

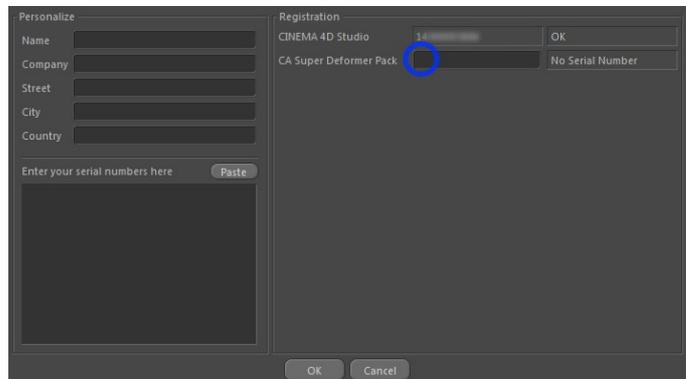
# USER MANUAL FOR SUPER DEFORMER PACK

Version 1.34

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## 1 Installation

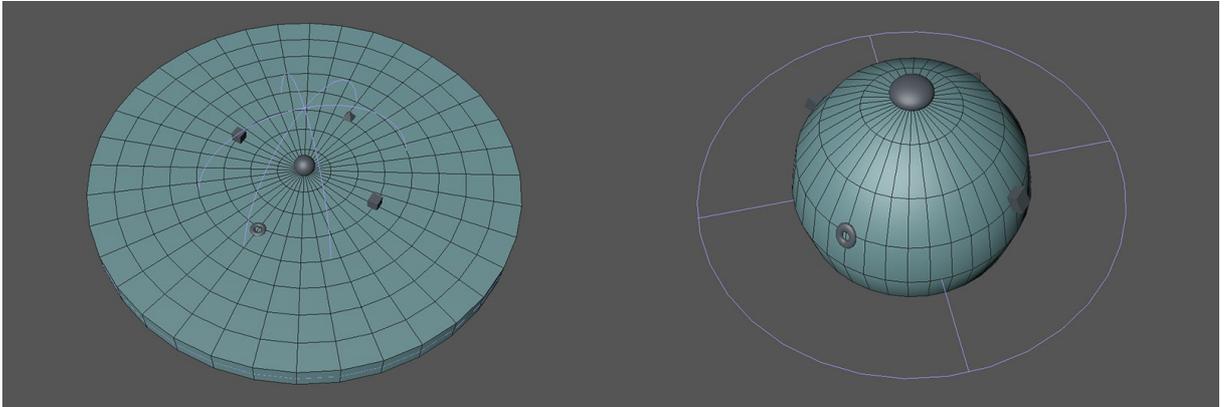
1. Unzip the contents of the plugin download (available at [www.curiousanimal.tv](http://www.curiousanimal.tv)) into your Cinema 4D plugin folder.
  - Your plugin folder location may vary, but common places to find it are: 'C:\Program Files\MAXON\CINEMA 4D R13\plugins\' on Windows, and: '/Applications/MAXON/CINEMA 4D R13/plugins/' on OSX.
2. Start Cinema 4D – it will ask you to enter your Super Deformer Pack serial. Enter either your purchased licence number or 'demo' into the textbox to the right of 'CA Super Deformer Pack'.
  - You can purchase a licence at [www.curiousanimal.tv](http://www.curiousanimal.tv)



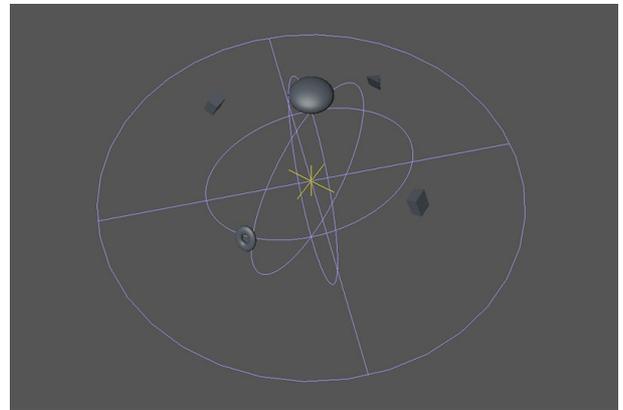
**License Server users** – please contact [support@curiousanimal.tv](mailto:support@curiousanimal.tv) for serial installation instructions.

## 2 Sphere Wrap

Sphere Wrap wraps your geometry around a sphere. It can be used as an alternative to Cinema 4D's built-in 'Wrap' deformer, the advantage of Sphere Wrap is that it creates only one pinch point instead of two, so may provide an improved deformation in many cases.

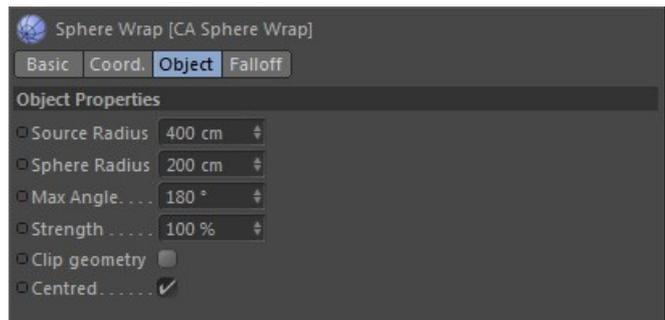


Sphere Wrap works by remapping a virtual disc to a sphere – the image above left has a cylinder with several geometric primitives on it before being deformed. In the image above right, Sphere Wrap has been applied – the cylinder has become a sphere, and the other geometry has maintained its position relative to that cylinder. To the right is the same deformation, without the cylinder.

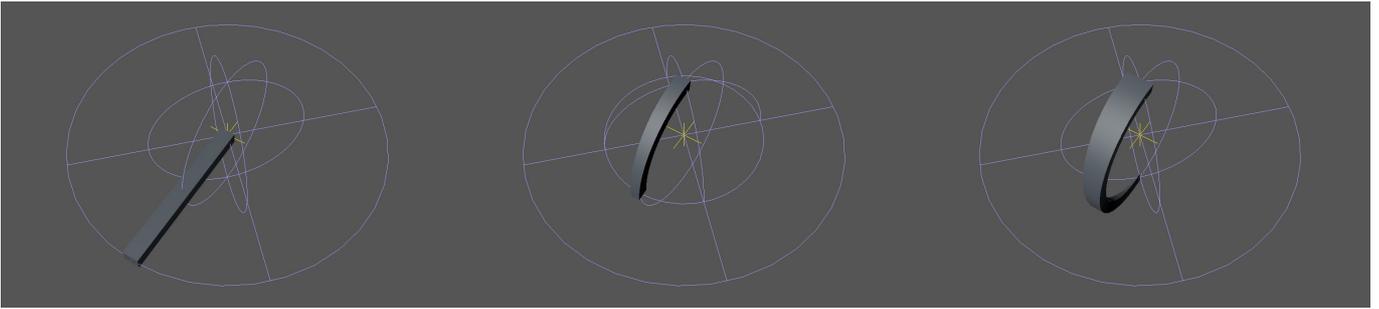


### Options:

1. **Source Radius** – the radius of the virtual disc *before* deformation.
2. **Sphere Radius** – the radius of the sphere to deform to.



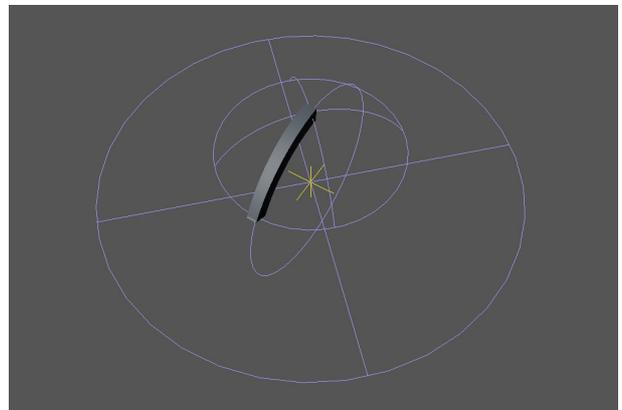
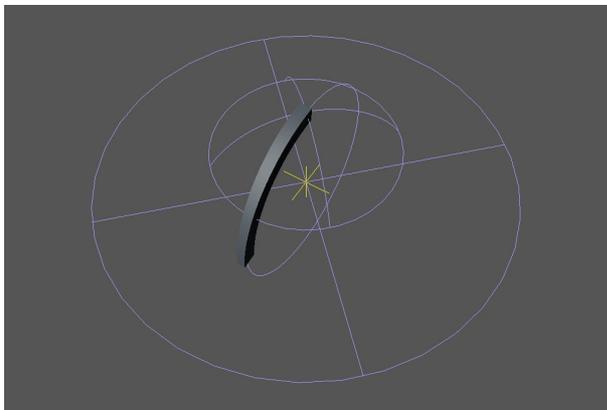
3. **Max Angle** – how far around the sphere to wrap the geometry.



In the images above, the cube primitive has been sized and positioned so one end is on the edge of the Source Radius, and the other end is in the centre. The first image shows the set up before deformation is applied, the second image shows the deformation with Max Angle set to 90° (wrapping around a hemisphere), and the final image is set to 180° (wrapping around a full sphere).

4. **Strength** – this is an overall modifier, values below 100% will send the geometry back towards its original position.
5. **Clip Geometry** – with Max Angle values below 180°, this option stops geometry outside the Source Radius travelling past Max Angle.

Clip Geometry is off in the left image below – the cube, which now extends beyond the distance specified by Source Radius, continues to wrap further towards the back of the sphere. In the image to the right Clip Geometry is on, and those points outside Source Radius now stop at Max Angle.



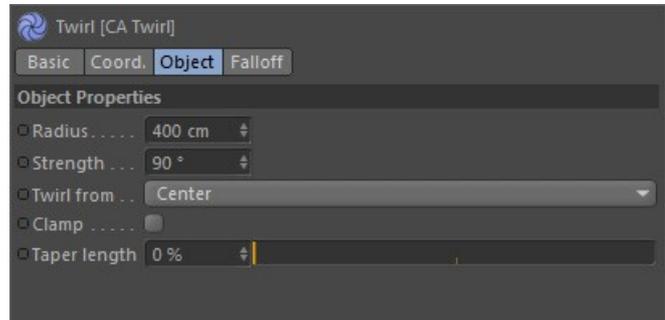
6. **Centred** – with this on, the deformer's axis is at the centre of the sphere, otherwise the axis will be at the front of the sphere.

### 3 Twirl

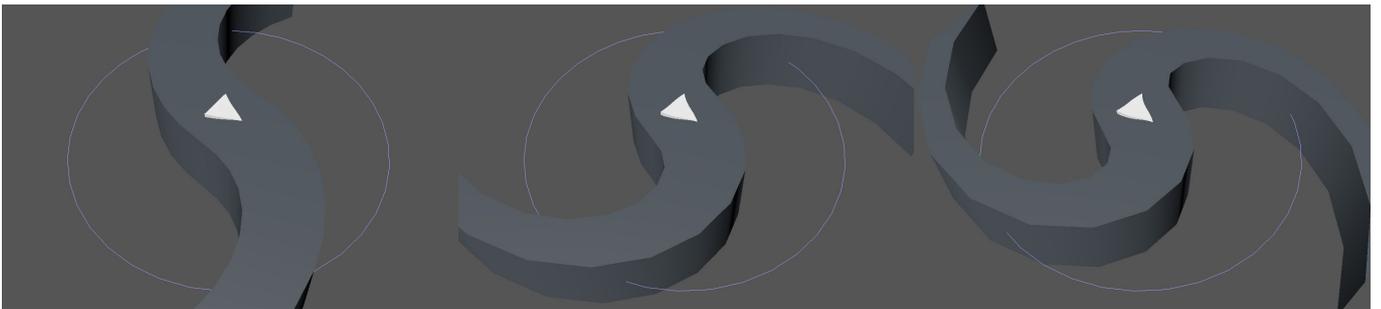
Twirl deforms your geometry into a spiral. Twirl is a bonus plugin for users who have purchased a licence of Super Deformer Pack – it will be available to use once you've entered your serial.

#### Options:

1. **Radius** – the radius of the virtual disc *before* deformation.
2. **Strength** – how far to rotate geometry that is the same distance as Radius away from the twirl point. Geometry that is closer than that distance is rotated less, geometry that is further will be rotated more (unless Clamp or Taper length, explained below, are used).

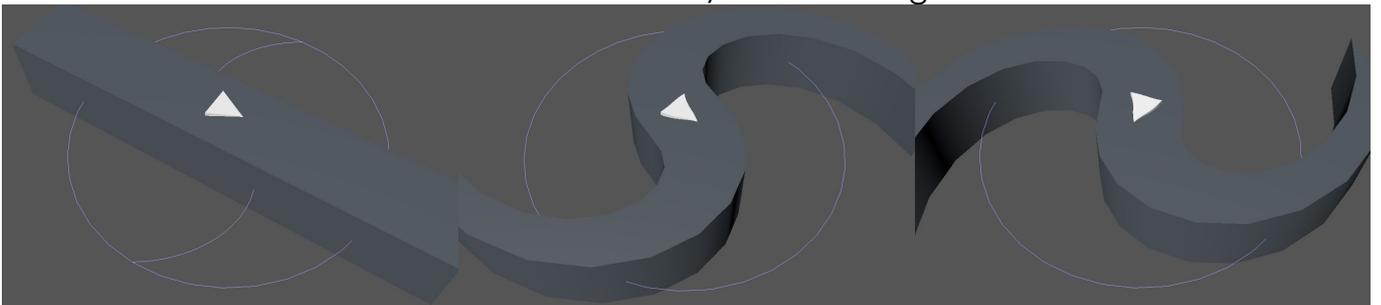


The images below have different strength settings – from left to right they are 45°, 90° and 120°.

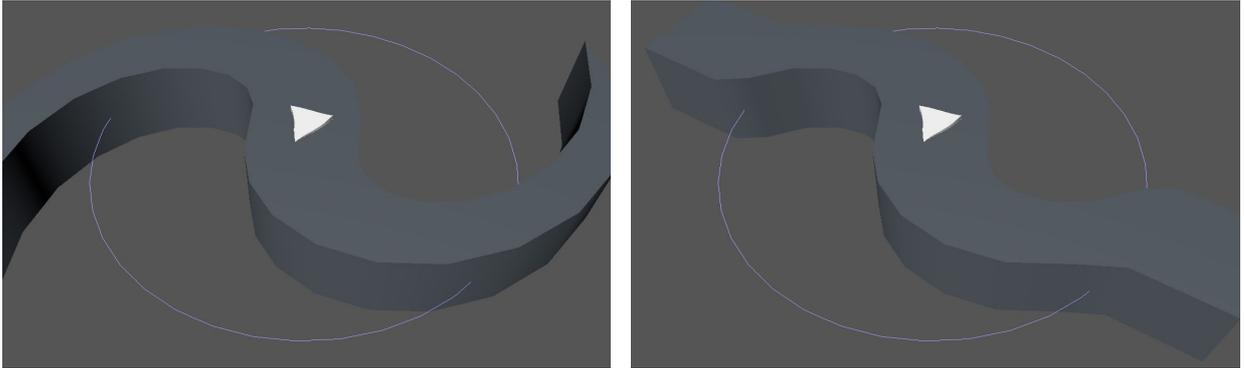


3. **Twirl from** – sets the twirl point, where rotation is always 0°, to either the 'Center' of the deformer, or the 'Outside edge' – determined by the Radius setting.

In the following images is a set up with a cube primitive and a triangle, shown before any deformation at the left. The middle image has 'Twirl from' set to 'Center' – the geometry at the centre is not deformed very much, and the deformation gets stronger the further the geometry is from the centre. In the right image 'Outside edge' is used – now the geometry at the edge (marked by the circle) stays in the same place, and geometry towards the centre and further away from the edge is deformed more.

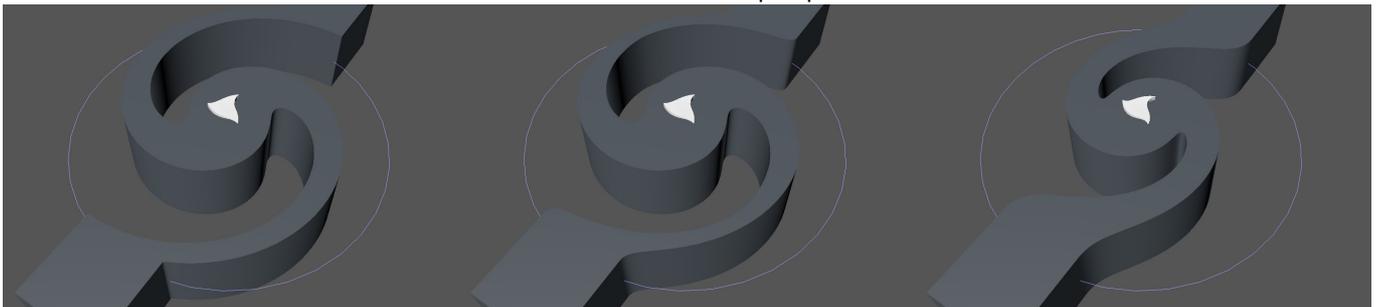


4. **Clamp** – normally geometry continues to twirl beyond the Radius, as in the image to the left. In the next image Clamp is turned on, which stops the rotation changing further beyond Radius.



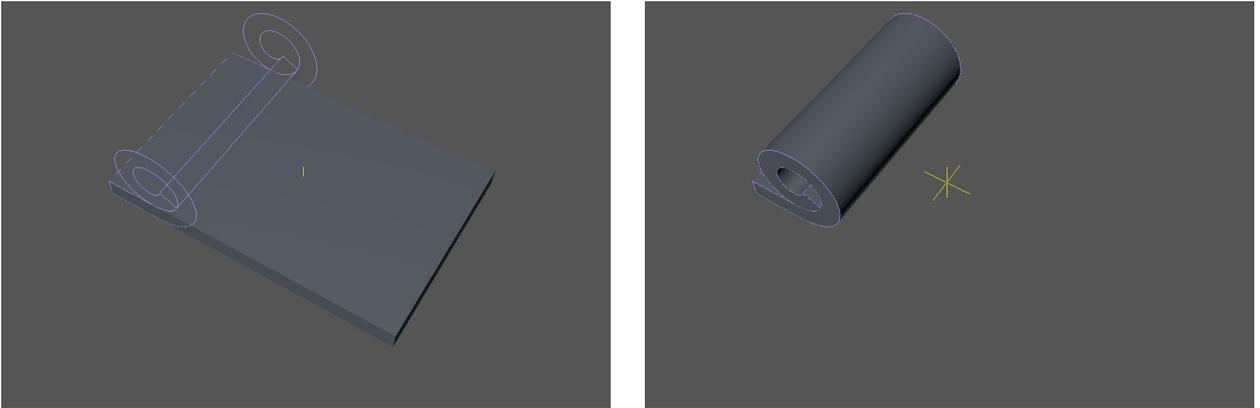
Using Clamp in combination with a 'Twirl from' setting of 'Outside edge' allows you to create a localised Twirl effect that only alters the geometry within the Radius.

5. **Taper length** – setting this above 0% softens the effect of the Twirl, from the edge. These images have, from left to right: Clamp on, Taper length 0%; Clamp off, Taper length 30% and Clamp off, Taper length 100%. Note that setting Taper length above 0% will also automatically clamp the deformation, whether or not the Clamp option is turned on.



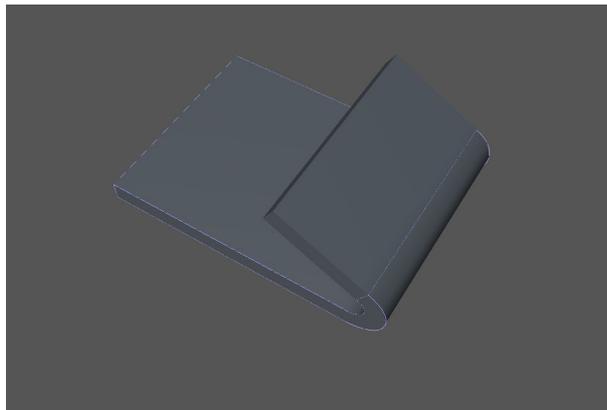
## 4 Scroll Roll

Scroll Roll deforms your geometry around an invisible tube, like a roll of paper or carpet.



*Before and after Scroll Roll has been applied to this cube primitive.*

Scroll Roll bends your geometry from one end, and the starting end becomes the inside of the roll. It is possible to have geometry located before the start of the roll – that geometry gets rotated to match the inside edge, but is not itself rolled:



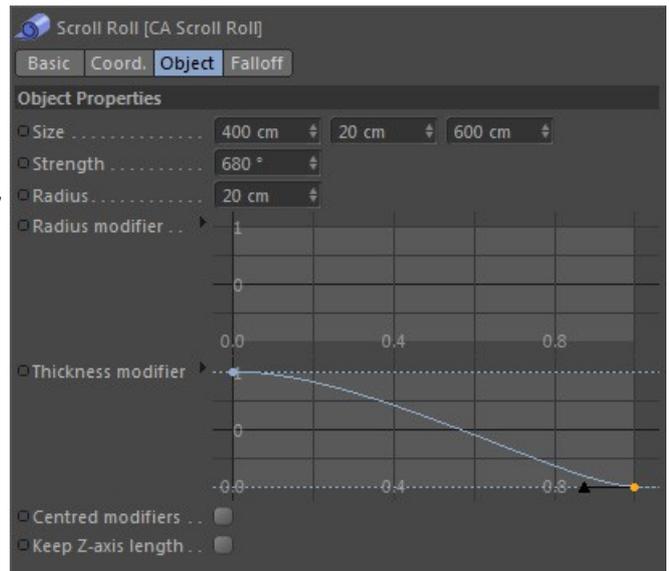
This behaviour is more similar to Cinema 4D's built-in 'Bend' deformer (with its Mode set to 'Limited' and Angle to 0°) and can provide some useful options when combined with Scroll Roll's other features, such as the Falloff tab. Geometry located beyond the other end of the deformer continues to roll as normal.

## Options:

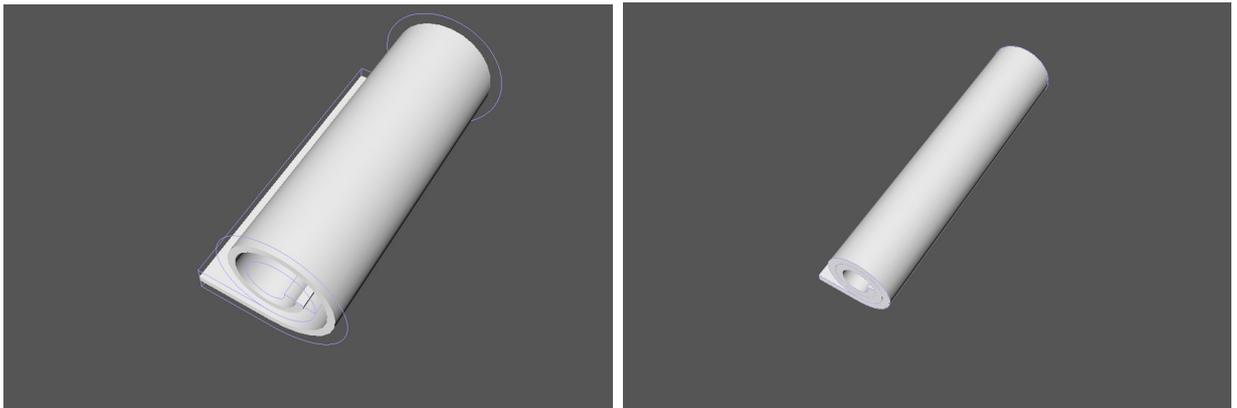
1. **Size** – similar to some of Cinema 4D's other deformers such as 'Bend'.

The X value determines the width, which is important when combined with the Radius and Thickness modifiers (explained below).

The Y value controls the thickness of the sheet being rolled, and has an important influence on the overall effect.



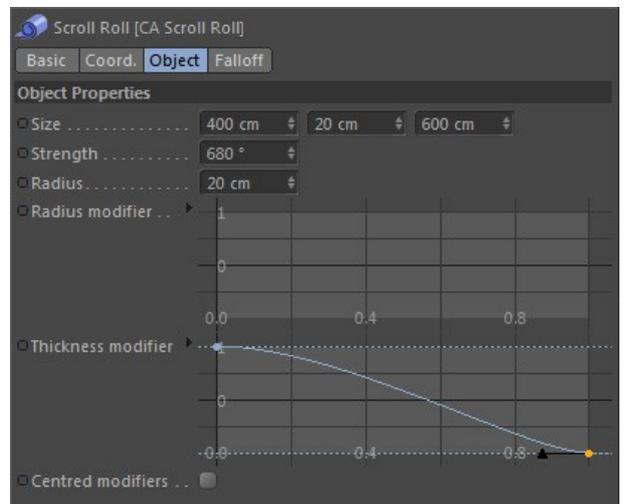
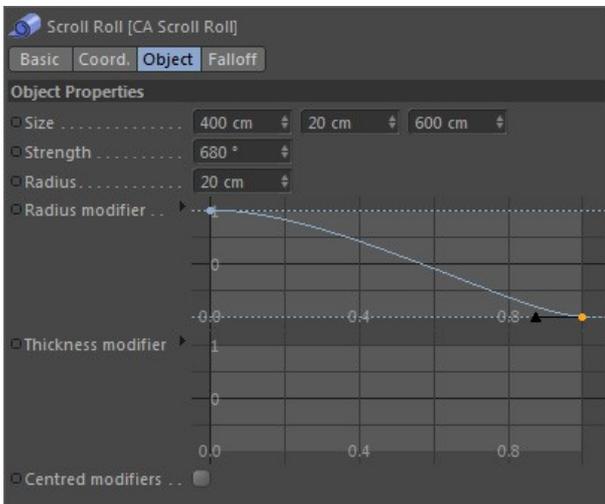
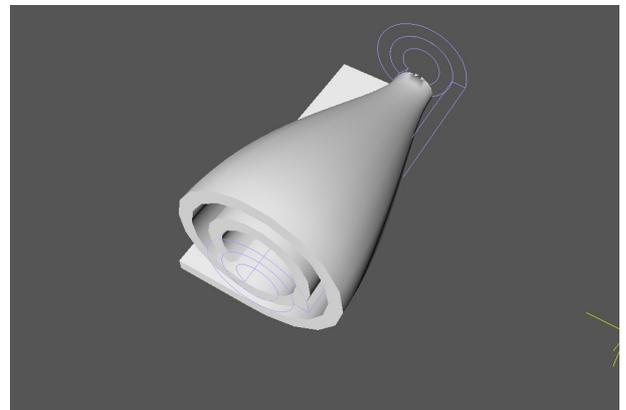
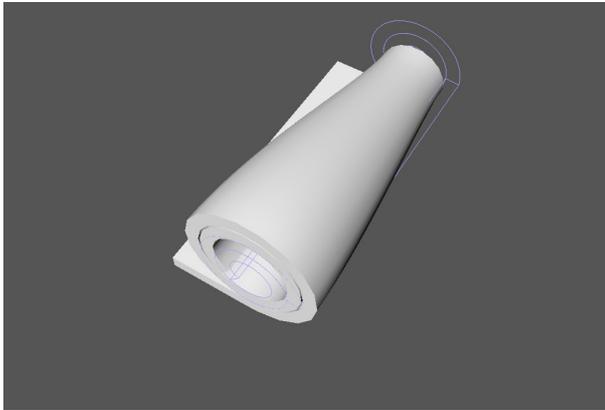
Both of the images below are deforming a cube primitive with a height of 10 units. The Scroll Roll deformer in the left image has a Y size value (and hence thickness) of 40, on the right the Y size value is 10 – creating a tighter roll.



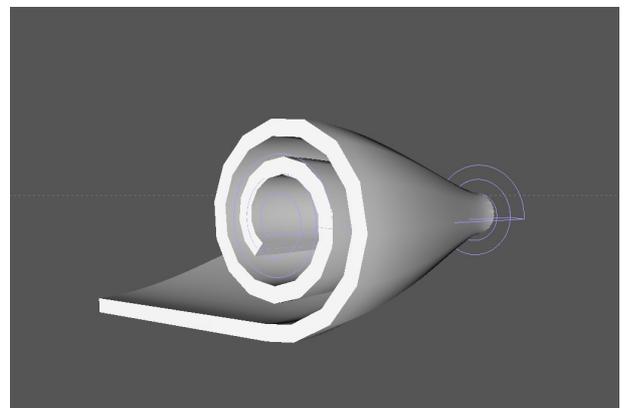
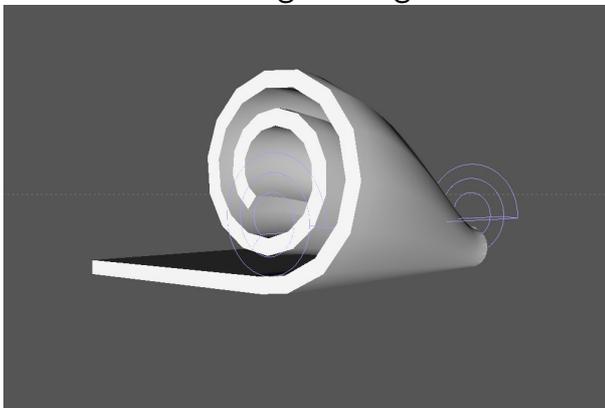
Note that the strength (explained next) has also been made higher in the right hand image to allow its thinner roll to catch up to a similar position to the thicker roll on the left.

2. **Strength** – this angle controls how much the deformer rolls the geometry.  $360^\circ$  is equal to one full roll, so you can set a half roll at  $180^\circ$ , two full rolls at  $720^\circ$ , and so on.
3. **Radius** – sets the inner radius of the roll. If you were to roll your geometry around a tube, Scroll Roll's Radius setting would be the same as the radius of that tube.
4. **Radius modifier** – this curve alters the radius value over the width of the Scroll Roll deformer.
5. **Thickness modifier** – similar to the Radius modifier, but alters the sheet thickness (set by the Y size value).

The following set ups both have different modifier curves, shown underneath the images. On the left a Radius modifier is used, varying the internal radius over the width of the deformer, and on the right a Thickness modifier is used – in this case altering the gap between the layers of the rolled up geometry.

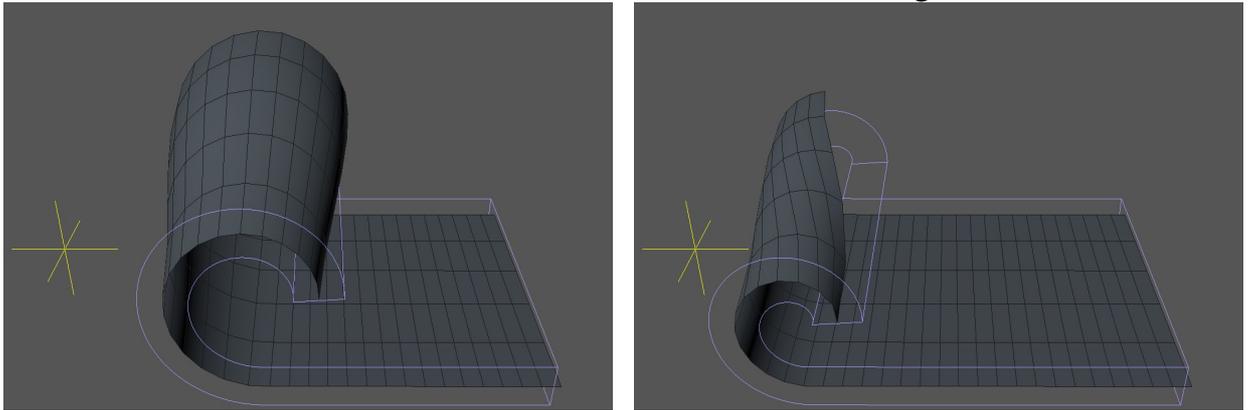


6. **Centred modifiers** – by default the Scroll Roll will keep a flat bottom surface when using the modifiers, as if the geometry is being rolled up on a table floor, as shown in the image below left. You can instead allow the modifiers to alter the bottom surface by checking 'Centred modifiers', shown in the right image.



7. **Keep Z-axis length** – with this option turned on the deformer preserves the length of your geometry, relative to the deformer's Z-axis.

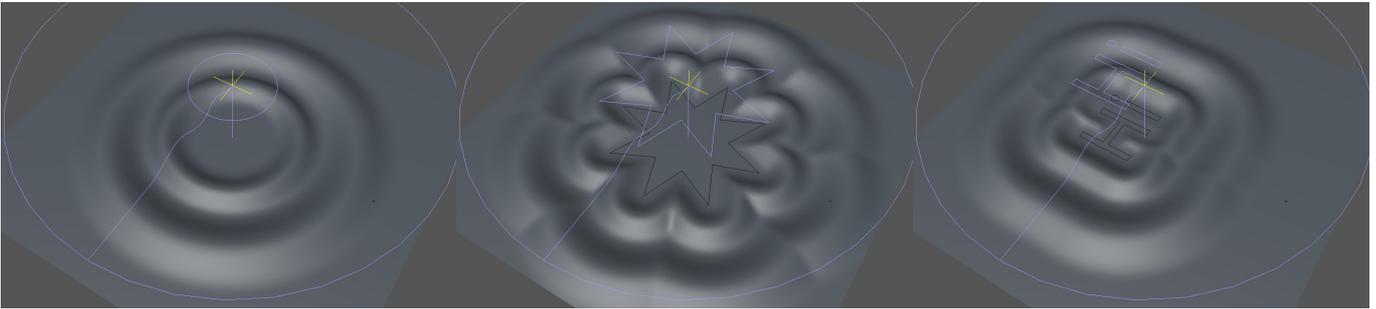
Both of the following images use the same settings other than 'Keep Z-axis length', and they are using a 'Radius modifier' curve to vary the radius over the width of the deformer. Below left: 'Keep Z-axis length' is off, all points in a line along the X-axis are rotated to the same angle. Below right: 'Keep Z-axis length' is on, now the angle is altered to preserve the length of the geometry over the varying radius – the same length of geometry will rotate more times around a smaller axis than it will a larger one.



Please note that only the points on a plane in the centre of the deformer's Y-axis will have their Z-axis length's preserved, points above or below that plane will stretch or squash to match that plane.

## 5 Impact

The Impact Deformer creates ripples in your geometry based on a spline object. You can use editable splines as well as most of Cinema 4D's built in spline primitives.



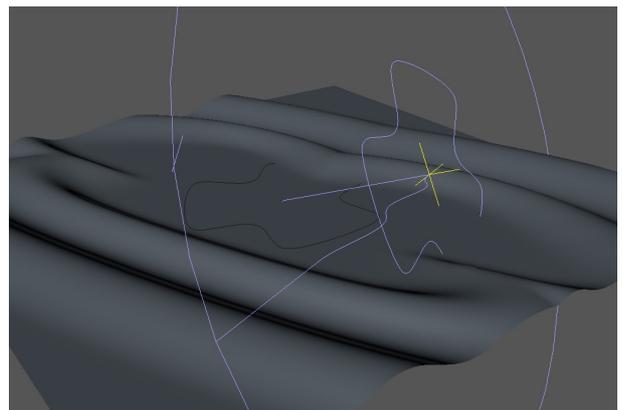
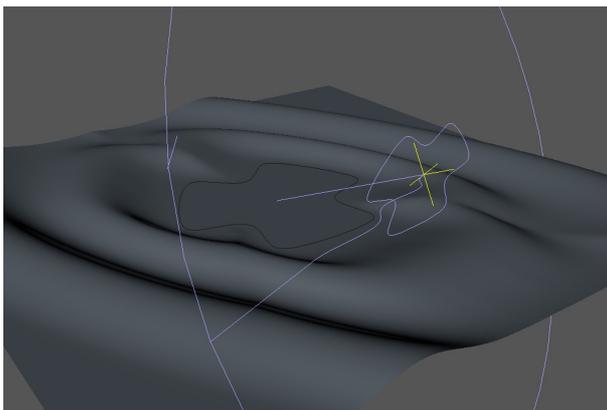
*Left: Impact Deformer creates a circular ripple by default, so you can start using it straight away*

*Middle: the same set up using a Star spline primitive*

*Right: this time using a Text spline primitive*

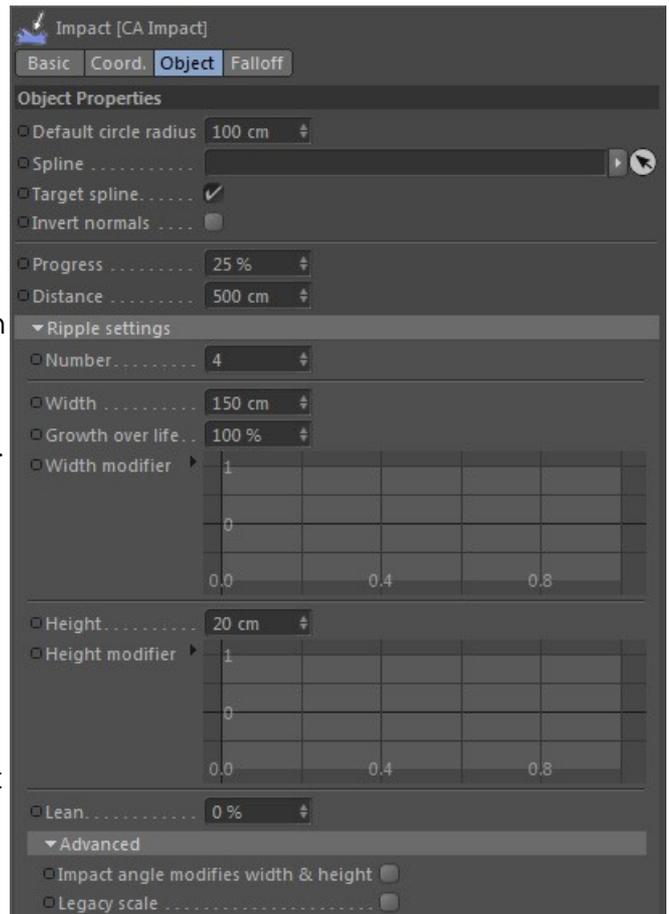
Note in the middle and right hand images above that Impact creates its own copy of the spline object and draws that copy as a guide. When the 'Target spline' option is selected Impact will use a distorted version of your spline to maintain the original outline from different angles, in which case the guide can give you a handy indication of how Impact is changing your spline before using it to deform your geometry.

This distortion is shown below. To the left, with 'Target spline' on, Impact's copy of the spline is squashed, and the internal outline of the ripple is preserved. To the right, 'Target spline' is turned off, and now Impact's copy of the spline looks the same as the original, because of the deformer's angle to the geometry the ripple outline is distorted instead.



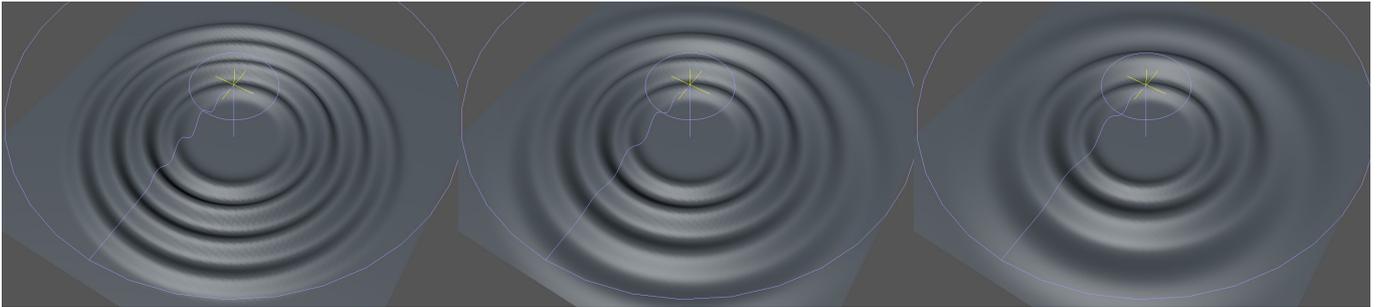
## Options:

1. **Default circle radius** – if the Spline field is left empty, Impact uses a circle by default. This option sets the radius of that circle.
2. **Spline** – set this to the spline object you would like to form the inside edge of your ripple. You can use editable splines, most of Cinema 4D's built-in spline primitives, Tracers and MoSplines.
3. **Target spline** – with this option on, the deformer will always look at the selected Spline object (similar to the 'Target' tag), and will also use a deformed version of the spline to preserve the internal ripple edge created by the original spline (see the Impact intro above for examples).
4. **Invert normals** – Impact uses the normals of your spline to calculate some of its features, including which direction the ripple should spread, and what parts of the geometry are inside the spline (points inside your spline are not affected by the deformer). Turn on 'Invert normals' to swap those directions.
5. **Progress** – this controls how far the ripples have progressed through their sequence. At 0%, no ripples have started yet and the geometry is not affected. At 100%, all ripples have reached the end of their life and faded out – again leaving the geometry unaltered. Values in between are where the action happens.
6. **Distance** – how far the ripples travel before fading out to nothing.



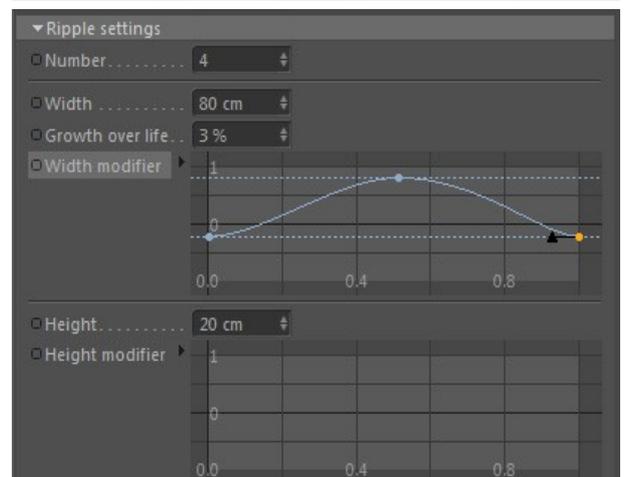
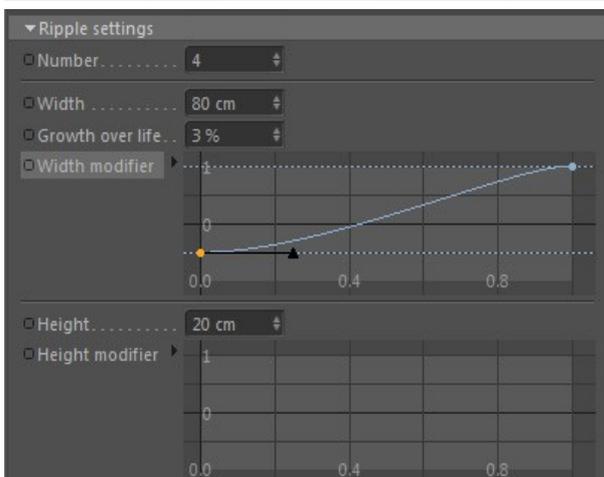
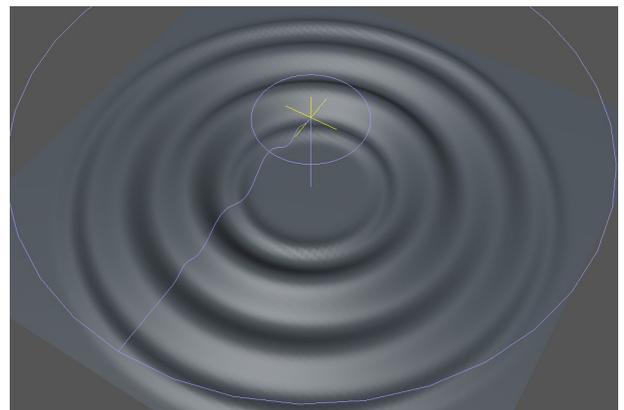
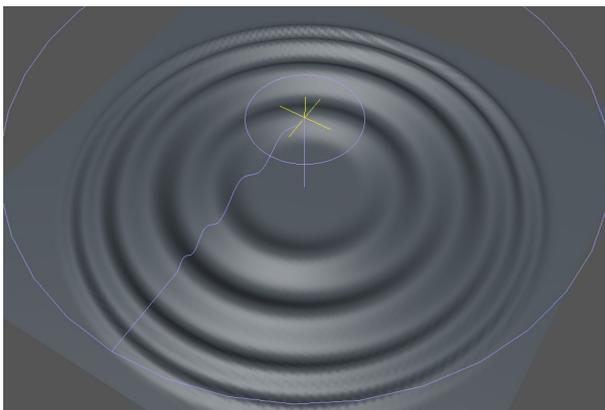
### Ripple settings:

1. **Number** – how many ripples are formed in the sequence.
2. **Width** – the width of the ripples at birth.
3. **Growth over life** – how much the width of each ripple expands over its lifetime. This is the percentage of the Width setting that is added by the time the ripple fades out – 0% adds nothing to the width so it remains constant throughout, the default of 100% doubles the ripple width, and higher values can be used.



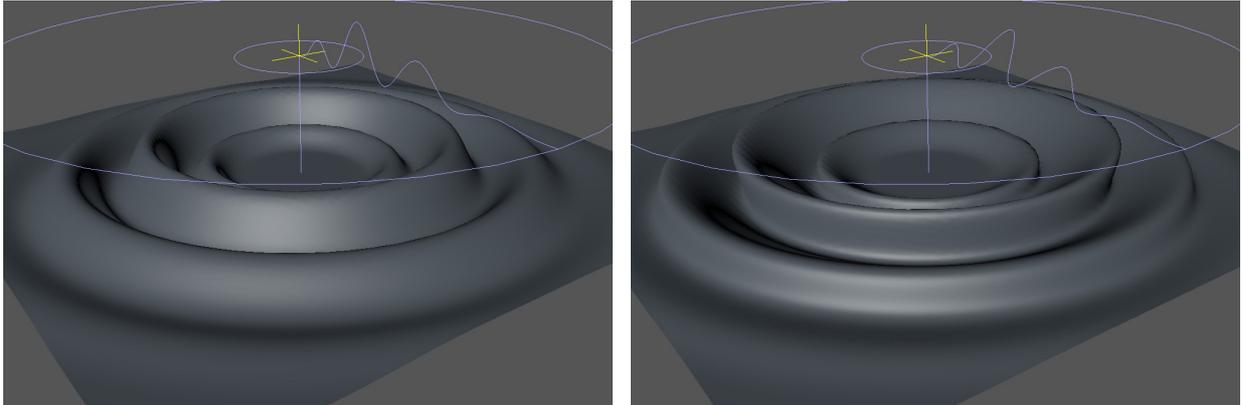
From left to right: Growth over life set to 0%, 100% and 300%

4. **Width modifier** – you can use this curve to give each ripple within the sequence a different width.



These Impact deformers use different Width modifier curves, altering the widths of the individual ripples in different ways.

5. **Height** – the height of the ripples. Each ripple's height will automatically grow quickly from nothing at the start of its life to this Height value, then shrink back down again to nothing at the end of its life (when it has travelled past the Distance value).
6. **Height modifier** – similar to the Width modifier curve, but this one alters the heights of your ripples.
7. **Lean** – this setting causes the top of the ripples to lean into or away from the direction of travel, relative to the base. On the left below Lean is set to 0%, resulting in a symmetrical ripple profile. The right hand image has Lean set to 75%.

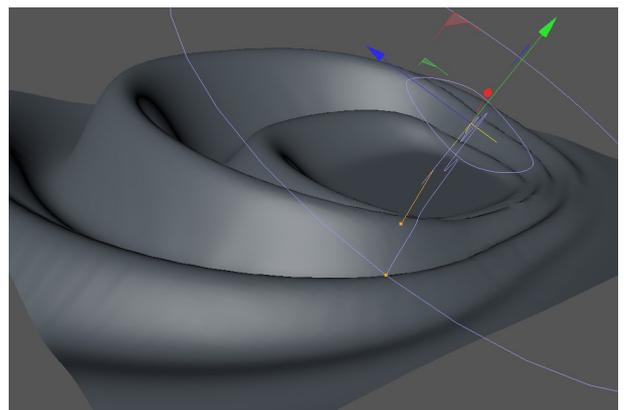


### **Advanced:**

1. **Impact angle modifies width & height** – with this setting turned on the Impact deformer calculates the angle of impact between itself and the geometry being deformed. It uses that information to increase the width, height and distance of ripples travelling in the same direction as the impact – and it decreases those values for ripples travelling against that direction.

This simulates an impact which transfers some of its momentum into the surface being hit.

This effect can result in sharp breaks or other unpleasant distortions when used with some splines. Smooth, concave splines work best with this setting.

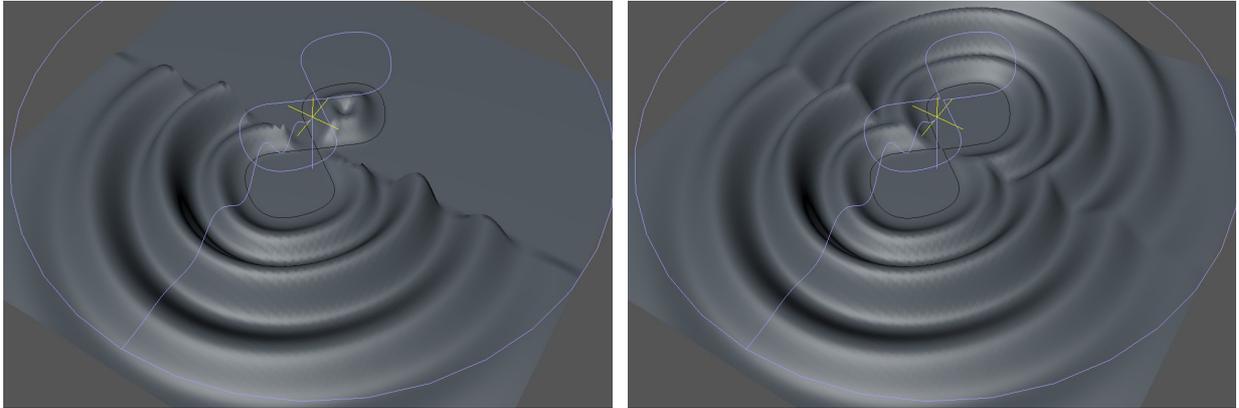


2. **Legacy scale** – earlier versions had a bug when 'Target spline' was used and the deformer's parent was scaled – it's own scale would then be calculated incorrectly. That bug is fixed, and this option was added in case you have a scene that relies on the incorrect functionality from previous versions. For new scenes you should usually ignore this feature.

## Watch out for looping splines

Because Impact uses the normals of your splines to determine the direction of travel, you can run into problems with splines that cross over themselves. In these splines the normals may start pointing to the outside – but after the spline crosses itself those normals now point inside.

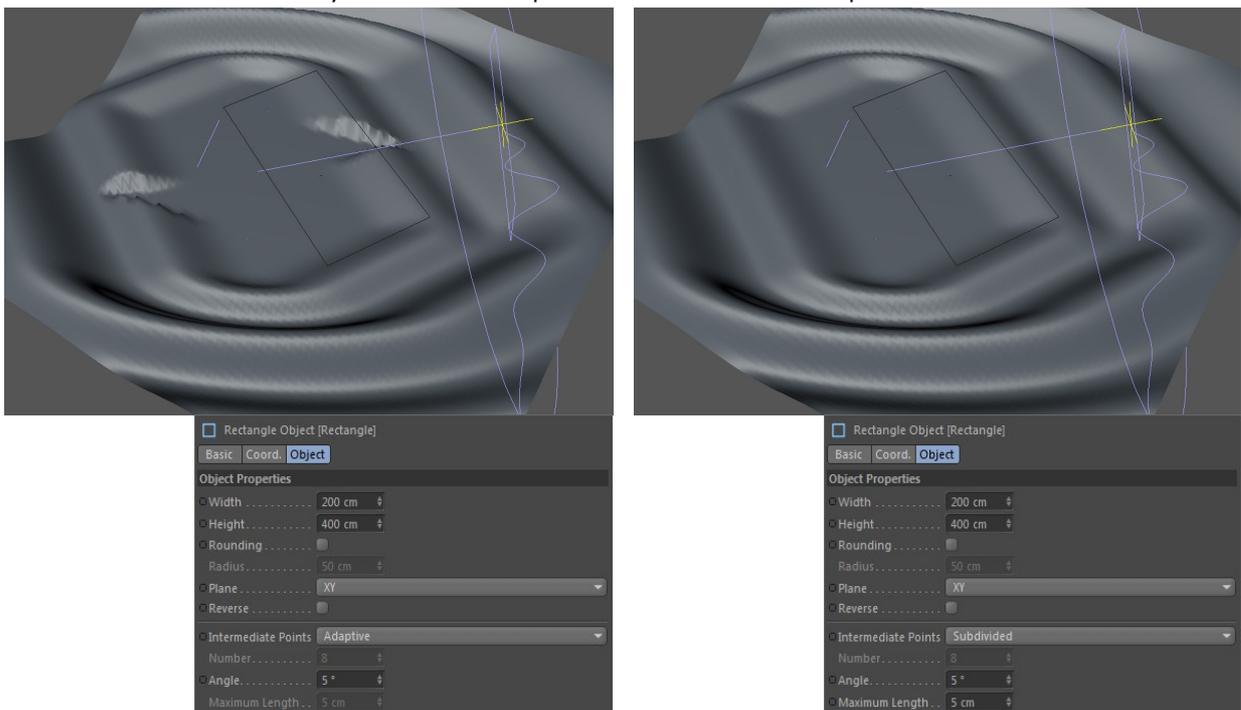
The image below left shows the effect of this on Impact. To the right this issue is fixed by recreating the spline without any crossover points.



Remember that with 'Target spline' selected Impact will use a distorted version of your spline – at certain angles some splines may result in an Impact spline which crosses over itself, even if the original spline doesn't. Keep an eye on the Impact deformer's guide spline to avoid problems.

## Spline detail

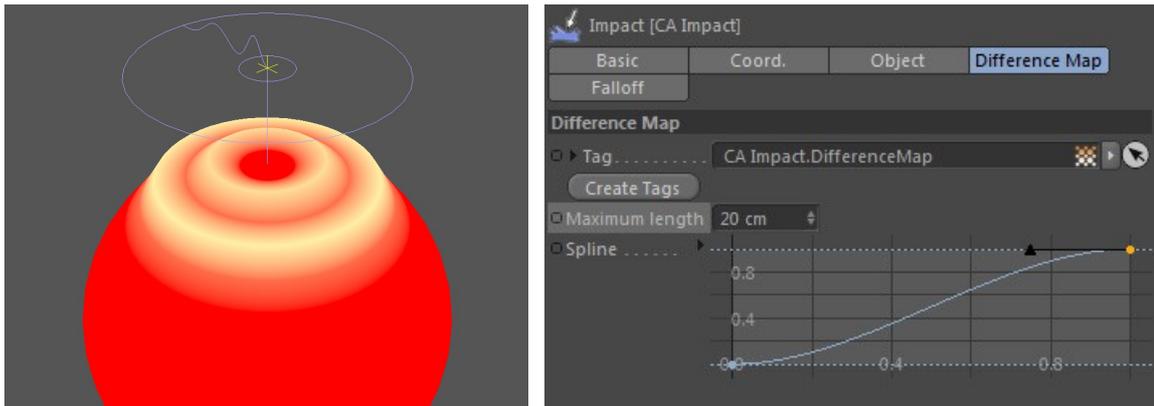
Your spline's subdivisions determine the detail of Impact's ripples as well – more subdivisions are slower but more detailed. Deformation artefacts can occur when there aren't enough subdivisions. This can be fixed by increasing the subdivisions in your source spline, as in this example:



## 6 Difference Map

The Difference Map feature stores the influence of the deformer on each point in a vertex map, by converting the distance moved by each point into a value from 0% to 100%. You can then use that information to control the influence of other effects and materials (eg by using the vertex map in a 'Restriction' tag on later deformers). All of the Super Deformer Pack deformers have a 'Difference Map' tab to access these features.

Difference Maps can be used on polygon objects (you'll need to make primitives editable before applying vertex map tags).



*This sphere is being deformed by an Impact Deformer, and thanks to the 'Difference Map' feature the influence of that deformer can be seen in a vertex map. To the right are the settings used to control how the map is created.*

### Options:

1. **Tag** – the Vertex Map tag to store the difference information in. Any vertex map tag of the same name on an object influenced by this deformer will be altered by the Difference Map functions.
2. **Create Tags** – use this button to quickly create new vertex map tags on the polygon objects that are influenced by this deformer, and use them to fill the 'Tag' field. This will always create new tags with a unique name, even if tags already exist.
3. **Maximum length** – the Difference Map function fills the vertex map with values from 0% to 100% depending on how far the points have been moved by the deformer. Use this setting to determine how far a point has to be moved before the vertex map will be set to 100% – points that move further will be capped at 100%.
4. **Spline** – this spline controls how the distances are mapped to vertex map values, the default is linear.

**New in this version** – Scroll Roll, Sphere Wrap and Twirl have a 'Mode' option, use it to choose whether to calculate the difference map from the 'Distance' points move (the default mode), or the 'Angle' they are rotated by the deformer.

## 7 Attach Falloff to Null

All of the Curious Animal deformers include a Falloff tab to give you precise control over which portions of your geometry are altered.

By default the falloff is in the same position and orientation as the deformer itself. In some cases this can be limiting, so we've made this simple plugin to allow you to set the position and orientation of your falloff to the specified null instead. It's included for free with your download.

Attach Falloff to Null is a tag plugin, it will work with any of the Curious Animal deformers. To apply it, right click on your deformer in the object manager, and select 'CA Attach Falloff to Null' from the list of tags. Then drag any Null object into the 'Null' field of the tag – you can now move the falloff independently of the deformer by moving the null you've specified.

## 8 Changes

### Version 1.34

- Improvements to the 'Difference Map' feature, including:
  - new 'Angle' mode available for Scroll Roll, Sphere Wrap and Twirl
  - improved compatibility with other 3<sup>rd</sup> party plugins
  - fixed 'Create Tags' button to be more thorough in its tag creation
  - 'Tag' interface is now a string field, a closer match to tag interfaces throughout the rest of C4D (files made with older versions of the plugin will be automatically converted).

### Version 1.28

- New 'Difference Map' feature for all deformers.
- New 'Centred' option for Sphere Wrap.
- Matrix scaling bug in Impact fixed (and 'Legacy scale' option added to allow compatibility where required in older scenes).

### Version 1.07

- Holding down the 'Shift' key while adding any of the deformers now adjusts their size and position to your selected object.
- Scroll Roll has added 'Keep Z-axis length' feature (described in its section of the manual)
- Scroll Roll has an improved falloff calculation, it doesn't stretch any more.
- All deformers now support demo mode in License Server environments.

## 9 Support and Bugs

If you find any bugs or need technical support, you can email us at [support@curiousanimal.tv](mailto:support@curiousanimal.tv) – please remember to send support requests from the email address you registered when purchasing Super Deformer Pack.

## **10 Copyright and Licence**

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