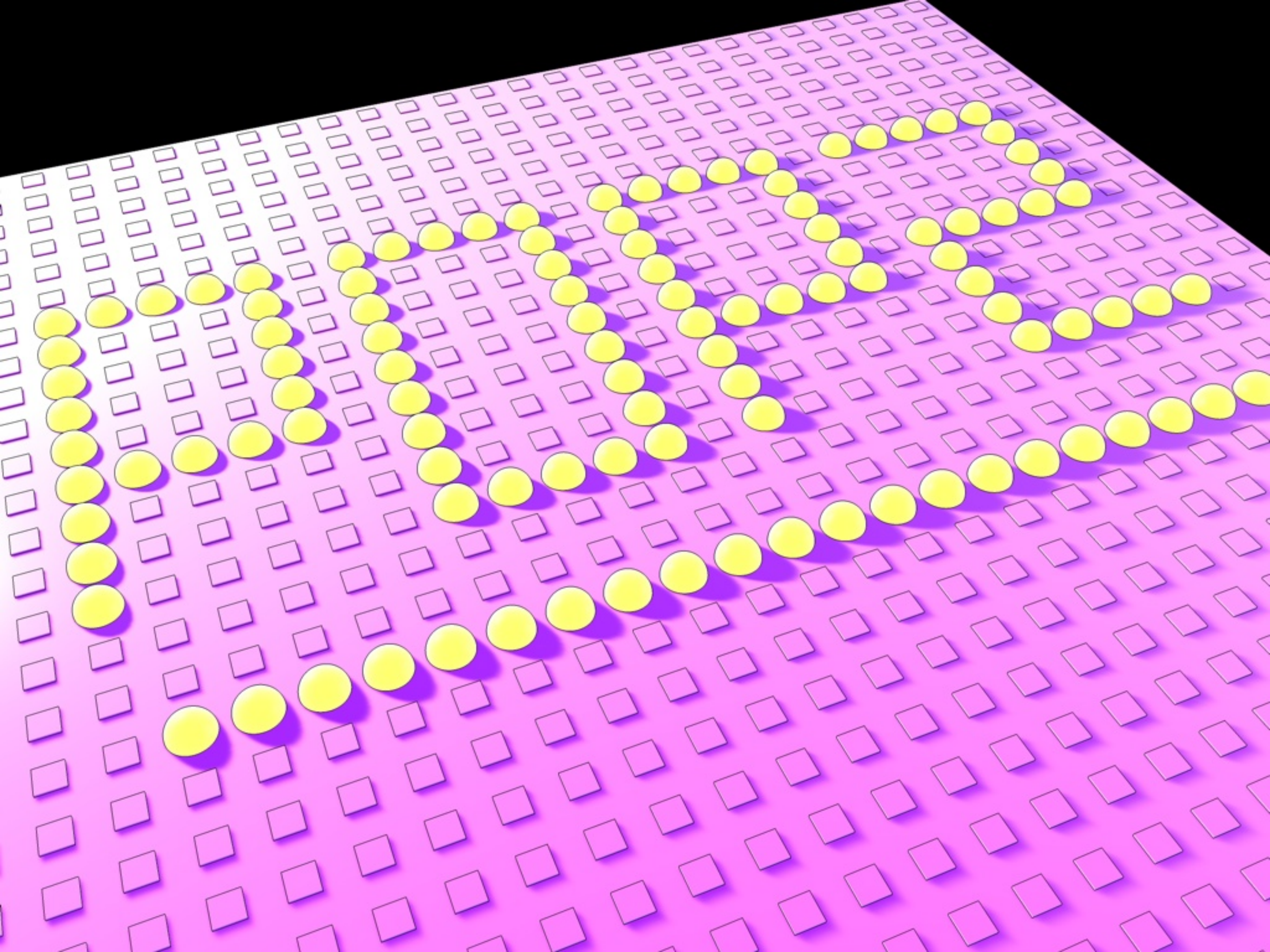




# PlaceOnPoint 2

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# PlaceOnPoint 2

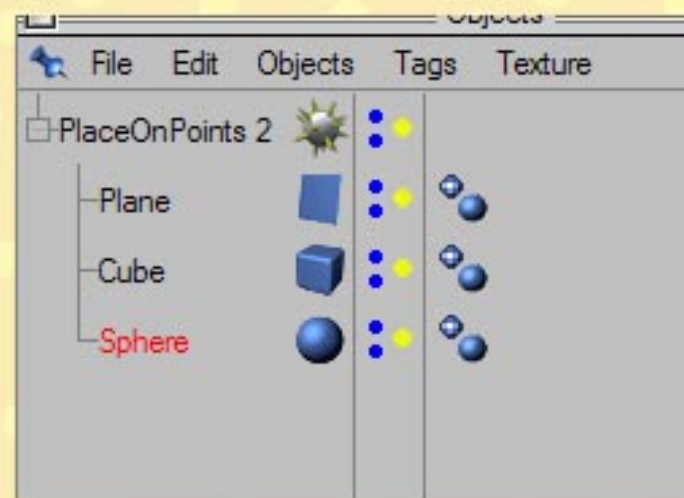
## General Usage

POP2 is an Object plugin. This means it can be added to a scene, and effect other objects in some way or another.

The first object under a POP object is known as the terrain object. This is the object that will act as a base to clone other objects on. This object must be some kind of mesh, a parametric object works too. Kind of object that can not go here would include lights, cameras, splines etc

The next one or more objects are the input objects. These are the objects that will be cloned across the terrain object. If there is more than one object, POP will randomly choose an object.

The input objects can be anything, lights, splines, cameras, deformers.



## POP Tags

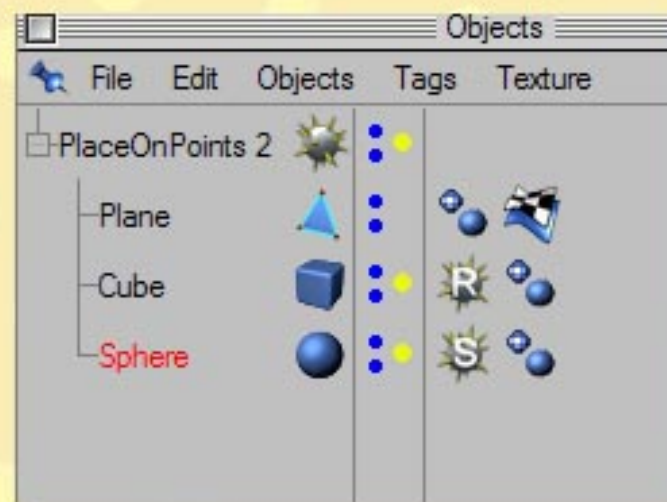
POP Tags is a new concept in POP2, because of the ability to clone multiple objects across an terrain, It is now possible to supply a random scale or rotation to a group of objects.

To add a POP Tag, simply click the object in the Object Manager and choose

File > New Expression > POP2 Scale Expression

File > New Expression > POP2 Rotation Expression.

This will add a POP tag onto your object. More about POP tags on Page 8.



## Attribute Manager

The Attribute Manager for POP 2 is the heart of the plugin. The AM will control the outcome of the clones. It can be quite a complicated UI for a new user. Here is a brief overview of the elements in the AM.

**Clone Mode: Points/Polygons.** Determines if the clones should be placed on the Points or the Polygons of the terrain object.

**Specify Clone Count:** You can choose how many clones to generate for editor display and render display.

**Distribution Step:** To help speed up display, you can generate less clones by increasing this number. The number means how many clones to skip. (Editor) is for viewport display and (Render) is for external render display.

**Point Selection Tag:** If a selection tag is linked into this field, POP will only generate clones on the Point Selection.

**Polygon Selection Tag:** If a selection tag is linked into this field, POP will only generate clones on the Polygon Selection.

**Automatic Rotation:** This will attempt to automatically rotate the clones on the surface of the terrain object. This uses an approximation when in Point mode, as Points do not have a Normal. In Polygon Mode, POP will use the polygons normal vector.

**Target Object 1/2:** You can link an object in this field. All clones will then point towards this object. You can link a second object for additional control.

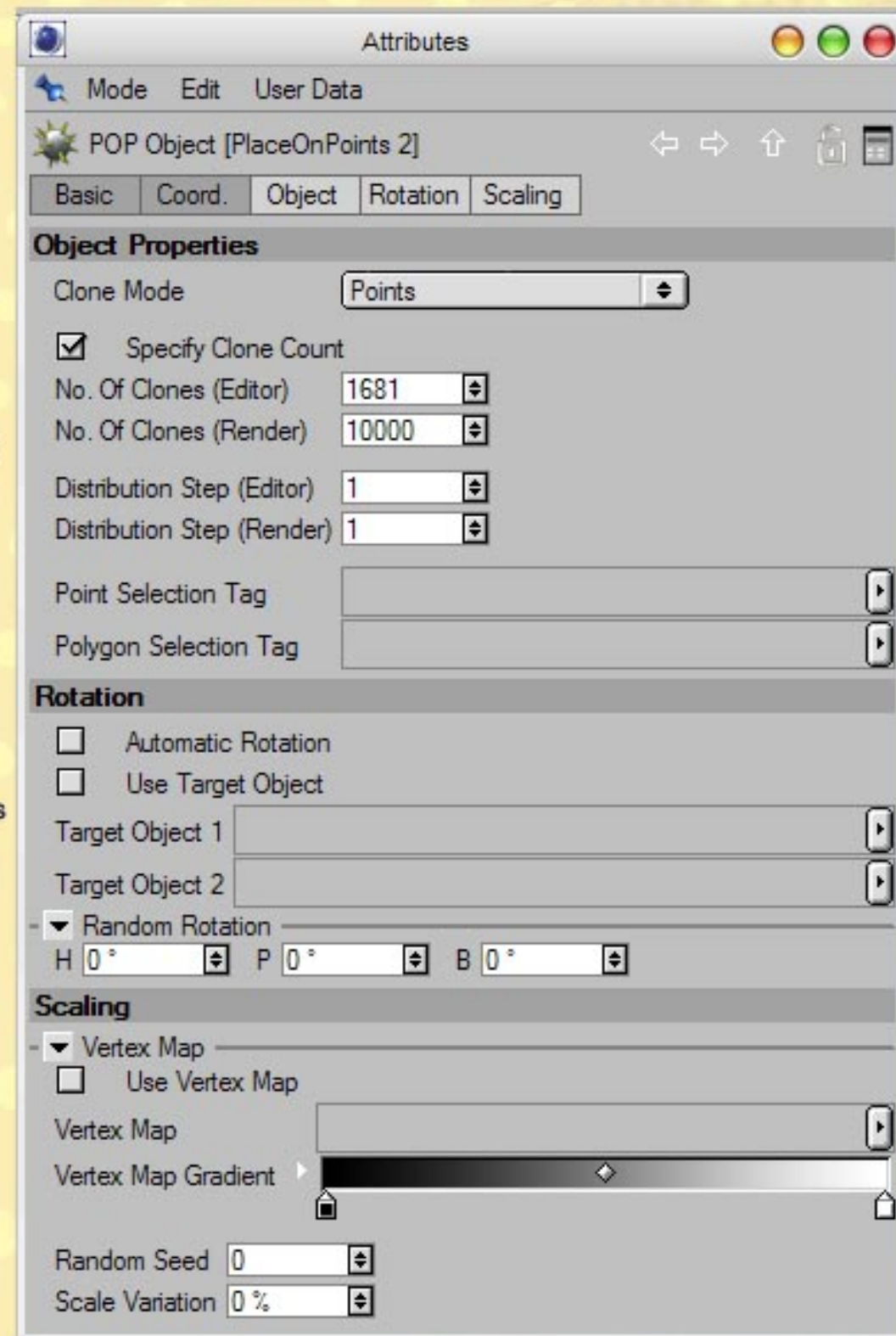
**Random Rotation:** H P B. Increase these values to add a small amount of random rotation to the clones.

**Vertex Map:** You can supply a vertex map in this field. POP will read the vertex map and scale the object based on the results of the vertex map.

**Vertex Map Gradient:** You can use a gradient to control the scaling of the clones.

**Random Seed:** If you would like different results with the clones, change this value

**Scale Variation:** Adds a Random scale to all clones.



# PlaceOnPoint 2

## Specify Clone Count

When this option is enabled, you have an option to choose the amount of clones POP will generate.

Editor will determine the amount of clones to generate in the viewport

Render will determine the amount of clones to generate in the external renderer.

This is useful if your display is slowing down.

☒ Specify Clone Count

No. Of Clones (Editor) 144

No. Of Clones (Render) 10000

Distribution Step (Editor) 1

Distribution Step (Render) 1

Distribution Step determines how many clones to skip in the calculations.

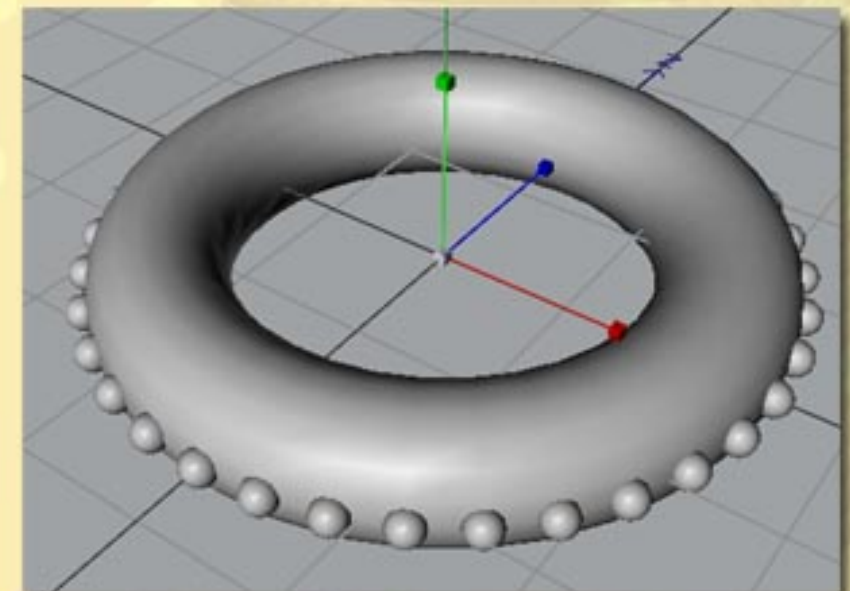
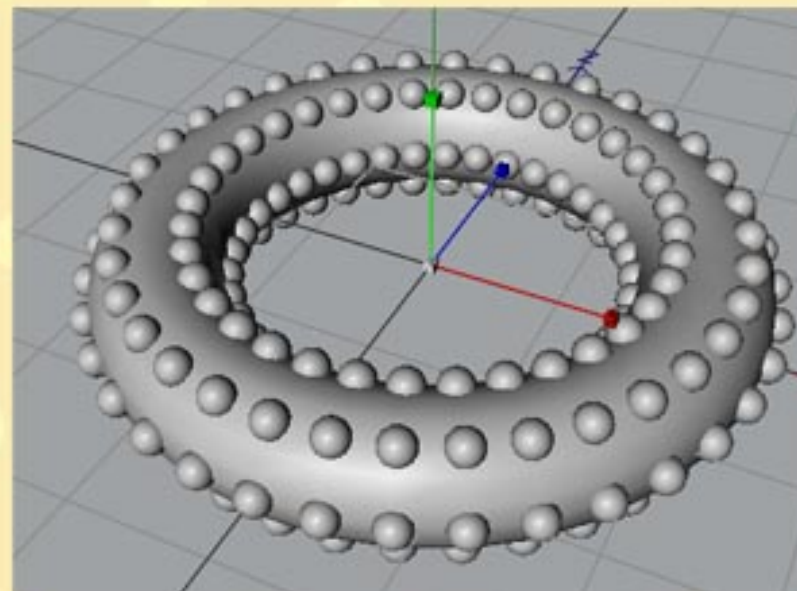
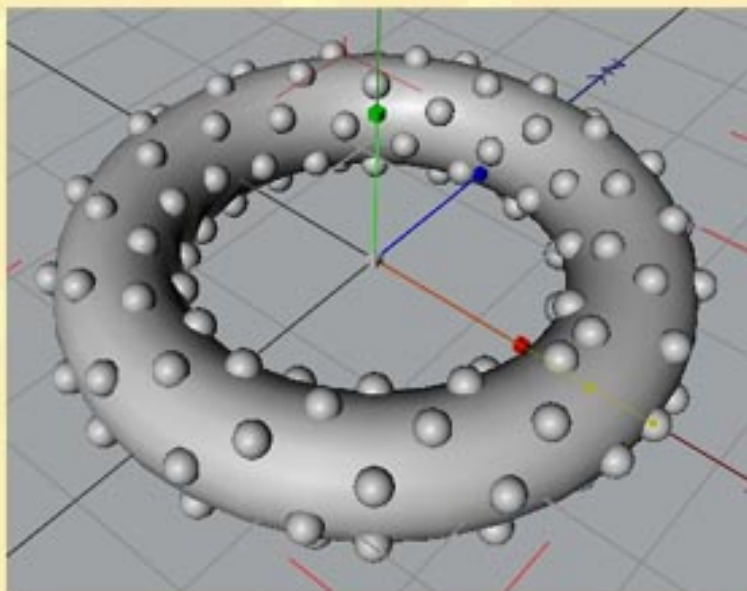
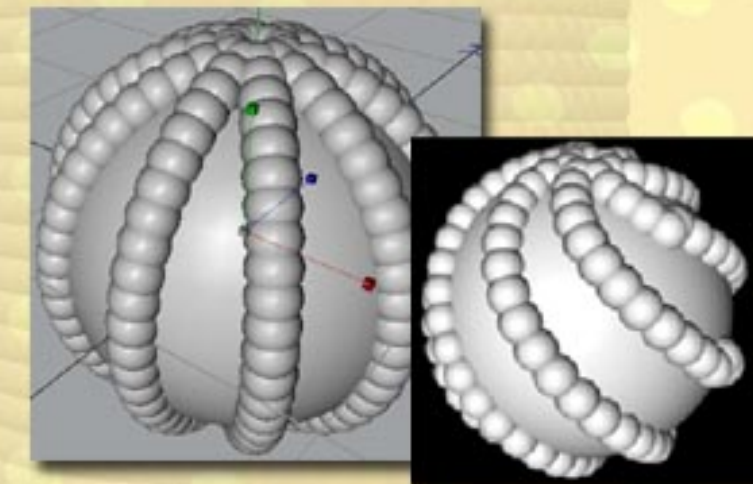
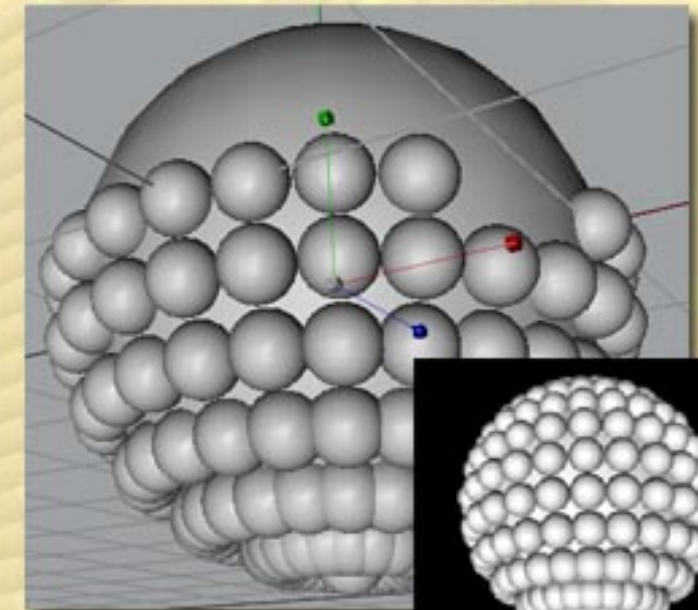
For example, setting this to 1, will generate 1 clone for every point on the terrain object. Setting this to 2, will generate 1 clone for every 2 points on the terrain object. Setting to 10, will generate 1 clone for every 10 points on the terrain object.

You can specify a different value for Editor Display and external render display to help with speed issues. This can produce some interesting effects.

☐ Specify Clone Count

Distribution Step (Editor) 5

Distribution Step (Render) 7



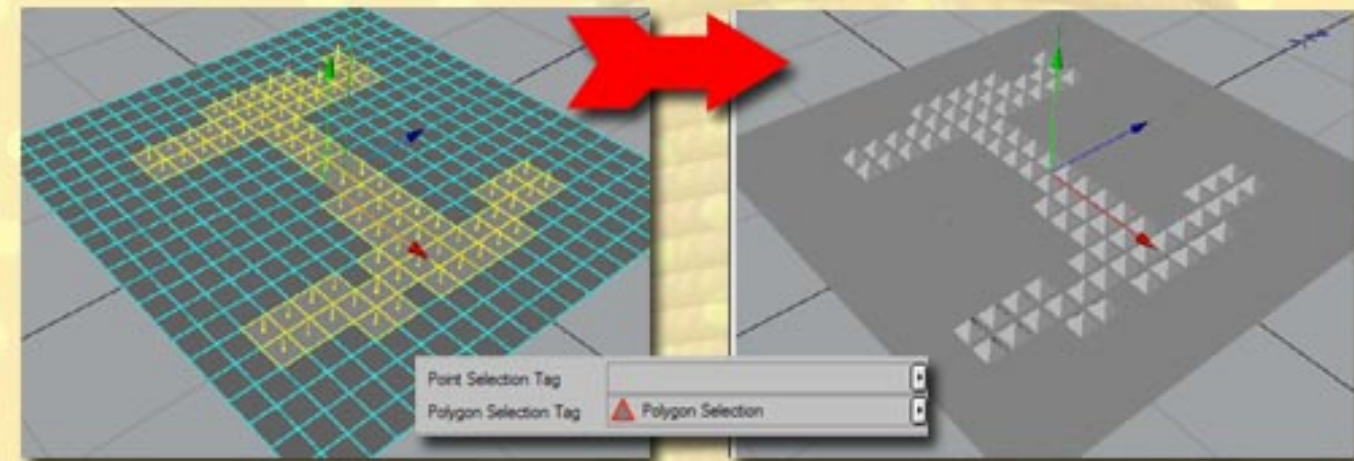
# PlaceOnPoint 2

## Selection Tags

A new feature to POP is the option to use Selection Tag to control the generation of clones. This is very useful if you wish to only have clones at a certain area of a terrain object.

Simply drag a Point Selection or a Polygon Selection into the link fields, POP will automatically use them.

Note - The Selection Tag must have been created for the Terrain object.



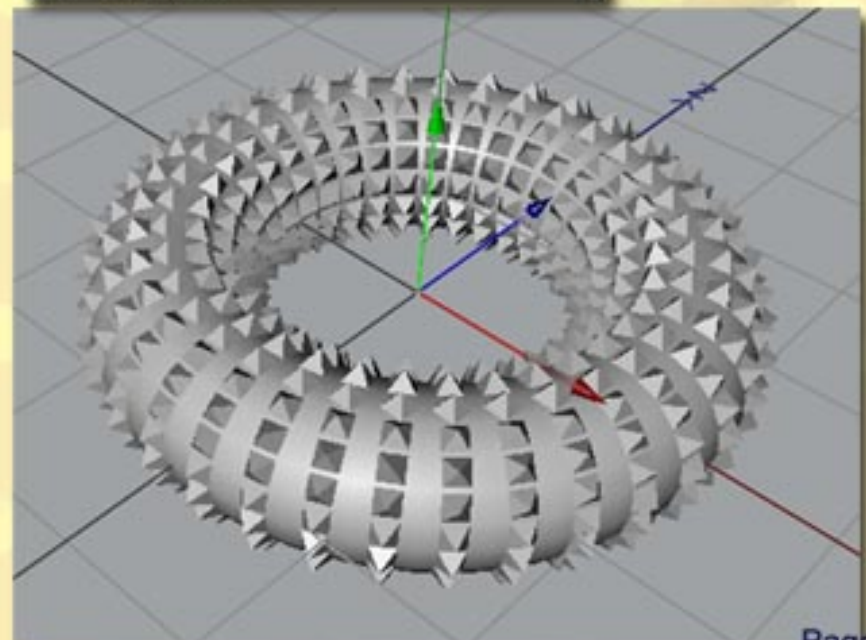
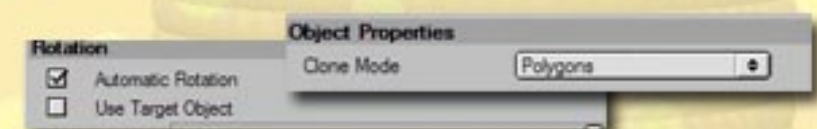
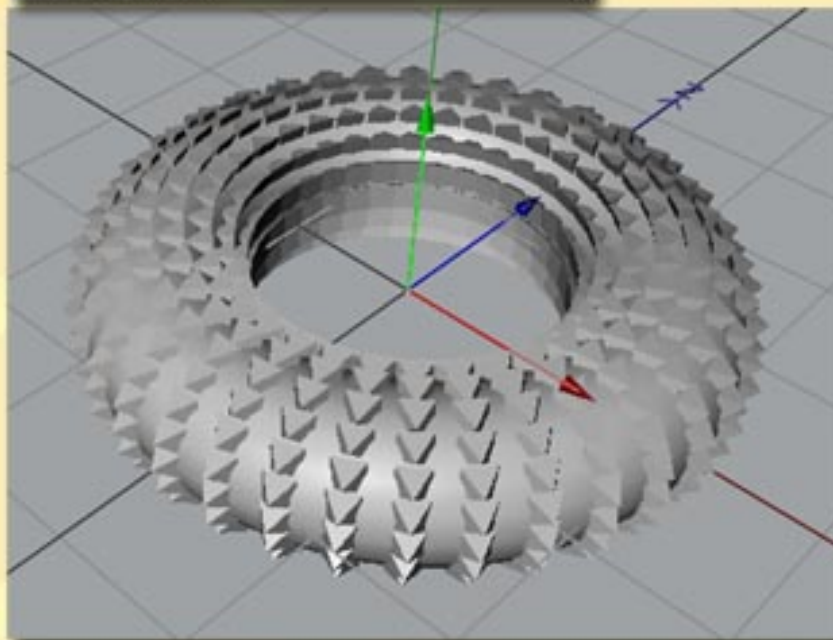
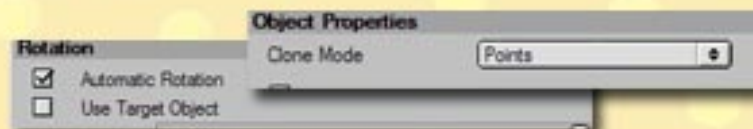
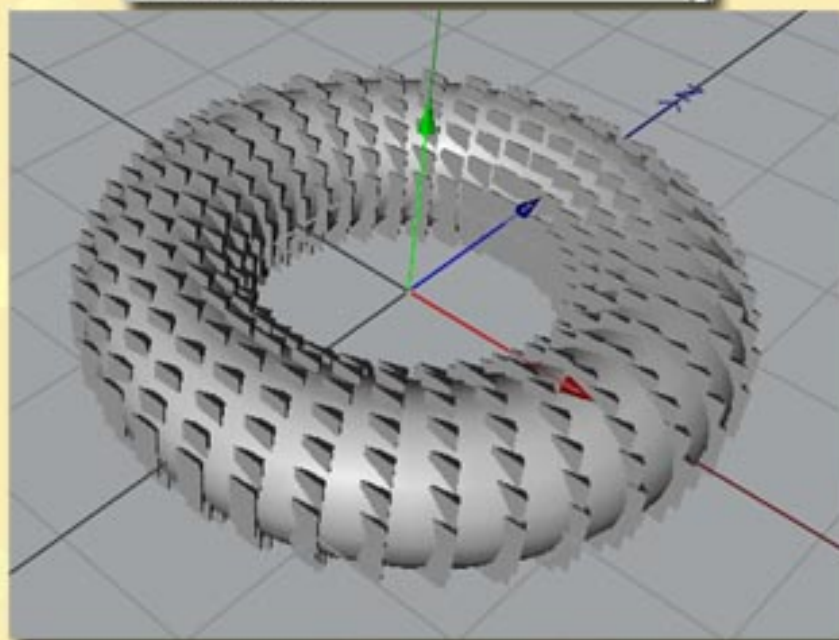
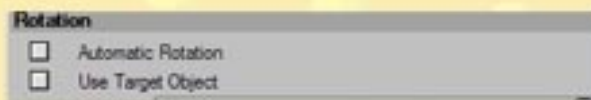
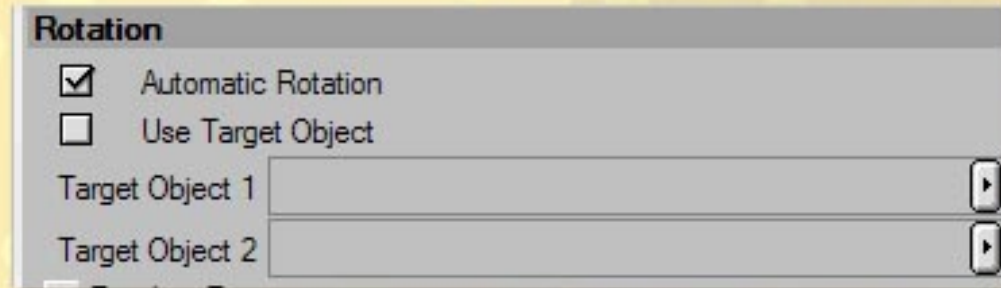
## Automatic Rotation

If Automatic Rotation is enabled, POP will attempt to automatically align the clones on the surface of the terrain object.

In Points mode, POP will approximate the orientation of the clones.

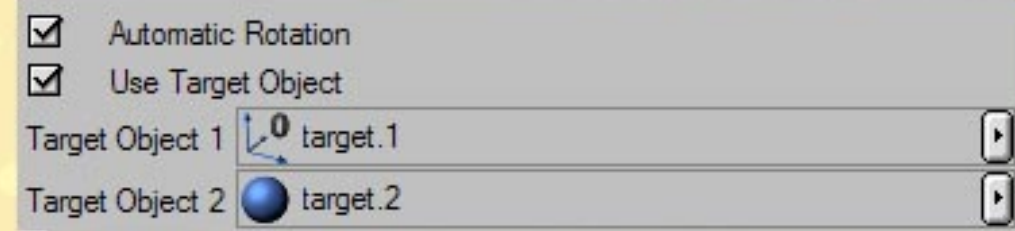
In Polygon mode, POP will use the polygons normal vector to orientate the clone.

Note - This will orientate the objects towards its Z axis.

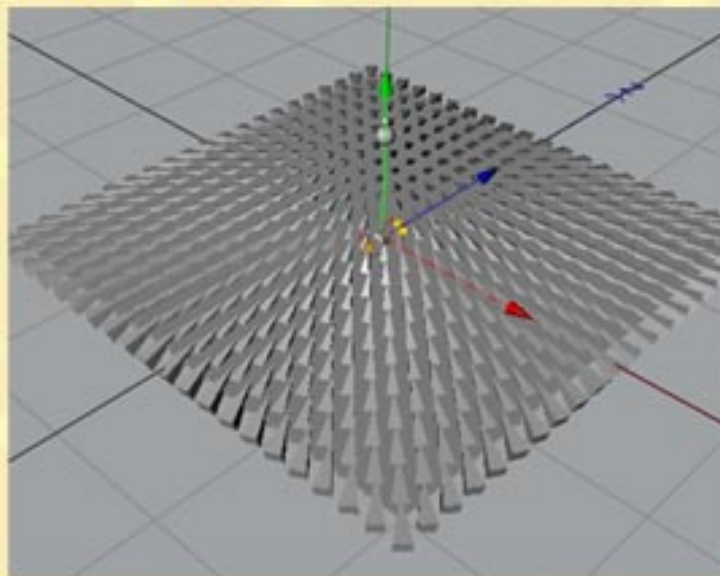


## Target Objects

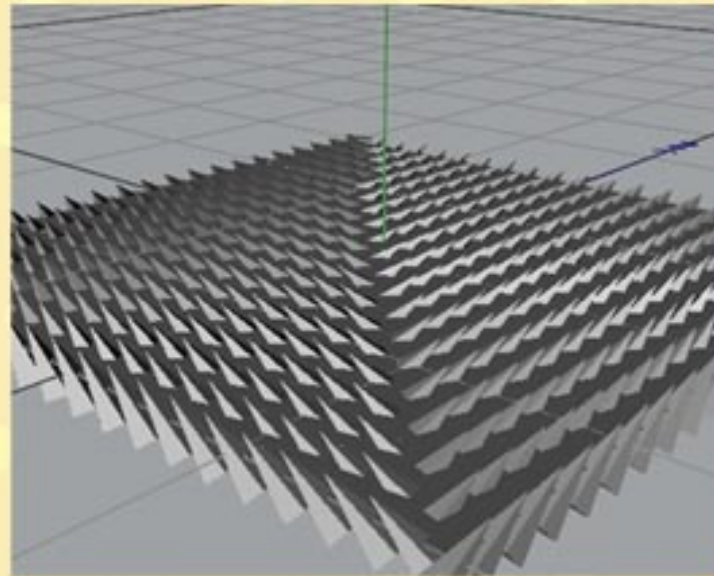
It is possible to make the clones in a POP object point to another 1 or 2 objects. This allows some interesting effects of the clones. Simply drag any type of object into the Target Object Link fields. A Clone will point towards the nearest target object it is closest to.



One Target Object

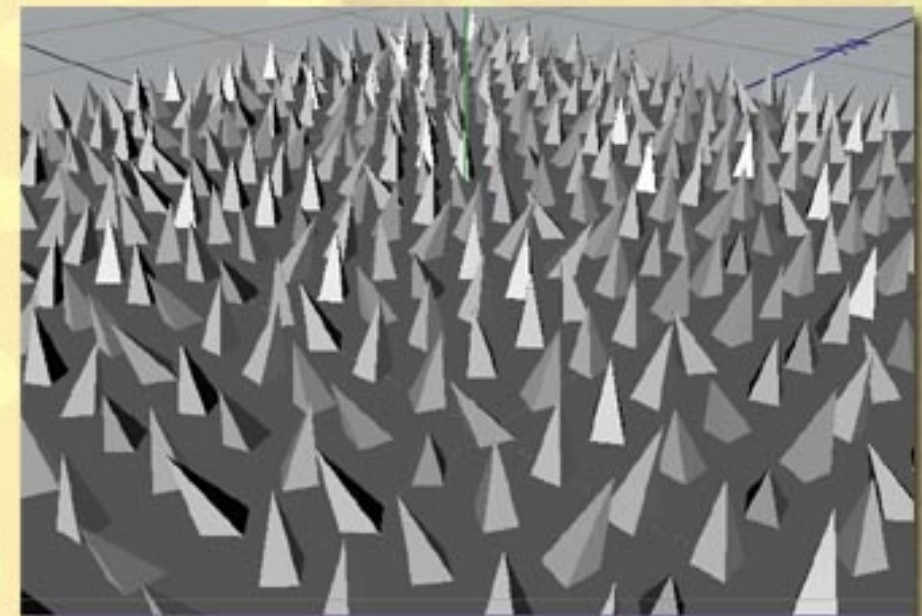
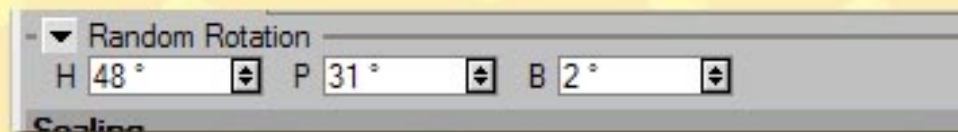


Two Target Objects



## Random Rotation

To have a bit of variety on the clones, you can give each one a random rotation on either the H, P, or B axis. Simply increase the HPB fields to apply rotation.



## Vertex Map

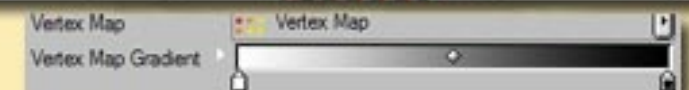
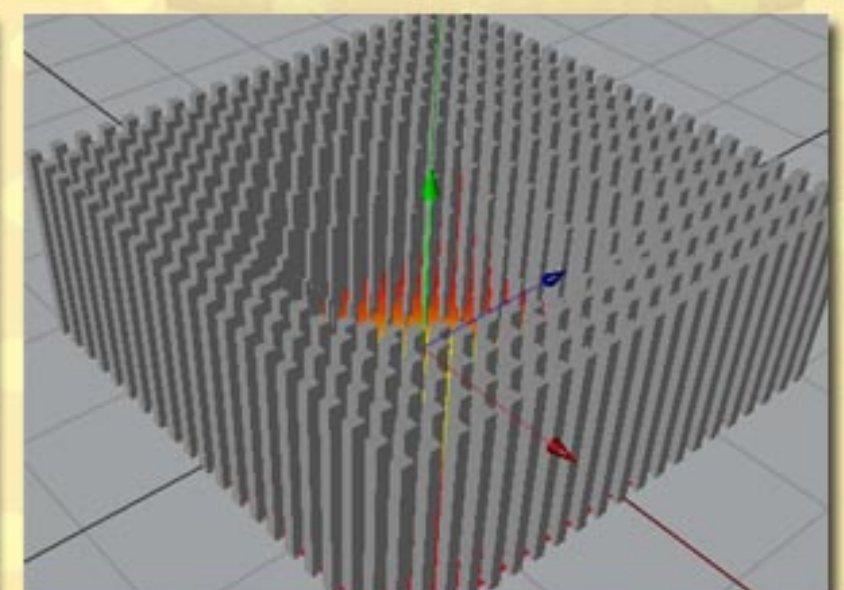
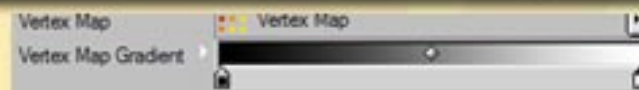
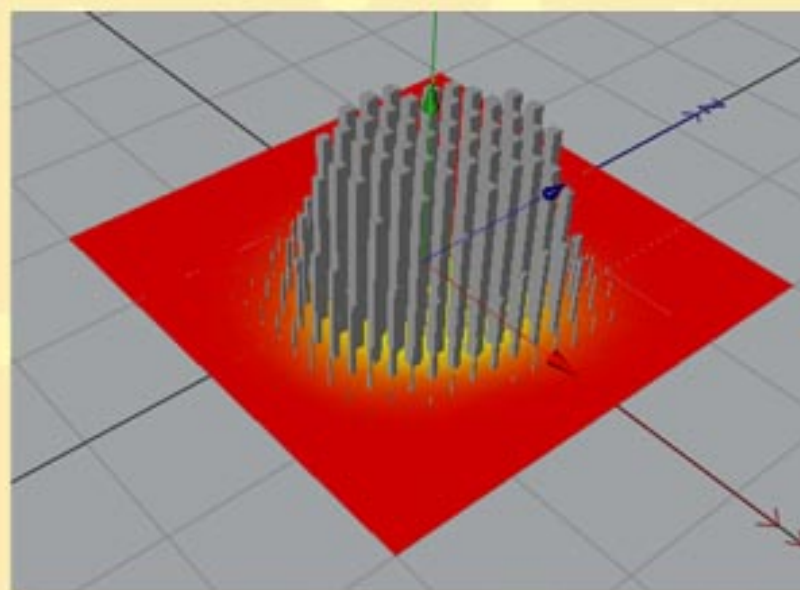
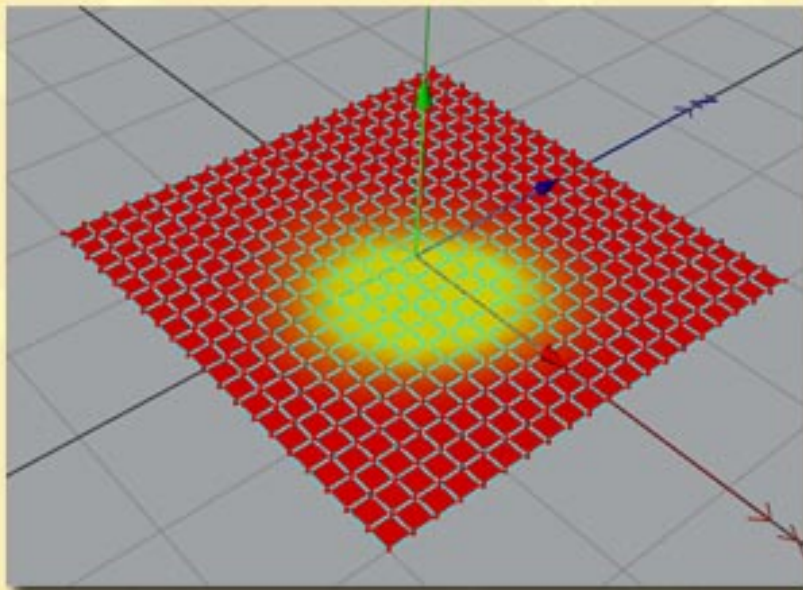
POP2 can take advantage of a vertex map to control the scale of a clone. A clone will scale depending on the vertex point value in a vertex map. The vertex map must be created on the Terrain object.

You simply have to drag a vertex map tag onto the link field in the POP Attribute Manager.

Make sure you enable Use Vertex Map to activate the calculations, otherwise POP will ignore it.

A Gradient is used to control the scaling of a vertex map. It is quite a complicated subject, but easy to understand once you have the grasp of it

The far left part of the gradient represents a vertex point with a value of 0%  
The far right part of the gradient represents a vertex point with a value of 100%  
Scaling is based off the Gradient's colour.  
Black to White, where black means no scaling and white means full scale.



## Scale Variation

This value allows you add a bit of random scaling to the clones.

Random Seed is not an important part of POP.  
It is used for all Random routines in POP. Changing will produce different results.

Random Seed 1270  
Scale Variation 100 %

## POP Tags

On some occasions you may use multiple input objects. Then what if you wanted to apply some random scale or rotation to just one input object? Its not possible without POP Tags.

To add a POP Tag, click an input object in the Object Manager, then  
File > New Expression > POP Scale Expression  
File > New Expression > POP Rotate Expression

The following pictures were created thanks to POP Tags.

