomly select.

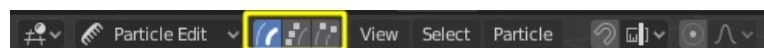**Random Seed**
Seed value to use for the selection.

Action
Select random can be either used to select or deselect particles.

Type
Selects either hair or points. Here these terms can be confusing because hair/point does not refer to the particle type but the path/points of the hair/particle.

Select Modes

Select Modes.

Path:
No keypoints are visible, you can select/deselect only all particles.
Point:

You see all of the keypoints.

Tip:

You can see and edit (including the brushes) only the tip of the particles, i.e. the last keypoint.

Tools

Reference
Mode:
Particle Edit Mode
Tool:
Toolbar

Comb

Moves the keypoints (similar to the Proportional Editing tool).

Deflect Emitter

Hair particles only – Do not move keypoints through the emitting mesh.

Distance

The distance to keep from the Emitter.

Smooth

Parallels visually adjacent segments.

Add

Adds new particles.

Count

The number of new particles per step.

Interpolate

Interpolate the shape of new hairs from existing ones.

Steps

Amount of brush steps.

Keys

How many keys to make new particles with.

Length

Scales the segments, so it makes the hair longer with *Grow* or shorter with *Shrink*.

Grow/Shrink

Sets the brush to add the effect or reverse it.

Puff

Rotates the hair around its first keypoint (root). So it makes the hair stand up with *Add* or lay down with *Sub*.

Puff Volume

Apply puff to unselected end points, (Helps to maintain the hair volume when puffing the root.)

Cut

Scales the segments until the last keypoint reaches the brush.

Weight

This is especially useful for soft body animations, because the weight defines the soft body *Goal*. A keypoint with a weight of 1 will not move at all, a keypoint with a weight of 0 subjects fully to soft body animation. This value is scaled by the Strength *Min* to *Max* range of soft body goals…

Common Options

Below the brush types, their settings appear:

Radius `F`

Set the radius of the brush.

Strength `Shift - F`

Set the strength of the brush effect (not for Add brush).

Options

Reference

Mode:
    Particle Edit Mode
Panel:
    Tool Settings ‣ Options

Auto-Velocity Emitter

Recalculate velocities of particles according to their edited paths. Otherwise, the original velocities values remains unchanged regardless of the actu distance that the particles moves.

Mirror X

Enable mirror editing across the local X axis.

Preserve

Strand Length

Keep the length of the segments between the keypoints when combing or smoothing the hair. This is done by moving all the other keypoints

Root Positions

Keep first key unmodified, so you cannot transplant hair.

Cut Particles to Shape

Shape Object

A mesh object which boundary is used by the *Shape Cut* tool.

Cut

This grooming tool trims hairs to a shape defined by the *Shape Object*. This is a quicker way of avoiding protruding hair sections from lengthening than using the Cutting tool. It works especially well for characters with extensive fur, where working in a single plane with the Cutting tool become tedious.

Shape Cut example.
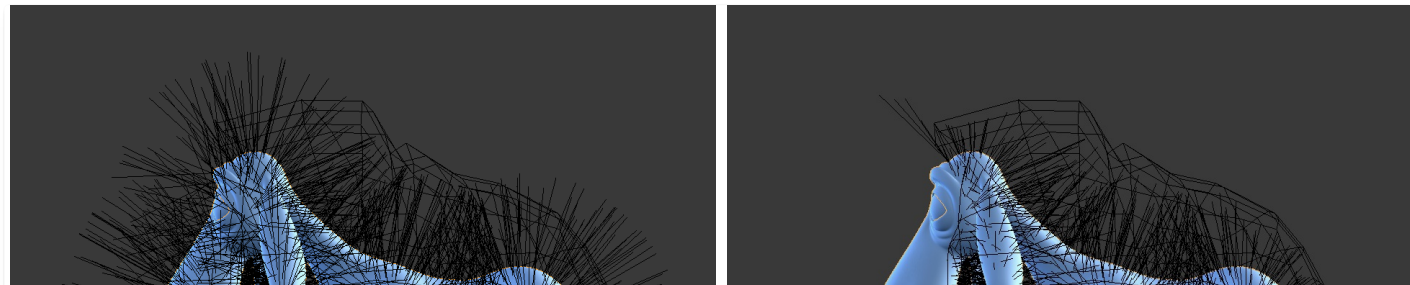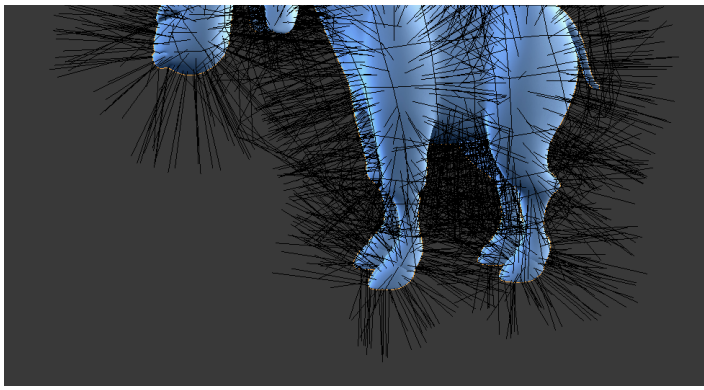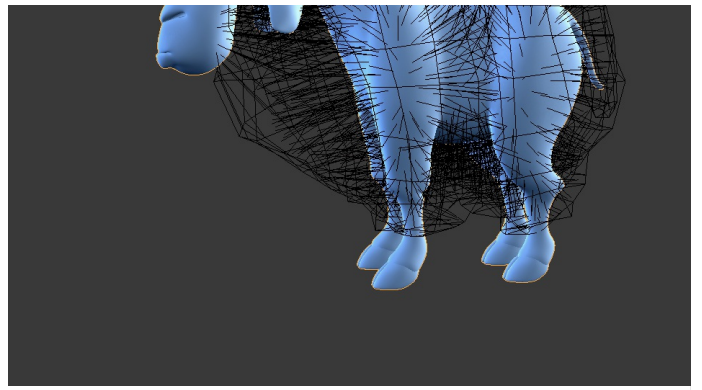
| Before. | After. |

Viewport Display

Path Steps

The number of steps used to draw the path; improves the smoothness of the particle path.

Children **Hair**

Displays the children of the particles too. This allows to fine-tune the particles and see their effects on the result, but it may slow down your system you have many children.

Particles **Emitter**

Displays the actual particles on top of the paths.

Fade Time

Fade out paths and keys further away from current time.

Frames

How many frames to fade.

Editing

Moving Keypoints or Particles

- To move selected keypoints press G , or use one of the various other methods to move vertices.
- To move a particle root you have to turn off Keep *Root* in the Toolbar.
- You can do many of the things like with vertices, including scaling, rotating and removing (complete particles or single keys).
- You may not duplicate or extrude keys or particles, but you can subdivide particles which adds new keypoints Particle ‣ Subdivide.
- Alternatively you can re-key a particle Particle ‣ Rekey.

How smoothly the hair and particle paths are displayed depends on the *Path Steps* setting in the Toolbar. Low settings produce blocky interpolation between points, while high settings produce a smooth curve.

Mirror

Reference

Mode:
      Particle Edit Mode
Menu:
      Particle ‣ Mirror

If you want to create an X axis symmetrical haircut you have to do following steps:

1. Select all particles with A .
2. Mirror the particles with Particle ‣ Mirror.

3. Turn on *X Mirror* in Sidebar Region ‣ Tool ‣ Options.

It may happen that after mirroring two particles occupy nearly the same place. Since this would be a waste of memory and render time, you can use *Merge by Distance* from the *Particle* menu.

Unify Length

Reference

Mode:
    Particle Edit Mode
Menu:
    Particle ‣ Unify Length

This tool is used to make all selected hair uniform length by finding the average length.

Show/Hide

Reference

Mode:
    Particle Edit Mode
Menu:
    Particle ‣ Show/Hide

Hiding and unhiding of particles works similar as with vertices in the 3D Viewport. Select one or more keypoints of the particle you want to hide and pre
`H` . The particle in fact does not vanish, only the key points.

Hidden particles (i.e. particles whose keypoints are hidden) do not react on the various brushes. But:

If you use *Mirror Editing* even particles with hidden keypoints may be moved, if their mirrored counterpart is moved.

To unhide all hidden particles press `Alt - H` .