DELTA MUSH FOR CINEMA 4D

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1.   Presentation

Delta Mush is a deformer created to smooth the result of deformer placed before him. Intended primarily for use with characters and skin deformer, it can be used with any objects/deformers.

Unlike other smooth deformers, Delta Mush keeps maximum detail of the object on which it is placed.

When creating a character, you need to paint weights, use corrections shapes. If the influences are not enought precise, the result is unusable.

Delta Mush, even with poorly defined weight, can give a satisfactory result. It reduces the time spent painting the influences of your character.

Delta Mush apply a laplacian smoothing alghorithm on the rest and the deformed object's position.

It then calculating a vector displacement map for the entire object. It applies the displacement map to the deformed shape to retrieve the object details.
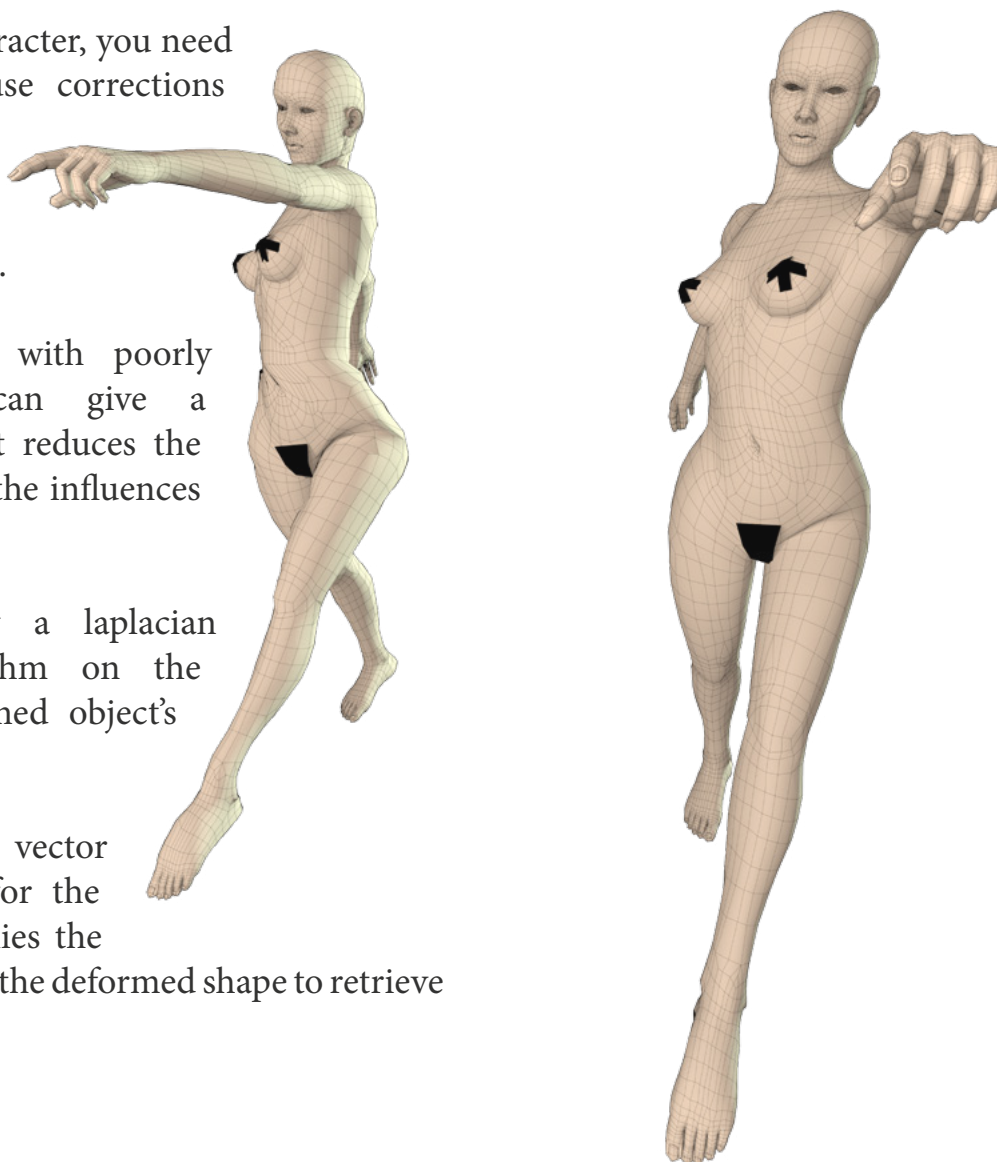
Delta Mush Add command (found in plugins menu)
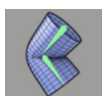
Delta Mush Deformer (found in plugins menu)

Delta Mush Tag (found in object manager's tag menu)

2.   Command Add Delta Mush

To operate, Delta Mush requires at least one tag and a deformer per object. (the deformer can, like all deformers, be placed as a child or at the same hierachy level as the object).

To facilitate implementation, a command has been designed especially for this operation.

You will find it in the plugins menu → Delta Mush → Add Delta Mush

For now, this command is grey out. For this command to be active, you must select one or more polygonal object. Delta Mush only works with polygonal objects (objects edited)

This command react differently depending on the modifier key pressed when activated.

	No Key	**Control**	**Shift**
Tag	Tag is added to the object	Tag is added to the object	Tag is added to the object
Deformer	No deformer is added	Added to the same object's level of hierarchie if not present.	Added to the object as a child if not already exist.

If a deformer skin exists, the Delta Mush deformer will systematically be placed after it. Otherwise it will be placed at the end of hierarchy.

If you select an influence map, it will be added to the field provided for this purpose. (only on the tag corresponding to the object's vertex map)

3. Deformer

The deformer must be present for the effect to work. It must be located after the deformer you want to smooth the effect. (for example, after the deformer skin)

The Object tab has only two fields:
- The mode field to set whether the tag list below contains the tags to be included or excluded from the calculation. The default mode is exclude, so, by default, all tags are taken into account.

- The Field that contain the list of tags that you want to include or exclude.
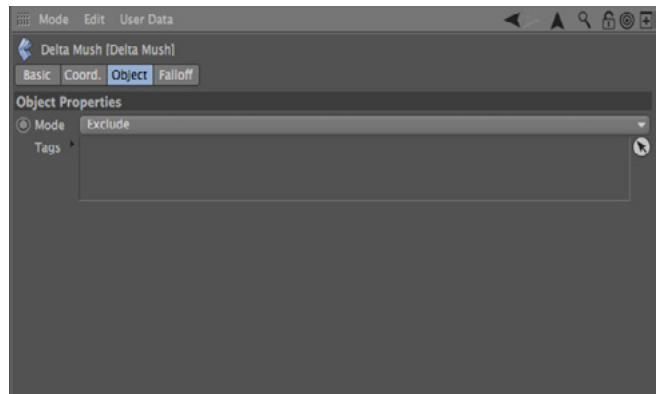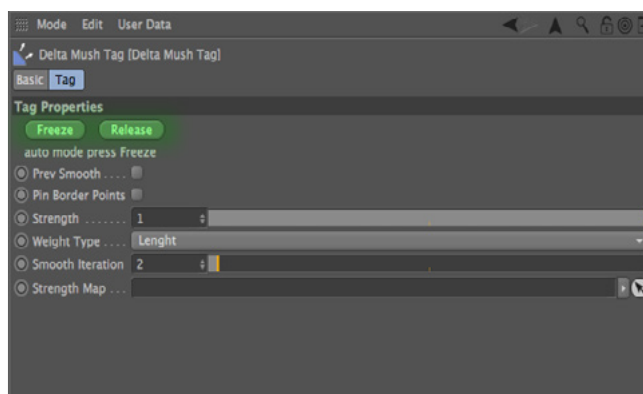
4. Delta Mush Tag

4.1. Basic Tab

The priority field : work the same as Cinema4D's ones, refer to the Cinema4D's documentation for more informations.

The check box «Enable»: enables or disables the tag. If the tag is disabled, the deformer will not take it into account and move to the next one if it exists.

4.2. Freeze / Release

Freezes the state of the tag. Calculated results for the rest position is then stored, thereby increasing display speed. If you want to work with a pose morph tag, Delta Mush tag must be freezed.
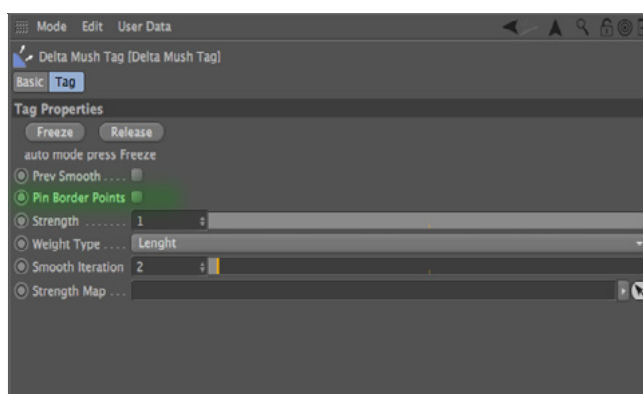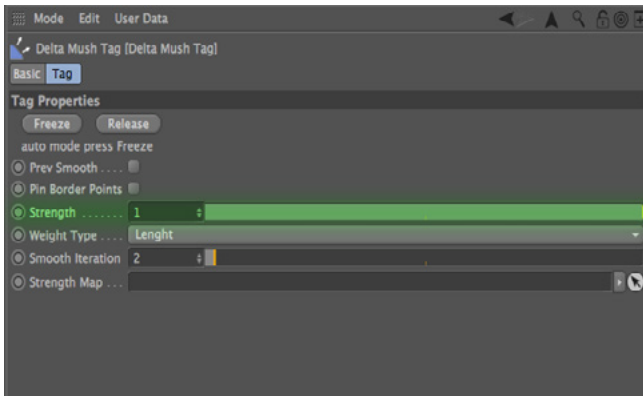
4.3. Prev Smooth

Allow you to see the smoothing effect of Delta Mush. This option is present for information and should not be used for rendering. Note that this option is available even if the tag is frozen.
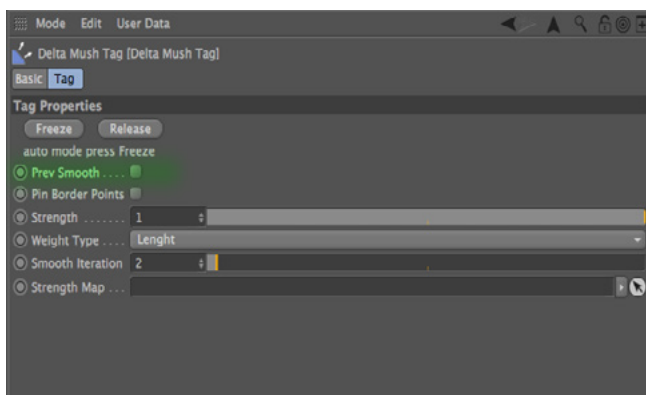
4.4. Pin Border Points

Allows you to «pin» the points that are on the border of an object. Those points are part of edges that are connected to a single polygon.
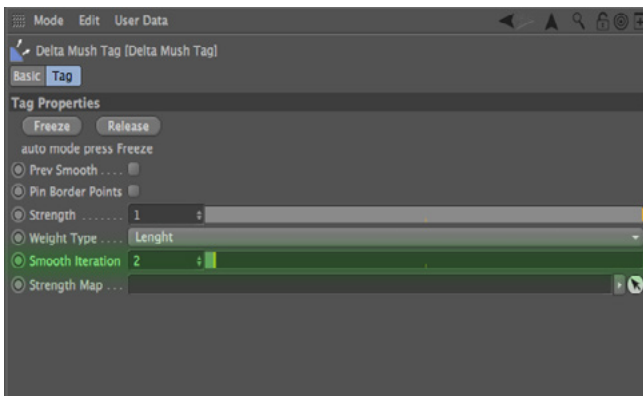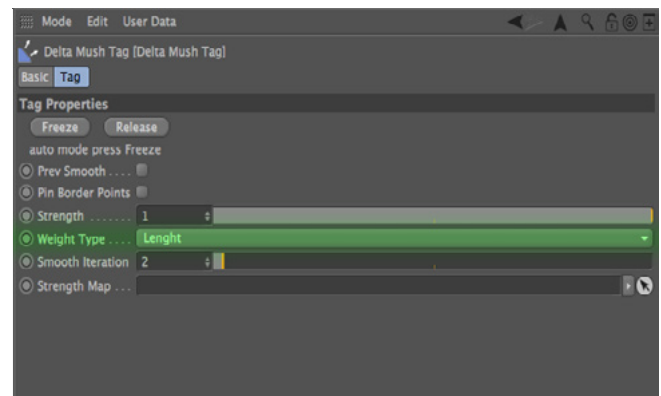
4.5.   Strength
Slider to set the overall intensity of the effect.

4.6.   Weight Type
There are two types of algorithm to calculate the smoothing of the object. One that is fixed (all points have the same weight) the other based on the distance between the points. (the more distant are the points, the less influence they have)

The type based on the distance creates less «peak» (in the fingers) and generally produces better results.
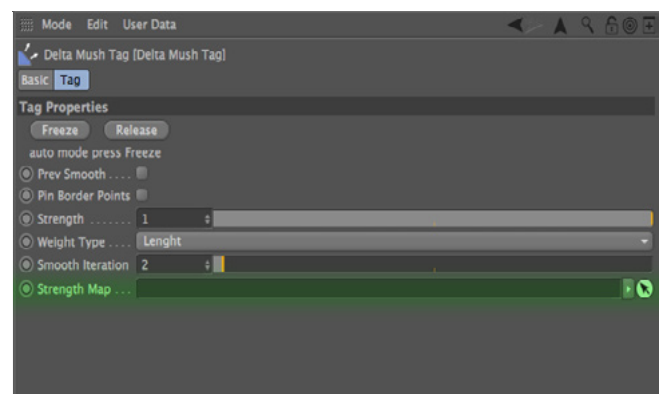
4.7.   Smooth Iteration
Main setting of the Delta Mush effect. This parameter sets the number of times the smoothing is applied. The effect will increase with bigger number. 0 will have no effect.

4.8.   Strength Map
Set a vertex map that will determine for each vertex its weight. This allows you to precisely define the areas in which you want to apply the effect.

5. Exemples

5.1. Improved deformations

When using the automatic influences, parts are badly deformed. Delta Mush improves these deformations.

5.2.   Using a morph Tag

If you want to use a morph Tag, Delta Mush tags must be frozen. See section 4.2
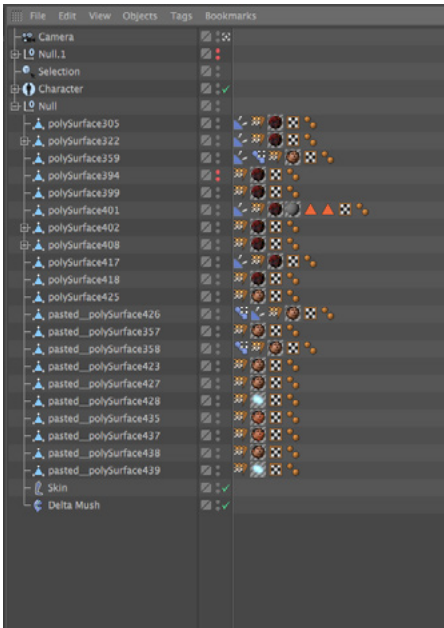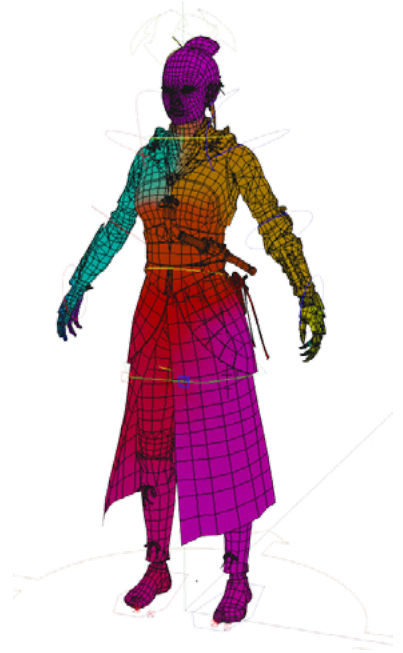The pose morph tag must not deform the object before freezing the tag. (strength at 0%)

Character Paul Tosca ©

6. How to...

6.1. You are not prepared !!

To work, you must prepare an object that got some deformations. Either a character where you painted influences or any deformer.

Your object must a polygon object.
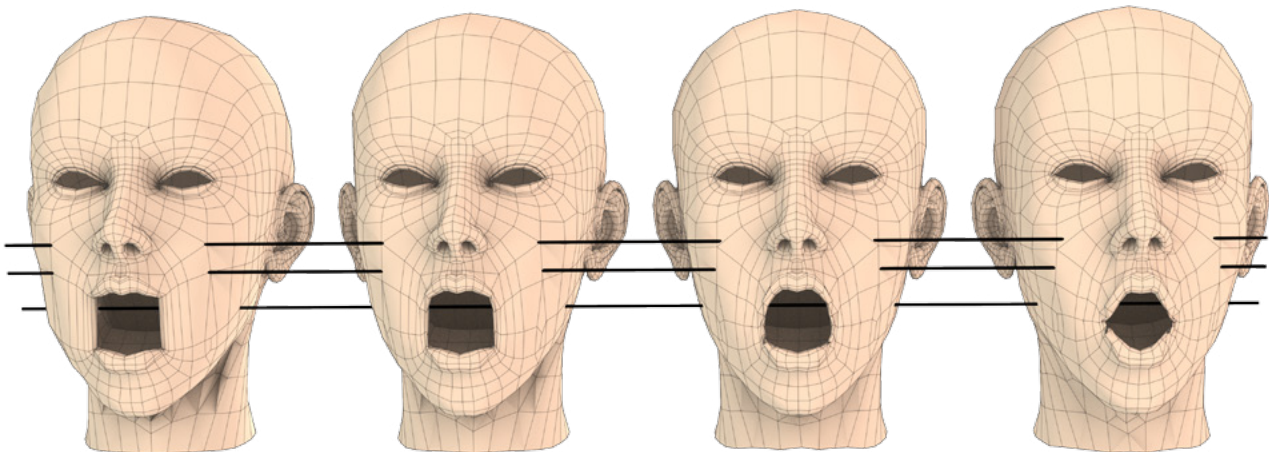

6.2. Add Delta Mush

Add a Delta Mush tag and deformer to the object. For this, use the «Add Delta Mush» command by holding Shift or Control key.

You can also go through the tag menu to add the tag or the plugins menu to add the deformer.

You can add as mush tag as needed.

6.3. Settings

Select the Delta Mush tag and change the number of iterations for a more or less pronounced effect.
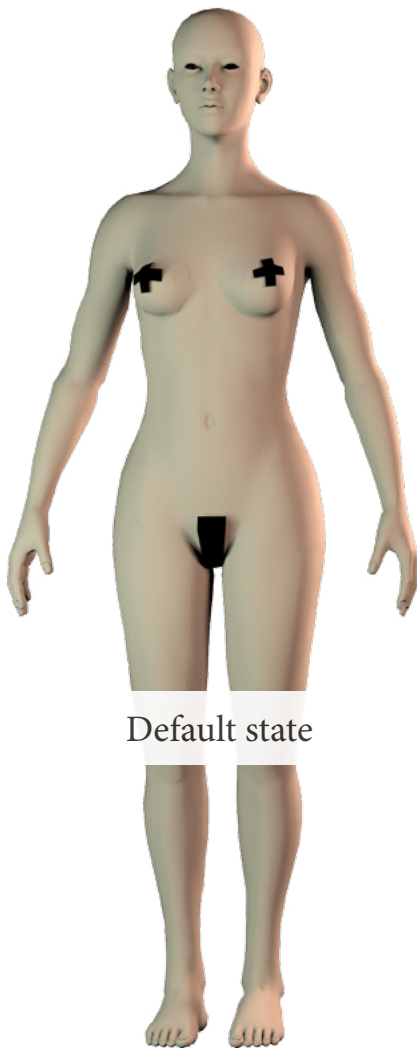

Iteration 0   Iteration 2   Iteration 10   Iteration 40
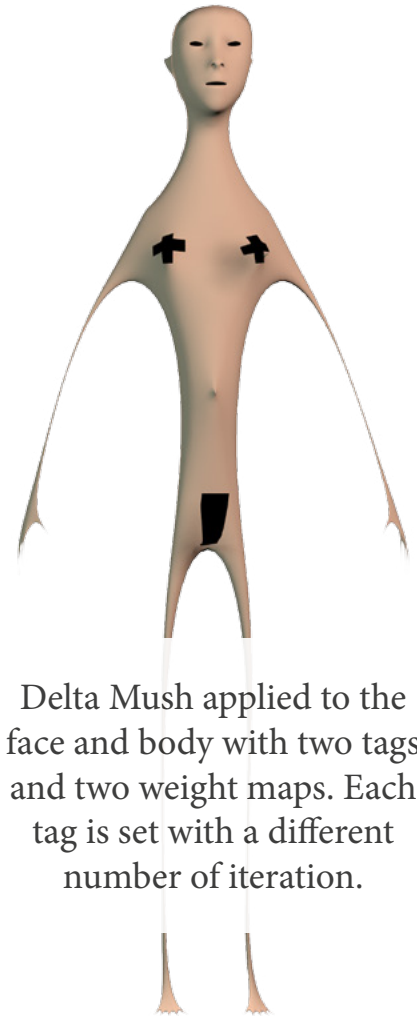
6.4.   Fine tune

If you wish you can add a vertex map to define precisely the points that will be smoothed by Delta Mush. For example you can use a tag and a vertex map for the body and another tag with another vertex map for the face.

Default state

Delta Mush applied only to the body

Delta Mush applied to the face and body with two tags and two weight maps. Each tag is set with a different number of iteration.